



**COSTA RICA – MEASURES CONCERNING THE IMPORTATION OF
FRESH AVOCADOS FROM MEXICO**

REPORT OF THE PANEL

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CASES CITED IN THIS REPORT

Short title	Full case title and citation
<i>Argentina – Import Measures</i>	Appellate Body Reports, <i>Argentina – Measures Affecting the Importation of Goods</i> , WT/DS438/AB/R / WT/DS444/AB/R / WT/DS445/AB/R, adopted 26 January 2015, DSR 2015:II, p. 579
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MEX-3	Resolution DSFE-11-2015	Servicio Fitosanitario del Estado de Costa Rica, Dirección Ejecutiva, Resolución DSFE-11-2015
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MEX-132	Wutscher and Maxwell (1969)	H.K. Wutscher and N.P. Maxwell, "The Effect of Sub-freezing Temperatures on Fruit Quality and Seed Viability of 'Lula' Avocado", <i>HortScience</i> , Vol. 4, No. 2 (1969), páginas 26-27
MEX-133	Spalding et al. (1976)	D.H. Spalding, R.J. Knight and W.F. Reeder, "Storage of Avocado Seeds", <i>Proceedings Florida State Horticultural Society</i> , Vol. 89 (1976), páginas 257-258
MEX-134	Memorandum CIBCM-PCDV-021-2015 (2015)	Centro de Investigación en Biología Celular y Molecular de la Universidad de Costa Rica, Oficio CIBCM-PCDV-021-2015, 6 de abril de 2015
MEX-138	Technical report 025-2015-ARP-SFE (2015)	Servicio Fitosanitario del Estado de Costa Rica, Unidad de Análisis de Riesgo de Plagas, "Informe Técnico 025-2015-ARP-SFE", 25 de mayo de 2015
MEX-139	SENASICA, Phytosanitary requirements for importation from the US, published in 2013	Servicio Nacional de Sanidad, Inocuidad y Calidad Agroalimentaria (SENASICA), Requisitos fitosanitarios para la importación de los EE.UU., publicado en 2013
MEX-151	G/SPS/48	Comité de Medidas Sanitarias y Fitosanitarias, Directrices para fomentar la aplicación práctica del artículo 6 del Acuerdo sobre la Aplicación de Medidas Sanitarias y Fitosanitarias, G/SPS/48 (16 de mayo de 2008)
MEX-172	Téliz (2015)	D. Téliz, Información sobre el viroide de la mancha de sol del aguacate (2015)
MEX-175	Saucedo Carabez et al. (2019)	J.R. Saucedo Carabez, D. Téliz Ortiz, M.R. Vallejo Pérez and H. Beltrán Peña, "The Avocado Sunblotch Viroid: An Invisible Foe of Avocado", <i>Viruses</i> , Vol. 11 (2019)
MEX-176	Trask (1948)	E.E. Trask, "Observations on the Avocado Industry in Mexico", <i>California Avocado Society Yearbook</i> 1948, Vol. 33 (1948)
MEX-181	Bernal Estrada and Díaz Diez (2008)	J.A. Bernal Estrada y C.A. Díaz Diez (eds.), <i>Tecnología para el Cultivo del Aguacate</i> (CORPOICA Centro de Investigación La Selva, Rionegro, Antioquia, Colombia, 2008)
MEX-187	Affidavit of Dr Daniel Téliz Ortiz (2019)	Declaración Jurada del Dr Daniel Téliz Ortiz, 4 de diciembre de 2019
MEX-193	Palukaitis et al. (1981)	P. Palukaitis, A.G. Rakowski, D.McE. Alexander and R.H. Symons, "Rapid indexing of the sunblotch disease of avocados using a complementary DNA probe to avocado sunblotch viroid", <i>Annals of Applied Biology</i> , Vol. 98 (1981), páginas 439-449

Exhibit	Short title	Title
MEX-221	SENASICA, Comparison of the ASBVd diagnostic protocols of Mexico and Costa Rica (2020)	Servicio Nacional de Sanidad, Inocuidad y Calidad Agroalimentaria (SENASICA), Dirección General de Sanidad Vegetal, "Opinión Técnica de los Protocolos de diagnóstico Fitosanitario para la detección de ausencia o presencia del viroide Avocado sunblotch viroid (ASBVd)", enero de 2020
MEX-222	Affidavit of Salvador Ochoa Ascencio (2020)	Declaración Jurada de Salvador Ochoa Ascencio, 23 de enero de 2020
MEX-223	APEAM, Preliminary report of sampling survey of consignments (2020)	Asociación de Productores, Empacadores y Exportadores de Aguacate de México, A.C. (APEAM) "Informe preliminar de resultados del muestreo para detectar ASBVd en aguacates frescos para consumo destinados a la exportación", enero 2020
MEX-227	Affidavit of Rodolfo de la Torre Almaraz (2020)	Declaración Jurada de Rodolfo de la Torre Almaraz, 22 de enero de 2020
MEX-233	Mexico, List of scientific evidence used in Costa Rica's PRAs	México, Relación de testimonios científicos utilizados en los ARP de Costa Rica
MEX-245	Mexico, Table on the applicability of evidence	México, Cuadro sobre la aplicabilidad de evidencia presentada por Costa Rica
MEX-263	APEAM, Final report of sampling survey of consignments (2020)	Asociación de Productores, Empacadores y Exportadores de Aguacate de México, A.C. (APEAM), "Informe final de resultados del muestreo para detectar ASBVd en aguacates frescos para consumo destinados a la exportación", marzo de 2020
MEX-286	Mexico, Avocado and coffee production in Costa Rica (2020)	México, Análisis cronológico del desarrollo tecnológico del sistema de producción de aguacate y algunos cultivos como café en Costa Rica, 20 de mayo de 2020

ABBREVIATIONS USED IN THIS REPORT

Abbreviations	Description
ALOP	Appropriate level of protection
APHIS	United States Animal and Plant Health Inspection Service
ASBVd	Avocado sunblotch viroid
CABI	Centre for Agriculture and Biosciences International
COLEACP	Europe-Africa-Caribbean-Pacific Liaison Committee
COSAVE	Plant Health Committee
CPM	Commission on Phytosanitary Measures
DNA	Deoxyribonucleic acid
DSB	Dispute Settlement Body
DSU	Understanding on Rules and Procedures Governing the Settlement of Disputes
EPPO	European and Mediterranean Plant Protection Organization
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GATT 1994	General Agreement on Tariffs and Trade 1994
GATS	General Agreement on Trade in Services
IICA	Inter-American Institute for Cooperation on Agriculture
IPPC	International Plant Protection Convention
ISPM	International Standard for Phytosanitary Measures
LDP	Pest Diagnostic Laboratory
MAG	Ministry of Agriculture and Livestock of Costa Rica
masl	Metres above sea level
NAPPO	North American Plant Protection Organization
NPPO	National Plant Protection Organization
OIRSA	International Regional Organization for Plant and Animal Health
PFA	Pest-free area
PRA	Pest risk analysis
RNA	Ribonucleic acid
RPPO	Regional Plant Protection Organization
RT-PCR	Reverse transcriptase – polymerase chain reaction
SAGARPA	Ministry of Agriculture and Rural Development
SENASICA	National Health, Food Safety and Agri-food Quality Service of Mexico
SFE	State Phytosanitary Service of Costa Rica
Single FTA	Free Trade Agreement between the United Mexican States and the Republics of Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua
SPS	Sanitary and Phytosanitary
SPS Agreement	Agreement on the Application of Sanitary and Phytosanitary Measures
UARP	Pest Risk Analysis Unit
UCR	University of Costa Rica
US	United States of America
USD	United States dollars
USDA	United States Department of Agriculture
Vienna Convention	Vienna Convention on the Law of Treaties, signed in Vienna, 23 May 1969, United Nations document A/CONF.39/27
WTO	World Trade Organization
WTO Agreement	Marrakesh Agreement Establishing the World Trade Organization

1 INTRODUCTION

1.1. The present dispute concerns certain measures imposed by Costa Rica on the importation of fresh avocados for consumption from Mexico, related to Avocado sunblotch viroid (ASBVd).

1.1 Complaint by Mexico

1.2. On 8 March 2017, Mexico requested consultations with Costa Rica pursuant to Articles 1 and 4 of the Understanding on Rules and Procedures Governing the Settlement of Disputes (DSU), Article XXII of the General Agreement on Tariffs and Trade 1994 (GATT 1994), and Article 11.1 of the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement), with respect to the measures and claims set out below.¹

1.3. Consultations were held on 26 and 27 April 2017, but failed to resolve the dispute.²

1.2 Panel establishment and composition

1.4. On 22 November 2018, Mexico requested the establishment of a panel pursuant to Articles 4.7 and 6 of the DSU, Article XXIII of GATT 1994, and Article 11.1 of the SPS Agreement with standard terms of reference.³ At its meeting on 18 December 2018, the Dispute Settlement Body (DSB) established a panel pursuant to the request of Mexico in document WT/DS524/2, in accordance with Article 6 of the DSU.⁴

1.5. The Panel's terms of reference are as follows:

To examine, in the light of the relevant provisions of the covered agreements cited by the parties to the dispute, the matter referred to the DSB by Mexico in document WT/DS524/2 and to make such findings as will assist the DSB in making the recommendations or in giving the rulings provided for in those agreements.⁵

1.6. On 16 May 2019, the parties agreed that the Panel would be composed as follows:

Chair: Mr Gary HORLICK

Members: Mr Alejandro BUVINIC
Ms María de Lourdes FONALLERAS

1.7. Canada, China, El Salvador, the European Union, Honduras, India, Panama, the Russian Federation and the United States notified their interest in participating in the Panel proceedings as third parties.

1.3 Panel proceedings

1.3.1 General

1.8. In order to hear the views of the parties on the Working Procedures and timetable, the Panel held an organizational meeting on 5 July 2019. The Panel adopted its Working Procedures⁶ and timetable on 16 July 2019.⁷

1.9. The Panel received Mexico's first written submission on 9 August 2019 and Costa Rica's first written submission on 25 September 2019. The Panel received third party written submissions from Canada and the European Union on 8 October 2019.

¹ Mexico's request for consultations, WT/DS524/1.

² Request for establishment of a panel by Mexico, WT/DS524/2 (Mexico's panel request), p.1.

³ Mexico's panel request, WT/DS524/2, p. 1.

⁴ DSB, Minutes of Meeting held on 18 December 2018, WT/DSB/M/423.

⁵ Constitution of the Panel established at the request of Mexico, WT/DS524/3.

⁶ See the Working Procedures of the Panel (Annex A-1).

⁷ The Panel amended its timetable, at the request of or in consultations with the parties, on multiple occasions, most recently on 8 February 2022.

1.10. The Panel sent advanced written questions to the parties and to the third parties on 22 October 2019 and held its first meeting with the parties on 29 and 30 October 2019. A session with the third parties took place on 30 October 2019. The Panel then sent written questions to the parties and third parties on 1 November 2019. Mexico also sent written questions to Costa Rica on the same date.

1.11. Canada, El Salvador and the European Union sent their responses to the Panel's questions on 22 November 2019.

1.12. On 28 November 2019, the parties requested that the Panel extend the deadline for the submission of their written responses to the questions posed by the Panel and by the other party from 29 November 2019 to 6 December 2019. The Panel agreed to the parties' request, and the parties submitted their responses on 6 December 2019.

1.13. On 24 January 2020, the Panel received the parties' second written submissions.

1.14. Since March 2020, the COVID-19 pandemic, and the measures taken in response to this disease in Switzerland, in each party's territory and in the countries of residence of the panelists and of the experts advising the panelists, called into question the subsequent dates on the timetable, including the dates proposed for the Panel's meeting with the parties and experts and for the Panel's second meeting with the parties.

1.15. On 17 April 2020, the Panel informed the parties that it was assessing the situation caused by the pandemic and that it would contact them again in due course. The Panel also invited the parties to comment on this matter, if they so wished.

1.16. On 6 May 2020, Costa Rica requested that the Panel postpone its meeting with the parties and experts and its second meeting with the parties, scheduled for 2 and 5 June 2020, as it would not be able to complete the necessary formalities to travel to Geneva as a result of the pandemic.

1.17. On 11 May 2020, Mexico indicated that it could agree to Costa Rica's request. Mexico also indicated that ideally the meetings would be held in person as originally planned, but stressed the importance of obtaining a ruling as soon as possible. Mexico stated that, if the evolution of the pandemic did not allow for the remaining meetings to be held as originally planned in the next four months, it would review the matter again and explore alternatives for holding those meetings.

1.18. On 14 May 2020, the Panel informed the parties that its meeting with the parties and experts and its second meeting with the parties were to be postponed until further notice, and that it would continue to monitor the situation caused by the pandemic.

1.19. On 29 May 2020, Mexico and Costa Rica sent a communication to the DSB Chair, stating that both parties had agreed on Procedures for Arbitration under Article 25 of the DSU for this dispute.⁸

1.20. On 9 October 2020, the Panel informed the parties that it was still impossible to hold its meeting with them and the experts and its second meeting with the parties in person, because of the situation caused by the pandemic, including ongoing travel restrictions and the health risks associated with travelling and attending large meetings. The Panel therefore invited the parties to express their views on possible alternatives to move proceedings forward and hold the remaining meetings, including through virtual means, in writing, or using a combination of both.

1.21. On 16 October 2020, the parties sent their comments on possible alternatives to move proceedings forward and hold the remaining meetings. Mexico indicated that the virtual communication methods available to it would allow the remaining meetings to be held virtually. For its part, Costa Rica stated that the most appropriate format for the Panel's second meeting with the parties was a hybrid one, whereby the parties could meet at the WTO in Geneva, and all those who could not be physically present could participate virtually. Costa Rica also stated that it would prefer the Panel's meeting with the parties and experts to be conducted in writing, and suggested that the remaining meetings should be held separately, with a minimum of two weeks between the meetings.

⁸ Agreed Procedures for Arbitration under Article 25 of the DSU, WT/DS524/5.

1.22. On 20 October 2020, the parties submitted their comments on the other party's comments concerning possible alternatives to move proceedings forward and hold the remaining meetings. Mexico said that there was no compelling reason for the meetings to be held at least two weeks apart, and indicated that, should the Panel meet in person in Geneva to participate in the meetings, the format should be entirely virtual for both parties. Costa Rica requested that, should the Panel adopt alternative procedures, these should be in line with the provisions of its Working Procedures, and reserved the right to comment on them.

1.23. The Panel gave careful consideration to the parties' comments, the technological tools available to them, the situation caused by the pandemic and the availability of both the panelists and the experts.

1.24. On 28 October 2020, the Panel informed the parties that it wished to hold both meetings virtually (through the Cisco Webex platform). The Panel also stated that it wished to move proceedings forward in a manner that resembled as much as possible how they would have unfolded if the world were not in the midst of a pandemic, without having to change the Working Procedures that had already been adopted, or making only minimal changes, while at the same time striving to respond to the challenges arising from the situation.

1.25. The Panel noted that, owing to the participants' time differences and the limitations inherent to a virtual meeting, eight working days would be required for both its meeting with the parties and experts and its second meeting with the parties. The Panel advised that it had been impossible to find eight consecutive working days on which all the participants were available to attend those meetings. Therefore, the Panel was of the opinion that the best approach would be to separate both meetings, as this would be the only way to proceed with at least one of them (the Panel's meeting with the parties and the experts) before the end of 2020. The Panel noted that none of the panelists would be able to travel to Geneva because of the pandemic.

1.26. On 4 November 2020, the Panel proposed a draft of Additional Working Procedures of the Panel on meetings with remote participants to the parties, indicating that the idea behind these procedures was to supplement, rather than change, the Working Procedures of the Panel and the Additional Working Procedures of the Panel for consultations with experts. The Panel clarified that the aim of the Additional Working Procedures of the Panel on meetings with remote participants was to ensure that the meetings were conducted in a manner that resembled as much as possible in-person meetings, albeit by virtual means.

1.27. On 12 November 2020, the Panel sent the adopted Additional Working Procedures of the Panel on meetings with remote participants to the parties, after considering the comments and views of the parties thereon.⁹ The Panel announced that those Additional Working Procedures would apply both to its meeting with the parties and experts and to its second meeting with the parties.

1.28. As described below, the Panel's meeting with the parties and experts was held virtually on 15 and 18 December 2020.

1.29. The Panel's second meeting with the parties was held on 9 and 11 March 2021, also virtually. The Panel sent advanced written questions to the parties on 1 March 2021 and written question after the meeting on 17 March 2021. On 14 April 2021, the parties sent their responses to the Panel's questions. On 28 April 2021, the parties sent their comments on the other party's responses to the Panel's questions.

1.30. On 26 May 2021, the Panel issued the descriptive part of its Report to the parties. The parties sent their comments on the descriptive part of the Report on 9 June 2021.

1.3.2 Costa Rica's request for a preliminary ruling

1.31. In its first written submission, dated 25 September 2019, Costa Rica raised a preliminary issue with respect to Mexico's claim that the actions of Costa Rica had been inconsistent with Article 6.1 of the SPS Agreement. Costa Rica considered that Mexico's claim concerning the

⁹ Additional Working Procedures of the Panel on meetings with remote participants, in Annex A-3.

adaptation of Costa Rica's measures to the areas of origin of the product was outside the Panel's terms of reference.¹⁰

1.32. Pursuant to paragraph 4(1)(a) of the adopted Working Procedures¹¹, the Panel provided Mexico with an opportunity to respond to Costa Rica's preliminary ruling request prior to the Panel's first meeting with the parties. Mexico submitted its response to Costa Rica's request on 15 October 2019. Both parties had an opportunity to comment on Costa Rica's preliminary ruling request at the Panel's first meeting with the parties. Pursuant to paragraph 4(1)(d) of the adopted Working Procedures¹², the Panel also provided third parties with an opportunity to comment on Costa Rica's preliminary ruling request. Canada commented as a third party on 22 October 2019.

1.33. The Panel issued its preliminary ruling on 18 December 2019. In its findings, the Panel indicated that the preliminary ruling would become an integral part of the Panel Report. This preliminary ruling can therefore be found in Annex D of the Addendum.

1.3.3 Consultation of experts and international organizations

1.34. As the parties' arguments involved complex scientific or technical issues, to ensure conformity with its terms of reference and in accordance with Article 11.2 of the SPS Agreement and Article 13 of the DSU, the Panel consulted scientific or technical experts and the Secretariat of the International Plant Protection Convention (IPPC).

1.3.3.1 Panel decision to consult individual experts and the IPPC Secretariat

1.35. At the organizational meeting held on 5 July 2019, the Panel Chair asked for the parties' initial views on the need to consult experts in this dispute. The Panel Chair also requested the parties' comments on the proposed Additional Working Procedures of the Panel for consultations with experts. The parties had an opportunity to express their views both at the organizational meeting and in writing on 8 July 2019.

1.36. On 25 September 2019, after receiving the parties' first written submissions, the Panel sent a communication to the parties inviting them to express their views on the possibility of seeking scientific or technical advice from individual experts and/or international organizations, as well as on the considerations that should guide the Panel in making its decision.¹³

1.37. The Panel also sought the parties' views, should it decide to seek scientific and/or technical advice from experts and/or international organizations, on: (i) specific issues where they considered that input from experts and/or international organizations would be beneficial; (ii) international or regional organizations or other potential relevant research institutions or bodies, in addition to the IPPC Secretariat, whose assistance the Panel could seek in order to obtain names of potential individual experts; (iii) the profiles of individual experts (for example, their experience and qualifications) that would be more useful or relevant to the dispute; (iv) international or regional organizations or other potentially relevant research institutions or bodies, in addition to the IPPC Secretariat, whose scientific or technical advice the Panel could seek; and (v) the type of consultation that should be used (i.e. written, oral or both types of consultation).¹⁴

1.38. On 8 October 2019, in its response to the Panel, Mexico stated that it had no objection to the Panel's use of individual experts and international organizations¹⁵; and that the Panel's main consideration should be that the dispute was fundamentally about scientific and technical issues.¹⁶ Mexico added that the parties had presented arguments and raised issues of fact that were

¹⁰ Costa Rica's first written submission, paras. 4.1-4.18.

¹¹ The relevant part of paragraph 4(1)(a) provides that "Mexico shall submit its response to the request prior to the substantive meeting of the Panel, at a time to be determined by the Panel in light of the request".

¹² The relevant part of paragraph 4(1)(d) provides that "[t]he Panel may provide all third parties with an opportunity to provide comments on any such request, either in their submissions as provided for in the timetable or separately".

¹³ Letter from the Panel to the parties, dated 25 September 2019.

¹⁴ Letter from the Panel to the parties, dated 25 September 2019.

¹⁵ Letter from Mexico to the Panel, dated 8 October 2019, para. 5.

¹⁶ Letter from Mexico to the Panel, dated 8 October 2019, para. 6.

contradictory and, therefore, having impartial and technically justified views would help guide the Panel's deliberations.¹⁷

1.39. Mexico considered that it would be beneficial to have input from experts and/or international organizations on the following specific issues in the dispute: (i) the nature, characteristics and types of ASBVd; (ii) assessment of phytosanitary risk; (iii) determination of the presence or absence of a pest in an area; (iv) quarantine nature of the pest and economic importance; (v) diversion from intended use in a risk assessment; (vi) ASBVd routes of transmission; (vii) evaluation of the entry, establishment and spread of ASBVd; and (viii) methods of detection and characterization of ASBVd.¹⁸ Mexico also stated that the expert profiles that would be most useful and relevant to the dispute would include those with proven experience in studies related to agricultural sciences, plant virology, phytopathology and, in particular, avocado diseases.¹⁹

1.40. Mexico identified the North American Plant Protection Organization (NAPPO) and the Inter-American Institute for Cooperation on Agriculture (IICA) as other organizations, in addition to the IPPC Secretariat, whose assistance the Panel could seek in order to obtain names of individual experts, and whose scientific or technical advice it could also seek directly.²⁰

1.41. Costa Rica, however, stated that, in its view, there were no specific issues that warranted the Panel using experts and that it was up to the Panel, and not to any technical or scientific expert, to settle this matter, which Costa Rica considered to be of a highly legal nature. Costa Rica added that, should the Panel decide to seek scientific or technical advice, it hoped that the relevant steps would be taken to ensure that the experts met the requirements of independence and impartiality needed to fulfil their task, and assumed that due process would be respected in the relevant consultations and that the proposed Additional Working Procedures of the Panel for consultations with experts would be followed.²¹

1.42. On 18 October 2019, the Panel informed the parties of its decision on the need to seek scientific or technical advice from individual experts and/or relevant international organizations or bodies.

1.43. The Panel noted that Article 13.1 of the DSU gives panels "the right to seek information and technical advice from any individual or body which it deems appropriate"; that this right is of a broad nature²²; and that Article 11.2 of the SPS Agreement provides that in a dispute under this Agreement involving scientific or technical issues, the panel should seek advice from experts chosen by the panel in consultation with the parties to the dispute.²³

1.44. The Panel also pointed out that, in addition to the right to seek information and technical advice, panels have, under Article 11 of the DSU, a duty to make an objective assessment of the matter before it, including an objective assessment of the facts of the case.²⁴

1.45. The Panel observed that the facts of the present dispute involved scientific and technical issues on which the panelists lacked expertise.²⁵ Therefore, in order to be able to make an objective assessment of the facts of the case, the Panel would require advice from experts to assist it with the analysis and assessment of the relevant scientific and technical issues.²⁶

¹⁷ Letter from Mexico to the Panel, dated 8 October 2019, para. 6.

¹⁸ Letter from Mexico to the Panel, dated 8 October 2019, para. 7.

¹⁹ Letter from Mexico to the Panel, dated 8 October 2019, para. 9.

²⁰ Letter from Mexico to the Panel, dated 8 October 2019, para. 8.

²¹ Letter from Costa Rica to the Panel, dated 8 October 2019.

²² Appellate Body Report, *US – Shrimp*, paras. 104 and 106.

²³ Panel decision on the need to seek scientific or technical advice from individual experts and/or relevant international organizations or bodies, dated 18 October 2019, para. 2.1.

²⁴ Panel decision on the need to seek scientific or technical advice from individual experts and/or relevant international organizations or bodies, dated 18 October 2019, para. 2.2.

²⁵ Panel decision on the need to seek scientific or technical advice from individual experts and/or relevant international organizations or bodies, dated 18 October 2019, para. 2.3.

²⁶ Panel decision on the need to seek scientific or technical advice from individual experts and/or relevant international organizations or bodies, dated 18 October 2019, para. 2.4.

1.46. In light of the foregoing, the Panel decided to seek scientific or technical advice from individual experts, through written and oral consultations²⁷, on the following areas:

- a. Techniques for growing, producing, transporting, storing and marketing avocados, including their propagation from seeds discarded following consumption, both naturally and as a result of diversion from intended use.
- b. The nature, characteristics and types of ASBVd, including the pathways and likelihood of entry, establishment and spread; its geographical prevalence; its seasonality and climate susceptibility; its effects on avocado trees and fruit; its economic importance and its categorization as a quarantine pest; methods for detecting its presence or absence in an area; possible methods for its control, management and eradication.
- c. Phytosanitary risk assessment methods and techniques, including types of investigation, sources of information, scientific method, and criteria on reliability and validity of findings.
- d. The meaning, scope and application of the International Standards for Phytosanitary Measures (ISPMs).²⁸

1.47. Lastly, the Panel adopted the Additional Working Procedures of the Panel for consultations with experts with the amendments it considered appropriate in light of the parties' comments.^{29, 30}

1.3.3.2 Panel selection of individual experts

1.48. In its decision of 18 October 2019, the Panel informed the parties that it would seek the assistance of the IPPC Secretariat, of the NAPPO (directly or through the IPPC) and of the IICA to obtain names of potential experts.³¹ The Panel also invited the parties to submit an agreed list of experts, if they so wished, by the end of its first meeting with the parties.³²

1.49. On 22 October 2019, the Panel contacted the IPPC Secretariat, NAPPO and the IICA, seeking assistance to identify potential experts. While the IICA stated that it had not been able to obtain any names of potential experts, NAPPO and the IPPC Secretariat provided some names.³³

1.50. On 27 November 2019, after informing the parties, the Panel requested assistance from some other regional organizations operating within the framework of the IPPC (the European and Mediterranean Plant Protection Organization (EPPO), the International Regional Organization of Plant and Animal Health (OIRSA) and the Plant Health Committee (COSAVE)) for additional names of potential experts. EPPO, OIRSA and COSAVE provided some additional names.³⁴

1.51. Between November 2019 and January 2020, the Panel contacted each of the 19 potential experts who had been suggested, in order to determine whether they would be interested and available to advise the Panel in this dispute and, if so, to collect the relevant documentation. On 16 January 2020, the Panel sent the parties a list of the names of all the persons who had been contacted, identifying the 15 potential experts who had confirmed their interest and

²⁷ Panel decision on the need to seek scientific or technical advice from individual experts and/or relevant international organizations or bodies, dated 18 October 2019, para. 2.5.

²⁸ Panel decision on the need to seek scientific or technical advice from individual experts and/or relevant international organizations or bodies, dated 18 October 2019, para. 2.6.

²⁹ Panel decision on the need to seek scientific or technical advice from individual experts and/or relevant international organizations or bodies, dated 18 October 2019, para. 3.3.

³⁰ Additional Working Procedures of the Panel for consultations with experts, in Annex A-2.

³¹ Panel decision on the need to seek scientific or technical advice from individual experts and/or relevant international organizations or bodies, dated 18 October 2019, para. 2.9.

³² Panel decision on the need to seek scientific or technical advice from individual experts and/or relevant international organizations or bodies, dated 18 October 2019, para. 2.10.

³³ Email from the IICA, dated 18 November 2019; from NAPPO, dated 4 November 2019; and from the IPPC Secretariat, dated 5 December 2019.

³⁴ Email from EPPO, dated 12 December 2019; from OIRSA, dated 13 December 2019; and from COSAVE, dated 13 December 2019.

availability to assist the Panel. The Panel also provided the relevant documentation that had been gathered.³⁵

1.52. Pursuant to paragraph 4 of the Additional Working Procedures of the Panel for consultations with experts³⁶, the Panel provided the parties with an opportunity to comment in writing and to make known any compelling objections to any particular expert. The Panel received the parties' comments on 31 January 2020 and the parties' comments on the other party's comments on 7 February 2020.

1.53. On 14 February 2020, the Panel issued its decision on the selected experts. Pursuant to paragraph 5 of the Additional Working Procedures of the Panel for consultations with experts³⁷, and in consideration of both parties' comments, the Panel chose Prof Dr Ricardo Flores Pedauy ³⁸, Mr Pablo Cortese³⁹ and Mr Robert L. Griffin⁴⁰ as experts to provide scientific or technical advice in this dispute.⁴¹

³⁵ This documentation included: their curricula vitae, lists of publications, and statements of potential conflicts of interest of those who had indicated that they would be interested and available to participate in the proceedings.

³⁶ Paragraph 4 of the Additional Working Procedures of the Panel for consultations with experts states: "[p]arties shall have the opportunity to comment and to make known any compelling objections to any particular expert."

³⁷ Paragraph 5 of the Additional Working Procedures of the Panel for consultations with experts states: "The Panel shall select the experts on the basis of their qualifications and the need for specialized scientific expertise, and shall not select experts whom the Panel considers to have a conflict of interest either after self-disclosure or otherwise. The Panel shall decide the number of experts in light of the number and type of issues on which advice shall be sought, as well as of the different areas on which each expert can provide expertise."

³⁸ The late Professor Dr Ricardo Flores Pedauy  was a research professor with the Department of Molecular and Evolutionary Plant Virology at the Institute of Molecular and Cellular Plant Biology (IBMCP) of the Spanish National Research Council (CSIC) in Valencia, Spain. In addition to having held various teaching positions, Ricardo Flores Pedauy  conducted various scientific studies, published numerous articles on virology issues, including ASBVd. and participated in many national and international conventions and conferences. He supervised pre-doctorate, doctoral and post-doctorate theses, and was, *inter alia*, vice president of the Spanish Society for Virology, chair of the Viroids Study Group of the International Committee on Taxonomy of Viruses, advisor on viroids to the United States' National Center for Biotechnology Information, editor and reviewer of various journals, and assessor of various scientific units.

³⁹ Mr Pablo Luis Cortese, agricultural engineer and holder of a Master's degree in plant protection, is currently the Director of Phytosanitary Strategic Information at the National Agriculture and Food Quality and Health Service (SENASA) of Argentina, and Associate Professor and Chair of Plant Protection at the Faculty of Agronomy of the University of Buenos Aires. He also served as the National Coordinator of the National Citrus Health Programme of the Plant Health Directorate at SENASA. Pablo Cortese has authored various publications on surveillance and has experience of governance at the national, regional and international levels, having been involved, *inter alia*, in the development and coordination of programmes for phytosanitary surveillance, prevention and management of agricultural pests; the development of operational and technical manuals in the field of plant protection; the development of traceability systems; and the design and coordination of information systems and databases. Pablo Cortese also represents Argentina in the MERCOSUR Plant Health Commission, has been a member of expert groups of COSAVE and in the framework of the IPPC, and has acted as a consultant with the IICA and the IPPC.

⁴⁰ Robert Lee Griffin, biologist and holder of a Master's degree in plant pathology, has been the National Coordinator for Agriculture Quarantine Inspection at the United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Plant Protection and Quarantine, in North Carolina, United States. He held various posts at the USDA APHIS, including Director of the Plant Epidemiology and Risk Analysis Laboratory (PERAL) at the USDA APHIS Center for Plant Health Science and Technology. Robert Griffin also served as Coordinator of the IPPC Secretariat, where he oversaw the Secretariat's leadership and management in implementing the work programme for global harmonization, and was responsible for the creation and adoption of ISPM Nos. 6-24; the establishment of the IPPC information exchange programme; the IPPC dispute settlement mechanism; phytosanitary technical assistance programmes; and for representing the IPPC at meetings of the WTO Committee on Sanitary and Phytosanitary Measures.

⁴¹ Panel decision on selected experts and on the need to seek scientific or technical advice from relevant international organizations or bodies, dated 14 February 2020, para. 2.2.

1.54. In its decision, the Panel noted that both parties considered Ricardo Flores Pedauy  and Pablo Cortese to be viable or suitable choices for consultation by the Panel.⁴² Robert L. Griffin was not deemed an acceptable expert by Costa Rica because, in its view, his understanding of Spanish was limited.⁴³ Mexico, however, considered the potential experts' technical and scientific knowledge to be the most important factor, rather than their proficiency in Spanish.⁴⁴ The Panel considered Robert L. Griffin to be an expert with the necessary experience and qualifications to advise the Panel, as he had indicated that he could fully understand written Spanish, including technical material, and that he could write and speak in Spanish at a conversational level.⁴⁵ Moreover, the Panel indicated that the parties would be provided with Spanish translations of Robert L. Griffin's responses, as well as interpretation from Spanish to English and from English to Spanish at the Panel's meeting with the parties and experts.⁴⁶

1.55. On 7 February 2020, the Panel informed the parties that it had decided to seek assistance from two bodies that work with the IPPC Secretariat, the Centre for Agriculture and Biosciences International (CABI) and the Europe-Africa-Caribbean-Pacific Liaison Committee (COLEACP), and from the two experts who had not been challenged by either party, to nominate potential additional scientific or technical experts who could also advise on area "a" (techniques for growing, producing, transporting, storing and marketing avocados). This was because both parties had rejected all the experts who had claimed to be knowledgeable in area "a". On 10 February 2020, the Panel also invited the parties to suggest names of potential additional individual experts, if they so wished.

1.56. On 10 February 2020, the Panel contacted COLEACP, CABI and the two experts who had not been challenged by either party, Ricardo Flores Pedauy  and Pablo Cortese, seeking their assistance with names of potential additional individual experts. COLEACP and Ricardo Flores Pedauy  gave the Panel the names of two potential additional experts.⁴⁷ The Panel contacted both of them.

1.57. On 13 February 2020, the Panel sent the relevant documentation from the two suggested experts to the parties and provided the parties with an opportunity to comment in writing and to make known any compelling objections. Mexico also sent a list nominating seven potential additional experts on 13 February 2020, and the Panel invited Costa Rica to comment. On 17 February 2020, the Panel received the parties' comments on the suggested additional experts.

1.58. On 19 February 2020, the Panel issued a decision in which it chose Dr Fernando Pliego Alfaro⁴⁸ as the fourth expert to provide it with scientific or technical advice in this dispute. In its decision, the Panel noted that Mexico considered the appointment of Fernando Pliego Alfaro to be viable and that, while Costa Rica had stated that three experts would be sufficient, it would be willing to withdraw its reservations concerning Fernando Pliego Alfaro since he had the required experience. The Panel considered that the four selected experts would enable it to

⁴² Panel decision on selected experts and on the need to seek scientific or technical advice from relevant international organizations or bodies, dated 14 February 2020, para. 2.3.

⁴³ Letter from Costa Rica to the Panel, dated 31 January 2020.

⁴⁴ Letter from Mexico to the Panel, dated 7 February 2020.

⁴⁵ Panel decision on selected experts and on the need to seek scientific or technical advice from relevant international organizations or bodies, dated 14 February 2020, para. 2.5.

⁴⁶ Panel decision on selected experts and on the need to seek scientific or technical advice from relevant international organizations or bodies, dated 14 February 2020, para. 2.6.

⁴⁷ Email from COLEACP, dated 10 February 2020; and from Ricardo Flores Pedauy , dated 10 February 2020.

⁴⁸ Professor Dr Fernando Pliego Alfaro is an expert in the development and use of biotechnological tools for the genetic enhancement of plants, as a complementary strategy to conventional enhancement programmes. With regard to avocados, he has undertaken studies on in vitro propagation and rooting, as well as zygotic embryogenesis, both in vivo and in vitro. His work has served as the basis for the establishment of protocols for the micropropagation of trees selected in the field for their resistance to *Rosellinia necatrix*, as well as protocols for plant regeneration via somatic embryogenesis and genetic transformation. Prof Dr Pliego Alfaro has been responsible for various research projects on the in vitro regeneration of avocados and other woody species, the results of which have been presented at various international conventions and have given rise to numerous publications. Prof Dr Pliego Alfaro is currently Chair of Plant Physiology of the Department of Botany and Plant Physiology of the Faculty of Science at the University of M laga, Spain, and is the Director of the Andalusian Institute of Biotechnology. Fernando Pliego Alfaro has also been the President of the International Avocado Society and the Spanish Society of In Vitro Plant Tissue Culture, having as he does considerable experience of organizing and managing research and development activities. He is a member of various international Master's and doctoral programmes, has extensive experience of supervising Master's and doctoral theses; in addition, he has sat on various committees and been a member of international delegations throughout his professional career.

adequately cover the four areas where expertise was needed. The Panel also reported that it did not consider it necessary or feasible to contact the additional experts suggested by Mexico, all of whom had been challenged by Costa Rica.⁴⁹

1.3.3.3 Panel questions for the individual experts

1.59. On 31 January 2020, pursuant to paragraph 8 of the Additional Working Procedures of the Panel for consultations with experts⁵⁰, the Panel invited the parties to propose written questions for the experts, which the Panel would then consider including in its written questions for the experts. The parties sent their proposed written questions for the experts on 14 February 2020.

1.60. On 21 February 2020, the Panel sent the experts its written questions⁵¹, the guidelines on drafting responses and the annexes to the guidelines.⁵² In its guidelines, the Panel invited the experts to answer the questions they felt competent to answer, while noting the cross-cutting nature of the four areas identified as areas in which the Panel sought advice. The Panel asked the experts to submit their responses in writing by 20 March 2020. In accordance with paragraph 9 of the Additional Working Procedures of the Panel for consultations with experts, the Panel also provided the experts with the necessary dispute documents to prepare their responses⁵³

1.61. On 5 March 2020, the Panel informed the parties of its decision to extend the deadline for the experts to respond to the Panel's written questions from 20 March 2020 to 27 March 2020, owing to an unexpected delay in mailing the documents to the experts.

1.62. On 6 March 2020, Costa Rica sent the Panel a letter requesting the modification or elimination of 20 questions from the Panel's list of 187 questions for the individual experts. The Panel provided Mexico with an opportunity to comment on Costa Rica's request. Mexico sent its comments on 11 March 2020. On 20 March 2020, the Panel issued its decision regarding Costa Rica's comments on the Panel's questions for the experts. Although the Panel rejected all of Costa Rica's claims surrounding those questions, it nevertheless decided to address Costa Rica's concern, removing some of the questions and modifying the wording of others.⁵⁴

1.63. In its letter of 6 March 2020, Costa Rica also requested that the Panel reconsider the circulation of the experts' individual opinions to the other experts prior to the Panel's meeting with the parties and experts, and ensure that during the meeting each of the experts be able to provide their technical advice separately, without the other experts being present. In its ruling of 20 March 2020, the Panel rejected Costa Rica's request. In the view of the Panel, the fact that the experts would see the responses of the other experts and all be present at the meeting would not undermine the independence and autonomy of each expert's individual approach, or their objectivity or impartiality. The Panel also noted that such procedural aspects had been used consistently in previous disputes under the SPS Agreement.⁵⁵

1.64. The Panel received the responses from the four experts by the deadline. Robert Griffin sent his written responses on 14 March 2020, and his responses to the modified questions on 26 March 2020; Pablo Cortese sent his written answers on 25 March 2020; and

⁴⁹ Panel decision on selected additional expert, dated 19 February 2020.

⁵⁰ The relevant part of paragraph 8 of the Additional Working Procedures of the Panel for consultations with experts states that "[t]he Panel shall prepare written questions for the experts. The parties shall be invited to suggest a limited number of questions that the Panel could include in its questions for the experts".

⁵¹ The Panel's questions to the individual experts include some, but not all, of the questions proposed by the parties.

⁵² The annexes include a list of all the documents sent to the experts and the Working Procedures of the Panel.

⁵³ The relevant part of paragraph 9 of the Additional Working Procedures of the Panel for consultations with experts establishes that "[t]he Panel may provide the experts, on a confidential basis, with the parties' submissions, including exhibits, as well as with any additional information deemed necessary". The documents provided include: written submissions, the parties' opening and closing statements at the first meeting of the Panel, the parties' responses to the Panel's questions and selected exhibits, including those that contain the measures at issue.

⁵⁴ Panel decision on Costa Rica's comments on the questions for the experts and the participation of individual experts in the next steps, dated 20 March 2020.

⁵⁵ Panel decision on Costa Rica's comments on the questions for the experts and the participation of individual experts in the next steps, dated 20 March 2020, para. 3.2.

Fernando Pliego Alfaro and Ricardo Flores Pedauy  sent theirs on 27 March 2020. Pursuant to paragraph 8 of the Additional Working Procedures of the Panel for consultations with experts⁵⁶, the Panel provided the parties with the experts' responses and gave them an opportunity to comment in writing on the responses. The Panel also provided the experts with the responses of the other experts, pursuant to paragraph 10 of the Additional Working Procedures of the Panel for consultations with experts.⁵⁷

1.65. On 13 April 2020, Costa Rica requested that the deadline for sending the parties' comments to the experts' written responses be extended because of the COVID-19 pandemic. On 15 April 2020, Mexico indicated that it had no objection to Costa Rica's request. On 17 April 2020, the Panel informed the parties of its decision to extend the deadline from 22 April 2020 to 6 May 2020. As a result, the date of receipt of the parties' comments on the other party's comments on the experts' written responses was postponed until 13 May 2020.

1.66. On 28 April 2020, Mexico requested that the deadline for the submission of comments on the other party's comments on the experts' written responses be extended. Costa Rica did not object to this request. On 1 May 2020, the Panel agreed to extend the deadline from 13 May 2020 to 20 May 2020.

1.67. The parties sent their comments on the experts' written responses on 6 May 2020 and their comments on the other party's comments on 20 May 2020.

1.68. Pursuant to paragraph 10 of the Additional Working Procedures of the Panel for consultations with experts⁵⁸, the Panel provided the four experts with the parties' comments on their written responses, as well as the parties' views on the other party's comments on their written responses.

1.69. On 13 July 2020, pursuant to paragraph 11(e) of the Additional Working Procedures of the Panel for consultations with experts⁵⁹, the Panel informed the parties that it had decided to ask Pablo Cortese and Ricardo Flores Pedauy  a very limited number of additional questions to allow the experts to expand on or modify their responses to certain questions, in light of some documentary evidence that might be relevant to the topics covered by these questions.

1.70. On 15 July 2020, the Panel sent the additional questions to the experts Ricardo Flores Pedauy  and Pablo Cortese, together with the guidelines on drafting responses and the annexes to the questions.⁶⁰ The Panel also provided the experts with the documentary evidence referred to in the questions. On 24 July 2020, the Panel informed the parties that it would give them an opportunity to comment on the two experts' responses to the Panel's additional questions, as well as on the other party's comments.

1.71. On 27 July 2020, Mr Cortese sent his responses to the Panel's additional questions. On 30 July 2020, Mr Flores Pedauy  sent his responses to the Panel's additional questions for him. On 31 July 2020, the Panel provided the parties with the responses of the experts Pablo Cortese and Ricardo Flores Pedauy  and gave them an opportunity to comment in writing on these responses. The Panel also provided the other experts with the responses of Pablo Cortese and Ricardo Flores

⁵⁶ The relevant part of paragraph 8 of the Additional Working Procedures of the Panel for consultations with experts states the following: "The Panel shall provide the parties with copies of the [experts'] responses, in accordance with the timetable adopted by the Panel. The parties shall have the opportunity to comment in writing on the responses from the experts".

⁵⁷ The relevant part of paragraph 10 of the Additional Working Procedures of the Panel for consultations with experts reads as follows: "The Panel may schedule a meeting with the experts prior to or in conjunction with the second substantive meeting with the parties. Prior to the Panel's meeting with the experts, the Panel shall ensure that: (...) b. each expert is provided with the other experts' responses to the Panel's questions".

⁵⁸ The relevant part of paragraph 10 of the Additional Working Procedures of the Panel for consultations with experts states: "The Panel may schedule a meeting with the experts prior to or in conjunction with the second substantive meeting with the parties. Prior to the Panel's meeting with the experts, the Panel shall ensure that: a. the parties' comments on the experts' responses are provided to all experts".

⁵⁹ Paragraph 11(e) of the Additional Working Procedures of the Panel for consultations with experts states: "The Panel may pose additional written questions or schedule additional meetings with the experts if necessary".

⁶⁰ The annexes contain some of the experts' responses to the Panel's questions for the experts dated 21 February 2020.

Pedauyé, pursuant to paragraph 10 of the Additional Working Procedures of the Panel for consultations with experts.⁶¹

1.72. The parties sent their comments on the responses of the experts Ricardo Flores Pedauyé and Pablo Cortese on 14 August 2020, and their comments on the other party's comments on 21 August 2020.

1.3.3.4 Request for information from the Panel to the parties

1.73. On 3 August 2020, pursuant to Article 13.1 of the DSU, Article 11.2 of the SPS Agreement and paragraph 9 of the Working Procedures of the Panel⁶², the Panel sent the parties a request for information on the ASBVd surveillance system in Costa Rica. The Panel asked the parties to submit any additional information and supporting documentation they may have related to the ASBVd surveillance system in Costa Rica, including the aspects listed in that request, by 31 August 2020.

1.74. On 26 August 2020, Costa Rica requested that the deadline for the submission of the requested information be extended to 18 September 2020, because "the preparation of the report on the ASBVd surveillance system in Costa Rica, requested by the Panel, ha[d] imposed unforeseen workloads on the regular work programme of the staff of the State Phytosanitary Service of Costa Rica (SFE)", in addition to the work that the COVID-19 pandemic had created for the phytosanitary authorities.⁶³ On 28 August 2020, the Panel sent a letter to the parties clarifying that they had been requested to submit "any additional information and supporting documentation [they may have] relating to the ASBVd surveillance system in Costa Rica", including the aspects listed in its request of 3 August 2020. The Panel added that Costa Rica could submit a document consolidating information that was already available on its surveillance system, if Costa Rica considered that such information was necessary to understand its surveillance system. The Panel emphasized, however, that it was not seeking new information or trying to obtain an update to the information, but was giving the parties an opportunity to submit any additional information and supporting documentation relating to the ASBVd surveillance system in Costa Rica already in their possession.

1.75. On 31 August 2020, Mexico sent its response to the Panel's request for additional information and supporting documentation, and commented on Costa Rica's request to extend the deadline. Mexico stated that the information on ASBVd surveillance in Costa Rica was solely in the hands of Costa Rica and that it was therefore up to Costa Rica to submit the information and documentation requested⁶⁴; and that, while it understood that the situation caused by the pandemic had posed a challenge to every government in the world, it did not warrant the request for an extension of 18 additional days, especially since the information and documents in question should, in principle, be almost immediately available and accessible to the SFE.⁶⁵

1.76. On 1 September 2020, the Panel informed the parties that it had decided to extend the deadline for submission of the response to the information request from 31 August 2020 to 14 September 2020.

1.77. On 14 September 2020, Costa Rica sent its response to the request for information on the ASBVd surveillance system in Costa Rica. On 28 September 2020, Mexico sent its comments on the information submitted by Costa Rica.

1.78. On 6 October 2020, Costa Rica sent a letter to the Panel, requesting that it declare inadmissible what Costa Rica considered to be Mexico's procedural claim, included in its comments on the information presented by Costa Rica, that the Panel should rule on the determination of

⁶¹ The relevant part of paragraph 10 of the Additional Working Procedures of the Panel for consultations with experts states: "The Panel may schedule a meeting with the experts prior to or in conjunction with the second substantive meeting with the parties. Prior to the Panel's meeting with the experts, the Panel shall ensure that: (...) b. each expert is provided with the other experts' responses to the Panel's questions".

⁶² The relevant part of paragraph 9 of the Working Procedures of the Panel states that "[t]he Panel may pose questions to the parties and third parties at any time".

⁶³ Email from Costa Rica to the Panel, dated 26 August 2020.

⁶⁴ Letter from Mexico to the Panel, dated 31 August 2020, paras. 1-4.

⁶⁵ Letter from Mexico to the Panel, dated 31 August 2020, paras. 5-9.

freedom from ASBVd in Costa Rica, as well as the claims related to this.⁶⁶ On 7 October 2020, the Panel informed the parties that it did not consider it necessary at that point in the proceedings to rule on this request and that it would address Costa Rica's request, as well as its arguments in this regard, in its Report. The Panel invited Mexico to express its views on Costa Rica's request and arguments in subsequent stages of the proceedings, without prejudice to its right to express its views sooner, if it so wished.

1.3.3.5 Panel meeting with the parties and experts

1.79. As noted above, on 9 October 2020, the Panel informed the parties that, because of the situation caused by the COVID-19 pandemic, it was not possible at that time to hold its second meeting with the parties or its meeting with the parties and experts in person. In light of the foregoing, the Panel invited the parties to express their views on possible alternatives to hold the remaining meetings.

1.80. On 16 October 2020, the parties sent their views on possible alternatives to move the proceedings forward and hold the remaining meetings. Mexico indicated that the virtual communication methods available to it would allow the Panel's meeting with the parties and experts and the Panel's second meeting with the parties to be held virtually. Costa Rica, however, stated that it would prefer the Panel's meeting with the parties and experts to be conducted in writing because the meeting would require coordination between its legal and scientific-technical teams, which were in different geographic areas.

1.81. On 20 October 2020, the parties submitted their comments on the other party's comments concerning possible alternatives to move proceedings forward and hold the remaining meetings. With regard to Costa Rica's proposal to have a written exchange with the experts instead of a virtual meeting, Mexico considered that the meeting needed to be conducted through a virtual exchange and not just in writing, noting that there had been written exchanges of information with the experts since February 2020, and that written proceedings would limit the dynamic exchange that would occur in a virtual meeting. Costa Rica, however, reiterated that, due to the logistical difficulties arising from having legal and scientific-technical teams at different latitudes, it would be more efficient to conduct the Panel's meeting with the parties and experts by sending written questions and answers.

1.82. The Panel gave careful consideration to the parties' comments, the technological tools available to them, the situation caused by the pandemic, and the availability of both the panelists and the experts.

1.83. On 28 October 2020, the Panel informed the parties that it wished to hold its meeting with the parties and experts virtually (through the Cisco Webex platform), noting the importance of having a direct exchange (albeit virtually) between the parties and the experts, as well as between the experts themselves, through the Panel, which would not be achieved through another written exchange. As noted above, the Panel considered that it would be best to proceed with its meeting with the parties and experts before the end of 2020. The Panel therefore proposed dates for the meeting to the parties, and asked them to indicate whether they could participate in the Panel's meeting with the parties and experts on the proposed dates.

1.84. On 30 October 2020, the parties communicated their inability to attend the meeting on the proposed dates and asked the Panel to propose alternative dates.

1.85. On 4 November 2020, the Panel proposed to the parties that its meeting with the parties and experts be held during the week of 14-18 December 2020. The Panel also informed the parties that, because of the measures imposed by the Canton of Geneva, Switzerland, in response to the pandemic, the meeting with the parties and experts would be conducted in an entirely virtual format, without the presence of delegates from the parties on WTO premises.

⁶⁶ Letter from Costa Rica to the Panel, dated 6 October 2020.

1.86. On 9 November 2020, the parties confirmed their availability to attend the Panel's meeting with the parties and experts during the week of 14-18 December 2020; and, on 12 November 2020, the Panel confirmed to the parties that the meeting would be held from 15 to 18 December 2020.

1.87. In preparation for its meeting with the parties and experts, the Panel gave the parties an opportunity to submit advance written questions for the experts through the Panel. On 1 December 2020, the parties sent the Panel advance questions for the experts. The questions were sent to the experts on 2 December 2020.

1.88. On 12 December 2020, the expert Ricardo Flores Pedauy  informed the Panel that he could not attend its meeting with the parties and experts for health reasons. On 13 December 2020, the Panel proposed to the parties to go ahead with the meeting scheduled for 15-18 December 2020 with the three experts who were available, focusing on the questions sent to them. The Panel said that it would subsequently try to find a date in early 2021 for an additional meeting day with the four experts present, at which Mr Flores Pedauy  could respond to the questions for him, and the other three experts would have the opportunity to speak, if they so wished. On 14 December 2020, the parties indicated their agreement to proceed in the manner proposed by the Panel.

1.89. The Panel held a meeting with the parties and experts from 15 to 18 December 2020 with the three experts who were available, focused on the questions sent to them.

1.90. On 20 December 2020, the Panel received news of the tragic death of Professor Dr Flores Pedauy  and informed the parties accordingly.⁶⁷

1.91. On 14 January 2021, the Panel suggested to the parties that a new expert be found with knowledge of area "b" (ASBVd), who could respond orally to the questions of the Panel and the parties on an additional meeting day. The Panel put forward for the consideration of the parties the name of an expert whose information had been gathered during the expert selection process undertaken between 2019 and 2020, but who had not been available on the date originally chosen for the Panel's meeting with the parties and experts.

1.92. On 19 January 2021, in response to the Panel's suggestion, Mexico said that it did not consider it necessary to nominate a new expert in area "b" (ASBVd) and devote an additional day solely to that expert, but that it could examine the possibility if Costa Rica thought it indispensable to hold the remaining meeting with a new expert. On 21 January 2021, in its comments on Mexico's comments, Costa Rica stated that it agreed with Mexico that it was not necessary to nominate a new expert.

1.93. Furthermore, on 19 January 2021, in response to the Panel's suggestion, Costa Rica said that Ricardo Flores Pedauy 's contributions, as they had been set out in writing in his responses to the questions of the Panel and the parties, could not be the subject of any oral proceedings which were needed to elaborate on the inputs provided. Costa Rica therefore understood that the Panel should weigh Mr Flores Pedauy 's contributions differently from those provided by the other experts, which, according to Costa Rica, had been contextualized, qualified and expanded upon orally by the experts.

1.94. On 21 January 2021, in its observations on Costa Rica's comments, Mexico maintained that the Panel should reject Costa Rica's attempt to detract from the value of the responses provided by Mr Flores Pedauy . Mexico said that when evaluating the relevance, acceptability and weight of Mr Flores Pedauy 's advice, the Panel should consider the degree to which the expert's responses answered the technical and scientific questions that he had been asked on ASBVd and its diagnostic methods, and that, therefore, the fact that Mr Flores Pedauy  had been unable to participate in the Panel's meeting with the parties and experts should in no way affect the value of the work undertaken throughout the proceedings, nor oblige the Panel to weigh his written responses differently. Mexico added that Mr Flores Pedauy 's written responses were invaluable because they were highly specific, they should therefore also be considered in light of the evidence on record.

1.95. On the same date, in its observations on Mexico's comments, Costa Rica reiterated that the inputs provided by the expert Ricardo Flores Pedauy  should be assessed by assigning a particular

⁶⁷ The Panel wishes to express its sincere condolences on the tragic death of Prof Dr Ricardo Flores Pedauy , as well as its deep appreciation for the advice received.

value to the fact that they were not subject to the evidentiary action to which the inputs of other experts were subject. For Costa Rica, the fact could not be ignored that these inputs could not be explained, contextualized, qualified and expanded upon orally at the Panel's meeting with the experts, or that they were not the focus of the exchange of views between the Panel, the parties and the other experts.

1.96. On 29 January 2021, the Panel informed the parties that it would not seek advice from an additional expert, after considering the opinion of both parties that it was not necessary to nominate a new expert. The Panel also said that it had taken note of Costa Rica's observation on Ricardo Flores Pedauy's contributions, as well as Mexico's comments in that regard, and that it would give any explanation that it considered necessary on the matter in its Report.

1.97. On 5 February 2021, the Panel sent the parties and experts the transcript of its meeting with the parties and experts, asking them to verify that the transcript accurately reflected the information they had provided. After receiving their comments, the Panel sent the final version of the transcript to the parties on 26 May 2021.

1.3.3.6 Consultation with the IPPC Secretariat

1.98. In its decision on the need to seek scientific or technical advice from individual experts and/or relevant international organizations or bodies, dated 18 October 2019, the Panel informed the parties that it had not yet made a decision on whether to seek scientific or technical advice directly from any of the relevant international organizations or bodies, and that it would make that decision at a later date.⁶⁸

1.99. On 5 February 2020, the Panel informed the parties that it had taken the decision to consult the IPPC Secretariat in writing, particularly with regard to the meaning, scope and application of the ISPMs, and invited them to propose written questions for the IPPC Secretariat. The Panel stated that it would explain, in detail, the grounds for its decision to consult the IPPC Secretariat in writing in its decision concerning potential experts.

1.100. On 14 February 2020, the Panel issued, within its decision on the selected experts, its decision on the need to seek scientific or technical advice from relevant international organizations or bodies. The Panel explained that as the ISPMs, which were at the core of this dispute, had been developed in the framework of the IPPC, the IPPC Secretariat might be in a good position to assist the Panel on the meaning, scope and application of ISPMs. The Panel had therefore taken a decision to consult the IPPC Secretariat on area "d" (the meaning, scope and application of ISPMs). The Panel considered that written consultation with the IPPC Secretariat, without its participation at the meeting with the experts, would be sufficient for scope of the consultation possible with the IPPC Secretariat, and would allow the meeting with the experts to be conducted more expeditiously.⁶⁹

1.101. Also on 14 February 2020, Costa Rica sent a letter to the Panel, asking it to indicate to the parties which expert from the IPPC Secretariat would answer the Panel's questions and to make every effort to safeguard due process, given that a Mexican official was the Director of the Commission on Phytosanitary Measures (CPM) Bureau. On 19 February 2020, Mexico commented on Costa Rica's request, stating that it agreed with Costa Rica on the importance of the Panel taking the necessary steps to safeguard the principles of transparency and due process, but that the impartiality of the IPPC Secretariat's responses would not be affected by the membership of the CPM Bureau. Mexico agreed with Costa Rica's concern and that the IPPC should disclose the names of the persons who would be responsible for answering the questions.

1.102. On 3 March 2020, in response to the concerns raised by the parties, the Panel informed them that it would prepare a very limited number of questions for the IPPC Secretariat, which would be of a general nature and the answers to which would not require detailed knowledge of the dispute. The Panel stated that it would ask the IPPC Secretariat to treat the request as confidential and for the questions be answered by the Secretariat itself, without assistance from the CPM Bureau or the

⁶⁸ Panel decision on the need to seek scientific or technical advice from individual experts and/or relevant international organizations or bodies, dated 18 October 2019, para. 2.11.

⁶⁹ Panel decision on selected experts and on the need to seek scientific or technical advice from relevant international organizations or bodies, dated 14 February 2020, paras. 3.1-3.3.

committees, in accordance with both its rules of conduct and those of the WTO. The Panel stated that it did not consider it appropriate to disclose the name of the person from the IPPC Secretariat who would answer the Panel's questions, as the answer would be given on behalf of the Organization rather than an individual working for that Organization.

1.103. On 5 March 2020, the Panel sent a limited number of questions to the IPPC Secretariat on the meaning, scope and application of ISPMs. The IPPC Secretariat sent its responses to the Panel's questions on 14 May 2020. The parties sent their comments on the IPPC Secretariat's responses on 3 June 2020, and their views on the other party's comments on the IPPC Secretariat's responses on 10 June 2020.

2 FACTUAL ASPECTS

2.1 The measures at issue

2.1. This dispute concerns certain measures described by Mexico as "those by which Costa Rica prohibits or restricts, either jointly or individually, the importation of fresh avocados for consumption from Mexico".⁷⁰

2.2. In its panel request, Mexico identified the following five instruments as measures:

1. Resolutions DSFE-003-2018 and DSFE-002-2018 issued by the State Phytosanitary Service of the Ministry of Agriculture and Livestock of Costa Rica, dated 29 January 2018.
2. Reports ARP-002-2017 and ARP-006-2016 prepared by the Pest Risk Analysis Unit of the State Phytosanitary Service, dated 10 July 2017, as well as Manual NR-ARP-PO-01_M-01, containing the qualitative methodology applied in the said risk analyses.⁷¹

2.3. Mexico expressly noted that its panel request relates to the aforementioned measures at issue and to any additional measures that amend, supersede, update or replace them.⁷²

2.4. The instruments identified by Mexico as the measures at issue are described below, reflecting their own text. The description in this section seeks to present the content of the aforementioned instruments, and does not imply any judgement, analysis or finding in respect of those instruments.

2.1.1 Manual for conducting qualitative pest risk analyses by entry pathway (Manual NR-ARP-PO-01_M-01)

2.1.1.1 Introduction, purpose and scope

2.5. The Manual for conducting qualitative pest risk analyses by entry pathway (Manual NR-ARP-PO-01_M-01)⁷³, of 10 May 2016, prepared by the Pest Risk Analysis Unit (UARP) of the State Phytosanitary Service (SFE), was the instrument used as a guide for preparing Reports ARP-002-2017 and ARP-006-2016.

2.6. Manual NR-ARP-PO-01_M-01 is described as a guide for determining pest risk analysis [PRA] procedures⁷⁴, "[w]ith a view to complying more efficiently with the provisions established in the [SPS] Agreement in relation to the harmonization of the use of international standards, in this case

⁷⁰ Mexico's panel request, WT/DS524/2, p. 2.

⁷¹ Mexico's panel request, WT/DS524/2, p. 2.

⁷² Mexico's panel request, WT/DS524/2, p. 2.

⁷³ Servicio Fitosanitario del Estado de Costa Rica, Departamento de Control Fitosanitario, "Manual para la elaboración de análisis cualitativo de riesgo de plaga por vía de entrada", NR-ARP-PO-01_M-01 (2016) (Manual NR-ARP-PO-01_M-01), (Exhibit MEX-104). Costa Rica stated that the Manual had been repealed by a subsequent revision and was therefore no longer in force. (Costa Rica, reply to Panel question No. 78, para. 3 (citing Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, "Manual para la elaboración de análisis cualitativo de riesgo de plagas", NR-ARP-M-01, aprobado el 16 de marzo de 2018 (New Manual, NR-ARP-M-01), (Exhibit CRI-105))).

⁷⁴ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 1.

those related to [PRA]".⁷⁵ Manual NR-ARP-PO-01_M-01 identifies those standards as International Standards for Phytosanitary Measures (ISPMs) and refers specifically to ISPM No. 2, "Framework for pest risk analysis" (2007)⁷⁶, and ISPM No. 11, "Pest risk analysis for quarantine pests" (2013).^{77, 78}

2.7. The purpose of Manual NR-ARP-PO-01_M-01 is described as follows: "[t]o guide the risk analyst in conducting a PRA, through an assessment of the available scientific evidence that would enable them to determine whether an organism is a regulated pest, to evaluate its risk and to identify risk management options, in compliance with the Phytosanitary Protection Law and international standards".⁷⁹

2.8. Manual NR-ARP-PO-01_M-01 also states that its content "applies to all Risk Analysis Unit officials when conducting qualitative pest analyses by entry pathway".⁸⁰

2.9. Manual NR-ARP-PO-01_M-01 asserts that the PRA process comprises three stages:

- Stage 1: Initiation.
- Stage 2: Pest risk assessment.
- Stage 3: Pest risk management.⁸¹

2.1.1.2 Stage 1: Initiation

2.10. Manual NR-ARP-PO-01_M-01 states that the initiation stage entails identifying organisms and pathways⁸² that may be considered for the pest risk assessment in relation to the identified PRA area, and that the process may be initiated in three situations: (i) where a pathway that presents a potential pest hazard is identified; (ii) where a pest that may require phytosanitary measures is identified; and (iii) where a decision is made to review or revise phytosanitary measures or policies.⁸³

2.11. Manual NR-ARP-PO-01_M-01 states that the initiation stage involves four steps:

- a. Determining whether an organism is a pest⁸⁴;
- b. Defining the PRA area^{85, 86};
- c. Evaluating any previous PRA⁸⁷; and

⁷⁵ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 1.

⁷⁶ Secretaría de la CIPF, *Marco para el análisis de riesgo de plagas*, NIMF No. 2 (Roma, FAO en nombre de la Secretaría de la CIPF, adoptada en 2007, publicada en 2016) (ISPM No. 2), (Exhibit MEX-72).

⁷⁷ Secretaría de la CIPF, *Análisis de riesgo de plagas para plagas cuarentenarias*, NIMF No. 11 (Roma, FAO en nombre de la Secretaría de la CIPF, adoptada en 2013, publicada en 2017) (ISPM No. 11), (Exhibit MEX-77).

⁷⁸ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 1.

⁷⁹ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 1.

⁸⁰ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 1.

⁸¹ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 3.

⁸² Manual NR-ARP-PO-01_M-01 defines the pathway, in accordance with ISPM No. 5 "Glossary of terms", as "[a]ny means that allows the entry or spread of a pest". (Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 3).

⁸³ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 4 (referring to ISPM No. 2, (Exhibit MEX-72), section 1).

⁸⁴ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 4 (referring to ISPM No. 2, (Exhibit MEX-72), section 1.2).

⁸⁵ Manual NR-ARP-PO-01_M-01 defines the PRA area, in accordance with ISPM No. 5 "Glossary of terms", as an "[a]rea in relation to which a pest risk analysis is conducted". (Manual NR-ARP-PO-01_M-01, (Exhibit MEX)-104, p. 2).

⁸⁶ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 4 (referring to ISPM No. 2, (Exhibit MEX-72), section 1.3).

⁸⁷ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 4 (referring to ISPM No. 2, (Exhibit MEX-72), section 1.4).

d. Conclusion.⁸⁸

2.12. Manual NR-ARP-PO-01_M-01 states that before conducting a new PRA, a check should be made as to whether the organism, pest or pathway has already been subjected to the PRA process; the validity of any existing analysis should be checked; and its relevance to the PRA area established should be confirmed.⁸⁹ Manual NR-ARP-PO-01_M-01 adds that the possibility of using a PRA of a similar organism, pest or pathway may also be investigated.⁹⁰

2.13. Manual NR-ARP-PO-01_M-01 states that a list is drawn up of the pests associated with the crop, in order to determine which quarantine pests⁹¹ will be subject to Stage 2. The list should include the following information:

- a. Scientific name of the pest, indicating the name of who discovered it and its taxonomic status.
- b. Indication as to whether the pest may follow the pathway (yes or no).
- c. Indication as to whether the pest is regulated in Costa Rica (yes or no).
- d. Indication as to whether the pest is present in Costa Rica (yes or no).⁹²
- e. Where the pest is not present in the country, observations or comments explaining why it is or is not to be included in the subsequent assessment; primary references should be provided as technical justification.⁹³

2.14. Manual NR-ARP-PO-01_M-01 also states, with regard to the list, that where the pest is regulated or not present in the country, references should be included concerning the pest's association with the commodity, together with comments on: (i) whether the crop is the sole, principal or secondary host or an occasional host; (ii) whether the pest is of economic importance; (iii) whether a PRA or datasheet for the pest already exists; (iv) whether the pest has previously been the subject of a phytosanitary requirement; and (v) any other information that is important for deciding whether the pest is to be included in the assessment.⁹⁴

2.15. Manual NR-ARP-PO-01_M-01 states that if, at this stage, no potential quarantine pests are identified, the PRA is halted, and the only requirement imposed is an inspection or a phytosanitary certificate from the country of origin.⁹⁵

2.16. Manual NR-ARP-PO-01_M-01 also states that it is important to identify the reasons for including or not including the pests examined at the pre-analysis stage in a subsequent study, that the information for the PRA can come from various sources, and that, to conduct the qualitative risk analysis, sources of information such as databases and specialized literature should be consulted.⁹⁶

2.17. Manual NR-ARP-PO-01_M-01 adds that for pests that are to be considered in the risk assessment, a datasheet should be drawn up, or else the technical information can be included in the risk assessment document.⁹⁷

⁸⁸ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 4 (referring to ISPM No. 2, (Exhibit MEX-72), section 1.5).

⁸⁹ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), pp. 4-5.

⁹⁰ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 5.

⁹¹ Manual NR-ARP-PO-01_M-01 defines a quarantine pest, in accordance with ISPM No. 5 "Glossary of terms", as a "pest of potential economic importance to the area endangered thereby and not yet present there, or present but not widely distributed and being officially controlled". (Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 3).

⁹² Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 5.

⁹³ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 6.

⁹⁴ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 5.

⁹⁵ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 6.

⁹⁶ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 6.

⁹⁷ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 6.

2.18. Manual NR-ARP-PO-01_M-01 also states that "[p]ests that are considered to be of potential economic importance and that meet the geographical and regulatory criterion of ISPM No. 11, FAO, 2004, should be included in this list for consideration during Stage 2".⁹⁸

2.1.1.3 Stage 2: Pest risk assessment

2.19. Manual NR-ARP-PO-01_M-01 states that the pest risk assessment⁹⁹ process can be broadly divided into three interrelated steps:

- a. pest categorization;
- b. assessment of the probability of introduction¹⁰⁰ and spread¹⁰¹; and
- c. assessment of potential economic consequences and environmental impacts.¹⁰²

2.1.1.3.1 Pest categorization

2.20. Manual NR-ARP-PO-01_M-01 indicates that pest categorization consists of identifying pests that require subsequent analysis, that is, quarantine pests likely to follow the pathway, and that consideration should therefore be given to: (i) whether the pest is associated with the commodity to be imported; (ii) whether the pest is associated with the part of the plant to be imported.¹⁰³ Manual NR-ARP-PO-01_M-01 adds that, at this stage, a separate list is presented indicating the quarantine pests that are presumed likely to follow the entry pathway.¹⁰⁴

2.21. Manual NR-ARP-PO-01_M-01 states that once the quarantine pests presumed likely to follow the entry pathway have been identified, the risk analysis continues and consideration is given to the probability of introduction and spread and the economic consequences in accordance with the determination of the risk factors to be considered. According to Manual NR-ARP-PO-01_M-01, for each risk factor, each pest is assigned one of the following probability values: (i) high (3 points); (ii) medium (2 points); (iii) low (1 point); (iv) negligible (0 points). When this is done, all the risk factor values are added together to obtain a final score and to establish a rating depending on the value range.¹⁰⁵

2.22. Manual NR-ARP-PO-01_M-01 specifies that "[i]n all instances where sufficient information is not available, either following one's own research or because the exporting country's information is insufficient, the uncertainty should be taken into account and the probability should be calculated as high".¹⁰⁶

2.1.1.3.2 Assessment of the probability of introduction and spread

2.23. Manual NR-ARP-PO-01_M-01 states that pest introduction is comprised of both entry and establishment, and that assessing the probability of introduction requires an analysis of each of the pathways with which a pest may be associated from its origin to its establishment in the PRA area.¹⁰⁷

⁹⁸ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 6.

⁹⁹ Manual NR-ARP-PO-01_M-01 defines pest risk assessment, with reference to ISPM No. 5 "Glossary of terms", as the "[e]valuation of the probability of the introduction and spread of a pest and the magnitude of the associated potential economic consequences". (Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 2).

¹⁰⁰ Manual NR-ARP-PO-01_M-01 defines introduction, with reference to ISPM No. 5 "Glossary of terms", as the "[e]ntry of a pest resulting in its establishment". (Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 2).

¹⁰¹ Manual NR-ARP-PO-01_M-01 defines spread, with reference to ISPM No. 5 "Glossary of terms", as the "[e]xpansion of the geographical distribution of a pest within an area". (Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 2).

¹⁰² Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 6.

¹⁰³ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 6.

¹⁰⁴ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 7.

¹⁰⁵ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 7.

¹⁰⁶ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 7.

¹⁰⁷ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 8.

2.24. Manual NR-ARP-PO-01_M-01 states that the assessment of probability of spread is based primarily on biological considerations similar to those for entry and establishment.¹⁰⁸

2.1.1.3.2.1 Probability of entry of a pest

2.25. Manual NR-ARP-PO-01_M-01 states that the probability of entry of a pest depends on the pathways from the exporting country to the destination, and the frequency and quantity of pests associated with them. Manual NR-ARP-PO-01_M-01 adds that the following two aspects should be considered and addressed as separate points when conducting the final assessment on the probability of entry: (i) the probability of the pest reaching the commodity's entry point (section A, B and C); and (ii) the probability of the pest reaching a suitable host once it has passed the entry point (section D).¹⁰⁹

2.26. The probability of the pest reaching the commodity's entry point includes:

- a. Probability of the pest being associated with the pathway at origin (section A). The risk factors to consider, according to Manual NR-ARP-PO-01_M-01, are:
 - i. Prevalence of the pest in the source area. A high probability value (3 points) is assigned where the pest is widely distributed or present without details of its distribution; a medium value (2 points) where it is present but its distribution is limited; and a low value (1 point) where it is present but very few cases are reported.¹¹⁰
 - ii. Occurrence of the pest in a life stage that would be associated with commodities, containers or conveyances. A high probability value (3 points) is assigned where a pest in more than one life stage may occur with the commodity; a medium value (2 points) where a pest in only one life stage may occur with the commodity; and a low value (1 point) where it is unlikely that a pest in any life stage may occur with the commodity, but there is a risk.¹¹¹
 - iii. Volume and frequency of movement along the pathway. A high probability value (3 points) is assigned where the quantity of the imported commodity estimated in standard container units of 12 metres in length is more than 100 containers per year; a medium value (2 points) where it is between 10 and 100 containers per year; and a low value (1 point) where it is between 1 and 10 containers per year. For propagation material, the probability of this risk factor will always be high.¹¹²
 - iv. Seasonal timing. A high probability value (3 points) is assigned where the pest is present all year round at the place of origin or where no information is available; a medium value (2 points) where it is present during two or three seasons of the year at the place of origin; and a low value (1 point) where it is present during only one season of the year at the place of origin.¹¹³
 - v. Pest management, cultural and commercial procedures applied at the place of origin. A high probability value (3 points) is assigned where no information is available or where no proper management is known to exist; a medium value (2 points) where some form of management is known to exist; and a low value (1 point) where good management is known to exist.¹¹⁴
- b. Probability of survival during transport or storage (section B). The risk factors to consider, according to Manual NR-ARP-PO-01_M-01, are: (i) speed and conditions of transport and duration of the life cycle of the pest in relation to time in transport and storage; (ii) vulnerability of the life stages during transport or storage; (iii) prevalence of pests likely to be associated with a consignment; (iv) commercial procedures applied to consignments in the country of

¹⁰⁸ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 8.

¹⁰⁹ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 8.

¹¹⁰ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 9.

¹¹¹ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 9.

¹¹² Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 9.

¹¹³ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), pp. 9-10.

¹¹⁴ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 10.

origin, country of destination, or in transport or storage. A high probability value (3 points) is assigned where information was found showing that the pest can survive transportation; a medium value (2 points) where no information was found showing that the pest does not survive transportation, but where the information found indicates that it could survive; and a low value (1 point) where information was found showing that the pest does not survive transportation.¹¹⁵

- c. Probability of pest surviving existing pest management procedures (section C). The risk factors to consider, according to Manual NR-ARP-PO-01_M-01, are:
- i. That the pest may survive post-harvest treatment (section C.1). A high probability value (3 points) is assigned where information was found showing that the pest can survive post-harvest treatment; a medium value (2 points) where no information was found showing that the pest does not survive post-harvest treatment, but where the information found indicates that it could survive; and a low value (1 point) where information was found showing that the pest does not survive post-harvest treatment.¹¹⁶
 - ii. That the pest will go undetected at the entry point (paragraph C.2). A high probability value (3 points) is assigned where the pest cannot be detected at the entry point through inspection, or requires specific tests; a medium value (2 points) where visual magnification equipment is required to detect the pest; and a low value (1 point) where the pest is easily detected during the inspection process.¹¹⁷

2.27. The probability that the pest will reach a suitable host once it has passed the entry point includes:

- a. Probability of transfer to a suitable host (section D). The risk factors to consider, according to Manual NR-ARP-PO-01_M-01, are:
- i. Dispersal mechanisms. A high probability value (3 points) is assigned where the pest has suitable dispersal mechanisms, and vectors that are present in the country; a medium value (2 points) where it has suitable dispersal mechanisms or vectors present in the country; and a low value (1 point) where the dispersal mechanisms are unsuitable and the pest has no vectors or they are not present in the country.¹¹⁸
 - ii. Whether the imported commodity is to be sent to a few or many destination points in the PRA area. A high probability value (3 points) is assigned where the commodity is to be sent to many destination points (more than five) or where no information is available in this regard; a medium value (2 points) where it is to be sent to a few destination points (less than five); and a low value (1 point) where it is to be sent to only one destination point. For propagation material, the probability of this risk factor will always be high.¹¹⁹
 - iii. Proximity of entry, transit and destination points to suitable hosts. A high probability value (3 points) is assigned where it is highly likely that host species exist relatively close to the entry, transit or final destination points; a medium value (2 points) where it is fairly likely that host species exist relatively close to the entry, transit or final destination points; and a low value (1 point) where it is unlikely that host species exist relatively close to the entry, transit or final destination points. For propagation material, the probability of this risk factor will always be high.¹²⁰
 - iv. Time of year at which import takes place. A high probability value (3 points) is assigned where import will take place throughout the year or where information is not available;

¹¹⁵ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 10.

¹¹⁶ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), pp. 10-11.

¹¹⁷ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 11.

¹¹⁸ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 11.

¹¹⁹ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 12.

¹²⁰ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 12.

a medium value (2 points) where import will take place at certain times of the year; and a low value (1 point) where import will take place once a year.¹²¹

- v. Intended use of the commodity. A high probability value (3 points) is assigned where the intended use of the commodity is its reproduction; a medium value (2 points) where the intended use of the commodity is consumption; a low value (1 point) where the intended use of the commodity is the production of other goods (raw material); and a negligible value (0 points) where the intended use of the commodity is consumption, but it is already packaged and ready to be consumed. In the latter case, the commodity is usually processed.¹²²
- vi. Risks from by-products and waste. A high probability value (3 points) is assigned where a high risk is posed by by-products and waste; a medium value (2 points) where there is some risk from by-products and waste; a low value (1 point) where there is little risk from by-products and waste; and a negligible value (0 points) where there is very little risk from by-products and waste.¹²³

2.28. Manual NR-ARP-PO-01_M-01 states that the data obtained regarding the probability of the risk of entry are used to create a table (Table 4) showing the average probability score for each of the sections A (1 to 3 points), B (1 to 3 points), C.1 (1 to 3 points), C.2 (1 to 3 points) and D (1 to 3 points), and the cumulative figure equivalent to the sum of the average probability scores obtained for sections A, B, C.1, C.2 and D, which is interpreted as: high (13 to 15 points); medium (9 to 12 points); low (5 to 8 points); or negligible (less than 5 points).¹²⁴

2.1.1.3.2.2 Probability of establishment

2.29. Manual NR-ARP-PO-01_M-01 states that in order to estimate the probability of establishment of a pest, reliable biological information should be obtained from the areas where the pest currently occurs.¹²⁵ The Manual notes that the factors to consider include:

- a. The availability of suitable hosts, alternate hosts and vectors in the PRA area (section A). A high probability value (3 points) is assigned where the pest attacks multiple species within multiple plant families; a medium value (2 points) where there the pest attacks multiple species within a single plant family; and a low value (1 point) where the pest attacks a single species or multiple species within a single genus. In addition, a high probability value (3 points) is assigned where the only host occupies a sown area exceeding 20,000 hectares; and a medium value (2 points) where the sown area is 5,000 to 20,000 hectares in size. Should the vector exist in the country, 1 point will be added in the case of medium and low probability, while in the case of propagation material, the probability is always deemed to be high.¹²⁶
- b. Environmental suitability (section B). A high probability value (3 points) is assigned where there is evidence that the pest adapts to ecological and climatic conditions similar to those in crop-growing areas in Costa Rica; a medium value (2 points) where the evidence of adaptability to similar ecological and climatic conditions is not conclusive; and a low value (1 point) where there is evidence the pest does not adapt to ecological and climatic conditions similar to those in crop-growing areas in Costa Rica. Manual NR-ARP-PO-01_M-01 indicates that where none of the quarantine pests are able to establish in the PRA area because of unsuitable climatic conditions or hosts, there is no need to continue the PRA.¹²⁷
- c. Cultivation practices and control measures (section C). According to Manual NR-ARP-PO-01_M-01, the following considerations apply when determining the probability of this risk factor: (i) the cultivation practices employed in the country are very

¹²¹ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 12.

¹²² Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 12.

¹²³ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 13.

¹²⁴ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 13.

¹²⁵ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 13.

¹²⁶ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), pp. 13-14.

¹²⁷ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 14.

different to those employed in the country of origin; (ii) there are no natural enemies in the country; (iii) proper control of the pest is not feasible; (iv) suitable eradication methods do not exist or are not available in the country. A high probability value (3 points) is assigned where three or more of these factors are present; a medium value (2 points) where one or two of these factors are present; and a low value (1 point) where none of these factors are present.¹²⁸

- d. Other characteristics of the pest affecting the probability of establishment (section D). Manual NR-ARP-PO-01_M-01 states that in order to analyse the spread potential of a pest in the PRA area, the following aspects should be taken into account: (i) pest reproduction patterns; (ii) inherent capacity for movement; (iii) biotic and abiotic factors affecting dispersal ability. A high probability value (3 points) is assigned where the pest has high biotic potential and there is evidence that it has the ability to spread rapidly; a medium value (2 points) where the pest has a high reproductive capacity or the species has the ability to spread rapidly; and a low value (1 point) where the pest does not have high reproductive potential or the ability to spread rapidly.¹²⁹

2.30. Manual NR-ARP-PO-01_M-01 states that the data obtained concerning probability of establishment are used to create a table (Table 5) showing the average probability score obtained for each of the sections A (1 to 3 points), B (1 to 3 points), C (1 to 3 points) and D (1 to 3 points), and the cumulative figure equivalent to the sum of the average probability scores obtained for sections A, B, C and D, which is interpreted as: high (10 to 12 points); medium (7 to 9 points); or low (4 to 6 points).¹³⁰

2.1.1.3.2.3 Probability of spread after establishment

2.31. Manual NR-ARP-PO-01_M-01 states that a pest with a high potential for spread may also have a high potential for establishment, and possibilities for its successful containment and/or eradication are more limited.¹³¹ The risk factors to consider, according to Manual NR-ARP-PO-01_M-01, are:

- a. Suitability of the natural and/or managed environment for natural spread of the pest (section A). A high probability value (3 points) is assigned where there is evidence that ecological and climatic conditions similar to those in crop-growing areas in Costa Rica are suitable for the pest; a medium value (2 points) where the evidence of the suitability of similar ecological and climatic conditions is not conclusive; and a low value (1 point) where there is evidence that ecological and climatic conditions similar to those in crop-growing areas in Costa Rica are not suitable for the pest.¹³²
- b. Presence of natural barriers (section B). A high probability value (3 points) is assigned where there are not many natural barriers in the country to limit spread; a medium value (2 points) where there are some natural barriers in the country to limit spread; and a low value (1 point) where there are numerous natural barriers in the country to limit spread. Manual NR-ARP-PO-01_M-01 clarifies that account should be taken of the fact that, in Costa Rica, this factor would always be deemed to be high because of the country's size and geographical conditions.¹³³
- c. Potential for movement with commodities or conveyances (section C). Manual NR-ARP-PO-01_M-01 states that in this case, consideration may be given to whether there is evidence that the pest is able to move quickly from one place to another either of its own accord, naturally or through human activity with commodities or conveyances. A high probability value (3 points) is assigned where the two factors are present; a medium value (2 points) where one of the factors is present; and a low value (1 point) where none of the factors are present.¹³⁴

¹²⁸ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 15.

¹²⁹ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 15.

¹³⁰ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), pp. 15-16.

¹³¹ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 16.

¹³² Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 16.

¹³³ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 16.

¹³⁴ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 17.

- d. Intended use of the commodity (section D). A high probability value (3 points) is assigned where the intended use of the commodity once the pest is established is reproduction; a medium value (2 points) where the intended use of the commodity once the pest is established is consumption; and a low value (1 point) where the intended use of the commodity once the pest is established is the production of other goods (raw material).¹³⁵
- e. Potential vectors in the PRA area (section E). A high probability value (3 points) is assigned where all the potential vectors exist; a medium value (2 points) where only some of the potential vectors exist; and a low value (1 point) where there are no vectors in the country but they are likely to be introduced easily.¹³⁶
- f. Potential natural enemies of the pest in the PRA area (section F). A high probability value (3 points) is assigned where there are no potential natural enemies in the country and their introduction is unlikely; a medium value (2 points) where potential natural enemies exist in the country; and a low value (1 point) where known natural enemies exist.¹³⁷

2.32. Manual NR-ARP-PO-01_M-01 states that the data obtained concerning the probability of spread are used to create a table (Table 6) showing the average probability score obtained for each of the sections A (1 to 3 points), B (1 to 3 points), C (1 to 3 points), D (1 to 3 points), E (1 to 3 points) and F (1 to 3 points), and the cumulative figure equivalent to the sum of the average probability scores obtained for sections A, B, C, D, E and F, which is interpreted as: high (15 to 18 points); medium (10 to 14 points); or low (6 to 10 points).¹³⁸

2.33. Manual NR-ARP-PO-01_M-01 states, by way of conclusion on the probability of introduction and spread, that the probability results are set out in the aforementioned score tables, and that in each case the result may be summarized with a brief outline of the rationale for the result.¹³⁹

2.1.1.3.3 Assessment of potential economic consequences

2.34. Manual NR-ARP-PO-01_M-01 states that, wherever appropriate, quantitative data that will provide monetary values should be obtained, but that qualitative data may also be used, and consultation with an economist may be useful. Manual NR-ARP-PO-01_M-01 indicates that in many instances, detailed analysis of the estimated economic consequences is not necessary if there is sufficient evidence or it is widely agreed that the introduction of a pest will have unacceptable economic consequences, including environmental consequences. Manual NR-ARP-PO-01_M-01 states that in such cases, risk assessment will primarily focus on the probability of introduction and spread.¹⁴⁰

2.35. Manual NR-ARP-PO-01_M-01 states that the pests introduced may have a variety of economic effects: (i) crop losses, in yield and quality; (ii) effects on domestic and export markets, including, in particular, effects on export market access; (iii) changes to producer costs or input demands, including control costs; (iv) changes to domestic or foreign consumer demand for a product resulting from quality changes; (v) feasibility and cost of eradication or containment; (vi) capacity to act as a vector for other pests; (vii) resources needed for additional research and advice; (viii) social and other effects, e.g. tourism. The economic impact is deemed to be high (3 points) where the pest causes at least five of the effects mentioned; medium (2 points) where it causes two to four of any of the effects mentioned; and low (1 point) where it causes one or none of the effects mentioned.¹⁴¹

2.36. In order to determine the environmental effects, according to Manual NR-ARP-PO-01_M-01, the following factors are taken into consideration: (i) the introduction of a pest may cause harm to the environment and/or have a direct or indirect effect on protected species; (ii) the introduction of a pest would encourage control programmes involving the use of toxic pesticides and affect integrated pest management programmes; (iii) the introduction of a pest would encourage control programmes involving the release of non-native biological control agents. The environmental impact

¹³⁵ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 17.

¹³⁶ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 17.

¹³⁷ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 17.

¹³⁸ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), pp. 17-18.

¹³⁹ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 18.

¹⁴⁰ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 18.

¹⁴¹ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), pp. 18-19.

would be high (3 points) with three of these factors; medium (2 points) with two of these factors; and low (1 point) with one of these factors.¹⁴²

2.37. Manual NR-ARP-PO-01_M-01 states, by way of conclusion on the assessment of economic consequences, that wherever appropriate, the output of this assessment should be in terms of a monetary value, and that the economic consequences can also be expressed qualitatively or using quantitative measures without monetary terms.¹⁴³

2.38. Manual NR-ARP-PO-01_M-01 states that the data gathered on economic consequences are used to draw up a table (Table 7) showing the score obtained in terms of economic impact (1 to 3 points) and environmental impact (1 to 3 points), and that the sum of each economic and environmental impact factor provides a cumulative figure that is interpreted as high (5 to 6 points); medium (3 to 4 points); or low (2 points).¹⁴⁴

2.1.1.3.4 Degree of uncertainty

2.39. The Manual states that the estimation of the probability of introduction of a pest and of its economic consequences involves many uncertainties, and that it is important to document the areas of uncertainty and the degree of uncertainty in the assessment.¹⁴⁵

2.1.1.3.5 Conclusion of the pest risk assessment stage

2.40. Manual NR-ARP-PO-01_M-01 states that in order to determine the pest risk potential for each pest assessed, the cumulative figures from the four tables are added together: (i) Table 4 – probability of entry (5 to 15 points); Table 5 – probability of establishment (4 to 12 points); Table 6 – probability of spread (6 to 18 points); and Table 7 – assessment of economic consequences (2 to 6 points); and a cumulative figure is obtained that is interpreted as a high probability of risk (40 to 51 points); a medium probability of risk (28 to 39 points); or a low probability of risk (17 to 27 points).¹⁴⁶

2.1.1.4 Stage 3: Pest risk management

2.41. Manual NR-ARP-PO-01_M-01 states that the conclusions from pest risk assessment are used to decide whether risk management is required and the strength of the measures to be used.¹⁴⁷ Manual NR-ARP-PO-01_M-01 indicates that the uncertainty identified in the assessment of economic consequences and of probability of introduction should also be taken into account in and incorporated into the selection of appropriate pest management options.¹⁴⁸

2.1.1.4.1 Identification and selection of appropriate risk management options

2.42. Regarding the identification and selection of appropriate risk management options, Manual NR-ARP-PO-01_M-01 lists some of the measures most commonly applied to traded goods:

- a. Options for consignments, which may include any combination of the following measures: (i) inspection or testing for freedom from a pest; (ii) prohibition of parts of the host; (iii) a pre-entry or post-entry quarantine system; (iv) specified conditions of preparation of the consignment; (v) specified treatment of the consignment; (vi) restrictions on end use, distribution and periods of entry of the commodity.¹⁴⁹
- b. Options preventing or reducing infestation in the crop, which may include the following measures: (i) treatment of the crop, field, or place of production; (ii) restriction of the composition of a consignment so that it is composed of plants belonging to resistant or less susceptible species; (iii) growing plants under specially protected conditions;

¹⁴² Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 19.

¹⁴³ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 19.

¹⁴⁴ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), pp. 19-20.

¹⁴⁵ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 20.

¹⁴⁶ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), pp. 20-21.

¹⁴⁷ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 21.

¹⁴⁸ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 21.

¹⁴⁹ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), pp. 21-22.

- (iv) harvesting of plants at a certain age or a specified time of year; (v) production in a certification scheme.¹⁵⁰
- c. Options ensuring that the area, place or site of production or crop is free from the pest, which may include the following measures: (i) pest-free area; (ii) pest-free place of production or pest-free production site; (iii) inspection of crop to confirm pest freedom.¹⁵¹
- d. Options for other types of pathways, for which the following factors should be considered: (i) natural spread of a pest, for which control measures applied in the area of origin, or, similarly, containment or eradication, supported by suppression and surveillance, in the PRA area after entry of the pest could be considered; (ii) measures for human travellers and their baggage, which could include targeted inspections, publicity and fines or incentives; (iii) contaminated machinery or modes of transport, which could be subjected to cleaning or disinfestation.¹⁵²
- e. Options within the importing country. Certain measures applied within the importing country may be used, and could include careful surveillance to try and detect the entry of the pest as early as possible, eradication programmes to eliminate any foci of infestation and/or containment action to limit spread.¹⁵³
- f. Prohibition of commodities. Manual NR-ARP-PO-01_M-01 states that where no satisfactory measure to reduce risk to an acceptable level can be found, the final option may be to prohibit importation of the relevant commodities.¹⁵⁴

2.1.1.4.2 Risk management options according to risk assessment outcome

2.43. Manual NR-ARP-PO-01_M-01 states that, after assigning pest risk potential, the risk assessor will set out possible options for managing the risk associated with importing the commodity concerned.¹⁵⁵ Manual NR-ARP-PO-01_M-01 provides the following guidelines for interpreting the high, medium or low rating:

- a. For the high risk rating, Manual NR-ARP-PO-01_M-01 states that the application of specific phytosanitary measures is recommended, that inspection at entry points is not considered sufficient to ensure health safety, and that measures may be required in addition to the phytosanitary certificate from the country of origin, such as: (i) the provenance of the commodity being an area free of a certain pest; (ii) the provenance of the commodity being a production area free of a certain pest; (iii) the treatment of the commodity with a chemical product or another type of treatment with a similar effect; (iv) verification at origin where deemed necessary; (v) any other measure deemed appropriate in accordance with the technical studies carried out.¹⁵⁶
- b. For the medium risk rating, Manual NR-ARP-PO-01_M-01 states that it may be necessary to apply specific phytosanitary measures such as those mentioned above or that it may be enough for the consignment to be free of the pest.¹⁵⁷
- c. For the low risk rating, Manual NR-ARP-PO-01_M-01 states that the pest does not require specific mitigation measures and that inspection at the entry point, to which all imports are subject, is expected to ensure sufficient phytosanitary security. According to Manual NR-ARP-PO-01_M-01, in this case, the commodity will only require the phytosanitary certificate from the country of origin, specifying under additional declarations that the commodity is free of the pests concerned, where necessary.¹⁵⁸

¹⁵⁰ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 22.

¹⁵¹ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 22.

¹⁵² Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 23.

¹⁵³ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 23.

¹⁵⁴ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 23.

¹⁵⁵ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 24.

¹⁵⁶ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 24.

¹⁵⁷ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 24.

¹⁵⁸ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 24.

2.1.1.5 Datasheets

2.44. Manual NR-ARP-PO-01_M-01 also contains a guide to preparing datasheets for quarantine pests. A quarantine pest datasheet is defined as a compilation of the information needed to conduct a subsequent PRA.¹⁵⁹ Manual NR-ARP-PO-01_M-01 suggests a format containing the following information:

- a. Common name of the pest in English and Spanish;
- b. Classification: Manual NR-ARP-PO-01_M-01 states that the taxonomic unit for the pest is generally species; that the use of a higher or lower taxonomic level should be supported by scientifically sound rationale; and that in the case of levels below the species, this should include evidence demonstrating that factors such as differences in virulence, host range or vector relationships are significant enough to affect the phytosanitary status. Manual NR-ARP-PO-01_M-01 adds that in cases where a vector is involved, the vector may also be considered a pest to the extent that it is associated with the causal organism and is required for transmission of the pest¹⁶⁰;
- c. Hosts: According to Manual NR-ARP-PO-01_M-01, the taxonomic level at which hosts are considered should normally be the species; the use of higher or lower taxonomic levels should be justified by scientifically sound rationale; and this is useful for determining the availability of suitable hosts, alternate hosts and vectors in the PRA area;
- d. Geographical distribution: Manual NR-ARP-PO-01_M-01 states that this information is important with a view to the possible use of the datasheet for another entry pathway; and that distribution is determined for each country (widely distributed, present without details of its distribution, limited distribution);
- e. Symptoms and damage: According to Manual NR-ARP-PO-01_M-01, the symptoms or damage caused by the pest should be described; photographs of such symptoms or damage should be included where possible; and this is important for determining certain direct or indirect effects of the pest;
- f. Life cycle and biology: Manual NR-ARP-PO-01_M-01 states that this information is important for determining the probability of introduction and spread;
- g. Spread: Manual NR-ARP-PO-01_M-01 states that this information is important for determining the probability of spread following establishment¹⁶¹;
- h. Economic importance and phytosanitary risk: According to Manual NR-ARP-PO-01_M-01, the requirements described in this step indicate what information relative to the pest and its potential host plants should be assembled, and suggest levels of economic analysis that may be carried out using that information in order to assess all the effects of the pest, in other words, the potential economic consequences. Manual NR-ARP-PO-01_M-01 adds that, wherever appropriate, quantitative data that will provide monetary values should be obtained, and that qualitative data may also be used. Manual NR-ARP-PO-01_M-01 states that consultation with an economist may be useful; that in many instances, detailed analysis of the estimated economic consequences is not necessary if there is sufficient evidence or it is widely agreed that the introduction of a pest will have unacceptable economic consequences (including environmental consequences); and that, in such cases, while risk assessment will primarily focus on the probability of introduction and spread, it will be necessary to examine economic factors in greater detail when the level of economic consequences is in question, or when the level of economic consequences is needed to evaluate the strength of measures used for risk management or in assessing the cost-benefit of exclusion or control;

¹⁵⁹ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 26.

¹⁶⁰ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 26.

¹⁶¹ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 27.

- i. Control: Manual NR-ARP-PO-01_M-01 states that this information is important for determining certain aspects pertaining to environmental impact (use of pesticides, introduction of biological control agents), and for determining control or eradication possibilities if the pest were to be introduced; and
- j. Bibliography.¹⁶²

2.1.2 Report ARP-002-2017

2.1.2.1 Introductory remarks to the PRA

2.1.2.1.1 Introduction

2.45. Report ARP-002-2017, of 10 July 2017, entitled "Pest Risk Analysis initiated by the review of a policy for the importation of fresh avocado (*Persea americana* Mill.) fruit for consumption from Mexico", was prepared by the UARP of the SFE of Costa Rica, "[t]o determine the risk of plant pests associated with the importation of fresh avocados (*Persea americana* Mill.) for human consumption from Mexico".¹⁶³

2.46. Report ARP-002-2017 specifies that the existing document, prepared in 2004, needs to be updated following the detection of the pest called Avocado sunblotch viroid (ASBVd) in Mexico in 2009 according to De la Torre *et al.*, the National Inventory of Regulated Pests of Mexico and the presentations by Dr Salvador Ochoa at the IV World Avocado Congress, held in San José, Costa Rica, in July 2013.¹⁶⁴

2.47. Report ARP-002-2017 states that "[t]his PRA is carried out in a manner that is harmonized with [ISPM No. 11], and therefore complies with the principles of harmonization and assessment of risk as stipulated in the [SPS] Agreement" and "does not contravene the SPS Agreement".¹⁶⁵

2.48. Report ARP-002-2017 also states that its results are expressed in qualitative terms (high, medium, low); that the methodology used is based on the Manual NR-ARP-PO-01_M-01; and that "Costa Rica bases its PRA and risk management methodologies on the standards, guidelines and recommendations stipulated by the [IPPC]", but that, "in cases where the standards do not afford the desired level of protection determined by Costa Rica or do not exist, the country exercises its right under the SPS Agreement to introduce appropriate measures, justified on scientific grounds and supported by a PRA".¹⁶⁶

2.49. Report ARP-002-2017 notes that the PRA area analysed is the whole of the territory of Costa Rica.¹⁶⁷

2.1.2.1.2 Background and the importance of the avocado for Costa Rica

2.50. Report ARP-002-2017 notes that the avocado is native to Mesoamerica¹⁶⁸, that it was cultivated from Texas to Peru long before the arrival of the Spanish¹⁶⁹; and that it was subsequently

¹⁶² Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), pp. 28-29.

¹⁶³ Servicio Fitosanitario del Estado de Costa Rica, Unidad de Análisis de Riesgo de Plagas, "Análisis de Riesgo de Plagas iniciado por la revisión de una política para la importación de frutos frescos de aguacate (*Persea americana* Mill.) para consumo, originarios de México" (2017) (ARP-002-2017), (Exhibit MEX-84), p. 3.

¹⁶⁴ ARP-002-2017, (Exhibit MEX-84), p. 3 (citing R. de la Torre Almaráz, D. Téliz Ortiz, V. Pallás and J.A. Sánchez Navarro, "First Report of *Avocado sunblotch viroid* in Avocados from Michoacán, México", *Plant Disease*, Vol. 93, No. 2 (2009) (De la Torre et al. (2009)), (Exhibit MEX-70); and Sistema Nacional de Vigilancia Epidemiológica Fitosanitaria (SINAVEF), Actualización de lista de inventario, Informe 2010 (2010) (SINAVEF, Update of the inventory list (2010)), (Exhibit CRI-13)).

¹⁶⁵ ARP-002-2017, (Exhibit MEX-84), p. 3.

¹⁶⁶ ARP-002-2017, (Exhibit MEX-84), p. 3.

¹⁶⁷ ARP-002-2017, (Exhibit MEX-84), p. 4.

¹⁶⁸ ARP-002-2017, (Exhibit MEX-84), p. 4 (citing M.E. Galindo Tovar, N. Ogata Aguilar and A.M. Arzate Fernández, "Some aspects of avocado (*Persea americana* Mill.) diversity and domestication in Mesoamerica", *Genetic Resources and Crop Evolution*, Vol. 55 (2008), pp. 441-450 (Galindo Tovar *et al.* (2008)), (Exhibit MEX-22)).

¹⁶⁹ ARP-002-2017, (Exhibit MEX-84), p. 4 (citing J.F. Morton, "Avocado", in J.F. Morton (ed.), *Fruits of warm climates* (Miami, Florida, 1987) (Morton (1987)), (Exhibit CRI-126)).

taken to the West Indies and then to nearly all parts of the world with conditions suitable for its cultivation.¹⁷⁰

2.51. Report ARP-002-2017 states that avocado can be grown at altitudes from sea level up to 2,500 metres above sea level (masl); that temperature and rainfall are the two most critical factors for crop development; that, with regard to temperature, the cultivars used behave differently depending on their genetics, which allows them to adapt to most of the national territory; that 1,200 millimetres (mm) of rainfall annually, distributed evenly throughout the year, are sufficient to meet its water needs¹⁷¹; and that excess precipitation during the flowering and fruit setting stages reduces yield and causes the fruit to fall.¹⁷²

2.52. Report ARP-002-2017 points out that, according to FAOSTAT, total avocado production in Costa Rica in 2012 was an estimated 27,000 tonnes, most of which is destined for the domestic market¹⁷³; that the commercial Hass avocado farms are concentrated in the Central Valley and Los Santos zone¹⁷⁴, and in the regions of León Cortés, Tarrazú, Santa María de Dota, Grecia, Coronado, Poás, Goicoechea, Zarcero, Tres Ríos and Sarchí; that the majority of commercial farms are at altitudes of between 800 and 2,300 masl¹⁷⁵; that the low-lying avocado-producing area, comprising Orotina, San Mateo and Esparza, is known for its production of the West Indian avocado varieties, Fuerte, Torres, Catalina, Booth 8, Booth 7, Masutomi, Kahalu'u and Simmonds¹⁷⁶; and that avocado is grown in all seven of the country's provinces.¹⁷⁷

2.53. Report ARP-002-2017 indicates that the main area where Hass avocado is grown (Los Santos zone) is mountainous and hard to reach; and that the product is harvested into sacks or crates and carried by hand to a road accessible to four-wheel drive vehicles.¹⁷⁸

2.54. Report ARP-002-2017 notes that Costa Rica has regulations governing commercial nurseries, including avocado nurseries, which established a nursery registry and set out the procedures to follow¹⁷⁹, but that not all the producers buy their propagation material (seed and cuttings) from nurseries that are subject to regulation, instead most of them produce their own seedlings or scion material on site.¹⁸⁰

2.55. According to Report ARP-002-2017, a series of different propagation techniques are used, for example, direct seeding (the plants are subsequently grafted), germinating the seed in containers (then transplanting the sprouts to the field and grafting them) and sowing seeds in bags (grafted in the nursery and then transplanted).¹⁸¹ Report ARP-002-2017 also notes that, in the cantons of León Cortés, Tarrazú and Dota, the avocado seeds of fruits that fall on the ground are left to

¹⁷⁰ ARP-002-2017, (Exhibit MEX-84), p. 4 (citing Morton (1987), (Exhibit CRI-126)).

¹⁷¹ ARP-002-2017, (Exhibit MEX-84), p. 4 (citing M. Garbanzo Solís, *Manual de Aguacate – Buenas Prácticas de Cultivo Variedad Hass*, 2ª ed. (San José, Costa Rica: MAG, 2011) (Garbanzo Solís (2011)), (Exhibit MEX-125)).

¹⁷² ARP-002-2017, (Exhibit MEX-84), p. 4.

¹⁷³ ARP-002-2017, (Exhibit MEX-84), p. 4 (citing Food and Agriculture Organization Corporate Statistical Database (FAOSTAT), Production Indices, Costa Rica 2012, available from: *faostat.fao.org* (FAOSTAT, Production Indices, Costa Rica 2012), (Exhibit CRI-119)).

¹⁷⁴ ARP-002-2017, (Exhibit MEX-84), p. 4 (citing Empresa consultora CONSULSANTOS S.R.L., "Informe acerca de los resultados del censo socioeconómico-productivo de los productores de aguacate de la subregión Los Santos dentro de la consultoría: 'Caracterización socioeconómica y georreferenciación del cultivo del aguacate de altura en la zona de los Santos'" (2010) (CONSULSANTOS (2010)), (Exhibit MEX-119)).

¹⁷⁵ ARP-002-2017, (Exhibit MEX-84), p. 4. Report ARP-002-2017 citing exhibit "(MAG 1991)", which is not part of the record for this dispute.

¹⁷⁶ ARP-002-2017, (Exhibit MEX-84), pp. 4-5 (citing Consejo Nacional de Producción, Ministerio de Agricultura y Ganadería de Costa Rica, "Alternativas para la comercialización del aguacate en la Zona de los Santos" (1995) (Consejo Nacional de Producción (1995)), (Exhibit CRI-114)).

¹⁷⁷ ARP-002-2017, (Exhibit MEX-84), p. 5 (citing Instituto Nacional de Estadísticas y Censo (INEC) de Costa Rica, VI Censo Agropecuario, "Cultivos agrícolas, forestales y ornamentales", San José, Costa Rica, julio 2015 (INEC, Crops (2015)), (Exhibit CRI-63); and Instituto Nacional de Estadísticas y Censo (INEC) de Costa Rica, VI Censo Agropecuario, "Atlas estadístico agropecuario", noviembre 2015 (INEC, Agricultural statistical atlas (2015)), (Exhibit CRI-64)).

¹⁷⁸ ARP-002-2017, (Exhibit MEX-84), p. 5 (citing CONSULSANTOS (2010), (Exhibit MEX-119)).

¹⁷⁹ ARP-002-2017, (Exhibit MEX-84), p. 5 (citing Presidente de la República y Ministro de Agricultura y Ganadería, Reglamento de Viveros, Almacigos, Semilleros y Bancos de Yemas N° 33927, 2 de julio de 2007 (Nursery regulations (2007)), (Exhibit CRI-30)).

¹⁸⁰ ARP-002-2017, (Exhibit MEX-84), p. 5 (citing CONSULSANTOS (2010), (Exhibit MEX-119)).

¹⁸¹ ARP-002-2017, (Exhibit MEX-84), p. 5 (citing CONSULSANTOS (2010), (Exhibit MEX-119)).

germinate in the field by themselves. When producers find them, they tend the plants and then graft them to obtain a new, low-cost plant.¹⁸²

2.56. Report ARP-002-2017 points out that the use of plants derived from rootstock-scion combinations is a practice recognized by the fruit industry¹⁸³; and that, in the case of Costa Rica, one of the cultivars used successfully as a rootstock in the main avocado-producing area is the Hass.¹⁸⁴ Report ARP-002-2017 adds that the practice of using Hass rootstock increases the likelihood of using seed from avocado imported for human consumption; that the existence of seed-borne regulated pests creates a phytosanitary risk that must be managed, since there is a viable seed inside the fruit that could introduce regulated pests into the PRA area; and that imported avocados are distributed throughout Costa Rica.¹⁸⁵

2.57. Report ARP-002-2017 states that the aforementioned cultural practices create a situation in which a producer may use seed from outside his or her farm; that the seeds of fruit consumed¹⁸⁶, waste from wholesale markets and avocado processors can be a ready source of avocado seed of unknown quality¹⁸⁷; and that this situation must be assessed as part of the PRA in order to be able to manage the risk appropriately, as, according to Report ARP-002-2017, is shown in the 2016 report, "Diversion from intended use"¹⁸⁸, and to mitigate the risk to a level commensurate with Costa Rica's appropriate level of protection.¹⁸⁹ Report ARP-002-2017 adds that people who consume good quality avocado and have space to cultivate this fruit are likely to plant the seed¹⁹⁰; and that not all the population has the purchasing power to buy Hass avocados, which are more expensive.¹⁹¹

2.58. Report ARP-002-2017 mentions that, according to Holdridge's (1987) classification of climate zones, the main life zones in Costa Rica are tropical moist forest, tropical dry forest, tropical wet forest, premontane moist forest and premontane wet forest¹⁹²; that the life zones of tropical dry forest have a marked dry season, during which avocado seeds dry up when they fall to the ground and do not germinate; that the dry season runs from December to May; and that the rest of the year is rainy, with weather conditions optimal for the germination of the seed without human assistance.¹⁹³

2.59. Report ARP-002-2017 adds that there are endemic avocado varieties in Costa Rica¹⁹⁴, which are both wild and cultivated; that, unlike other parts of the world, a series of optimal climatic conditions for the germination of avocado seeds exist in Costa Rica; that in Costa Rica these seeds do not need any special treatment or care to ensure their germination; that the seeds germinate without human assistance when they fall naturally or are discarded in gardens, the countryside and fields where avocado is cultivated¹⁹⁵; and that this situation does not arise in other countries, leading to considerable disparities with the possible regulations adopted by countries with different climatic conditions that import fresh avocado fruit for human consumption. Report ARP-002-2017 states that the introduction of a viroid such as ASBVd reduces the possibility of using native varieties of avocado in genetic improvement programmes, leading to negative consequences for the avocado industry

¹⁸² ARP-002-2017, (Exhibit MEX-84), pp. 5-6 (citing CONSULSANTOS (2010), (Exhibit MEX-119)).

¹⁸³ ARP-002-2017, (Exhibit MEX-84), p. 6.

¹⁸⁴ ARP-002-2017, (Exhibit MEX-84), p. 6 (citing CONSULSANTOS (2010), (Exhibit MEX-119); and Garbanzo Solís (2011), (Exhibit MEX-125)).

¹⁸⁵ ARP-002-2017, (Exhibit MEX-84), p. 6.

¹⁸⁶ ARP-002-2017, (Exhibit MEX-84), p. 6 (citing Documento de la empresa consultora CONSULSANTOS S.R.L., 16 de marzo de 2017 (CONSULSANTOS (2017)), (Exhibit MEX-118)).

¹⁸⁷ ARP-002-2017, (Exhibit MEX-84), p. 6.

¹⁸⁸ ARP-002-2017, (Exhibit MEX-84), p. 6 (citing Secretaría de la CIPF, "Diversion from intended use" (2016) (IPPC Secretariat, "Diversion from intended use" (2016)), (Exhibit MEX-124)).

¹⁸⁹ ARP-002-2017, (Exhibit MEX-84), p. 6.

¹⁹⁰ ARP-002-2017, (Exhibit MEX-84), p. 7 (citing CONSULSANTOS (2017), (Exhibit MEX-118)).

¹⁹¹ ARP-002-2017, (Exhibit MEX-84), p. 7.

¹⁹² ARP-002-2017, (Exhibit MEX-84), p. 7 (citing L.R. Holdridge, *Ecología basada en zonas de vida*, Instituto Interamericano de Cooperación para la Agricultura, San José, Costa Rica (1982) (Holdridge (1982)), (Exhibit CRI-122)). Report ARP-002-2017 refers to Holdridge (1987), but the corresponding exhibit, submitted by Costa Rica, is dated 1982.

¹⁹³ ARP-002-2017, (Exhibit MEX-84), p. 7 (citing CONSULSANTOS (2010), (Exhibit MEX-119)).

¹⁹⁴ ARP-002-2017, (Exhibit MEX-84), p. 7 (citing Galindo Tovar *et al.* (2008), (Exhibit MEX-22)).

¹⁹⁵ ARP-002-2017, (Exhibit MEX-84), p. 7 (citing CONSULSANTOS (2010), (Exhibit MEX-119)).

and biodiversity, as well as imposing constraints on and increasing production costs for the export of avocado plants.¹⁹⁶

2.1.2.1.3 Uncertainty

2.60. Report ARP-002-2017 states that "[t]here are currently records of expert testimony (CONSULSANTOS 2017) that demonstrate diversion from intended use, however, to date, no statistics are available on the quantity of imported fruit from which the seed is extracted for propagation purposes".¹⁹⁷ Report ARP-002-2017 cites the paper "Diversion from intended use" (2016):

The practice of diversion from intended use (DFIU) may be unintentional, or done with knowledge of its illegal status. It is rarely documented or reported, but anecdotal evidence suggests it is occurring in most parts of the world. It is considered most serious when products designated for consumption (including grain), time-limited decorative purposes (such as cut flowers and branches) or processing instead end up being used for planting, so that any associated pests may be introduced into the open environment unchecked.¹⁹⁸

2.1.2.1.4 Pest risk analysis

2.61. Report ARP-002-2017 states that, in the probability tables, in the section on the intended use of fresh fruit for consumption, the Costa Rican authorities, on the understanding that the fruit is imported with the intended use of consumption, will assign it the corresponding values in the PRA. Report ARP-002-2017 clarifies, however, that, as the seed and skin are not consumed, the potential of this waste to introduce and subsequently spread quarantine pests is analysed¹⁹⁹; and that diversion from intended use was considered because, given the quantity of fruit that is imported, the national plant protection organization (NPPO) would be hard-pressed to be able to track the fruit after import²⁰⁰ and the viable seed borne therein.²⁰¹

2.62. Report ARP-002-2017 indicates that symptomatic ASBVd causes damage to the fruit that reduces their acceptability for market; and that these fruit are unlikely to be included in a consignment of commercial avocado for export.²⁰² Report ARP-002-2017 also indicates that, however, in the case of asymptomatic fruit, which are of concern to the Costa Rican phytosanitary authorities, the situation is different; and that asymptomatic fruit carrying the viroid can have a seed transmission rate of between 90% and 95%²⁰³, and can meet the export market's quality requirements²⁰⁴, as it does not present symptoms of the viroid. Report ARP-002-2017 adds that these fruit can therefore be part of a commercial consignment and require specific laboratory tests to determine the presence or absence of the viroid.²⁰⁵

¹⁹⁶ ARP-002-2017, (Exhibit MEX-84), p. 7.

¹⁹⁷ ARP-002-2017, (Exhibit MEX-84), p. 8 (citing CONSULSANTOS (2017), (Exhibit MEX-118)).

¹⁹⁸ ARP-002-2017, (Exhibit MEX-84), p. 8 (citing IPPC Secretariat, "Diversion from intended use" (2016), (Exhibit MEX-124)).

¹⁹⁹ ARP-002-2017, (Exhibit MEX-84), p. 8.

²⁰⁰ ARP-002-2017, (Exhibit MEX-84), p.8 (citing IPPC Secretariat, "Diversion from intended use" (2016), (Exhibit MEX-124)).

²⁰¹ ARP-002-2017, (Exhibit MEX-84), p. 8 (citing D.H. Spalding, R.J. Knight and W.F. Reeder, "Storage of Avocado Seeds", *Proceedings Florida State Horticultural Society*, Vol. 89 (1976), pp. 257-258 (Spalding et al. (1976)), (Exhibit MEX-133)).

²⁰² ARP-002-2017, (Exhibit MEX-84), p. 9 (citing L. Dorantes, L. Parada and A. Ortiz, "Avocado Post Harvest Operations", INPhO – Post-harvest Compendium, Food and Agriculture Organization (FAO) (2004) (Dorantes et al. (2004)), (Exhibit CRI-117)).

²⁰³ ARP-002-2017, (Exhibit MEX-84), p. 9 (citing J.M. Wallace and R.J. Drake, "Seed Transmission of the Avocado Sun-Blotch Virus", *Citrus Leaves*, Vol. 33, No. 12 (1953) (Wallace and Drake (1953)), (Exhibit CRI-141)).

²⁰⁴ ARP-002-2017, (Exhibit MEX-84), p. 9 (citing Dorantes et al. (2004), (Exhibit CRI-117)); and Servicio Fitosanitario del Estado de Costa Rica, Unidad de Análisis de Riesgo de Plagas, "Informe Técnico 025-2015-ARP-SFE", 25 de mayo de 2015 (Technical report 025-2015-ARP-SFE (2015)), (Exhibit MEX-138)).

²⁰⁵ ARP-002-2017, (Exhibit MEX-84), p. 9.

2.1.2.2 Stage 1: Initiation

2.63. Report ARP-002-2017 states that the PRA has been initiated by the review of a phytosanitary policy, and that the phytosanitary policy reviewed in Report ARP-002-2017 is that covering the importation into Costa Rica of fresh avocados (*Persea americana* Mill.) for consumption, for the purpose of identifying and assessing the quarantine pest risk associated with the importation of that product.²⁰⁶

2.64. Report ARP-002-2017 identifies the territory of Costa Rica as the PRA area, that is, all 51,100 km².²⁰⁷

2.65. Report ARP-002-2017 contains a list of six potential quarantine pests associated with fresh avocados from Mexico, which includes ASBVd.²⁰⁸

2.1.2.2.1 ASBVd

2.66. Report ARP-002-2017 states that ASBVd, or Avocado sunblotch viroid, is a single-stranded ribonucleic acid (RNA) molecule with a chain length of 247 nucleotides, which does not code for any protein; that it replicates autonomously in the chloroplasts of its hosts; that it belongs to the family *Avsunviroidae*, characterized by the ability to fold into hammerhead structures and to self-catalyze; that it is considered atypical because it has a different nucleotide sequence, in addition to its hammerhead structure, and lacks the central conserved region characteristic of other viroids.²⁰⁹

2.67. Report ARP-002-2017 indicates that, according to Hadidi et al., ASBVd is a pest for which there are no known control methods, and that is difficult to manage and is a quarantine pest for countries where it is not present.²¹⁰

2.68. Report ARP-002-2017 states that small changes in the nucleotide sequence can have a dramatic effect on symptom expression²¹¹; and that Semancik and Szychowski categorized ASBVd according to the sequence variants, associated with the symptoms displayed, as ASBVd-B (bleached), ASBVd-V (variegated) and ASBVd-Sc (symptomless carrier tissue). Report ARP-002-2017 adds that trees with severe leaf bleach can later become symptomless carriers, but that environmental stressors, such as a severe pruning, may cause leaf bleach symptoms to return.²¹²

2.69. Report ARP-002-2017 states that all infected trees, whether symptomatic or symptomless, have greatly reduced yields²¹³; that the yield of asymptomatic Hass avocado trees fell by 15-30%²¹⁴; and that according to Da Graça it is inaccurate to call variants that do not present fruit or branch

²⁰⁶ ARP-002-2017, (Exhibit MEX-84), p. 10.

²⁰⁷ ARP-002-2017, (Exhibit MEX-84), p. 10.

²⁰⁸ ARP-002-2017, (Exhibit MEX-84), pp. 10-11 (in the case of ASBVd, citing De la Torre et al. (2009), (Exhibit MEX-70); SINAVEF, Update of the inventory list (2010), (Exhibit CRI-13); CABI, Crop Protection Compendium: Datasheet report for Avocado sunblotch viroid (CABI, Datasheet report for ASBVd), (Exhibit CRI-102); and Technical report 025-2015-ARP-SFE (2015), (Exhibit MEX-138)).

²⁰⁹ ARP-002-2017, (Exhibit MEX-84), p. 12 (citing A. Hadidi, R. Flores, J.W. Randles and J.S. Semancik, *Viroids* (CSIRO Publishing: Melbourne, Australia, 2003) (Hadidi et al. (2003)), (Exhibit CRI-121); and J.S. Semancik and J.A. Szychowski, "Avocado sunblotch disease: a persistent viroid infection in which variants are associated with differential symptoms", *Journal of General Virology*, Vol. 75 (1994), pp. 1543-1549 (Semancik and Szychowski (1994)), (Exhibit MEX-52)).

²¹⁰ ARP-002-2017, (Exhibit MEX-84), p. 12 (citing Hadidi et al. (2003), (Exhibit CRI-121)).

²¹¹ ARP-002-2017, (Exhibit MEX-84), p. 12 (citing R.C. Ploetz, E. Dann, K. Pegg, A. Eskalen, S. Ochoa and A. Campbell, "Pathogen exclusion: Options and implementation", *Actas VII Congreso Mundial del Aguacate* (Australia, 2011) (Ploetz et al. (2011)), (Exhibit MEX-56)).

²¹² ARP-002-2017, (Exhibit MEX-84), p. 12 (citing Semancik and Szychowski (1994), (Exhibit MEX-52)).

²¹³ ARP-002-2017, (Exhibit MEX-84), p. 13 (citing Ploetz et al. (2011), (Exhibit MEX-56)).

²¹⁴ ARP-002-2017, (Exhibit MEX-84), p. 13 (citing N.A. Mohamed and W. Thomas, "Viroid-like Properties of an RNA Species Associated with Sunblotch Disease of Avocados", *Journal of General Virology*, Vol. 46, No. 1 (1980) (Mohamed and Thomas (1980)), (Exhibit CRI-125)).

symptoms "symptomless", as the infection instead manifests itself in the reduced yield; and that, for example, the yield of symptomless Edranol trees was reduced by up to 82%.²¹⁵

2.70. Report ARP-002-2017 states that the principal forms of transmission of the viroid are using seed from symptomless fruit, grafting infected scion material, pruning or harvesting equipment contaminated with the sap of sick plants, natural root grafts and pollen.²¹⁶

2.71. Report ARP-002-2017 indicates that recent sampling confirmed that the pest is not present in Costa Rica; that those samples were taken by the Department of Regional Operations in the cantons of Grecia, Heredia, Naranjo, Cartago, Desamparados, Dota, El Guarco, León Cortés, Tarrazú, Abangares, Tilarán, Liberia, Esparza, Orotina and Coto Brus.²¹⁷ Report ARP-002-2017 states that, although Hadidi et al. (2003) and CABI (2017) indicate that ASBVd is present in Costa Rica, this assertion is incorrect, as it is based on the article by Vargas et al. (1997), which only mentions the presence of ASBVd in Peru, but not in Costa Rica²¹⁸; and that the disease is present in Israel²¹⁹, Spain²²⁰, South Africa²²¹, the United States²²², Guatemala²²³, Mexico²²⁴, Peru²²⁵, Venezuela²²⁶ and Australia.²²⁷

2.1.2.2.2 International regulations concerning ASBVd

2.72. Report ARP-002-2017 mentions that regulations have been adopted by Costa Rica with regard to Peru and the United States (California)²²⁸; by Ecuador with regard to anywhere in the world where the pest is present²²⁹; and by New Zealand with regard to Australia.²³⁰

²¹⁵ ARP-002-2017, (Exhibit MEX-84), p. 13 (citing J.V. da Graca, "Sunblotch-Associated Reduction in Fruit Yield in both Symptomatic and Symptomless Carrier Trees", *South African Avocado Growers' Association Yearbook*, Vol. 8 (1985), pp. 59-60 (Da Graca (1985)), (Exhibit CRI-103)).

²¹⁶ ARP-002-2017, (Exhibit MEX-84), p. 13 (citing Ploetz et al. (2011), (Exhibit MEX-56)).

²¹⁷ ARP-002-2017, (Exhibit MEX-84), p. 13.

²¹⁸ ARP-002-2017, (Exhibit MEX-84), p. 13 (citing Hadidi et al. (2003), (Exhibit CRI-121); and C.O. Vargas, M. Querci and L.F. Salazar, "Identificación y estado de diseminación del viroide del manchado solar del palto (*Persea americana* L.) en el Perú y la existencia de otros viroides en palto", *Fitopatología*, Vol. 26, No. 1 (1991) (Vargas et al. (1991)), (Exhibit CRI-137)).

²¹⁹ ARP-002-2017, (Exhibit MEX-84), p. 13 (citing Spiegel, M. Alper and R.N. Allen, "Evaluation of biochemical methods for the diagnosis of the avocado sunblotch viroid in Israel", *Phytoparasitica*, Vol. 12, No. 1 (1984) (Spiegel et al. (1984)), (Exhibit CRI-134)).

²²⁰ ARP-002-2017, (Exhibit MEX-84), p. 13 (citing C. López Herrera, F. Pliego and R. Flores, "Detection of avocado sunblotch viroid in Spain by double polyacrylamide gel electrophoresis", *Journal of Phytopathology*, Vol. 119 (1987), pp. 184-189 (López Herrera et al. (1987)), (Exhibit CRI-124)).

²²¹ ARP-002-2017, (Exhibit MEX-84), p. 13 (citing A.K. Acheampong, R. Akromah, F.A. Ofori, J.F. Takrama and M. Zeidan, "Is there *Avocado sunblotch* Viroid in Ghana?", *African Journal of Biotechnology*, Vol. 7, No. 20 (2008), pp. 3540-3545 (Acheampong et al. (2008)), (Exhibit MEX-58)).

²²² ARP-002-2017, (Exhibit MEX-84), p. 13 (citing J.E. Coit, "Sun-Blotch of the Avocado, A Serious Physiological Disease", *California Avocado Society 1928 Yearbook*, Vol. 12 (1928), pp. 26-29 (Coit (1928)), (Exhibit CRI-9)).

²²³ ARP-002-2017, (Exhibit MEX-84), p. 13 (citing R.E. Campos, U.E. SantaCruz, G.J.M. Rivera and M.J.A. Florez, "Distinción de los síntomas del viroide del aguacate 'Rayito de Sol' y su manejo en Michoacán, México", *Actas VII Congreso Mundial del Aguacate* (Australia, 2011) (Campos et al. (2011)), (Exhibit MEX-51)).

²²⁴ ARP-002-2017, (Exhibit MEX-84), p. 13 (citing De la Torre et al. (2009), (Exhibit MEX-70); and SINAVEF, Update of the inventory list (2010), (Exhibit CRI-13)).

²²⁵ ARP-002-2017, (Exhibit MEX-84), p. 13 (citing Vargas et al. (1991), (Exhibit CRI-137)).

²²⁶ ARP-002-2017, (Exhibit MEX-84), p. 13 (citing A. Rondón and M. Figueroa, "Mancha de sol (Sun blotch) de los aguacates (*Persea americana*) en Venezuela", *Agronomía Tropical*, Vol. 26, No. 5 (1976) (Rondón and Figueroa (1976)), (Exhibit CRI-139)).

²²⁷ ARP-002-2017, (Exhibit MEX-84), p. 13 (citing J.L. Dale and R.N. Allen, "Avocado affected by sunblotch disease contains low molecular weight ribonucleic acid", *Australasian Plant Pathology*, Vol. 8 (1979) (Dale and Allen (1979)), (Exhibit CRI-115)).

²²⁸ ARP-002-2017, (Exhibit MEX-84), p. 14 (citing Servicio Fitosanitario del Estado (SFE), Estadísticas de importación de aguacate 2015-2017 (2019) (SFE, Avocado imports statistics 2015-2017 (2019)), (Exhibit CRI-140)).

²²⁹ ARP-002-2017, (Exhibit MEX-84), p. 14 (citing Resolución de la Agencia Ecuatoriana de Aseguramiento de Calidad del Agro – AGROCALIDAD, Resolución N° 0008, Registro Oficial N° 698 (24 de febrero de 2016) (AGROCALIDAD, Ecuador, Resolución N° 0008), (Exhibit CRI-26)).

²³⁰ ARP-002-2017, (Exhibit MEX-84), p. 14 (citing Ministry of Agriculture and Forestry (MAF) (actualmente Ministry for Primary Industries), "Import Health Standard Commodity Sub-class: Fresh

2.73. Report ARP-002-2017 mentions that the United States' regulations governing the import of fresh avocados for human consumption²³¹ were revised, but that Costa Rica's situation differs from that of the United States, because ASBVd is not present in Costa Rica but it is in the United States, so the United States regulation could not be taken into consideration for Report ARP-002-2017.²³²

2.74. Report ARP-002-2017 states that one input considered was the New Zealand regulation for the import of fresh avocado fruit for human consumption from Australia, and asserts that New Zealand is in a similar situation to Costa Rica, because it is also free of ASBVd. Report ARP-002-2017 notes that New Zealand's document classifies ASBVd as a group 2 quarantine risk pest, which means that introducing such a pest could cause a major disruption to market access and/or significant economic impacts on the production of a product and/or the environment; and that New Zealand considers the waste generated by avocado imports (skin and seed) to be a pathway for the spread of quarantine pests.²³³

2.75. Report ARP-002-2017 also states that another input considered was Australia's biosecurity plan, which categorizes ASBVd as a pest with a high probability of introduction, establishment, spread, economic consequences and risk in general, both the symptomless and symptomatic forms.²³⁴

2.1.2.2.3 Conclusion of the initiation stage

2.76. Report ARP-002-2017 indicates that it was initiated by the review of national phytosanitary policy, to assess the phytosanitary risks associated with the pests present in avocados in Mexico but not present in Costa Rica; that the identified pathway of concern is fresh avocado fruit; and that one of the four quarantine pests identified and linked to that pathway is ASBVd.²³⁵

2.1.2.3 Stage 2: Pest risk assessment

2.77. Report ARP-002-2017 states that the process for pest risk assessment can be divided into three interrelated steps: (i) pest categorization; (ii) assessment of the probability of introduction and spread; and (iii) assessment of potential economic consequences and environmental impacts.²³⁶

2.1.2.3.1 Pest categorization

2.78. Report ARP-002-2017 included ASBVd on the list of quarantine pests for further analysis.²³⁷

2.1.2.3.2 Assessment of the probability of introduction and spread

2.79. Report ARP-002-2017 assessed the probability of introduction, including the probability of entry and establishment, and the probability of spread of ASBVd.

2.1.2.3.2.1 Probability of entry of ASBVd

2.80. With regard to the probability of entry of ASBVd into Costa Rica, Report ARP-002-2017 considered the following factors: the probability of the pest being associated with the pathway at origin (section A); the probability of survival during transport or storage (section B); the probability

Fruit/Vegetables Avocado, *Persea americana* from Australia" (3 de junio de 1998) (MAF, New Zealand's requirements (1998)), (Exhibit CRI-25)).

²³¹ ARP-002-2017, (Exhibit MEX-84), p. 14 (citing Animal and Plant Health Inspection Service (APHIS), Mexican Hass Avocado Import Program, Federal Register, Vol. 81, No. 103 (27 de mayo de 2016) (APHIS, Mexican Hass Avocado Import Program (2016)), (Exhibit CRI-111)).

²³² ARP-002-2017, (Exhibit MEX-84), p. 14.

²³³ ARP-002-2017, (Exhibit MEX-84), pp. 14-15 (citing MAF, New Zealand's requirements (1998), (Exhibit CRI-25)).

²³⁴ ARP-002-2017, (Exhibit MEX-84), p. 15 (citing Plant Health Australia (PHA), *Industry Biosecurity Plan for the Avocado Industry (Version 2.0)* (Canberra, ACT, 2011) (PHA (2011)), (Exhibit CRI-130)).

²³⁵ ARP-002-2017, (Exhibit MEX-84), p. 15.

²³⁶ ARP-002-2017, (Exhibit MEX-84), p. 15.

²³⁷ ARP-002-2017, (Exhibit MEX-84), p. 16.

of the pest surviving existing pest management procedures (section C); and the probability of transfer to a suitable host (section D):

- a. The probability of the pest being associated with the pathway at origin (section A) was deemed to be high (average 3 points), according to Report ARP-002-2017, when the given factors were assessed as follows:
 - i. The probability related to prevalence of the pest in the source area was deemed to be high (3 points), after determining that ASBVd is present without details of its distribution in Mexico²³⁸; that the incidence rate in Michoacán is 14%²³⁹; and that Mexico has neither declared areas within its territory to be pest-free areas or areas of low pest prevalence, nor provided any evidence to this effect.²⁴⁰
 - ii. The probability related to the occurrence of the pest in a life stage that would be associated with commodities, containers or conveyances was deemed to be high (3 points), after determining that ASBVd is systemic in avocado trees²⁴¹, and is therefore present in all tissues of the plant (seeds, leaves, branches, fruit and roots).²⁴²
 - iii. The probability related to the volume and frequency of movement along the pathway was deemed to be high (3 points), after determining that, on average, 12,600 tonnes of avocado are imported into Costa Rica annually.²⁴³
 - iv. The probability related to the seasonal timing was deemed to be high (3 points), after determining that the pest is not seasonal.²⁴⁴
 - v. The probability related to pest management, cultural and commercial procedures applied at the place of origin was deemed to be high (3 points), after determining that no phytosanitary protection product is known to be effective against ASBVd²⁴⁵; that Mexico failed to provide any information on nursery regulations that would reduce the incidence of ASBVd in the field²⁴⁶; and that selection prior to packing eliminates symptomatic fruit (should these fruits reach the packing plant), but symptomless fruit is not rejected.²⁴⁷
- b. The probability of survival during transport or storage (section B) was deemed to be high (average 3 points), according to Report ARP-002-2017, when the given factors were assessed as follows:
 - i. The probability related to the speed and conditions of transport and duration of the life cycle of the pest in relation to time in transport and storage was deemed to be high (3 points), after determining that these processes have no effect on the survival

²³⁸ ARP-002-2017, (Exhibit MEX-84), p. 34 (citing De la Torre et al. (2009), (Exhibit MEX-70); and SINAVEF, Update of the inventory list (2010), (Exhibit CRI-13); and CABI, Datasheet report for ASBVd, (Exhibit CRI-102)).

²³⁹ ARP-002-2017, (Exhibit MEX-84), p. 34 (citing M.R. Vallejo Pérez, D. Téliz Ortiz, R. de la Torre Almaraz, J.O. López Martínez and D. Nieto Ángel, "Avocado sunblotch viroid: Pest risk and potential impact in México", *Crop Protection*, Vol. 99 (Elsevier, 2017), pp. 118-127 (Vallejo Pérez et al. (2017))), (Exhibit MEX-47)).

²⁴⁰ ARP-002-2017, (Exhibit MEX-84), p. 34.

²⁴¹ ARP-002-2017, (Exhibit MEX-84), p. 34 (citing Ploetz et al. (2011), (Exhibit MEX-56)).

²⁴² ARP-002-2017, (Exhibit MEX-84), p. 34.

²⁴³ ARP-002-2017, (Exhibit MEX-84), p. 34 (citing SFE, Avocado imports statistics 2015-2017 (2019), (Exhibit CRI-140)).

²⁴⁴ ARP-002-2017, (Exhibit MEX-84), pp. 34-35 (citing Ploetz et al. (2011), (Exhibit MEX-56)).

²⁴⁵ ARP-002-2017, (Exhibit MEX-84), p. 35 (citing Hadidi et al. (2003), (Exhibit CRI-121)).

²⁴⁶ ARP-002-2017, (Exhibit MEX-84), p. 35 (citing Technical report 025-2015-ARP-SFE (2015), (Exhibit MEX-138)).

²⁴⁷ ARP-002-2017, (Exhibit MEX-84), p. 35 (citing Dorantes et al. (2004), (Exhibit CRI-117)).

- (infectivity) of ASBVd²⁴⁸; and that ASBVd is systemic in the tissues of the plant²⁴⁹, so as long as those tissues are in a good condition, the pest will remain infectious.²⁵⁰
- ii. The probability related to the vulnerability of the life stages during transport or storage was deemed to be high (3 points), after determining that ASBVd is not considered vulnerable²⁵¹ because it is a viroid and is distributed systemically in the plant tissue²⁵²; as long as the tissue is in a good condition, the pest will be present and infectious.²⁵³
 - iii. The probability related to the prevalence of pest likely to be associated with a consignment was deemed to be high (3 points), after determining that, because the pest is systemic in the plant tissue²⁵⁴ and the symptoms are not always expressed, the pest may well be associated with the consignment.²⁵⁵
 - iv. The probability related to the commercial procedures (for example, refrigeration) applied to consignments in the country of origin, country of destination, or in transport or storage was deemed to be high (3 points), after determining that the pest is unaffected by commercial procedures and it is systemic in the plant tissue.²⁵⁶ Report ARP-002-2017 points out that the effect on seed viability was tested by Wutscher and Maxwell on mature Lula avocado fruits, stating that, for seed germination to be affected, temperatures need to be between -6.7°C and -7.8°C for viability to be reduced by 50%, and at -8.9°C for germination to be reduced to zero. Temperatures of -5.6°C and higher did not affect germination.²⁵⁷ Report ARP-002-2017 adds that the average temperature of a commercial consignment is between 5°C and 7°C²⁵⁸, and that Spalding *et al.* found that germination of seeds of the Lula variety is 100% after being stored for two months at 4.4°C in non-perforated polyethylene bags.²⁵⁹
- c. Report ARP-002-2017 indicates that with regard to the probability of the pest surviving existing pest management procedures (section C), the following factors were assessed:
- i. The probability that the pest could survive post-harvest treatments (section C.1) was deemed to be high (3 points), after it was determined that post-harvest management has no effect on controlling the pest.²⁶⁰ According to Report ARP-002-2017, symptomatic fruit are discarded during post-harvest operations, however, the symptomless ones are not detected by packing staff or machines and are shipped together with pest-free fruit.²⁶¹
 - ii. The probability that the pest is not detected at the entry point (section C.2) was deemed to be high (3 points), after it was determined that, even if the inspection is thorough, it is not possible to detect the presence of the pest at the entry point.²⁶²

²⁴⁸ ARP-002-2017, (Exhibit MEX-84), p. 35.

²⁴⁹ ARP-002-2017, (Exhibit MEX-84), p. 35 (citing Ploetz et al. (2011), (Exhibit MEX-56)).

²⁵⁰ ARP-002-2017, (Exhibit MEX-84), p. 35.

²⁵¹ ARP-002-2017, (Exhibit MEX-84), p. 35.

²⁵² ARP-002-2017, (Exhibit MEX-84), p. 35 (citing Ploetz et al. (2011), (Exhibit MEX-56)).

²⁵³ ARP-002-2017, (Exhibit MEX-84), pp. 35-36.

²⁵⁴ ARP-002-2017, (Exhibit MEX-84), p. 36 (citing Ploetz et al. (2011), (Exhibit MEX-56)).

²⁵⁵ ARP-002-2017, (Exhibit MEX-84), p. 36 (citing Technical report 025-2015-ARP-SFE (2015), (Exhibit MEX-138)).

²⁵⁶ ARP-002-2017, (Exhibit MEX-84), p. 36 (citing Ploetz et al. (2011), (Exhibit MEX-56)).

²⁵⁷ ARP-002-2017, (Exhibit MEX-84), p. 36 (citing H.K. Wutscher and N.P. Maxwell, "The Effect of Sub-freezing Temperatures on Fruit Quality and Seed Viability of 'Lula' Avocado", *HortScience*, Vol. 4, No. 2 (1969), pp. 26-27 (Wutscher and Maxwell (1969)), (Exhibit MEX-132)).

²⁵⁸ ARP-002-2017, (Exhibit MEX-84), p. 36.

²⁵⁹ ARP-002-2017, (Exhibit MEX-84), p. 36 (citing Spalding et al. (1976) (Exhibit MEX-133)).

²⁶⁰ ARP-002-2017, (Exhibit MEX-84), p. 36 (citing Ploetz et al. (2011), (Exhibit MEX-56)).

²⁶¹ ARP-002-2017, (Exhibit MEX-84), p. 36 (citing Dorantes et al. (2004), (Exhibit CRI-117); and Technical report 025-2015-ARP-SFE (2015), (Exhibit MEX-138)).

²⁶² ARP-002-2017, (Exhibit MEX-84), pp. 36-37.

Report ARP-002-2017 indicates that there are symptomless strains of the pest²⁶³, so specific tests must be carried out to detect it.²⁶⁴

- d. The probability of transfer to a suitable host was deemed to be high (average 2.6 points)²⁶⁵, according to Report ARP-002-2017, when the given factors were assessed as follows:
- i. The probability related to the dispersal mechanisms, including vectors to allow movement from the pathway to a suitable host was deemed to be medium (2 points), after it was determined that the dispersal mechanisms from the pathway to a host are through growing a plant from the seed of symptomless fruit, because the pest is systemic in the tissue²⁶⁶; that the generation of rootstock from fruit from infected trees (including from the Hass variety) can significantly increase the incidence of ASBVd²⁶⁷; and that it does not require vectors, but bees can carry the pollen and infect the fruit that it pollinates.²⁶⁸
 - ii. The probability related to whether the imported commodity is to be sent to a few or many destination points in the PRA area was deemed to be high (3 points), after it was determined that the imported avocados are sent to many destination points, and that they are distributed across the country for retail sale in supermarket chains, by street vendors and at farmers' markets.²⁶⁹
 - iii. The probability related to the proximity of entry, transit and destination points to suitable hosts was deemed to be high (3 points), after it was determined that the host species (*Persea americana* Mill.) is found throughout the country, close to the entry, transit and final destination points²⁷⁰; that the West Indian races tend to grow naturally on the Pacific lowlands, from Guatemala to Costa Rica²⁷¹; that the avocado is native²⁷² to Costa Rica; and that avocado, both wild and cultivated, is present in all regions of the country.²⁷³
 - iv. The probability related to the time of year at which import takes place was deemed to be high (3 points), after it was determined that avocados were imported all year round.²⁷⁴

²⁶³ ARP-002-2017, (Exhibit MEX-84), p. 37 (citing R.J. Schnell, D.N. Kuhn, C.T. Olano and W.E. Quintanilla, "Sequence diversity among avocado sunblotch viroids isolated from single avocado trees", *Phytoparasitica*, Vol. 29 (2001) (Schnell et al. (2001)), (Exhibit CRI-131)).

²⁶⁴ ARP-002-2017, (Exhibit MEX-84), pp. 36-37 (citing R.J. Schnell, D.N. Kuhn, C.M. Ronning and D. Harkins, "Application of RT-PCR for indexing avocado sunblotch viroid", *Plant Disease*, Vol. 81, No. 9 (1997), pp. 1023-1026 (Schnell et al. (1997)), (Exhibit MEX-68)).

²⁶⁵ This figure was corrected by Costa Rica, from 2.6 to 2.66, in Servicio Fitosanitario del Estado de Costa Rica, Unidad de Análisis de Riesgo de Plagas, "Análisis de Riesgo de Plagas iniciado por la revisión de una política para la importación de frutos frescos de aguacate (*Persea americana* Mill.) para consumo, originarios de México" (Corrigenda de julio de 2019) (Corrigenda ARP-002-2017 (2019)), (Exhibit MEX-131)). Costa Rica states that "in July 2019, corrigenda to the PRAs were issued, which correct certain numerical errors, but do not alter the substance of the original PRAs". (Costa Rica's first written communication, fns 62 and 211).

²⁶⁶ ARP-002-2017, (Exhibit MEX-84), p. 37 (citing Ploetz et al. (2011), (Exhibit MEX-56)).

²⁶⁷ ARP-002-2017, (Exhibit MEX-84), p. 37 (citing Vallejo Pérez et al. (2017), (Exhibit MEX-47)).

²⁶⁸ ARP-002-2017, (Exhibit MEX-84), p. 37 (citing P.R. Desjardins, R.J. Drake, E.L. Atkins and B.O. Bergh, "Pollen transmission of avocado sunblotch virus experimentally demonstrated", *California Agriculture*, Vol. 33, No. 11 (1979), (Desjardins et al. (1979)), (Exhibit MEX-60)).

²⁶⁹ ARP-002-2017, (Exhibit MEX-84), p. 37.

²⁷⁰ ARP-002-2017, (Exhibit MEX-84), p. 37 (citing Garbanzo Solís (2011), (Exhibit MEX-125)).

²⁷¹ ARP-002-2017, (Exhibit MEX-84), p. 37 (citing W.B. Storey, B. Bergh and G.A. Zentmyer, "The origin, indigenous range, and dissemination of the avocado", *California Avocado Society Yearbook*, Vol. 70 (1986) (Storey et al. (1986)), (Exhibit CRI-135)).

²⁷² ARP-002-2017, (Exhibit MEX-84), p. 37 (citing Galindo Tovar et al. (2008), (Exhibit MEX-22)).

²⁷³ ARP-002-2017, (Exhibit MEX-84), p. 37.

²⁷⁴ ARP-002-2017, (Exhibit MEX-84), pp. 37-38 (citing SFE, Avocado imports statistics 2015-2017 (2019), (Exhibit CRI-140)).

- v. The probability related to the intended use of the commodity was deemed to be medium (2 points), after it was determined that its intended use is consumption.²⁷⁵
- vi. The probability related to the risks from by-products and waste was deemed to be high (3 points), after it was determined that the waste of fresh avocado fruit are the skins and seeds; that, as it contains a viable seed, there is a risk of pest introduction through the waste²⁷⁶; and that the germination of a seed from a symptomless fruit would introduce the pest into the PRA area.²⁷⁷

2.81. The probability of entry assessment table (Table 3) contains the following results²⁷⁸:

A	B	C.1	C.2	D	Cumulative
High 3	High 3	High 3	High 3	High 2.6	High 14.63/15 ²⁷⁹

2.1.2.3.2.2 Probability of establishment

2.82. With regard to the probability of establishment of ASBVd in Costa Rica, Report ARP-002-2017 considered the following factors: availability of suitable hosts, alternate hosts and vectors in the PRA area (section A); suitability of environment (section B); cultivation practices and control measures (section C); and other characteristics of the pest affecting the probability of establishment (section D).

- a. The probability related to availability of suitable hosts, alternate hosts and vectors in the PRA area (section A) was deemed to be low (1 point), after it was determined that the viroid has been found exclusively in *Persea americana* Mill.²⁸⁰ Report ARP-002-2017 notes that, in the case of seeds that germinate from imported avocado fruit, either because the waste (seed) was disposed of in a place suitable for seed germination or because it was diverted from its intended use, the pest would already be systemic in the host plant's tissue.²⁸¹
- b. The probability related to suitability of environment (section B) was deemed to be high (3 points), after it was determined that the conditions this pest needs to survive are those required by the host, the avocado tree²⁸²; that the avocado is a plant native to Mesoamerica²⁸³; and that the environment in the PRA area is favourable for this pest.²⁸⁴
- c. The probability related to cultivation practices and control measures (section C) was deemed to be medium (2 points), after it was determined that there is no control method for this pest²⁸⁵, and the only option is to eradicate or rogue trees²⁸⁶; that the documented cultivation practices in Costa Rica would affect the spread of the pest, given that producers are known to prepare their own seedbeds and do not turn to commercial nurseries, that pruning or harvesting tools are not disinfected between trees, that replanting orchards is extremely expensive, and that nurseries, which are subject to government regulations,

²⁷⁵ ARP-002-2017, (Exhibit MEX-84), p. 38.

²⁷⁶ ARP-002-2017, (Exhibit MEX-84), p. 38.

²⁷⁷ ARP-002-2017, (Exhibit MEX-84), p. 38 (citing Ploetz et al. (2011), (Exhibit MEX-56)).

²⁷⁸ ARP-002-2017, (Exhibit MEX-84), p. 38.

²⁷⁹ This figure was corrected by Costa Rica, from 14.63/15 to 14.67/15, in the Corrigenda ARP-002-2017 (2019), (Exhibit MEX-131). Costa Rica states that "in July 2019, corrigenda to the PRAs were issued, which correct certain numerical errors, but do not alter the substance of the original PRAs". (Costa Rica's first written submission, fns 62 and 211).

²⁸⁰ ARP-002-2017, (Exhibit MEX-84), p. 38 (citing W.T. Horne, "Avocado Diseases in California", University of California, *Berkeley Bulletin*, Vol. 585 (1934) (Horne (1934)), (Exhibit CRI-138)).

²⁸¹ ARP-002-2017, (Exhibit MEX-84), p. 38 (citing Ploetz et al. (2011), (Exhibit MEX-56)).

²⁸² ARP-002-2017, (Exhibit MEX-84), pp. 38-39.

²⁸³ ARP-002-2017, (Exhibit MEX-84), pp. 38-39 (citing Galindo Tovar *et al.* (2008), (Exhibit MEX-22)).

²⁸⁴ ARP-002-2017, (Exhibit MEX-84), pp. 38-39 (citing Holdridge (1982), (Exhibit CRI-122)). Report ARP-002-2017 refers to Holdridge (1987), but the corresponding exhibit, submitted by Costa Rica, is dated 1982.

²⁸⁵ ARP-002-2017, (Exhibit MEX-84), p. 39 (citing Hadidi *et al.* (2003), (Exhibit CRI-121)).

²⁸⁶ ARP-002-2017, (Exhibit MEX-84), p. 39.

are not the main source of material planted in the field²⁸⁷; and that the foregoing is related to the diversion from intended use, that is, the practice of using seeds from imported Hass avocados to grow new plants despite the fact that those avocados were originally imported for human consumption.²⁸⁸

- d. The probability relating to other characteristics of the pest affecting the probability of establishment (section D) was deemed to be low (1 point), after it was determined that ASBVd does not have a high reproductive potential or the ability to spread quickly.²⁸⁹

2.83. The probability of establishment assessment table (Table 4) contains the following results²⁹⁰:

A	B	C	D	Cumulative
Low 1	High 3	Medium 2	Low 1	Medium 7/12

2.1.2.3.2.3 Probability of spread after establishment

2.84. With regard to the probability of spread of ASBVd in Costa Rica, Report ARP-002-2017 considered the following factors: the suitability of the natural or managed environment for natural spread of the pest (section A); the presence of natural barriers (section B); the potential for movement with commodities or conveyances (section C); the intended use of the product (section D); potential vectors of the pest in the PRA area (section E); and potential natural enemies of the pest in the PRA area (section F).

- a. The probability related to the suitability of the natural or managed environment for natural spread of the pest (section A) was deemed to be high (3 points), after it was determined that the environment is ideal for the spread of the pest, given that host plants are found across the PRA area.²⁹¹
- b. The probability related to the presence of natural barriers (section B) was deemed to be high (3 points), after it was determined that the country has no natural barriers to prevent the spread of this pest.²⁹²
- c. The probability related to the potential for movement with commodities or conveyances (section C) was deemed to be medium (2 points), after it was determined that the product is to be distributed throughout the country for sale.²⁹³
- d. The probability related to the intended use of the product (section D) was deemed to be medium (2 points), after it was determined that the intended use of the product is consumption.²⁹⁴
- e. The probability related to potential vectors of the pest in the PRA area (section E) was deemed to be low (1 point), after it was determined that the pest has no known vector.²⁹⁵
- f. The probability related to potential natural enemies of the pest in PRA areas (section F) was deemed to be high (3 points), after it was determined that this pest has no natural enemies.²⁹⁶

²⁸⁷ ARP-002-2017, (Exhibit MEX-84), p. 39 (citing CONSULSANTOS (2010), (Exhibit MEX-119)).

²⁸⁸ ARP-002-2017, (Exhibit MEX-84), p. 39.

²⁸⁹ ARP-002-2017, (Exhibit MEX-84), p. 39.

²⁹⁰ ARP-002-2017, (Exhibit MEX-84), p. 39.

²⁹¹ ARP-002-2017, (Exhibit MEX-84), p. 39 (citing INEC, Crops (2015), (Exhibit CRI-63); and INEC, Agricultural statistical atlas (2015), (Exhibit CRI-64)).

²⁹² ARP-002-2017, (Exhibit MEX-84), p. 40.

²⁹³ ARP-002-2017, (Exhibit MEX-84), p. 40.

²⁹⁴ ARP-002-2017, (Exhibit MEX-84), p. 40.

²⁹⁵ ARP-002-2017, (Exhibit MEX-84), p. 40 (citing Ploetz et al. (2011), (Exhibit MEX-56)).

²⁹⁶ ARP-002-2017, (Exhibit MEX-84), p. 40 (citing Ploetz et al. (2011), (Exhibit MEX-56)).

2.85. The probability of spread after establishment assessment table (Table 5) contains the following results²⁹⁷:

A	B	C	D	E	F	Cumulative
High 3	High 3	Medium 2	Medium 2	Low 1	High 3	Medium 14/18

2.1.2.3.3 Assessment of potential economic consequences

2.86. With regard to the potential economic consequences, Report ARP-002-2017 considered the economic effects of the pest and its environmental impact.

2.87. Report ARP-002-2017 determined that ASBVd is significant and that the probability of effects was high (3 points), with effects such as:

- a. Crop losses, in yield and quality.
- b. Effects on export market access.
- c. Changes to producer costs or input demands, including control costs.
- d. Changes to domestic or foreign consumer demand for a product resulting from quality variability.
- e. Feasibility and cost of eradication or containment.
- f. Resources needed for additional research and advice.²⁹⁸
- g. Vallejo Pérez et al. (2017) estimate that the pest could cause economic losses of USD 6,650 per hectare per year.²⁹⁹
- h. Vallejo Pérez et al. (2017) estimate that crop output could fall by between 730 kg/ha and 1,710 kg/ha (from an average national yield of 9,850 kg/ha in Mexico).³⁰⁰

2.88. Report ARP-002-2017 states that, in countries where ASBVd is present, reported average crop losses have been 30%; on average, 80% of fruits are rejected at the packing stage; and there has been a significant reduction in the yield of symptomless infected trees.³⁰¹

2.89. Report ARP-002-2017 found that the probability of environmental consequences was low (1 point), given that:

- a. The introduction of ASBVd would have a negative effect on native avocado germplasm and would therefore be detrimental to biodiversity.
- b. There is uncertainty about the potential of this viroid to infect other plant species of the *Persea* genus, such as the aguacatillo (*Persea caerulea*), a tree on which quetzal birds feed, creating potential biodiversity consequences. Report ARP-002-2017 adds that, while ASBVd has been transmitted to *Persea schiedeana* only as part of scientific studies, the possibility cannot be ruled out that, in response to higher inoculum pressure, it could be transmitted to other species of the genus *Persea* and even native *Lauraceae* species.³⁰²

²⁹⁷ ARP-002-2017, (Exhibit MEX-84), p. 40.

²⁹⁸ ARP-002-2017, (Exhibit MEX-84), pp. 40-41.

²⁹⁹ ARP-002-2017, (Exhibit MEX-84), p. 41 (citing Vallejo Pérez et al. (2017), (Exhibit MEX-47)).

³⁰⁰ ARP-002-2017, (Exhibit MEX-84), p. 41 (citing Vallejo Pérez et al. (2017), (Exhibit MEX-47)).

³⁰¹ ARP-002-2017, (Exhibit MEX-84), p. 41.

³⁰² ARP-002-2017, (Exhibit MEX-84), p. 41.

2.90. The economic consequences assessment table (Table 6) contains the following results³⁰³:

Economic impact	Environmental impact	Cumulative
High 3	Low 1	Medium 4/6

2.1.2.3.4 Conclusion of the pest risk assessment

2.91. Report ARP-002-2017 sets out the following cumulative risk score in Table 7³⁰⁴:

Table 3 cumulative score	Table 4 cumulative score	Table 5 cumulative score	Table 6 cumulative score	Cumulative risk score
14.63/15	7/12	14/18	4/6	39.63/51 ³⁰⁵

2.92. Report ARP-002-2017 concluded that the cumulative risk score indicates a high level of risk, in accordance with Manual NR-ARP-PO-01_M-01, and that, as a result of the risk assessment and according to the Manual, ASBVd is a high-risk pest and appropriate pest risk management measures should therefore be considered.³⁰⁶

2.1.2.4 Stage 3: Pest risk management

2.93. Report ARP-002-2017 states that, based on the information arising from the risk analysis, the application of specific phytosanitary measures is recommended; that Costa Rica is free of the pest ASBVd and should therefore adopt the necessary phytosanitary measures to prevent its entry into Costa Rican territory; and that, in that regard, the measures adopted should achieve the "maximum level of phytosanitary protection".³⁰⁷

2.94. Report ARP-002-2017 indicates that inspections at entry points are not sufficient to ensure phytosanitary security, given that ASBVd is often asymptomatic in fruit and that specific tests are needed to detect it.³⁰⁸

2.95. Report ARP-002-2017 recommends the following phytosanitary measures in addition to the phytosanitary certificate:

- a. Consignments must be accompanied by an official phytosanitary certificate issued by the country of origin, which indicates, in the section for additional declarations, that the fruit is free of ASBVd; or
- b. Consignments must be accompanied by an official phytosanitary certificate issued by the country of origin, which indicates, in the section for additional declarations, that the fruit comes from a place of production free of ASBVd (previously recognized by the SFE); or
- c. Consignments must adhere to a systems approach programme established bilaterally.³⁰⁹

2.96. Report ARP-002-2017 contains the following general recommendations for the SFE Directorate:

³⁰³ ARP-002-2017, (Exhibit MEX-84), p. 41.

³⁰⁴ ARP-002-2017, (Exhibit MEX-84), pp. 41-42.

³⁰⁵ This figure was corrected by Costa Rica, from (39.63/51) to (39.67/51), in the Corrigenda ARP-002-2017 (2019), (Exhibit MEX-131). Costa Rica states that "in July 2019, corrigenda to the PRAs were issued, which correct certain numerical errors, but do not alter the substance of the original PRAs". (Costa Rica's first written communication, fns 62 and 211).

³⁰⁶ ARP-002-2017, (Exhibit MEX-84), p. 42.

³⁰⁷ ARP-002-2017, (Exhibit MEX-84), p. 42.

³⁰⁸ ARP-002-2017, (Exhibit MEX-84), p. 42.

³⁰⁹ ARP-002-2017, (Exhibit MEX-84), pp. 42-43 and 49.

- a. Determine the absence of ASBVd at the entry point, by sampling and testing.
- b. Continue to monitor avocado-producing areas actively.
- c. Teach producers about the importance of using certified seed.
- d. Step up programmes on good agricultural practices for avocado.
- e. Regulate the use for propagation of seeds from avocados imported for consumption.³¹⁰

2.97. The following general requirements for fresh consumer products are outlined in Report ARP-002-2017: (i) they must be properly packaged and identified and free of plant debris, soil, snails and slugs; and (ii) they shall be subject to phytosanitary controls at the entry point.³¹¹

2.1.2.5 ASBVd datasheet

2.98. Report ARP-002-2017 contains in Annex 1 a datasheet on ASBVd, entitled Datasheet for ARP 001-2014.³¹²

2.99. The following characteristics of ASBVd are listed in Report ARP-002-2017:

- a. Common name of the pest: English: Avocado sunblotch; Spanish: *Mancha de sol*; acronym: ASBVd.³¹³
- b. Classification: taxonomic tree: Virus, Viroids, Avsunviroidae, Avsunviroid, Avocado sunblotch viroid.³¹⁴
- c. Hosts: Reported as a disease of the avocado variety (*Persea americana*), which is its only natural host³¹⁵; ASBVd attacks the leaves, stems and fruits.³¹⁶
- d. Geographical distribution: ASBVd has been reported in Israel, Spain, South Africa, the United States, Guatemala³¹⁷, Mexico (present without details of its distribution)³¹⁸, Peru³¹⁹, Venezuela³²⁰ and Australia.³²¹
- e. Symptoms: The datasheet states that the symptoms of sunblotch were first described by Horne and Parker³²², and that, although they vary widely depending on the cultivar, the environment and the variant of the viroid, the most typical are:
 - i. Yellow, pink, white or reddish streaks on young branches or shoots.³²³

³¹⁰ ARP-002-2017, (Exhibit MEX-84), p. 43.

³¹¹ ARP-002-2017, (Exhibit MEX-84), p. 50.

³¹² ARP-002-2017, (Exhibit MEX-84), p. 56.

³¹³ ARP-002-2017, (Exhibit MEX-84), p. 56.

³¹⁴ ARP-002-2017, (Exhibit MEX-84), p. 56 (citing CABI, Datasheet report for ASBVd, (Exhibit CRI-102)).

³¹⁵ ARP-002-2017, (Exhibit MEX-84), p. 56 (citing Horne (1934), (Exhibit CRI-138)).

³¹⁶ ARP-002-2017, (Exhibit MEX-84), p. 56 (citing CABI, Datasheet report for ASBVd, (Exhibit CRI-102)).

³¹⁷ ARP-002-2017, (Exhibit MEX-84), p. 57 (citing Campos Rojas et al. (2011), (Exhibit MEX-51)).

³¹⁸ ARP-002-2017, (Exhibit MEX-84), p. 57 (citing SINAVEF, Update of the inventory list (2010), (Exhibit CRI-13)).

³¹⁹ ARP-002-2017, (Exhibit MEX-84), p. 57 (citing Vargas *et al.* (1991), (Exhibit CRI-137)).

³²⁰ ARP-002-2017, (Exhibit MEX-84), p. 57 (citing Rondón and Figueroa (1976), (Exhibit CRI-139)).

³²¹ ARP-002-2017, (Exhibit MEX-84), p. 57 (citing Dale and Allen (1979), (Exhibit CRI-115)).

³²² ARP-002-2017, (Exhibit MEX-84), p. 57 (citing WM.T. Horne and E.R. Parker, "The Avocado disease called sunblotch", *Phytopathology*, Vol. 21 (1931), pp. 235-238 (Horne and Parker (1931)), (Exhibit CRI-123)).

³²³ ARP-002-2017, (Exhibit MEX-84), p. 57.

- ii. The fruit develop smooth, sunken yellow, white or reddish longitudinal patches.³²⁴ Depending on the degree of infection, the patches may be more likely to appear on the top half of the fruit; when the damage is severe, hard necrotic lesions can be seen; and symptoms may appear in fruit measuring just 1 centimetre (cm) and often develop in most of the fruit on the tree.³²⁵
- iii. The trees are stunted, bowed, malnourished, with sprawling non-productive secondary limbs and cracked bark on their branches and trunks; they are less vigorous, with short internodes and little foliage, and display a recumbent manner of growth, with branches spreading horizontally.³²⁶
- iv. The leaves may have white-yellow or chlorotic mottling or spotting (variegation), which may cause the tip of the leaf to become distorted and sometimes affects only part of the tree.³²⁷
- v. The bark of the trunk and large branches appears cracked (alligator skin), which is more obvious on the top side of the branch.³²⁸
- f. The datasheet notes that, in addition to the symptoms described, the pest can occur asymptotically, whereby high concentrations of the viroid are found in the tissues, but it does not result in the characteristic symptoms of variegated or bleached foliage or the symptoms seen in the fruit³²⁹; and that high concentrations of the pest in symptomless trees have also affected the ability to transmit the pest through the seed.³³⁰
- g. The datasheet indicates that Semancik and Szychowski categorized the different nucleotide sequence variants of ASBVd as follows: ASBVd-B (bleached), ASBVd-V (variegated), ASBVd-Sc (symptomless carrier); and that the same authors indicate that it is impossible to differentiate between a healthy leaf and one from a symptomless tree just by looking with the naked eye.³³¹
- h. Biology: The datasheet states that sunblotch is caused by the ASBVd viroid, which is a non-encapsulated, single-stranded RNA molecule of between 246 and 251 nucleotides and with a commonly varying sequence; that a total of 60 sequence variants have been identified from 122 clones; that there may even be variants associated with a single tree³³²; that ASBVd replicates and accumulates in the chloroplast of its host; and that, once the pathology is established, the chlorotic and variegated symptoms appear irregularly and unevenly, linked to yield losses and an increase in the seed transmission rate of the disease.³³³ The datasheet also notes that the methodology described by Schnell *et al.* is used to diagnose and index ASBVd, which consists of detecting the pathogen in nucleic acid extracts through the reverse transcriptase – polymerase chain reaction (RT-PCR); that the published methodology was accurate for more than 85% of assays and was much quicker than wedgebud grafting and waiting for symptom expression³³⁴; and that a study by Luttig and Manicom outlines a more precise and sensitive method, since the addition of polyvinylpyrrolidone removes polyphenols from old tissue, allowing for detection in adult leaves and not only in young leaves.³³⁵

³²⁴ ARP-002-2017, (Exhibit MEX-84), p. 57.

³²⁵ ARP-002-2017, (Exhibit MEX-84), p. 57 (citing J.R. Saucedo Carabez, D. Téliz Ortiz, M.R. Vallejo Pérez and H. Beltrán Peña, "The Avocado Sunblotch Viroid: An Invisible Foe of Avocado", *Viruses*, Vol. 11 (2019), p. 491 (Saucedo Carabez *et al.* (2019)), (Exhibit MEX-175)).

³²⁶ ARP-002-2017, (Exhibit MEX-84), p. 57 (citing Horne and Parker (1931), (Exhibit CRI-123)).

³²⁷ ARP-002-2017, (Exhibit MEX-84), p. 58 (citing Horne and Parker (1931), (Exhibit CRI-123)).

³²⁸ ARP-002-2017, (Exhibit MEX-84), p. 58.

³²⁹ ARP-002-2017, (Exhibit MEX-84), p. 61 (citing Semancik and Szychowski (1994), (Exhibit MEX-52)).

³³⁰ ARP-002-2017, (Exhibit MEX-84), p. 61.

³³¹ ARP-002-2017, (Exhibit MEX-84), p. 61 (citing Semancik and Szychowski (1994), (Exhibit MEX-52)).

³³² ARP-002-2017, (Exhibit MEX-84), p. 62 (citing Hadidi *et al.* (2003), (Exhibit CRI-121)).

³³³ ARP-002-2017, (Exhibit MEX-84), p. 62 (citing P.R. Desjardins, "Avocado Sunblotch", in T.O. Diener (ed.), *The Viroids* (Plenum Press: New York, 1987) (Desjardins (1987)), (Exhibit CRI-101)).

³³⁴ ARP-002-2017, (Exhibit MEX-84), p. 62 (citing Schnell *et al.* (1997), (Exhibit MEX-68)).

³³⁵ ARP-002-2017, (Exhibit MEX-84), p. 62 (citing M. Luttig and B.Q. Manicom, "Application of a Highly Sensitive Avocado Sunblotch Viroid Indexing Method", *South African Avocado Growers' Association Yearbook 1999*, Vol. 22 (1999), pp. 55-60 (Luttig and Manicom (1999)), (Exhibit MEX-69)).

- i. Spread: The datasheet states that the principal means of infection is transmission through propagation material, or implanted tissue and the introduction of seedlings infected with ASBVd grown from infected rootstock³³⁶; that several outbreaks of ASBVd occur when seedlings used as rootstock are produced from seeds taken from asymptomatic fruit, in which seed transmission is very high (95%)³³⁷; that mechanical transmission is possible through razor-slash inoculation and/or graft inoculation with filter paper containing extracts from infected trees, although this method is less efficient than graft transmission³³⁸; that Desjardins et al. demonstrated that transmission through pollen was between 1% and 4%³³⁹; and that Whitsell demonstrated transmission through natural root graftage.³⁴⁰
- j. Economic importance and phytosanitary risk: The datasheet states that ASBVd is a regulated pest in Costa Rica; that New Zealand has adopted regulations for the importation of fresh avocado from areas where the pest is known to be present³⁴¹; that Saucedo Carabez *et al.* found that symptomatic, sunblotch infected trees suffered a significant reduction in yield³⁴²; that asymptomatic Hass avocado trees have reductions of yield in the range of 15-30%; that the yield of symptomatic trees may fall by as much as 75% and that the fruit may weigh up to 40% less; that the incidence of symptomatic fruits is 46-62% in Hass avocado trees³⁴³; that symptomatic fruit ripen in an unusual manner and their content of ethylene and oils was affected.³⁴⁴ The datasheet also notes that attempts were made to inactivate sunblotch in avocado scion material, seeds and seedlings using heat treatment, which demonstrated that ASBVd can withstand any temperature that avocado tissue can³⁴⁵; and that, bearing in mind the transmission mechanisms, spread, control difficulties and geographical distribution of avocado crops in Costa Rica, it represents a potential risk, both for endemic cultivars and for commercial farms, impacting negatively on production.³⁴⁶
- k. Control: The datasheet notes that the removal of infected trees is the only known method of controlling ASBVd³⁴⁷; that the disease is difficult to control; and that there are no treatments or resistant varieties.³⁴⁸
- l. Bibliography: The datasheet also sets out the cited literature on ASBVd.³⁴⁹

2.1.3 Report ARP-006-2016

2.100. Report ARP-006-2016³⁵⁰, of July 2017, entitled "Pest Risk Analysis for Avocado sunblotch viroid (ASBVd) for fresh avocado fruit (*Persea americana* Mill.) for consumption and avocado plants (*Persea americana* Mill.) for planting", states that it was prepared by the UARP of the SFE of Costa Rica, "in order to determine the phytosanitary risk associated with the importation of fresh

³³⁶ ARP-002-2017, (Exhibit MEX-84), p. 62.

³³⁷ ARP-002-2017, (Exhibit MEX-84), pp. 62-63 (citing Hadidi *et al.* (2003), (Exhibit CRI-121)).

³³⁸ ARP-002-2017, (Exhibit MEX-84), p. 63 (citing Hadidi *et al.* (2003), (Exhibit CRI-121)).

³³⁹ ARP-002-2017, (Exhibit MEX-84), p. 63 (citing Desjardins et al. (1979), (Exhibit MEX-60)).

³⁴⁰ ARP-002-2017, (Exhibit MEX-84), p. 63 (citing R. Whitsell, "Sun-blotch disease of avocados", *California Avocado Society Yearbook*, (1952), pp. 215-240 (Whitsell (1952)), (Exhibit MEX-42)).

³⁴¹ ARP-002-2017, (Exhibit MEX-84), p. 63.

³⁴² ARP-002-2017, (Exhibit MEX-84), p. 63 (citing J.R. Saucedo Carabez, D. Téliz Ortiz, S. Ochoa Ascencio, D. Ochoa Martínez, M.R. Vallejo Pérez and H. Beltrán Peña, "Effect of Avocado sunblotch viroid (ASBVd) on avocado yield in Michoacán, México", *European Journal of Plant Pathology*, Vol. 138 (Springer, 2014), pp. 799-805 (Saucedo Carabez et al. (2014)), (Exhibit MEX-45)).

³⁴³ ARP-002-2017, (Exhibit MEX-84), p. 63.

³⁴⁴ ARP-002-2017, (Exhibit MEX-84), p. 63 (citing Mohamed and Thomas (1980), (Exhibit CRI-125)).

³⁴⁵ ARP-002-2017, (Exhibit MEX-84), p. 63 (citing P.R. Desjardins, R.J. Drake and S.A. Swiecki, "Infectivity studies of avocado sunblotch disease causal agent, possibly a viroid rather than a virus", *Plant Disease*, Vol. 64 (1980) (Desjardins et al. (1980)), (Exhibit CRI-116)).

³⁴⁶ ARP-002-2017, (Exhibit MEX-84), p. 63.

³⁴⁷ ARP-002-2017, (Exhibit MEX-84), p. 64 (citing Hadidi et al. (2003), (Exhibit CRI-121)).

³⁴⁸ ARP-002-2017, (Exhibit MEX-84), p. 64.

³⁴⁹ ARP-002-2017, (Exhibit MEX-84), pp. 64-65.

³⁵⁰ Servicio Fitosanitario del Estado de Costa Rica, Unidad de Análisis de Riesgo de Plagas, "Análisis de Riesgo de Plagas por plaga para Avocado Sunblotch Viroid (ASBVd), para frutos frescos de aguacate para consumo (*Persea americana* Mill.) y plantas para plantar de aguacate (*Persea americana* Mill.)" (2017) (ARP-006-2016), (Exhibit MEX-85).

avocado fruit (*Persea americana* Mill.) for consumption and plants of the same species for planting, from countries where the pest, Avocado sunblotch viroid (ASBVd), is present".³⁵¹

2.101. Report ARP-006-2016 follows the same methodology and contains the same information on ASBVd as Report ARP-002-2017. However, while Report ARP-002-2017 was prepared in order to determine the risk of plant pests associated with the importation of fresh avocado fruit for human consumption from Mexico³⁵², Report ARP-006-2016 was produced to determine the phytosanitary risk associated with the importation of fresh avocado fruit for consumption and plants of the same species for planting from countries where the pest, ASBVd, is present.³⁵³ In other words, while Report ARP-002-2017 is specific to Mexico, Report ARP-006-2016 was produced for those countries in which Costa Rica has determined that ASBVd is present, i.e. Israel, Spain, South Africa, the United States, Guatemala, Mexico, Peru, Venezuela, Australia and Ghana; and while Report ARP-002-2017 addresses the risk associated with the importation of fresh avocado fruit for consumption, Report ARP-006-2016 also includes the risk associated with the importation of avocado plants for planting.

2.102. Mexico contends that, to the extent that the Reports ARP-002-2017 and ARP-006-2016 are only similar in terms of regulating the importation of fresh avocado for consumption, the Panel's findings with respect to Report ARP-002-2017 must also apply *mutatis mutandis* to Report ARP-006-2016 and vice versa.³⁵⁴

2.1.4 Resolution DSFE-003-2018

2.103. Resolution DSFE-003-2018³⁵⁵, issued on 29 January 2018 by the SFE, refers to Report ARP-002-2017.³⁵⁶ This Resolution replaced and repealed Resolutions DSFE-03-2015 of 22 April 2015³⁵⁷ and DSFE-11-2015 of 10 July 2015.^{358, 359}

2.104. Resolution DSFE-003-2018 established the following phytosanitary requirements for imports of fresh avocado fruit for consumption from Mexico:

- a. Consignments must be accompanied by an official phytosanitary certificate issued by Mexico, which indicates, in the section for additional declarations, that the fruit is free of *Conotrachelus aguacatae*, *Heilipus lauri* and *Maconelicoccus hirsutus*.³⁶⁰
- b. In the case of ASBVd, one of the following three requirements must be met:
 - i. Consignments must be accompanied by an official phytosanitary certificate issued by Mexico, which indicates, in the section for additional declarations, that the fruit is free of ASBVd.

³⁵¹ ARP-006-2016, (Exhibit MEX-85), p. 3.

³⁵² ARP-002-2017, (Exhibit MEX-84), p. 3.

³⁵³ ARP-006-2016, (Exhibit MEX-85), p. 3.

³⁵⁴ Mexico's first written submission, para. 112.

³⁵⁵ Servicio Fitosanitario del Estado de Costa Rica, Dirección Ejecutiva, Resolución DSFE-003-2018 (Resolution DSFE-003-2018), (Exhibit MEX-4).

³⁵⁶ Resolution DSFE-003-2018, (Exhibit MEX-4), p. 1.

³⁵⁷ Resolution DSFE-03-2015 temporarily suspends the issuing of phytosanitary import certificates for avocados from Australia, Spain, Ghana, Guatemala, Israel, Mexico, South Africa and Venezuela. (Servicio Fitosanitario del Estado de Costa Rica, Dirección Ejecutiva, Resolución DSFE-03-2015 (Resolution DSFE-03-2015), (Exhibit MEX-1), p. 3).

³⁵⁸ Resolution DSFE-11-2015 established the following phytosanitary requirements for imports of avocado fruit for consumption from Mexico, with respect to ASBVd: (i) products must come from plants grown in nurseries certified by the NPPO of the country of origin, as free of ASBVd, previously recognized by the SFE of Costa Rica; (ii) products are required to come from a place of production free of ASBVd, previously recognized by the SFE of Costa Rica. Furthermore, fresh products for consumption must be properly packaged and identified, be free of plant debris, soil, snails and slugs, and shall be subject to phytosanitary controls at the entry point. In addition, fruit samples shall be sent to the SFE nurseries in Pavas, San José, for planting and subsequent laboratory analysis to determine whether they are free of ASBVd, by the Central Pest Diagnostic Laboratory of the Laboratory Department of the SFE. (Servicio Fitosanitario del Estado de Costa Rica, Dirección Ejecutiva, Resolución DSFE-11-2015 (Resolution DSFE-11-2015), (Exhibit MEX-3), p. 9)

³⁵⁹ Resolution DSFE-003-2018, (Exhibit MEX-4), p. 4.

³⁶⁰ Resolution DSFE-003-2018, (Exhibit MEX-4), p. 4.

- ii. Consignments must be accompanied by an official phytosanitary certificate issued by Mexico, which indicates, in the section for additional declarations, that the fruit comes from a place of production free of ASBVd (previously recognized by the SFE).
- iii. Consignments must adhere to a systems approach programme established bilaterally, and which may be implemented, for example, through a work plan.³⁶¹
- c. General requirements for fresh products for consumption: Products must be properly packaged and identified, and be free of plant debris, soil, snails and slugs.³⁶²

2.105. Resolution DSFE-003-2018 also provides that consignments shall be subject to laboratory tests upon arrival in the country.³⁶³

2.1.5 Resolution DSFE-002-2018

2.106. Resolution DSFE-002-2018³⁶⁴, issued on 29 January 2018 by the SFE, refers to Report ARP-006-2016.³⁶⁵ This Resolution replaced and repealed Resolution DSFE-03-2015 of 22 April 2015.^{366, 367}

2.107. Resolution DSFE-002-2018 established the following phytosanitary measures for the importation of regulated articles that are vectors of ASBVd, from any country in which the pest ASBVd is present:

- a. Fresh avocado fruit (*Persea americana* Mill.) for human consumption must meet one of the following requirements:
 - i. Consignments must be accompanied by an official phytosanitary certificate issued by the country of origin, which indicates, in the section for additional declarations, that the fruit is free of ASBVd.
 - ii. Consignments must be accompanied by an official phytosanitary certificate issued by the country of origin, which indicates, in the section for additional declarations, that the fruit comes from a place of production free of ASBVd (previously recognized by the SFE).
 - iii. Consignments must adhere to a systems approach programme established bilaterally, and which may be implemented, for example, through a work plan.³⁶⁸
- b. Avocado (*Persea americana* Mill.) plants for planting.
 - i. Consignments must be accompanied by an official phytosanitary certificate issued by the country of origin, which indicates, in the section for additional declarations, that the plants come from mother plants which are free of ASBVd and which are subject to indexing and sampling at least twice a year. Laboratory analysis results must be attached. After importation, consignments shall be subject to post-entry quarantine for a period of up to six months.³⁶⁹

³⁶¹ Resolution DSFE-003-2018, (Exhibit MEX-4), p. 4.

³⁶² Resolution DSFE-003-2018, (Exhibit MEX-4), p. 5.

³⁶³ Resolution DSFE-003-2018, (Exhibit MEX-4), p. 5.

³⁶⁴ Servicio Fitosanitario del Estado de Costa Rica, Dirección Ejecutiva, Resolución DSFE-002-2018 (Resolution DSFE-002-2018), (Exhibit MEX-103).

³⁶⁵ Resolution DSFE-002-2018, (Exhibit MEX-103), p. 1

³⁶⁶ Resolution DSFE-03-2015 temporarily suspends the issuing of phytosanitary import certificates for avocados from Australia, Spain, Ghana, Guatemala, Israel, Mexico, South Africa and Venezuela. (Resolution DSFE-03-2015, (Exhibit MEX-1), p. 2).

³⁶⁷ Resolution DSFE-002-2018, (Exhibit MEX-103), p. 4

³⁶⁸ Resolution DSFE-002-2018, (Exhibit MEX-103), p. 4.

³⁶⁹ Resolution DSFE-002-2018, (Exhibit MEX-103), p. 4.

2.108. Resolution DSFE-002-2018 also provides that consignments shall be subject to laboratory tests upon arrival in the country.³⁷⁰

2.109. Mexico has argued that, to the extent that Resolutions DSFE-003-2018 and DSFE-002-2018 are similar in terms of regulating the importation of fresh avocado for consumption, the Panel's findings with respect to Resolution DSFE-003-2018 must also apply *mutatis mutandis* to Resolution DSFE-002-2018 and vice versa.³⁷¹

2.2 International Standards for Phytosanitary Measures (ISPM)

2.2.1 Background: The International Plant Protection Convention (IPPC) and its international standard-setting activities

2.110. The International Plant Protection Convention (IPPC)³⁷² is an international treaty deposited with the United Nations Food and Agriculture Organization (FAO), which seeks to "secur[e] common and effective action to prevent the spread and introduction of pests of plants and plant products, and ... promote appropriate measures for their control".³⁷³ To this end, the IPPC provides a framework and a forum for international cooperation, harmonization and technical exchange between contracting parties in the phytosanitary domain.³⁷⁴

2.111. The IPPC was adopted in 1951 by FAO and entered into force the following year, superseding all previous international plant protection agreements.³⁷⁵ In 1992, the IPPC Secretariat was established at FAO headquarters in Rome and began its international standard-setting programme, which was adopted by FAO in 1993.³⁷⁶

2.112. The IPPC contracting parties sought to revise the Convention in 1995 to reflect contemporary phytosanitary concepts and the role of the IPPC in relation to the SPS Agreement resulting from the WTO Uruguay Round. The New Revised Text of the IPPC was adopted in 1997 and entered into force in 2005.³⁷⁷ The Commission on Phytosanitary Measures (CPM) was established in 2005 as the Convention's governing body.³⁷⁸

2.113. The IPPC currently has 184 contracting parties, including Mexico and Costa Rica.³⁷⁹

2.114. The implementation of the IPPC requires the cooperation of national plant protection organizations (NPPOs) and regional plant protection organizations (RPPOs), which can act as regional coordination bodies for the fulfilment of IPPC objectives.³⁸⁰

³⁷⁰ Resolution DSFE-002-2018, (Exhibit MEX-103), p. 5.

³⁷¹ Mexico's first written submission, para. 109.

³⁷² Organización de las Naciones Unidas para la Alimentación y la Agricultura (FAO), *Convención Internacional de Protección Fitosanitaria* (CIPF), hecha en Roma el 6 de diciembre de 1951, documento de las Naciones Unidas Resolución N° 85/51, modificada por la Conferencia de la FAO, 20° período de sesiones, noviembre 1979, y en su 29° período de sesiones, noviembre 1997 (CIPF), (Exhibit MEX-82).

³⁷³ Article I.1 of the IPPC.

³⁷⁴ IPPC, Convention text, available at: <https://www.ippc.int/es/core-activities/governance/convention-text/> (accessed 30 November 2021).

³⁷⁵ IPPC, History of the IPPC, available at: <https://www.ippc.int/en/history-of-the-ippc/> (accessed 30 November 2021).

³⁷⁶ IPPC, History of the IPPC, available at: <https://www.ippc.int/en/history-of-the-ippc/> (accessed 30 November 2021).

³⁷⁷ IPPC, History of the IPPC, available at: <https://www.ippc.int/en/history-of-the-ippc/> (accessed 30 November 2021).

³⁷⁸ FAO, Commission on Phytosanitary Measures, available at: http://www.fao.org/unfao/govbodies/gsb-subject-matter/statutory-bodies-details/en/c/247/?no_cache=1 (accessed 30 November 2021).

³⁷⁹ IPPC, List of NPPOs of IPPC Contracting Parties, available at: <https://www.ippc.int/en/countries/nppos/list-countries/> (accessed 30 November 2021).

³⁸⁰ IPPC, Convention text, available at: <https://www.ippc.int/es/core-activities/governance/convention-text/> (accessed 30 November 2021).

2.115. The IPPC Secretariat helps to ensure the fulfilment of IPPC objectives. It is hosted at FAO headquarters in Rome, Italy.³⁸¹ The IPPC Secretariat's work programme includes the development of International Standards for Phytosanitary Measures (ISPMs).³⁸²

2.116. The CPM is the IPPC's global governing body. The CPM's members are IPPC contracting parties.³⁸³ The CPM meets every year to promote cooperation to help implement the objectives of the IPPC. Amongst other things, the CPM develops and adopts international standards.³⁸⁴

2.117. One of the CPM's subsidiary bodies is the Standards Committee³⁸⁵, which consists of 25 members from each of the seven FAO regions and is responsible for overseeing the standard-setting process and managing the development of the ISPMs.³⁸⁶

2.118. As of November 2021, the CPM had adopted 45 ISPMs, although one of them has been revoked.³⁸⁷

2.2.2 ISPMs identified by Mexico

2.119. The ISPMs identified by Mexico in this dispute, namely ISPM Nos. 1, 2, 4, 5, 6, 8, 11 and 32, are briefly described below on the basis of their own text.

2.2.2.1 ISPM No. 1: Phytosanitary principles for the protection of plants and the application of phytosanitary measures in international trade³⁸⁸

2.120. ISPM No. 1 was adopted in November 1993 and most recently revised in 2006.³⁸⁹

2.121. With regard to its scope, this standard describes basic phytosanitary principles for the protection of plants that are embodied in the IPPC and elaborated upon in its ISPMs; it covers principles related to the protection of plants, including cultivated and non-cultivated/unmanaged plants, wild flora and aquatic plants, those regarding the application of phytosanitary measures to the international movement of people, commodities and conveyances, as well as those inherent in the objectives of the IPPC. According to its text, the standard does not alter the IPPC, extend existing obligations, or interpret any other agreement or body of law.³⁹⁰

2.122. ISPM No. 1 states that it aims to aid in the understanding of the IPPC and provides guidance on the fundamental elements in phytosanitary systems; and adds that the principles described reflect key elements of the IPPC, are related to the rights and obligations of contracting parties to the IPPC, and should be considered jointly, in accordance with the full text of the IPPC, and not interpreted individually.³⁹¹

³⁸¹ IPPC, IPPC Secretariat, available at: <https://www.ippc.int/en/about/secretariat/> (accessed 30 November 2021).

³⁸² IPPC, The Commission on Phytosanitary Measures (CPM), available at: <https://www.ippc.int/en/core-activities/standards-and-implementation/> (accessed 30 November 2021).

³⁸³ IPPC, The Commission on Phytosanitary Measures (CPM), available at: <https://www.ippc.int/en/core-activities/governance/cpm/> (accessed 30 November 2021).

³⁸⁴ Article XI.2(b) of the IPPC; IPPC, The Commission on Phytosanitary Measures (CPM), available at: <https://www.ippc.int/en/core-activities/governance/cpm/> (accessed 30 November 2021). See also Article X of the IPPC.

³⁸⁵ IPPC, Governance & Strategies, available at: <https://www.ippc.int/en/core-activities/governance/> (accessed 30 November 2021).

³⁸⁶ IPPC, Standards Committee, available at: <https://www.ippc.int/en/core-activities/standards-setting/standards-committee/> (accessed 30 November 2021); and FAO, Standards Committee, available at: http://www.fao.org/unfao/govbodies/gsb-subject-matter/statutory-bodies-details/en/c/238/?no_cache=1 (accessed 30 November 2021).

³⁸⁷ IPPC, Adopted Standards, available at: <https://www.ippc.int/en/core-activities/standards-setting/ispm/> (accessed 30 November 2021). See also the response to question 1 from the Panel to the IPPC Secretariat.

³⁸⁸ Secretaría de la CIPF, *Principios fitosanitarios para la protección de las plantas y la aplicación de medidas fitosanitarias en el comercio internacional*, NIMF No. 1 (Roma, FAO en nombre de la Secretaría de la CIPF, adoptada en 2006, publicada en 2016) (ISPM No. 1), (Exhibit MEX-71).

³⁸⁹ ISPM No. 1, (Exhibit MEX-71), p. 4.

³⁹⁰ ISPM No. 1, (Exhibit MEX-71), p. 4.

³⁹¹ ISPM No. 1, (Exhibit MEX-71), p. 5.

2.123. ISPM No. 1 covers the basic principles of sovereignty, necessity, managed risk, minimal impact, transparency, harmonization, non-discrimination, technical justification, cooperation, equivalence of phytosanitary measures and modification.³⁹² It also addresses the operational principles under the IPPC, which are related to the establishment, implementation and monitoring of phytosanitary measures, and to the administration of official phytosanitary systems. These operational principles are: pest risk analysis, pest listing, recognition of pest free areas and areas of low pest prevalence, official control for regulated pests, systems approach, surveillance, pest reporting, phytosanitary certification, phytosanitary integrity and security of consignments, prompt action, emergency measures, provision of an NPPO, dispute settlement, avoidance of undue delays, notification of non-compliance, information exchange and technical assistance.³⁹³

2.2.2.2 ISPM No. 2: Framework for pest risk analysis³⁹⁴

2.124. ISPM No. 2 was adopted in November 1995 and most recently revised in 2007.³⁹⁵

2.125. With regard to its scope, ISPM No. 2 provides a framework that describes the pest risk analysis (PRA)³⁹⁶ process within the scope of the IPPC, and introduces the three PRA stages, i.e. initiation, pest risk assessment and pest risk management.³⁹⁷ This standard provides detailed guidance on Stage 1 (initiation)³⁹⁸, in particular with regard to initiation points, determination of an organism as a pest, defining the PRA area and checking whether there are any previous PRAs.³⁹⁹ ISPM No. 2 summarizes Stages 2 (pest risk assessment) and 3 (pest risk management), and addresses issues generic to the entire PRA process, related to information gathering, documentation, risk communication, uncertainty and consistency.⁴⁰⁰

2.126. According to its text, this ISPM is "conceptual and is not a detailed operational or methodological guide for assessors".⁴⁰¹ ISPM No. 2 refers to other ISPMs for further analysis through PRA Stages 2 and 3.⁴⁰² One of those mentioned is ISPM No. 11, which provides specific guidance on PRA of quarantine pests.⁴⁰³

2.2.2.3 ISPM No. 4: Requirements for the establishment of pest free areas⁴⁰⁴

2.127. ISPM No. 4 was adopted in November 1995.⁴⁰⁵

2.128. With regard to its scope, this ISPM describes requirements for the establishment and use of pest free areas (PFAs)⁴⁰⁶ as a risk management option for phytosanitary certification of plants and plant products and other regulated articles exported from the PFA or to support the scientific justification for phytosanitary measures taken by an importing country for protection of an endangered PFA.⁴⁰⁷

³⁹² ISPM No. 1, (Exhibit MEX-71), p. 4.

³⁹³ ISPM No. 1, (Exhibit MEX-71), pp. 7-11.

³⁹⁴ ISPM No. 2, (Exhibit MEX-72).

³⁹⁵ ISPM No. 2, (Exhibit MEX-72), p. 4.

³⁹⁶ ISPM No. 2 states that the PRA "provides the rationale for phytosanitary measures for a specified PRA area". ISPM No. 2, (Exhibit MEX-72), p. 5.

³⁹⁷ ISPM No. 2, (Exhibit MEX-72), p. 4.

³⁹⁸ ISPM No. 2, (Exhibit MEX-72), p. 4.

³⁹⁹ ISPM No. 2, (Exhibit MEX-72), pp. 7-12.

⁴⁰⁰ ISPM No. 2, (Exhibit MEX-72), p. 4.

⁴⁰¹ ISPM No. 2, (Exhibit MEX-72), p. 6.

⁴⁰² ISPM No. 2, (Exhibit MEX-72), pp. 6 and 13.

⁴⁰³ ISPM No. 2, (Exhibit MEX-72), p. 13.

⁴⁰⁴ Secretaría de la CIPF, *Requisitos para el establecimiento de áreas libres de plagas*, NIMF No. 4 (Roma, FAO en nombre de la Secretaría de la CIPF, adoptada en 1995, publicada en 2017) (ISPM No. 4), (Exhibit MEX-73).

⁴⁰⁵ ISPM No. 4, (Exhibit MEX-73), p. 4.

⁴⁰⁶ ISPM No. 4 defines a PFA as "an area in which a specific pest does not occur as demonstrated by scientific evidence and in which, where appropriate, this condition is being officially maintained." (ISPM No. 4, (Exhibit MEX-73), p. 4. See also Secretaría de la CIPF, *Glosario de términos fitosanitarios*, NIMF No. 5 (Roma, FAO en nombre de la Secretaría de la CIPF, adoptada en 2018, publicada en 2019) (ISPM No. 5), (Exhibit MEX-74), p. 10).

⁴⁰⁷ ISPM No. 4, (Exhibit MEX-73), p. 4.

2.129. ISPM No. 4 states that three main components or stages are considered in the establishment and subsequent maintenance of a PFA: (i) systems to establish freedom (general surveillance and specific surveys); (ii) phytosanitary measures to maintain freedom; and (iii) checks to verify freedom has been maintained. The standard indicates that the methods used to achieve these components may include data assembly, surveys, regulatory controls, audit and documentation.⁴⁰⁸

2.130. In this regard, ISPM No. 4 sets out general requirements for PFAs (determination of a PFA, establishment and maintenance of a PFA, and documentation and review in respect of the establishment and maintenance of a PFA); and specific requirements of different types of PFA (entire country, uninfested part of a country in which a limited infested area is present, and uninfested part of a country situated within a generally infested area).⁴⁰⁹

2.2.2.4 ISPM No. 5: Glossary of phytosanitary terms⁴¹⁰

2.131. ISPM No. 5 was adopted in 1999.⁴¹¹ Since then, the standard has been modified several times and was most recently revised in 2021.⁴¹²

2.132. ISPM No. 5 is a listing of terms and definitions with specific meaning for phytosanitary systems worldwide, which has been developed to provide a harmonized internationally agreed vocabulary associated with the implementation of the IPPC and ISPMs.⁴¹³ ISPM No. 5 is, as indicated therein, a "reference standard" "[t]he purpose of [which] is to increase clarity and consistency in the use and understanding of terms and definitions which are used by contracting parties for official phytosanitary purposes, in phytosanitary legislation and regulations, as well as for official information exchange".⁴¹⁴

2.2.2.5 ISPM No. 6: Guidelines for surveillance⁴¹⁵

2.133. ISPM No. 6 was adopted in November 1997⁴¹⁶ and most recently revised in 2018.⁴¹⁷

2.134. With regard to its scope, this ISPM refers to "the components of survey and monitoring systems for the purpose of pest detection and the supply of information for use in pest risk analyses, the establishment of pest free areas and, where appropriate, the preparation of pest lists".⁴¹⁸ These components constitute a phytosanitary surveillance system.⁴¹⁹

2.135. According to ISPM No. 6, there are two major types of surveillance systems: general surveillance⁴²⁰ and specific surveys.^{421, 422} With respect to general surveillance, ISPM No. 6 covers sources of pest information; the collection, storage and retrieval of information; and the use of

⁴⁰⁸ ISPM No. 4, (Exhibit MEX-73), p. 5.

⁴⁰⁹ ISPM No. 4, (Exhibit MEX-73), pp. 4-9.

⁴¹⁰ ISPM No. 5, (Exhibit MEX-74).

⁴¹¹ ISPM No. 5, (Exhibit MEX-74), p. 6.

⁴¹² IPPC Secretariat, *Glossary of phytosanitary terms*, ISPM No. 5 (Rome, FAO on behalf of the IPPC Secretariat, adopted in 2021, published in 2021), available at: <https://www.ippc.int/en/publications/glossary-phytosanitary-terms/> (accessed 30 November 2021).

⁴¹³ ISPM No. 5, (Exhibit MEX-74), p. 6.

⁴¹⁴ ISPM No. 5, (Exhibit MEX-74), p. 6.

⁴¹⁵ Secretaría de la CIPF, *Directrices para la vigilancia*, NIMF No. 6 (Roma, FAO en nombre de la Secretaría de la CIPF, adoptada en 1997, publicada en 2016) (ISPM No. 6), (Exhibit MEX-75).

⁴¹⁶ ISPM No. 6, (Exhibit MEX-75), p. 4.

⁴¹⁷ Although ISPM No. 6 was revised in 2018, Mexico has referred to the original text from 1997, now revoked. This description refers to the 1997 version of ISPM No. 6.

⁴¹⁸ ISPM No. 6, (Exhibit MEX-75), p. 4; and CIPF, *Guía de la CIPF sobre Vigilancia Fitosanitaria* (2019), p. 1, available at: <https://www.fao.org/3/ca3764es/CA3764ES.pdf> (accessed 30 November 2021).

⁴¹⁹ CIPF, *Guía de la CIPF sobre Vigilancia Fitosanitaria* (2019), p. 1, available at: <https://www.fao.org/3/ca3764es/CA3764ES.pdf> (accessed 30 November 2021).

⁴²⁰ ISPM No. 6 describes general surveillance as "a process whereby information on particular pests which are of concern for an area is gathered from many sources, wherever it is available and provided for use by the NPPO." (ISPM No. 6, (Exhibit MEX-75), p. 4).

⁴²¹ Specific surveys (described as "specific surveillance" in the 2018 revised version of ISPM No. 6), according to this ISPM, are "procedures by which NPPOs obtain information on pests of concern on specific sites in an area over a defined period of time" (ISPM No. 6, (Exhibit MEX-75), p. 4).

⁴²² ISPM No. 6, (Exhibit MEX-75), p. 4.

information gathered through general surveillance.⁴²³ Regarding specific surveys, ISPM No. 6 covers pest surveys, commodity or host surveys and targeted and random sampling.⁴²⁴

2.136. ISPM No. 6 also describes good surveillance practice, technical requirements for diagnostic services that support general surveillance and specific survey activities, the keeping of records derived from general surveillance and specific surveys, and the requirement for NPPO transparency.⁴²⁵

2.137. ISPM No. 6 states that the verified information acquired may be used to determine the presence or distribution of pests in an area, or on a host or commodity, or their absence from an area (in the establishment and maintenance of PFAs).⁴²⁶

2.2.2.6 ISPM No. 8: Determination of pest status in an area⁴²⁷

2.138. ISPM No. 8 was adopted in November 1998⁴²⁸ and was last revised in 2021.⁴²⁹

2.139. With regard to its scope, this ISPM describes the content of a pest record⁴³⁰ and the use of pest records and other information in the determination of pest status in an area, and also provides descriptions of pest status categories as well as recommendations for good reporting practices.⁴³¹

2.140. ISPM No. 8 states that "[p]est records are essential components of the information used to establish the status of a pest in an area"⁴³², and that "[a] pest record provides information concerning the presence or absence of a pest, the time and location of the observations, host(s) where appropriate, the damage observed, as well as references or other relevant information pertaining to a single observation".⁴³³

2.141. Pest status is outlined in this ISPM in terms of three categories: (i) presence of the pest, leading to determinations such as "present in all parts of the country", "present in some areas only", etc.; (ii) absence of the pest, leading to determinations such as "absent: no pest records", "absent: pest eradicated", "absent: pest no longer present", etc.; and (iii) transience of the pest, leading to determinations such as "transient: non-actionable", "transient: actionable, under surveillance", and "transient: actionable, under eradication".⁴³⁴

2.142. This ISPM also states that "[a]ll importing and exporting countries need information concerning the status of pests for risk analysis, the establishment of and compliance with import regulations, and the establishment and maintenance of pest free areas".⁴³⁵

⁴²³ ISPM No. 6, (Exhibit MEX-75), p. 5.

⁴²⁴ ISPM No. 6, (Exhibit MEX-75), pp. 5-7.

⁴²⁵ ISPM No. 6, (Exhibit MEX-75), pp. 7-8.

⁴²⁶ ISPM No. 6, (Exhibit MEX-75), p. 4.

⁴²⁷ Secretaría de la CIPF, *Determinación de la situación de una plaga en un área*, NIMF No. 8 (Roma, FAO en nombre de la Secretaría de la CIPF, adoptada en 1996, publicada en 2017) (ISPM No. 8), (Exhibit MEX-76).

⁴²⁸ ISPM No. 8, (Exhibit MEX-76), p. 4.

⁴²⁹ IPPC Secretariat, *Determination of pest status in an area*, ISPM No. 8 (Rome, FAO on behalf of the IPPC Secretariat, adopted in 2021, published in 2021) (ISPM No. 8), available at: https://assets.ippc.int/2021/04/ISPM_08_2021_En.pdf (accessed 30 November 2021).

⁴³⁰ ISPM No. 8 defines a pest record as "documented evidence that indicates the presence or absence of a specific pest at a particular location and certain time, within an area, usually a country, under described circumstances". (ISPM No. 8, (Exhibit MEX-76), p. 5).

⁴³¹ ISPM No. 8, (Exhibit MEX-76), pp. 4-10.

⁴³² ISPM No. 8, (Exhibit MEX-76), p. 4.

⁴³³ ISPM No. 8, (Exhibit MEX-76), p. 4.

⁴³⁴ ISPM No. 8, (Exhibit MEX-76), pp. 5 and 7-9.

⁴³⁵ ISPM No. 8, (Exhibit MEX-76), p. 4.

2.2.2.7 ISPM No. 11: Pest risk analysis for quarantine pests⁴³⁶

2.143. ISPM No. 11 was adopted in April 2001; supplements were adopted in 2003 and 2004, and an annex in 2013.⁴³⁷

2.144. With regard to its scope, this ISPM provides details for the conduct of PRA to determine if pests are quarantine pests, and describes the integrated processes to be used for risk assessment as well as the selection of risk management options.⁴³⁸

2.145. In accordance with ISPM No. 11, PRA for quarantine pests follows a process defined by three stages, which are outlined in the ISPM (initiation, risk assessment and risk management).⁴³⁹

2.146. According to ISPM No. 11, Stage 1 (initiation) involves identifying the pest(s) and pathways which are of quarantine concern and should be considered for risk analysis in relation to the identified PRA area.⁴⁴⁰ This stage covers initiation points, the identification of a PRA area and information gathering.⁴⁴¹

2.147. During Stage 2 (risk assessment), ISPM No. 11 calls for the categorization of individual pests to determine whether the criteria for a quarantine pest are satisfied; the assessment of the probability of introduction (entry and establishment) and spread of the pest; and the assessment of its economic consequences.⁴⁴² The ISPM also includes in this stage the issue of the degree of uncertainty.⁴⁴³

2.148. According to ISPM No. 11, Stage 3 (pest risk management) involves identifying management options for reducing the risks identified at Stage 2, and evaluating these options for efficacy, feasibility and impact, in order to select those that are appropriate.⁴⁴⁴ ISPM No. 11 also covers, as part of this stage, level of risk, technical information required, acceptability of risk, identification and selection of appropriate risk management options, and phytosanitary certificates and other compliance measures.⁴⁴⁵

2.149. Lastly, ISPM No. 11 addresses PRA documentation requirements.⁴⁴⁶

2.2.2.8 ISPM No. 32: Categorization of commodities according to their pest risk⁴⁴⁷

2.150. ISPM No. 32 was adopted in April 2009.⁴⁴⁸

2.151. With regard to its scope, this standard provides criteria for NPPOs of importing countries on how to categorize commodities according to their pest risk when considering import requirements.⁴⁴⁹ According to this standard, "[t]he objective of such categorization is to provide importing countries with criteria to better identify the need for a pathway-initiated [...] PRA and to facilitate the decision-making process regarding the possible establishment of import requirements".⁴⁵⁰

2.152. ISPM No. 32 states that "[t]he concept of categorization of commodities according to their pest risk takes into account whether the product has been processed, and if so, the method and

⁴³⁶ ISPM No. 11, (Exhibit MEX-77).

⁴³⁷ ISPM No. 11, (Exhibit MEX-77), p. 5.

⁴³⁸ ISPM No. 11, (Exhibit MEX-77), p. 5.

⁴³⁹ ISPM No. 11, (Exhibit MEX-77), p. 6.

⁴⁴⁰ ISPM No. 11, (Exhibit MEX-77), p. 6.

⁴⁴¹ ISPM No. 11, (Exhibit MEX-77), pp. 6-10.

⁴⁴² ISPM No. 11, (Exhibit MEX-77), pp. 6 and 10-22.

⁴⁴³ ISPM No. 11, (Exhibit MEX-77), p. 22.

⁴⁴⁴ ISPM No. 11, (Exhibit MEX-77), p. 6.

⁴⁴⁵ ISPM No. 11, (Exhibit MEX-77), pp. 22-27.

⁴⁴⁶ ISPM No. 11, (Exhibit MEX-77), p. 27.

⁴⁴⁷ Secretaría de la CIPF, *Categorización de productos según su riesgo de plagas*, NIMF No. 32 (Roma, FAO en nombre de la Secretaría de la CIPF, adoptada en 2009, publicada en 2016) (ISPM No. 32), (Exhibit MEX-78).

⁴⁴⁸ ISPM No. 32, (Exhibit MEX-78), p. 4.

⁴⁴⁹ ISPM No. 32, (Exhibit MEX-78), p. 4.

⁴⁵⁰ ISPM No. 32, (Exhibit MEX-78), p. 4.

degree of processing to which it has been subjected and the commodity's intended use and the consequent potential for the introduction and spread of regulated pests".⁴⁵¹

2.153. ISPM No. 32 identifies four categories that group commodities according to their level of pest risk (two for processed commodities, two for unprocessed commodities), and provides lists of the methods of processing and the associated resultant commodities.⁴⁵²

2.3 Other factual aspects

2.154. The product at issue, avocado, is described below, as is the pathogen that is a source of concern for Costa Rica, ASBVd.

2.3.1 The avocado

2.3.1.1 General characteristics

2.155. Avocado (*Persea americana* Mill.) is a tropical tree native to Mesoamerica⁴⁵³, in particular the central and eastern highlands of Mexico and upland areas of Guatemala.⁴⁵⁴ This tree spread to the south-eastern United States, the West Indies, all of Central America and much of South America⁴⁵⁵, and is now distributed worldwide.⁴⁵⁶ The avocado tree produces the edible tropical fruit of the same name.⁴⁵⁷

2.156. The avocado belongs to the plant family *Lauraceae*⁴⁵⁸, which contains just over 50 genera, including *Persea*, and approximately 2,200 species, mostly tropical and subtropical ones.⁴⁵⁹ The genus *Persea* consists of two subgenera, one of which is also called *Persea*, and which contains just a few species, including *Persea americana*, which is commercial avocado.⁴⁶⁰ It is now generally accepted that avocado may be designated under a single species: *Persea americana* Mill.⁴⁶¹

2.157. Three subspecies or botanical varieties of *Persea americana* are widely recognized globally: (i) *Persea americana ssp drymifolia*, known in horticultural circles as the Mexican ecological or horticultural race; (ii) *Persea americana ssp guatemalensis*, known as the Guatemalan race; and (iii) *Persea americana ssp americana*, known as the West Indian race.⁴⁶² The inherent genetic make-up of the avocado led to the development of these three races, which evolved under different edaphoclimatic conditions.⁴⁶³ The Mexican and Guatemalan races originated and were domesticated in the highlands of Mexico and Guatemala, respectively, and the West Indian race most likely originated on the Central American Pacific coast, running from Guatemala to Costa Rica.⁴⁶⁴

⁴⁵¹ ISPM No. 32, (Exhibit MEX-78), p. 4.

⁴⁵² ISPM No. 32, (Exhibit MEX-78), p. 4.

⁴⁵³ Galindo Tovar *et al.* (2008), (Exhibit MEX-22), p. 441.

⁴⁵⁴ Asociación de Productores y Empacadores Exportadores de Aguacate de México (APEAM), Guía Técnica, (Exhibit MEX-19), p. 1.

⁴⁵⁵ J. Sánchez Pérez, "Recursos Genéticos de Aguacate (*Persea Americana* Mill.) y especies afines en México", *Revista chapingo* (Serie Horticultura), Vol. 5, Número Especial (1999), pp. 7-18 (Sánchez Pérez (1999)), (Exhibit MEX-26), p. 8.

⁴⁵⁶ Galindo Tovar *et al.* (2008), (Exhibit MEX-22), p. 441.

⁴⁵⁷ México, Secretaría de Economía, Subsecretaría de Fomentos a los Agronegocios (SFA), Monografía de cultivos (SFA, Crops monograph (2011)), (Exhibit MEX-24), p. 1.

⁴⁵⁸ Galindo Tovar *et al.* (2008), (Exhibit MEX-22), p. 442; SFA, Farming monograph (2011), (Exhibit MEX-24), p. 1; and J.A. Bernal Estrada and C.A. Díaz Diez (eds.), *Tecnología para el Cultivo del Aguacate* (CORPOICA Centro de Investigación La Selva, Rionegro, Antioquia, Colombia, 2008) (Bernal Estrada and Díaz Diez (2008)), (Exhibit MEX-181), p. 15.

⁴⁵⁹ Sánchez Pérez (1999), (Exhibit MEX-26), p. 7.

⁴⁶⁰ Sánchez Pérez (1999), (Exhibit MEX-26), p. 8.

⁴⁶¹ Bernal Estrada and Díaz Diez (2008), (Exhibit MEX-181), p. 17.

⁴⁶² Galindo Tovar *et al.* (2008), (Exhibit MEX-22), p. 443; Sánchez Pérez (1999), (Exhibit MEX-26), p. 9; and J.M. Cambrón Crisantos, "Similitud genética del viroide de la mancha de sol del aguacate en Michoacán, México", tesis doctoral, Colegio de Postgraduados (COLPOS) Institución de Enseñanza e Investigación en Ciencias Agrícolas (2011) (Cambrón Crisantos (2011)), (Exhibit CRI-10), p. 5.

⁴⁶³ Bernal Estrada and Díaz Diez (2008), (Exhibit MEX-181), p. 23.

⁴⁶⁴ Sánchez Pérez (1999), (Exhibit MEX-26), p. 9.

2.158. Avocado is a species with great genetic variability due to open pollination.⁴⁶⁵ Over thousands of years a considerable genetic diversity has evolved in the area where avocados originated, and there are now tens of thousands of wild trees grown from seeds under a wide variety of ecological conditions.⁴⁶⁶

2.3.1.2 Avocado farming

2.159. Avocado is a relatively new crop, which gained importance from the beginning of the 20th century.⁴⁶⁷ The most internationally traded avocado races are the Guatemalan and Mexican, specifically the Hass, Fuerte and Nabal varieties.⁴⁶⁸ The Hass cultivar, a mix of different avocado varieties developed by Rudolph Hass, is considered the most popular variety internationally⁴⁶⁹ because of its sustained yield, its less pronounced alternate bearing cycle, its ability to withstand transportation, its shelf-life, and the excellent quality of its flesh.⁴⁷⁰ In addition, the compact growth of the tree allows high density planting and facilitates cropping activities.⁴⁷¹

2.160. Mexico is currently the world's leading producer of avocado fruit.⁴⁷² According to FAO data, Mexico produced 2,184,663 tonnes of avocado in 2018 and 2,300,889 tonnes in 2019, equivalent to more than 30% of global production for both years. According to the same data, Costa Rica produced 15,000 tonnes of avocado in 2018 and 16,746 tonnes in 2019.⁴⁷³

2.3.1.2.1 Edaphoclimatic conditions

2.161. Avocado trees can be cultivated all year round⁴⁷⁴ and adapt to a wide range of soils, from sandy to clay, provided there is good internal drainage, a vitally important factor⁴⁷⁵ given that they do not tolerate flooding or soil that is too wet, even for a short time.⁴⁷⁶ Avocado trees grow best in deep, well-drained soils of light texture with a pH that is neutral or slightly acidic, although they can grow in clay soil or clay loam with good drainage.⁴⁷⁷

2.162. Avocados can be grown at altitudes from sea level up to 2,500-3,000 masl.⁴⁷⁸ The three races have adapted to different altitudes: (i) the Mexican race has adapted to elevations above 2,000 masl, which is the cold thermal floor; (ii) the Guatemalan race has adapted to altitudes ranging from 800 masl to 2,400 masl, putting it between the moderately cold and temperate thermal

⁴⁶⁵ Sánchez Pérez (1999), (Exhibit MEX-26), p. 9.

⁴⁶⁶ Sánchez Pérez (1999), (Exhibit MEX-26), p. 9.

⁴⁶⁷ B.N. Wolstenholme, "Ecology: Climate and Soils", en B. Schaffer, B.N. Wolstenholme and A.W. Whiley (eds.), *The Avocado: Botany, Production and Uses*, 2.^a ed. (CABI, 2013) (Wolstenholme (2013)), (Exhibit CRI-51), p. 86; and A. Ben-Ya'acov and E. Michelson, "Avocado rootstocks", *Horticultural Reviews*, Vol. 17, (1995) (Ben-Ya'acov and Michelson (1995)), (Exhibit CRI-65), p. 4.

⁴⁶⁸ México, Secretaría de Economía, Dirección General de Industrias Básicas (DGIB), Monografía del sector aguacate en México: Situación Actual y Oportunidades de Mercado (2012) (DGIB, Monograph of Mexico's avocado sector (2012)), (Exhibit MEX-23), p. 4.

⁴⁶⁹ SFA, Crops monograph (2011), (Exhibit MEX-24), p. 2.

⁴⁷⁰ J.L. Morales García, M.R. Mendoza López, V.M. Coria Avalos, J.L. Aguirre Montañez, J. de la Luz Sánchez Pérez, J.A. Vidales Fernández, L.M. Tapia Vargas, G. Hernández Ruíz y J.J. Alcántar Rocillo, "Tecnología-Produce Aguacate en Michoacán", Vol. 1 (2013) (Morales García *et al.* (2013)), (Exhibit MEX-27), p. 3.

⁴⁷¹ Morales García *et al.* (2013), (Exhibit MEX-27), p. 3.

⁴⁷² Galindo Tovar *et al.* (2008), (Exhibit MEX-22), p. 441.

⁴⁷³ See FAOSTAT, available at: <http://www.fao.org/faostat/en/#data/QC> (accessed 30 November 2021).

⁴⁷⁴ SFA, Crops monograph (2011), (Exhibit MEX-24), p. 1.

⁴⁷⁵ Bernal Estrada and Díaz Diez (2008), (Exhibit MEX-181), p. 46.

⁴⁷⁶ C. Landa, "Recomendaciones para cultivar aguacate Hass", *La Tribuna* (16 de diciembre de 2017) ("Recomendaciones para cultivar aguacate Hass", *La Tribuna* (2017)), (Exhibit CRI-56), p. 2.

⁴⁷⁷ DGIB, Monograph of Mexico's avocado sector (2012), (Exhibit MEX-23), p. 4; SFA, Crops monograph (2011), (Exhibit MEX-24), p. 1. See also "Recomendaciones para cultivar aguacate Hass", *La Tribuna* (2017), (Exhibit CRI-56), p. 2; and "Suelo y clima para el cultivo de aguacate en México" *plantahass.com* (6 de febrero de 2017) ("Suelo y clima para el cultivo de aguacate en México", *plantahass.com* (2017)), (Exhibit CRI-57).

⁴⁷⁸ DGIB, Monograph of Mexico's avocado sector (2012), (Exhibit MEX-23), p. 4; and Sánchez Pérez (1999), (Exhibit MEX-26), p. 9.

floors; and (iii) the West Indian race has adapted to elevations between sea level and 800 masl, which is the warm thermal floor.⁴⁷⁹

2.163. According to some scientists, avocado trees grow at minimum temperatures of between 10°C and 17°C and maximum temperature of between 28°C and 33°C.⁴⁸⁰ Of the three races: (i) the Mexican race has adapted to very cold climates, tolerating temperatures as low as 2.2°C, with optimal temperatures ranging between 5°C and 17°C; (ii) the Guatemalan race has adapted to subtropical conditions, with optimal temperatures between 4°C and 19°C; and (iii) the West Indian race has adapted to temperatures between 18°C and 26°C.⁴⁸¹

2.164. With regard to precipitation, avocados require between 1,000 mm and 1,800-2,000 mm of rain.⁴⁸² The avocado tree has adapted to humid and semi-humid climates, with marked differences between rainy and dry seasons.⁴⁸³ In turn, the avocado tree is very sensitive to waterlogging, which leads to root asphyxiation.⁴⁸⁴

2.3.1.2.2 Recalcitrant nature of avocado seeds

2.165. Avocado is one of the large-seeded, woody perennial plants that has recalcitrant seeds.⁴⁸⁵

2.166. Recalcitrant seeds are sensitive to desiccation⁴⁸⁶ and chilling injury.⁴⁸⁷ These seeds lose their ability to germinate when exposed to low humidity.⁴⁸⁸

2.3.1.2.3 Propagation methods of avocado

2.167. Avocados can propagate: (i) sexually (by seeds); and (ii) vegetatively (by means of cutting, grafting and in vitro propagation).⁴⁸⁹

2.168. Seed propagation is not recommended for commercial farms because of the great variability that occurs in the crop.⁴⁹⁰ Vegetative propagation is the most suitable method for avocado, as it allows the original characteristics of the commercial varieties or cultivars to be preserved.⁴⁹¹

2.169. The most recommended and widely used propagation method around the world for the production and marketing of avocado fruit is vegetative propagation by grafting.⁴⁹² Grafting consists

⁴⁷⁹ Bernal Estrada and Díaz Diez (2008), (Exhibit MEX-181), p. 45; A. Pérez Santiago, "Generalidades del cultivo de aguacate (*Persea americana*)" (2008) (Pérez Santiago (2008)), (Exhibit MEX-21), pp. 11-12; and "El cultivo de palta o aguacate", *Agrotendencia.tv* (2018), (Exhibit CRI-2), p. 15.

⁴⁸⁰ Morales García *et al.* (2013), (Exhibit MEX-27), p. 2; and E. Campos Rojas, J. Ayala Arreola, J. Andrés Agustín y M. de la Cruz Espíndola Barquera, "Propagación de Aguacate", SAGARPA-SINAREFI-UACH, México (2012) (Campos Rojas *et al.* (2012)), (Exhibits MEX-31 and CRI-4), p. 9.

⁴⁸¹ Bernal Estrada and Díaz Diez (2008), (Exhibit MEX-181), p. 45. See also Pérez Santiago (2008), (Exhibit MEX-21), pp. 11-12.

⁴⁸² Morales García *et al.* (2013), (Exhibit MEX-27), p. 2; SFA, Crops monograph (2011), (Exhibit MEX-24), p. 1; and Campos Rojas *et al.* (2012), (Exhibits MEX-31 and CRI-4), p. 9.

⁴⁸³ Bernal Estrada and Díaz Diez (2008), (Exhibit MEX-181), p. 45.

⁴⁸⁴ Bernal Estrada and Díaz Diez (2008), (Exhibit MEX-181), p. 46.

⁴⁸⁵ R.H. Ellis, "The longevity of seeds", *Horticultural Science*, Vol. 26, No. 9 (1991), pp. 1119-1125 (Ellis (1991)), (Exhibit MEX-35), p. 1119.

⁴⁸⁶ Ellis (1991), (Exhibit MEX-35), pp. 1119 and 1121; and H.F. Chin, B. Krishnapillay and P.C. Stanwood, "Seed Moisture: Recalcitrant vs. Orthodox Seeds", en P.C. Stanwood and M.B. McDonald (eds.), *Seed moisture* (Crop Science Society of America, Madison, Wisconsin, 1989) pp. 15-22 (Chin *et al.* (1989)), (Exhibit MEX-130), p. 18.

⁴⁸⁷ Chin *et al.* (1989), (Exhibit MEX-130), p. 18. See also I.M. Ferrufino Vega, "Efecto de la deshidratación sobre la germinación del litchi (*Litchi chinensis* Sonn.)" (1999) (Ferrufino Vega (1999)), (Exhibit MEX-36), p. 5.

⁴⁸⁸ S.V. Magnitskiy y G.A. Plaza, "Fisiología de semillas recalcitrantes de árboles tropicales", *Agronomía Colombiana*, Vol. 25, No. 1 (2007) pp. 96-103 (Magnitskiy y Plaza (2007)), (Exhibit MEX-38), p. 96.

⁴⁸⁹ Pérez Santiago (2008), (Exhibit MEX-21), p. 23; Bernal Estrada and Díaz Diez (2008), (Exhibit MEX-181), p. 48; and "El cultivo de palta o aguacate", *Agrotendencia.tv* (2018), (Exhibit CRI-2), p. 17.

⁴⁹⁰ Pérez Santiago (2008), (Exhibit MEX-21), p. 23; and Bernal Estrada and Díaz Diez (2008), (Exhibit MEX-181), p. 48.

⁴⁹¹ Bernal Estrada and Díaz Diez (2008), (Exhibit MEX-181), p. 50.

⁴⁹² Pérez Santiago (2008), (Exhibit MEX-21), p. 23; Bernal Estrada and Díaz Diez (2008), (Exhibit MEX-181), p. 49; "El cultivo de palta o aguacate", *Agrotendencia.tv* (2018), (Exhibit CRI-2), p. 17; and Instituto para la Innovación Tecnológica en Agricultura (INTAGRI), *Injerto en Aguacate, Artículos Técnicos de*

of joining two parts from different plants, known as the rootstock or stock and the scion, in such a manner that they grow and develop as a single plant.⁴⁹³ This propagation method involves grafting the scion of a variety with desirable commercial characteristics onto a rootstock of a variety that has desirable agronomic characteristics, such as disease resistance or vigour.⁴⁹⁴ Two of the grafting methods used are: (i) seedling rootstock; and (ii) clonal rootstock.⁴⁹⁵

2.170. The first grafting method, i.e. seedling rootstock, uses selected seed-propagated rootstocks.⁴⁹⁶ These rootstocks are also known as natural rootstocks.⁴⁹⁷ The commercial propagation of avocado cultivars is generally carried out through grafting on natural rootstocks, grown from seeds.⁴⁹⁸ This type of rootstock is highly heterozygous which reflects the non-uniform behaviour of grafted plants.⁴⁹⁹

2.171. The second grafting method, i.e. clonal rootstock propagation, is the practice that offers the greatest uniformity⁵⁰⁰, and its behaviour in field conditions is very homogeneous.⁵⁰¹ Some consider the clonal propagation of rootstock to be the trend of the future.⁵⁰² However, clonal rootstocks are more expensive to buy.⁵⁰³

2.172. Grafting can be done in the nursery or at the final planting site, but it is recommended to do it in the nursery.⁵⁰⁴ The nursery is the place where the selected plants to be grafted are kept, before being taken to the field.⁵⁰⁵

2.3.2 Avocado sunblotch viroid (ASBVd)

2.3.2.1 Description of the basic characteristics of ASBVd

2.173. Viroids are the smallest known subcellular pathogens and are composed of a circular single-stranded RNA molecule, of between 246 and 434 nucleotides and a compact secondary structure.⁵⁰⁶ Viroids might have appeared very early in evolution and could represent the world that presumably preceded our current world based on deoxyribonucleic acid (DNA) and proteins.⁵⁰⁷ Viroids do not encode proteins and replicate autonomously when inoculated into their host plants.⁵⁰⁸

INTAGRI, Serie Frutales, No. 44 (2018) (INTAGRI, Grafting Avocado (2018)), (Exhibit CRI-3), p. 3. See also responses of Pablo Cortese, Ricardo Flores Pedauy  and Fernando Pliego Alfaro to Panel question No. 1 for the experts.

⁴⁹³ INTAGRI, Grafting Avocado (2018), (Exhibit CRI-3), p. 3.

⁴⁹⁴ See Bernal Estrada and D az Diez (2008), (Exhibit MEX-181), pp. 50-51; and "El cultivo de palta o aguacate", *Agrotendencia.tv* (2018), (Exhibit CRI-2), p. 17. See also Pablo Cortese's response to Panel question No. 1 for the experts.

⁴⁹⁵ Ben-Ya'acov and Michelson (1995), (Exhibit CRI-65), p. 6. See also Fernando Pliego Alfaro's response to Panel question No. 1 for the experts.

⁴⁹⁶ Bernal Estrada and D az Diez (2008), (Exhibit MEX-181), pp. 48 and 50.

⁴⁹⁷ See INTAGRI, Grafting Avocado (2018), (Exhibit CRI-3), p. 4.

⁴⁹⁸ Campos Rojas et al. (2012), (Exhibits MEX-31 and CRI-4), p. 8; and INTAGRI, Grafting Avocado (2018), (Exhibit CRI-3), p. 4.

⁴⁹⁹ Campos Rojas et al. (2012), (Exhibits MEX-31 and CRI-4), p. 21. See also Ben-Ya'acov and Michelson (1995), (Exhibit CRI-65), p. 23.

⁵⁰⁰ Campos Rojas et al. (2012), (Exhibits MEX-31 and CRI-4), pp. 21 and 25; and Ben-Ya'acov and Michelson (1995), (Exhibit CRI-65), pp. 26-27 and 30. See also Bernal Estrada and D az Diez (2008), (Exhibit MEX-181), p. 50.

⁵⁰¹ INTAGRI, Grafting Avocado (2018), (Exhibit CRI-3), p. 4.

⁵⁰² Campos Rojas et al. (2012), (Exhibits MEX-31 and CRI-4), p. 21; A.A. Ernst, A.W. Whiley and G.S. Bender, "Propagation", en B. Schaffer, B.N. Wolstenholme and A.W. Whiley (eds.), *The Avocado: Botany, Production and Uses*, 2.^a ed. (CAB International, 2013), pp. 234-267 (Ernst et al. (2013)), (Exhibit MEX-254); and Ben-Ya'acov and Michelson (1995), (Exhibit CRI-65), p. 23.

⁵⁰³ INTAGRI, Grafting Avocado (2018), (Exhibit CRI-3), p. 4. See also Fernando Pliego Alfaro's response to Panel question No. 1 for the experts.

⁵⁰⁴ P rez Santiago (2008), (Exhibit MEX-21), p. 25.

⁵⁰⁵ Bernal Estrada and D az Diez (2008), (Exhibit MEX-181), p. 58.

⁵⁰⁶ Saucedo Carabez et al. (2019), (Exhibit MEX-175), p. 4.

⁵⁰⁷ Saucedo Carabez et al. (2019), (Exhibit MEX-175), p. 4.

⁵⁰⁸ G.N. Agrios, "Enfermedades de las plantas causadas por virus" en *Fitopatolog a* (Editorial Limusa S.A., 1995), pp. 726-733 (Agrios (1995)), (Exhibit MEX-57), p. 726; H. Beltr n Pe a, "El viroide de la mancha de sol del aguacate en Michoac n: Detecci n y manejo", tesis doctoral, Colegio de Postgraduados (COLPOS) Instituci n de Ense anza e Investigaci n en Ciencias Agr colas, marzo de 2013 (Beltr n Pe a (2013)), (Exhibit MEX-63), p. 5; and Saucedo Carabez et al. (2019), (Exhibit MEX-175), p. 4.

Viroids are pathogenic biological agents exclusive to the plant kingdom and are grouped into two families, one of which, *Avsunviroidae*⁵⁰⁹, is the one to which *Avocado sunblotch viroid* (ASBVd) belongs.⁵¹⁰

2.174. ASBVd is a species of viroid composed of a circular single-stranded RNA molecule of 247 nucleotides⁵¹¹ that replicates in the chloroplast.⁵¹² ASBVd is the causal agent of sunblotch disease.⁵¹³

2.175. The first reports of the existence of ASBVd date back to early 1914, when Carter Barrett reported observing symptoms of sunblotch disease that same year in Altadena, California, United States.⁵¹⁴ University of California professor, J. Eliot Coit documented sunblotch disease for the first time in 1928 in an article, in which he described it as a physiological disease and named it "sun-blotch" because he thought the symptoms were a direct result of sunburn.⁵¹⁵ The first studies of the disease's causal agent were carried out in 1928, following the publication of Professor Coit's article.⁵¹⁶ In 1931, W.T. Horne and E.R. Parker described the pathology as a disease transmitted through grafts.⁵¹⁷ Later, J.M. Wallace and R.J. Drake studied the seed transmission of the disease.⁵¹⁸ During the period 1970-1980, laboratory evidence suggested and then confirmed that the causal agent of sunblotch is a viroid.⁵¹⁹

2.176. With regard to its current geographical distribution, ASBVd is present in America, Europe, Asia, Africa and Oceania.⁵²⁰

2.177. In terms of its hosts, ASBVd affects only the avocado tree and fruit and no other genera of trees or fruit⁵²¹, although it has been confirmed experimentally that other species of the family

⁵⁰⁹ Saucedo Carabez *et al.* (2019), (Exhibit MEX-175), p. 4.

⁵¹⁰ A.D.W. Geering, "A review of the status of *Avocado sunblotch viroid* in Australia", *Australasian Plant Pathology*, Vol. 47, No. 6 (2018), pp. 555-559 (Geering (2018)), (Exhibit MEX-43), p. 555; and Cambrón Crisantos (2011), (Exhibit CRI-10), p. 9.

⁵¹¹ Saucedo Carabez *et al.* (2014), (Exhibit MEX-45), p. 800; Semancik and Szychowski (1994), (Exhibit MEX-52), pp. 1543-1549; Servicio Nacional de Sanidad, Inocuidad y Calidad Agroalimentaria (SENASICA), Ficha Técnica-Avocado sunblotch viroid (SENASICA, Datasheet), (Exhibit MEX-59), p. 6; D. Ncango, Z. Dlamini and N. Zulu, "An overview of avocado sunblotch viroid disease in South Africa from 2008 to 2013", *South African Avocado Growers' Association Yearbook*, Vol. 37 (2014) (Ncango *et al.* (2014)), (Exhibit CRI-8), p. 69; and Cambrón Crisantos (2011), (Exhibit CRI-10), p. 27.

⁵¹² Saucedo Carabez *et al.* (2014), (Exhibit MEX-45), p. 801.

⁵¹³ Beltrán Peña (2013), (Exhibit MEX-63), p. 7; and P. Palukaitis, A.G. Rakowski, D.McE. Alexander and R.H. Symons, "Rapid indexing of the sunblotch disease of avocados using a complementary DNA probe to avocado sunblotch viroid", *Annals of Applied Biology*, Vol. 98 (1981), pp. 439-449 (Palukaitis *et al.* (1981)), (Exhibit MEX-193), p. 440. See also Pablo Cortese's response to Panel question No. 29 for the experts; Mexico's comments on the experts' responses to Panel question No. 29 for the experts; and Costa Rica's comments on the experts' responses to Panel questions Nos. 29 and 30 for the experts.

⁵¹⁴ Whitsell (1952), (Exhibit MEX-42).

⁵¹⁵ Coit (1928), (Exhibit CRI-9), p. 4. See also Whitsell (1952), (Exhibit MEX-42); and Ncango *et al.* (2014), (Exhibit CRI-8), p. 69.

⁵¹⁶ Horne and Parker (1931), (Exhibit CRI-123). See also Whitsell (1952), (Exhibit MEX-42); and Ncango *et al.* (2014), (Exhibit CRI-8), p. 69.

⁵¹⁷ Saucedo Carabez, *et al.* (2014), (Exhibit MEX-45), p. 800.

⁵¹⁸ J.M. Wallace and R.J. Drake, "A high rate of seed transmission of avocado sun-blotch virus from symptomless trees and the origin of such trees", *Phytopathology*, Vol. 52 (1962), pp. 237-241 (Wallace and Drake (1962)), (Exhibit MEX-285).

⁵¹⁹ Palukaitis *et al.* (1981), (Exhibit MEX-193), pp. 439-440; Desjardins (1987), (Exhibit CRI-101), p. 299; Dale and Allen (1979), (Exhibit CRI-115); Mohamed and Thomas (1980), (Exhibit CRI-125), p. 157; and P. Palukaitis, T. Hatta, D.McE. Alexander and R.H. Symons, "Characterization of a viroid associated with Avocado sunblotch disease", *Virology*, Vol. 99 (1979), pp. 145-151 (Palukaitis *et al.* (1979)), (Exhibit CRI-129), p. 145.

⁵²⁰ Saucedo Carabez *et al.* (2014), (Exhibit MEX-45), p. 800; Saucedo Carabez *et al.* (2019), (Exhibit MEX-175), p. 6; and Organización Europea y Mediterránea de Protección de las Plantas (EPPO) Global Database, Avocado sunblotch viroid (ASBVd0) World distribution (2019) (EPPO Global Database, World distribution (2019)), (Exhibit MEX-48).

⁵²¹ Geering (2018), (Exhibit MEX-43), p. 3. See also the responses of Pablo Cortese, Ricardo Flores Pedayú and Fernando Pliego Alfaro to Panel question No. 74(a) for the experts.

Lauraceae may act as hosts.⁵²² ASBVd is systemic in all the plant's tissues.⁵²³ However, ASBVd can be irregularly distributed in the host's tissues⁵²⁴ and its concentration can vary between branches.⁵²⁵

2.178. ASBVd affects all avocado cultivars, in other words, all varieties of avocados are susceptible to ASBVd and there are no resistant varieties.⁵²⁶ However, different varieties might have a different response against the disease⁵²⁷, or, in other words, the severity of symptom onset may be affected by the cultivar.⁵²⁸

2.3.2.2 Symptoms of ASBVd

2.179. The alterations caused by ASBVd vary according to and are influenced by the cultivar, environmental conditions and the variants of the viroid.⁵²⁹

2.180. Small changes in the nucleotide sequence of the viroid can affect symptom expression.⁵³⁰ There are at least three variants of ASBVd, categorized according to the symptoms they produce: ASBVd-B (which produces bleaching); ASBVd-V (which produces variegation); and ASBVd-Sc (which does not produce visible symptoms).⁵³¹

2.181. Affected trees present the following visible symptoms:

- a. On the branches and stems: narrow white, yellow or pink streaks, on the surface or slightly depressed, appear on green twigs and young stems.⁵³²
- b. On the leaves: bleached or chlorotic areas may form initially around the leaf veins and this may progress to complete chlorosis or bleaching, with leaves becoming deformed.⁵³³ Distorted and variegated areas may also develop from the central vein, which may progress and deform the entire leaf blade.⁵³⁴
- c. On the fruit: lesions and discolouration of the fruit, sunken white, yellow or pink blotches or streaks.⁵³⁵ The fruit are usually small and deformed.⁵³⁶

⁵²² J.S. Semancik, "Avocado sunblotch viroid", en A. Hadidi, R. Flores, J.W. Randles and J.S. Semancik (eds.), *Viroids* (CSIRO Publishing: Melbourne, Australia, 2003), pp. 171-177 (Semancik (2003)), (Exhibit MEX-46), p. 172; R.P. Singh, K.F.M. Ready and X. Nie, "Biology", en A. Hadidi, R. Flores, J.W. Randles and J.S. Semancik (eds.), *Viroids* (CSIRO Publishing: Melbourne, Australia, 2003), pp. 30-48 (Singh et al. (2003)), (Exhibit MEX-50), pp. 30-31; Saucedo Carabez *et al.* (2019), (Exhibit MEX-175), p. 5; Desjardins (1987), (Exhibit CRI-101), p. 300; and Hadidi et al. (2003), (Exhibit CRI-121), p. 172.

⁵²³ Ploetz et al. (2011), (Exhibit MEX-56), p. 6. See the responses of Pablo Cortese, Ricardo Flores Pedauy  and Fernando Pliego Alfaro to Panel question No. 34(d) for the experts.

⁵²⁴ Semancik and Szychowski (1994), (Exhibit MEX-52), p. 1548.

⁵²⁵ Ploetz et al. (2011), (Exhibit MEX-56), p. 6; and Luttig and Manicom (1999), (Exhibit MEX-69), p. 7.

⁵²⁶ Saucedo Carabez et al. (2014), (Exhibit MEX-45), p. 3; and Laboratorio Nacional de Geoprosesamiento de Informaci n Fitosanitaria (LaNGIF), "An lisis Epidemiol gico de la mancha de sol de aguacate - Avocado Sun Blotch Viroid (ASBVd)" (LaNGIF, ASBVd Epidemiological Analysis (2009)), (Exhibit MEX-54), p. 85. See also responses of Ricardo Flores Pedauy  and Pablo Cortese to Panel question No. 25(c) for the experts.

⁵²⁷ Saucedo Carabez *et al.* (2019), (Exhibit MEX-175), pp. 5 and 8. See also Pablo Cortese's response to Panel question No. 25(c) for the experts.

⁵²⁸ Fernando Pliego Alfaro's response to Panel question No. 25(c) for the experts.

⁵²⁹ Ploetz et al. (2011), (Exhibit MEX-56), p. 6; Saucedo Carabez *et al.* (2019), (Exhibit MEX-175), p. 3; and Ncango et al. (2014), (Exhibit CRI-8), p. 69.

⁵³⁰ Ploetz et al. (2011), (Exhibit MEX-56), p. 6; and Ncango et al. (2014), (Exhibit CRI-8), p. 69.

⁵³¹ Semancik and Szychowski (1994), (Exhibit MEX-52), p. 1543; and Ncango et al. (2014), (Exhibit CRI-8), p. 69.

⁵³² Ploetz et al. (2011), (Exhibit MEX-56), p. 6.

⁵³³ Ploetz et al. (2011), (Exhibit MEX-56), p. 6. See also Saucedo Carabez et al. (2014), (Exhibit MEX-45), p. 801.

⁵³⁴ Saucedo Carabez *et al.* (2019), (Exhibit MEX-175), p. 3.

⁵³⁵ Ploetz et al. (2011), (Exhibit MEX-56), p. 6. See also Desjardins (1987), (Exhibit CRI-101), p. 302.

⁵³⁶ Ploetz et al. (2011), (Exhibit MEX-56), p. 6.

- d. On the bark on the trunk of larger branches: rectangular cracked or checked appearance, also known as "alligator skin" or "crocodile skin".⁵³⁷⁵³⁸

2.182. Severely affected trees are often underdeveloped, sparsely foliated and stunted.⁵³⁹

2.183. As secondary symptoms in older parts of the trees, it is reported that tissue surfaces dry, crack and darken sooner than the surfaces of normal trees.⁵⁴⁰

2.184. With regard to the appearance of visible symptoms, the climate influences symptom expression, with fewer symptoms at lower temperatures.⁵⁴¹ Viroids are warm climate pathogens, as warm temperatures trigger their symptoms. ASBVd likes temperatures ranging between 18°C and 32°C.⁵⁴²

2.3.2.3 Transmission of ASBVd

2.185. ASBVd can be transmitted through: (i) vegetative propagation (grafting); (ii) seeds; (iii) pollen; (iv) natural root grafting; (v) mechanical transmission from using contaminated tools.⁵⁴³ There are no known insect vectors of ASBVd.⁵⁴⁴

2.3.2.4 Methods for the detection and diagnosis of ASBVd

2.186. A practical method of diagnosing ASBVd is by identifying typical symptoms in fruits. Moreover, when there is a marked reduction in the yield of a seemingly normal tree, it could be caused by the symptomless strain of ASBVd.⁵⁴⁵ However, diagnosis based on symptoms is not reliable, so other sensitive diagnostic techniques are necessary to determine the health status of the tree.⁵⁴⁶

2.187. There are different molecular detection techniques, based on detecting the genome of ASBVd⁵⁴⁷, and satellite detection of ASBVd:

- a. The hybridization technique, including the dot-blot procedure, whereby sap extract is hybridized by applying a nucleic acid solution to a solid support, such as nitrocellulose or nylon membranes, and viroid RNA is detected and quantified⁵⁴⁸;

⁵³⁷ Ploetz et al. (2011), (Exhibit MEX-56), p. 6; Saucedo Carabez *et al.* (2019), (Exhibit MEX-175), p. 3; and S. Ochoa Ascencio, "Enfermedades nuevas, emergentes y amenazantes", *IV Congreso Latinoamericano del Aguacate*, San José, Costa Rica, 23-25 de julio 2013 (Ochoa Ascencio (2013)), (Exhibit CRI-11), p. 59.

⁵³⁸ Ploetz et al. (2011), (Exhibit MEX-56), p. 6; LaNGIF, ASBVd Epidemiological Analysis (2009), (Exhibit MEX-54), pp. 82-84; Saucedo Carabez et al. (2014), (Exhibit MEX-45), p. 801; and Desjardins (1987), (Exhibit CRI-101), pp. 300-302. See also the experts' responses to Panel question No. 30 for the experts.

⁵³⁹ Ploetz et al. (2011), (Exhibit MEX-56), p. 6. See also Pablo Cortese's response to Panel question No. 30 for the experts.

⁵⁴⁰ LaNGIF, ASBVd Epidemiological Analysis (2009), (Exhibit MEX-54), p. 84.

⁵⁴¹ Campos et al. (2011), (Exhibit MEX-51), p. 2.

⁵⁴² Campos et al. (2011), (Exhibit MEX-51), p. 2. See also responses of Pablo Cortese, Ricardo Flores Pedauyé and Fernando Pliego Alfaro to Panel question No. 36 for the experts.

⁵⁴³ Ploetz et al. (2011), (Exhibit MEX-56), p. 6; Beltrán Peña (2013), (Exhibit MEX-63), p. 9; SENASICA, Datasheet, (Exhibit MEX-59), p. 8; Schnell et al. (1997), (Exhibit MEX-68), p. 1023; and Desjardins (1987), (Exhibit CRI-101), pp. 304-305. See also responses of Pablo Cortese, Ricardo Flores Pedauyé and Fernando Pliego Alfaro to Panel question No. 26 for the experts.

⁵⁴⁴ Beltrán Peña (2013), (Exhibit MEX-63), p. 9; Ploetz et al. (2011), (Exhibit MEX-56), p. 6; Schnell et al. (1997), (Exhibit MEX-68), p. 1023; and Ncango et al. (2014), (Exhibit CRI-8), p. 69.

⁵⁴⁵ Semancik (2003), (Exhibit MEX-46), p. 173; and LaNGIF, ASBVd Epidemiological Analysis (2009), (Exhibit MEX-54), p. 84. See also Saucedo Carabez *et al.* (2019), (Exhibit MEX-175), p. 8.

⁵⁴⁶ Saucedo Carabez *et al.* (2019), (Exhibit MEX-175), p. 8.

⁵⁴⁷ H-P. Mühlbach, U. Weber, G. Gómez, V. Pallás, N. Duran-Vila and A. Hadidi, "Molecular Hybridization", en A. Hadidi, R. Flores, J.W. Randles and J.S. Semancik (eds.), *Viroids* (CSIRO Publishing: Melbourne, Australia, 2003), pp. 103-114 (Mühlbach et al. (2003)), (Exhibit MEX-66), p. 103.

⁵⁴⁸ Mühlbach et al. (2003), (Exhibit MEX-66), p. 107.

- b. Polyacrylamide gel electrophoresis (PAGE), whereby infected avocado tissue is extracted, and the viroid is detected by applying the polyacrylamide gel indexing method⁵⁴⁹;
- c. The methods amplify the signal to levels detectable through a reverse transcriptase – polymerase chain reaction (RT-PCR) assay, which consists of reverse transcription and DNA amplification of the viroid⁵⁵⁰;
- d. The satellite technique, whereby the spectral reflectance of satellite images is used to differentiate between infected avocado trees and healthy trees.⁵⁵¹

2.188. All three ASBVd variants can be detected using molecular laboratory techniques.⁵⁵² Of the diagnostic methods, molecular hybridization and polymerase chain reaction (PCR) techniques have generated greatest interest in the field of plant virology diagnosis.⁵⁵³

3 PARTIES' REQUESTS FOR FINDINGS AND RECOMMENDATIONS

3.1. Mexico requests that the Panel find that the measures described by Costa Rica above are inconsistent with Costa Rica's obligations under Articles 1.1, 2.1, 2.2, 2.3, 3.1, 3.3, 5.1, 5.2, 5.3, 5.5, 5.6 and 6.1 of the SPS Agreement and Articles III:4 and XI:1 of GATT 1994. Mexico further requests, pursuant to Article 19.1 of the DSU, that the Panel recommend that Costa Rica bring its measures into conformity with its WTO obligations.

3.2. Costa Rica requests that the Panel reject Mexico's claims in this dispute in their entirety.

4 ARGUMENTS OF THE PARTIES

4.1. The arguments of the parties are reflected in their executive summaries, provided to the Panel in accordance with paragraph 23 of the Working Procedures adopted by the Panel (see Annexes B-1 and B-2).

5 ARGUMENTS OF THE THIRD PARTIES

5.1. The arguments of Canada and the European Union are reflected in their executive summaries, provided in accordance with paragraph 26 of the Working Procedures adopted by the Panel (see Annexes C-1 and C-2).

6 INTERIM REVIEW

6.1 Introduction

6.1. On 30 November 2021, the Panel issued its Interim Report to the parties. On 21 December 2021, Mexico and Costa Rica submitted their written requests for the review of certain aspects of the Interim Report. On 14 January 2022, the parties submitted their comments on each other's requests for the review of certain aspects of the Interim Report.

⁵⁴⁹ LaNGIF, ASBVd Epidemiological Analysis (2009), (Exhibit MEX-54), p. 84; and J.G. Utermohlen, "A polyacrylamide gel electrophoresis index method for Avocado Sunblotch", *Plant Disease*, Vol. 65, No. 10 (1981), pp. 800-802 (Utermohlen (1981)), (Exhibit MEX-67).

⁵⁵⁰ Luttig and Manicom (1999), (Exhibit MEX-69), pp. 56 and 60. See also Ricardo Flores Pedauyé's response to Panel question No. 55 for the experts.

⁵⁵¹ H. Beltrán Peña, J. Soria Ruiz, D. Téliz Ortiz, D.L. Ochoa Martínez, C. Nava Díaz y S. Ochoa Ascencio, "Detección satelital y molecular del viroide de la mancha de sol del aguacate (Avocado Sunblotch Viroid, ASBVd)", *Revista Fitotecnia Mexicana*, Vol. 37, No. 1 (2014), pp. 21-29 (Beltrán Peña et al. (2014)), (Exhibit MEX-55); and Beltrán Peña (2013), (Exhibit MEX-63).

⁵⁵² Semancik and Szychowski (1994), (Exhibit MEX-52), p. 1546; and Semancik (2003), (Exhibit MEX-46), p. 174. See also Ricardo Flores Pedauyé's response to Panel question No. 43(b) for the experts.

⁵⁵³ Mühlbach et al. (2003), (Exhibit MEX-66), p. 103. See also Fernando Pliego Alfaro's response to Panel question No. 54 for the experts.

6.2. In accordance with Article 15.3 of the DSU, this section of the Report sets out the Panel's response to the parties' requests made at the interim review stage.

6.3. The parties' requests for substantive modifications are discussed by the Panel below. In addition to the analysis of these requests, corrections were made for typographical and other non-substantive errors in the Report, including those identified by the parties. The numbering of some of the paragraphs and footnotes in the Final Report has changed from the numbering in the Interim Report. The analysis below refers to the numbering in the Interim Report if it has not changed, and, where it differs, reference is made to the corresponding numbering in the Final Report.

6.2 Request for review concerning Costa Rica's comments on the inputs provided by the expert Ricardo Flores Pedauyé

6.4. With regard to paragraph 1.93 and footnote 951, in which the Panel refers to Costa Rica's comment on the weight that should be given to the contributions of the expert Ricardo Flores Pedauyé, Costa Rica considers that its comment could be more accurately reflected. Costa Rica requests that the language of this paragraph and of the footnote be supplemented with the parts of its comments that it considers are not reflected. Costa Rica also asserts that it made its comment in its email of 21 January 2021, not 19 January 2021.

6.5. Mexico states that the Panel's reference to the date is correct; that it has no objection to the inclusion in paragraph 1.93 of the language proposed by Costa Rica, except for the term "explain"; and that it rejects the proposed edits to footnote 951, as it considers the text thereof to be sufficiently clear. In Mexico's view, while the inputs of Mr Flores Pedauyé were not discussed during the hearings, they were the subject of various written exchanges with the Panel and the parties.

6.6. The Panel observes that the Panel's reference to Costa Rica's email of 19 January 2021 in paragraph 1.93 is correct. The Panel notes that on 21 January 2021, Costa Rica reiterated its comment on the inputs provided by Ricardo Flores Pedauyé, and elaborated thereon. In order to accommodate Costa Rica's request for review, the Panel has added a new paragraph 1.95 containing the remarks made by Costa Rica in its email of 21 January 2021.

6.7. The Panel has accepted the addition requested by Costa Rica to footnote 951, taking into consideration its comments of 21 January 2021. As a result of these changes, the Panel has provided some clarification on its view regarding the inputs of Mr Flores Pedauyé.

6.3 Requests for review concerning whether Mexico has demonstrated that ASBVd is present in Costa Rica

6.3.1 Section 7.3

6.8. Mexico requests the Panel to conduct a review regarding section 7.3, in which the Panel concludes that Mexico has failed to demonstrate, as a matter of fact, that ASBVd is present in Costa Rica. Mexico refers in particular to paragraph 7.279, and asserts that in matters of plant and animal health, it is the importing countries that bear the initial burden of determining pest status in an area of their territory, which is why the burden of proof in respect of section 7.3 must be analysed in this context. Mexico states that the determination of pest status in an area cannot be imposed on exporting countries, as, in making such a determination, they would be encroaching upon the sovereignty of the importing country. According to Mexico, this assertion is supported by the remarks of the expert, Pablo Cortese, who pointed out that absence of evidence is not evidence of absence, meaning that the NPPO is required to seek information pertaining to the risk and the pest being prioritized. Mexico adds that it can only infer, but not assert or prove, that the viroid is present in Costa Rica. Mexico submits that the facts and arguments presented throughout this dispute nevertheless confirm that the general surveillance activities with respect to ASBVd carried out by Costa Rica are not sufficient to enable Costa Rica to substantiate the determination of absence of ASBVd in its territory, and therefore it does not meet its burden of proof in demonstrating the absence of ASBVd in its territory.

6.9. Costa Rica does not share Mexico's assessment, and states that Mexico has asserted that ASBVd is present in Costa Rica. According to Costa Rica, the burden of proving that assertion therefore lies with Mexico. Costa Rica states that nothing in the SPS Agreement imposes on importing countries

the initial burden of demonstrating their phytosanitary status; and that accepting Mexico's premise would lead to the result that, in any dispute under the SPS Agreement, the initial burden of proof would be shifted to the responding party, which, in Costa Rica's view, would be contrary to the burden of proof guidelines established by case law.

6.10. As explained by the Panel in section 7.1.3, the burden of proof rests upon the party asserting a fact. In its request for interim review, Mexico states that it can only infer, but not assert or prove, that the viroid is present in Costa Rica. The Panel notes that Mexico asserted during the proceedings that there is evidence from which it can be inferred that ASBVd is present in Costa Rica. However, throughout the dispute, Mexico equates this "inference" that ASBVd is present in Costa Rica with asserting or proving that ASBVd is present in Costa Rica, by basing some of its arguments on the premise that ASBVd is present in Costa Rica.⁵⁵⁴ The Panel cannot accept Mexico's arguments based on the premise that ASBVd is present in Costa Rica, if Mexico has failed to demonstrate, as a matter of fact, that ASBVd is present in Costa Rica.

6.11. Accordingly, Mexico bears the burden of proving the fact that it asserts in the present dispute settlement proceedings. The Panel therefore does not consider it appropriate to review section 7.3 in light of Mexico's assertion that in matters of plant and animal health, it is the importing countries that bear the initial burden of determining pest status in an area of their territory.

6.12. In light of Mexico's request for review, the Panel has adjusted paragraph 7.279 to reflect the remarks made in the paragraph above. In paragraphs 7.280, 7.303 and 7.310, the Panel has emphasized that Mexico bears the burden of demonstrating the fact it asserts *in these dispute settlement proceedings*.

6.3.2 Paragraph 7.286

6.13. Mexico requests this Panel to modify the wording of paragraph 7.286 so that it expressly refers to what the expert, Pablo Cortese, said in his response to Panel question No. 77.

6.14. Costa Rica considers that the Panel's assessment correctly reflects the remarks made by Mr Cortese, and notes that in his response to additional Panel question No. 1, the expert stated that the affidavits submitted by Mexico were not "officially validated" sources.

6.15. The Panel notes that, with respect to Exhibits MEX-93, MEX-94, MEX-95 and MEX-96, in addition to Mr Cortese's response to Panel question No. 77, paragraph 7.286 cites Mr Cortese's response to additional Panel question No. 1 for the expert. Therefore, paragraph 7.286 correctly reflects the expert's view, and does not need to be modified.

6.3.3 Paragraph 7.295

6.16. Mexico requests the Panel to conduct a review of its conclusion in paragraph 7.295 that Mexico fails to explain what evidence of the presence of ASBVd in Costa Rica the cited documents contain. Mexico considers this assertion to be erroneous, since, according to Mexico, throughout its written submissions it spells out why the exhibits corresponding to Sampling survey 2014 (MEX-64) and Sampling survey 2015-2016 (MEX-65), in containing errors in their methodology, make it possible

⁵⁵⁴ For example, in its claim under Article 5.1 of the SPS Agreement, Mexico asserts that it "presented conclusive evidence demonstrating that the disease and the pathogenic agent have been present in Costa Rica." (Mexico's first written submission, para. 461). As part of that claim, Mexico also submits that Costa Rica failed to consider the circumstances that had a direct impact on the outcome of the risk assessments, such as "the presence of sunblotch and ASBVd in Costa Rica". (Mexico's first written submission, para. 386). In its claim under Article 5.5, Mexico asserts that, "[i]f we consider the viroid to be present in both territories, distinctions in the regulations aimed at fruit from Mexico and the absence of regulation for Costa Rican avocado producers point to unjustifiable or arbitrary differences." (Mexico's first written submission, para. 537). In its claim under Article 6.1, Mexico submits that the measures Costa Rica imposed on Mexico and other avocado-producing countries would need to be attenuated for the following reasons: "[i]n the avocado-producing areas of Costa Rica's territory, signs have also been found of the presence of ASBVd in areas where avocados are produced." (Mexico's first written submission, para. 607). In its claim under Article 3.1 of the SPS Agreement, Mexico states that "[t]he laboratory analysis results for the first sampling survey show the presence of ASBVd and sunblotch disease in Costa Rica, and yet Costa Rica continues to assert the absence thereof." (Mexico's second written submission, para. 297).

to infer that ASBVd is present in Costa Rica. Mexico refers to various paragraphs in its written submissions.

6.17. Costa Rica considers the Panel's conclusion in paragraph 7.295 to be correct, since the documents corresponding to Sampling survey 2014 (MEX-64) and Sampling survey 2015-2016 (MEX-65) do not contain evidence of the presence of ASBVd in Costa Rica. Costa Rica submits that what Mexico is doing is asserting that Costa Rica's alleged errors in methodology make it possible to infer that ASBVd is present in Costa Rica, which, in Costa Rica's view, is, in probative terms, very different to positively demonstrating the presence of the viroid in Costa Rica.

6.18. The Panel notes that Mexico, in its request for review concerning paragraph 7.295, refers to paragraphs in its written submissions in which it addresses the errors that it believes exist in Costa Rica's sampling methodology. In paragraph 7.295, the Panel analyses Exhibits MEX-64 and MEX-65 as part of the evidence that Mexico identifies as evidence from which it can be inferred that ASBVd is present in Costa Rica, with Mexico describing these exhibits in this context as the "results of the laboratory analysis of samples taken in 2014 and 2015-2016 in Costa Rica". The Panel observes that Exhibits MEX-64 and MEX-65 contain neither laboratory analysis results nor any other information indicating that ASBVd is present in Costa Rica. In order to further clarify its explanation, the Panel has adjusted paragraph 7.295.

6.3.4 Paragraph 7.301 of the Interim Report

6.19. Costa Rica refers to the Panel's comment in paragraph 7.301 of the Interim Report that nor can it corroborate the follow-up that Costa Rica gave to the tree sampled and georeferenced by Dr Obregón. In Costa Rica's view, this paragraph could be more precise. According to Costa Rica, it is not clear to whom the term "nor" refers, since, in the paragraph in question, the expert Pablo Cortese gives his opinion on the laboratory analysis of the assays submitted by Mexico, which was conducted in a laboratory (LADIFIT) in Mexico, and not in Costa Rica. Costa Rica submits that Mr Cortese is giving his opinion on Mexico's actions, not on Costa Rica's actions.

6.20. Costa Rica further considers that the Panel *can* corroborate the follow-up that Costa Rica gave to the tree sampled and georeferenced by Dr Obregón, and refers to paragraph 7.756, in which the Panel describes Exhibit CRI-18. Costa Rica requests the Panel to consider modifying paragraph 7.301 of the Interim Report by including that description and by removing the sentence that reads "[n]or can the Panel corroborate the follow-up that Costa Rica gave to the tree sampled and georeferenced by Dr Obregón."

6.21. Mexico considers Costa Rica's comment to be irrelevant, since the term "nor" refers to the opinion formed by the Panel after reviewing the parties' evidence and Pablo Cortese's responses. According to Mexico, Costa Rica failed to provide sufficient evidence to demonstrate the traceability of the samples, or with respect to the follow-up that the SFE gave to the tree infected with ASBVd, so including the text proposed by Costa Rica would amount to this Panel making a factual finding without a proper basis. Mexico adds that the facts and exhibits submitted by Costa Rica are referred to by the Panel in paragraphs 7.275 through 7.278; that Dr Obregón's report is cited specifically in paragraph 7.277(b); and that paragraph 7.301 of the Interim Report contains part of the Panel's assessment regarding some of the responses provided by Mr Cortese.

6.22. The Panel observes that while Costa Rica refers to the description of Exhibit CRI-18 in paragraph 7.756, the same exhibit is also described in paragraph 7.298, which precedes paragraph 7.301 of the Interim Report. Therefore, the Panel does not consider the addition requested by Costa Rica to be necessary.

6.23. In light of Costa Rica's comment that the Panel *can* corroborate the follow-up that Costa Rica gave to the tree sampled and georeferenced by Dr Obregón, the Panel considers it relevant to make some additional remarks. Exhibit CRI-18 contains a sampling record dated 10 December 2015 for a sample the seal of which is found in Annex 9 to Costa Rica's response to the Panel's information request of 3 August 2020. Exhibit CRI-18 also mentions the laboratory code and states that the result of the sample was negative, without presenting the result. The result does not appear in Annex 9, but can be found in Annex 4. However, given that the geographical coordinates of the tree sampled by Dr Obregón are not found in the exhibits submitted by Mexico, the Panel cannot corroborate the follow-up that Costa Rica asserts it gave to the tree sampled by Dr Obregón, even

though Costa Rica's sampling record contains coordinates. The Panel has revised paragraph 7.301 of the Interim Report, thereby reflecting the earlier comments in paragraphs 7.302 and 7.303 of the Final Report.

6.4 Request for review concerning trade in avocados between Costa Rica and Mexico and between Costa Rica and other countries in which ASBVd is present

6.24. With regard to paragraphs 7.270(d), 7.306, 7.307, 7.919, 7.1515, 7.1521, 7.1525, 7.1530, 7.1534, 7.1535, 7.1546, 7.1631, 7.1661, 7.1867, 7.1886, 7.1989 and 7.2061, Costa Rica states that Mexico's assertion concerning the alleged more than 20 uninterrupted years of trade in avocados between Costa Rica and Mexico (and with other countries in which ASBVd is also present) is contested by Costa Rica and is not a proven fact.

6.25. Costa Rica requests that the Panel, when referring to this assertion, clarify that it is contested by Costa Rica on the basis of what has been indicated in the course of the proceedings, in particular in Costa Rica's response to Panel question No. 5, as well as during the meeting with the experts.

6.26. Costa Rica suggests a new paragraph reflecting that Costa Rica disagrees with the assertion in question, and states that the Panel could include this paragraph after reflecting Mexico's assertion in paragraphs 7.270(d), 7.306, 7.307, 7.919, 7.1515, 7.1521, 7.1530, 7.1534, 7.1661, 7.1867, 7.1886, 7.1989 and 7.2061.

6.27. With regard to paragraph 7.1525, Costa Rica considers that the Panel could clarify that the assertion made in Costa Rica's first submission, according to which "for 20 years, ASBVd was never detected in consignments of avocados from Mexico because Costa Rica, unaware that ASBVd was established in Mexico, did not impose phytosanitary requirements", is only relevant in relation to the period in which the presence of ASBVd in Mexico is documented and prior to the application of Costa Rica's phytosanitary requirements, i.e. from 2009 to 2015.

6.28. Costa Rica also considers that the language in paragraphs 7.1535, 7.1546 and 7.1631 appears to suggest that Mexico's assertion is correct, even though the Panel has not issued a factual finding on whether trade in avocados has existed for more than 20 uninterrupted years between Costa Rica and Mexico (and with other countries in which ASBVd is also present). Costa Rica requests the Panel to consider modifying the language in these paragraphs and suggests how to modify this language.

6.29. Mexico considers that the Panel should reject Costa Rica's request to include the above-mentioned text in paragraphs 7.270(d), 7.306, 7.307, 7.919, 7.1515, 7.1521, 7.1530, 7.1534, 7.1661, and 7.1867, since these paragraphs refer to Mexico's arguments.

6.30. Mexico asserts that evidence showing trade in avocados for more than 20 uninterrupted years between Costa Rica and Mexico (and with other countries in which ASBVd is present) *does* exist. Mexico notes that there is evidence that the presence of ASBVd in Mexico dates back to 1948, with molecular testing having been conducted since 2006.⁵⁵⁵ Mexico adds that its claim is not based on probability stemming from Costa Rica's lack of awareness or from its intention to impose phytosanitary measures once the presence of ASBVd in Mexico was known, but on a factual matter, namely the flow of trade in fresh avocados for consumption from 1993 to 2015 between Mexico and Costa Rica. Mexico states that, for these reasons, the Panel should reject Costa Rica's request to modify paragraphs 7.1535, 7.1546 and 7.1631.

6.31. Regarding the first part of paragraph 7.1535, Mexico states that it is clear that the Panel is referring to Mexico's concern, without this implying that the Panel accepts the assertion in question, and that Costa Rica's corrections are therefore irrelevant. Mexico also requests that the Panel reject the insertion proposed by Costa Rica because the suggested wording is designed in such a way that it may be interpreted that the Panel is asserting that what Costa Rica said is correct.

⁵⁵⁵ Mexico's request for review of the Interim Report, para. 17 (citing De la Torre Almaráz et al. (2009), (Exhibit MEX-70); Saucedo Carabez *et al.* (2019), (Exhibit MEX-175); and E.E. Trask, "Observations on the Avocado Industry in Mexico", California Avocado Society Yearbook 1948, Vol. 33 (1948) (Trask (1948)), (Exhibit MEX-176)).

6.32. Mexico also states that paragraph 7.1631 is intended to refer to Mexico's claims and not Costa Rica's, and should therefore remain worded as originally proposed.

6.33. Mexico has no objection to Costa Rica's request to modify paragraph 7.1511, subject to the Panel's consideration of Mexico's comments.

6.34. The Panel notes that paragraphs 7.270(d), 7.919, 7.1515, 7.1521, 7.1661, 7.1867, 7.1989 and 7.2061 are summaries of Mexico's arguments, and therefore does not consider it appropriate to include Costa Rica's arguments in these paragraphs. The Panel has made minor editorial adjustments to paragraphs 7.306 and 7.1886, so as to clarify that these are Mexico's arguments.

6.35. Paragraph 7.307 remains unchanged, as it reflects one of Mexico's arguments. Footnote 969 has been added to paragraph 7.308, indicating that the matter of the more than 20 years of trade is an issue contested between the parties and that the Panel addresses this contested issue in paragraphs 7.1536 through 7.1541.

6.36. Paragraph 7.1525 remains unchanged, as it accurately reflects the remarks made in Costa Rica's first written submission and in its response to Panel question No. 5. Costa Rica's argument, as expressed at the meeting with the parties and the experts, has been added in a new paragraph, paragraph 7.1527.

6.37. Paragraph 7.1530 remains unchanged, as it is a summary of Mexico's argument. Costa Rica's argument concerning trade with other countries, as expressed in response to Panel question No. 5, has been added in a new paragraph, paragraph 7.1533.

6.38. The Panel has made a minor editorial adjustment to paragraph 7.1631 so as to clarify that it refers to Mexico's arguments. The Panel has also included a reference to Costa Rica's argument.

6.39. In light of this request for review, the Panel has addressed the contested factual issue of trade between Costa Rica and Mexico and between Costa Rica and other countries in which ASBVd is present, in new paragraphs 7.1536 through 7.1541. The Panel has made adjustments to paragraphs 7.1535, 7.1544 and 7.1545.

6.5 Request for review concerning whether Manual NR-ARP-PO-01_M-01 may, directly or indirectly, affect international trade

6.40. With regard to paragraph 7.229, Mexico requests the Panel to also consider its comment on the response of the expert, Robert Griffin, to Panel question No. 137.

6.41. Costa Rica states that Mexico's comment on Robert Griffin's response merely repeats what the expert said. Costa Rica adds that, in any event, the expert's comment has nothing to do with the Panel's finding that Mexico has failed to demonstrate that the manual may, individually, affect international trade, and that the Panel should therefore reject the request for review of paragraph 7.229.

6.42. The Panel notes that Mexico made its comment on Robert Griffin's response to Panel question No. 137 in a different context to that of paragraph 7.229. The finding in paragraph 7.229, regarding Mexico's argument that the manual may, in itself, affect international trade, seeks to indicate that Mexico fails to adequately explain the relevance of, or support, its assertions that "Costa Rica's objective was [for the manual] to control the risk assessor's judgement" and "the PRAs could, in a preconceived manner, establish a risk that would otherwise be unjustifiable". The Panel has adjusted paragraph 7.229 to reflect this.

6.6 Request for review concerning Reports ARP-002-2017 and ARP-006-2016 and the determination of absence of ASBVd in the territory of Costa Rica

6.43. Costa Rica considers that the language of the last sentence of paragraph 7.447 could be clarified to prevent a reading that Costa Rica does not provide details of its specific and general surveillance. Costa Rica agrees that it does not provide details in its risk assessments of the sampling surveys or other general surveillance activities, but asserts that it does provide these details in separate documents, referred to in paragraphs 7.517, 7.518, 7.521 and 7.522, which include, *inter*

alia, Exhibits CRI-12, CRI-15, CRI-16, CRI-17, CRI-18, CRI-19, CRI-20, CRI-21, CRI-69, CRI-70, CRI-71, CRI-72, CRI-73, CRI-82, CRI-83, CRI-84, CRI-85, CRI-86, CRI-87, CRI-88, CRI-89, CRI-90, CRI-91, CRI-92, CRI-93, CRI-95 and CRI-96, and Costa Rica's response to the Panel's request for information.

6.44. Costa Rica requests that the Panel, to avoid ambiguity in paragraph 7.447, consider adding a footnote clarifying that Costa Rica provides the details of the sampling surveys and general surveillance in separate documents, and suggests the wording of the requested footnote.

6.45. Mexico requests the Panel to reject Costa Rica's request. Mexico submits that Costa Rica's proposal implies a departure from the meaning of the Panel's assessment in that paragraph, as it is limited to the analysis of the PRAs and not to the record of the proceedings. Mexico asserts that there is no further information in Reports ARP-002-2017 and ARP-006-2016 than that cited by the Panel in paragraph 7.447.

6.46. Mexico adds that the information subsequently submitted by Costa Rica is analysed in the paragraphs specified by Costa Rica that correspond to a different assessment, namely the assessment of the specific surveillance system as part of the basis for the determination of absence of ASBVd in Costa Rica (section 7.4.5.1.2.3).

6.47. The Panel notes that paragraph 7.447 refers specifically to Reports ARP-002-2017 and ARP-006-2016, stating that "Costa Rica does not provide details in its reports of the sampling surveys or other general surveillance activities". This finding refers only to Reports ARP-002-2017 and ARP-006-2016, and not to the information that the parties submitted in the course of the dispute, which is mentioned, *inter alia*, in paragraphs 7.513-7.515, 7.518, 7.521 and 7.522. Therefore, the Panel does not consider it appropriate to include the footnote suggested by Costa Rica. The Panel has replaced "reports" with "Reports ARP-002-2017 and ARP-006-2016, of 10 July 2017", so as to avoid any confusion about the subject of the assertion.

6.7 Request for review concerning the manner in which the Panel will analyse Mexico's arguments regarding the determination of absence of ASBVd in Costa Rica in the Reports ARP-002-2017 and ARP-006-2016

6.48. Costa Rica refers to paragraph 7.460, in which the Panel explains that it will not carry out its analysis under Article 5.1 of the SPS Agreement on the basis of ISPMs Nos. 6 and 8, nor assess whether the determination of absence of ASBVd and its disease is based on those ISPMs. Costa Rica requests the Panel to clarify on what basis the analysis of the determination of absence of ASBVd is carried out. Costa Rica submits that the SPS Agreement does not contain provisions on the surveillance systems of WTO Members and that ISPM Nos. 6 and 8 do not establish binding obligations in this regard, but rather general guidelines that each country adjusts according to its priorities, capacities and available resources, and notes that this is recognized by the IPPC itself, which states that "[c]ontracting parties shall, to the best of their ability, conduct surveillance for pests".⁵⁵⁶

6.49. Mexico requests the Panel to reject Costa Rica's request, since the Panel clearly established the basis for its analysis throughout section 7.4.5.1.2 of the Interim Report. Mexico states that the assessment of whether a PRA is appropriate to the circumstances starts with a case-by-case determination, and that the analysis of the determination of absence of ASBVd in a particular territory may be a specific national situation that is analysed on the basis of Article 5.1 of the SPS Agreement, and not on the basis of the mandatory nature of ISPM Nos. 6 and 8 as incorrectly suggested by Costa Rica.

6.50. Mexico adds that the paragraph in question is not meant to make ISPM Nos. 6 and 8 binding in respect of the obligations contained in the SPS Agreement, and that the Panel noted that ISPM Nos. 6 and 8 are merely tools that are illustrative for determining what would be considered to be legitimately scientific in a risk assessment. Mexico considers that the Panel made an objective assessment of the facts, in analysing whether the determination of absence of ASBVd in the territory

⁵⁵⁶ Costa Rica's request for review of the Interim Report, para. 2.23. (emphasis added by Costa Rica)

of Costa Rica should be considered legitimately scientific based on the standards of the scientific community.

6.51. In paragraph 7.455, the Panel notes that Mexico advances some of its arguments relating to the determination of absence of ASBVd in Costa Rica in the context of its claims under Article 3 of the SPS Agreement, and that there, Mexico includes the point on Costa Rica's declaration that ASBVd is absent in its territory, and concludes that this declaration of freedom from ASBVd and its disease is not based on ISPM Nos. 6 and 8. In paragraph 7.456, the Panel explains that in the context of its claims under Articles 5.1, 5.2, 5.3 and 2.2 of the SPS Agreement, in its first written submission, Mexico makes reference to its arguments advanced under Articles 3.1 and 3.3. It is in this context that the Panel concludes in paragraph 7.460 that it will not carry out its analysis under Article 5.1 of the SPS Agreement on the basis of ISPM Nos. 6 and 8, nor assess whether the determination of absence of ASBVd and its disease is based on those ISPMs.

6.52. In paragraph 7.458, the Panel recalls that its task under Article 5.1 of the SPS Agreement is to assess whether the determination of absence of ASBVd, as part of the scientific basis for Reports ARP-002-2017 and ARP-006-2016, must be considered to be legitimately scientific according to the standards of the scientific community concerned. In the following paragraph, the Panel explains that it refers to the ISPMs as tools that are illustrative for determining what would be considered to be legitimately scientific in a risk assessment according to the standards of the scientific community in relation to the inputs of a risk assessment related to the determination of pest status in a territory.

6.53. The Panel conducted its analysis of the determination of absence of ASBVd in Costa Rica as described in section 7.4.5.1.2.1. The Panel considers the explanations in section 7.4.5.1.2.1 to be thorough, and therefore no additional explanations are required. The Panel has made an editorial adjustment to paragraph 7.460.

6.8 Requests for review concerning the general surveillance system as part of the basis for the determination of absence of ASBVd in Costa Rica

6.8.1 Paragraphs 7.276 and 7.482

6.54. Costa Rica states it is aware that, in its first written submission, it claimed that its status as free of ASBVd is confirmed by the phytosanitary databases of CABI and the EPPO. However, Costa Rica points out that it stated in its responses to the Panel's questions that "the determination of absence of ASBVd in its territory was not based on the CABI and EPPO databases, but on the information obtained by the NPPO of Costa Rica from surveillance activities in the light of ISPM Nos. 6 and 8", and that the CABI and EPPO databases "draw on bibliographical references and official information from the NPPO of each country".⁵⁵⁷ Costa Rica requests the Panel to consider adding to the language in paragraph 7.276 and updating the corresponding footnote in order to set out its arguments in full.

6.55. Costa Rica also requests the Panel to assess the relevance of paragraph 7.482 in light of the above, particularly Costa Rica's clarification that the EPPO and CABI databases were not in any way used as the basis for the determination of absence of ASBVd.

6.56. Mexico has no objection to Costa Rica's request to add to paragraph 7.276 insofar as the paragraph reflects Costa Rica's claims and not a finding of the Panel. Mexico requests the Panel to reject Costa Rica's request to clarify paragraph 7.482 because, in its view, the clarification is inconsistent with the claims that Costa Rica made throughout its first written submission.

6.57. The Panel notes that Costa Rica's arguments expressed in its responses to the Panel's questions, to which Costa Rica refers in its request for review, are reflected in paragraphs 7.466 and 7.467. Therefore, the Panel does not consider the addition to paragraph 7.276 requested by Costa Rica to be necessary.

6.58. In the Panel's view, paragraph 7.482 is still necessary, considering the arguments and exhibits submitted by Costa Rica throughout the dispute. However, in order to address Costa Rica's comment

⁵⁵⁷ Costa Rica's request for review of the Interim Report, para. 2.8 (citing Costa Rica's response to Panel question No. 136, paras. 92 and 93).

regarding the development of its argument, the Panel has added to this paragraph that Costa Rica itself acknowledged, in its response to the Panel's questions following the Panel's second meeting with the parties, that the databases draw on bibliographical references and official information from the NPPO of each country.

6.8.2 Paragraph 7.477

6.59. Costa Rica refers to paragraph 7.477, in which the Panel states that Costa Rica does not specify which of the bibliographical references in the reports were consulted in relation to the status of ASBVd in Costa Rica. In Costa Rica's view, the content of this paragraph could be clarified.

6.60. Costa Rica refers to paragraphs 7.475, 7.476 and 7.481, and asserts that, in its response to the Panel's information request, it did specify which of the bibliographical references in the reports were consulted in relation to the status of ASBVd in Costa Rica, namely all references contained in the reports submitted to the Panel as Exhibits MEX-131 and MEX-123 (Reports ARP-002-2017 and ARP-006-2016). Costa Rica adds that, as a result of this consultation and as noted by the Panel, Costa Rica found no information on the presence of ASBVd in Costa Rica. Costa Rica requests the Panel to consider deleting paragraph 7.477.

6.61. Mexico submits that Costa Rica's request is contradictory, and that the Panel should reject it. In Mexico's view, Costa Rica merely points out that the information was contained in all the references in Exhibits MEX-131 and MEX-123, which is a general remark that does not specifically identify the references used in relation to the status of ASBVd in Costa Rica. Mexico asserts that Costa Rica should have demonstrated specifically which documents it used.

6.62. Mexico adds that the reference cited is to a finding by the Panel in which the analysis is confined to an assessment of the specificity of the evidence contained, or referred to, in the PRAs addressing the status of ASBVd in Costa Rica; and that what the Panel meant was that Costa Rica merely made a reference to the literature generally, without indicating to which article or abstract it was specifically referring.

6.63. As the Panel points out in paragraph 7.475, in its response to the Panel's request for information dated 3 August 2020, Costa Rica notes that Exhibits MEX-131 and MEX-123 contain Reports ARP-002-2017 and ARP-006-2016, the bibliographies to which list the relevant publications revised by the SFE with regard to the status of ASBVd in Costa Rica. As stated in paragraph 7.476, Costa Rica also notes that the bibliographical references consulted by the SFE for ASBVd are given in the reports submitted to the Panel as Exhibits MEX-131 and MEX-123 (Reports ARP-002-2017 and ARP-006-2016).

6.64 The Panel considers that, in this context, paragraph 7.477 correctly reflects its observation that Costa Rica does not specify in its response which of the bibliographical references in the reports were consulted in relation to the status of ASBVd in Costa Rica. Therefore, the Panel has decided to leave the paragraph unchanged. In light of the request for review, the Panel has adjusted the language in paragraph 7.481 in order to further clarify its explanation.

6.8.3 Paragraph 7.483

6.65. Costa Rica refers to paragraph 7.483, in which the Panel asserts that it does not find in the record any further attempt by Costa Rica to consult other bibliographical sources, such as other scientific articles. Costa Rica requests further guidance from the Panel regarding bibliographical sources, such as other scientific articles, which Costa Rica should have consulted as part of its general surveillance.

6.66. Costa Rica considers this guidance to be of particular importance because, in Costa Rica's view, the experts unanimously agree in their responses to Panel question No. 91 that the bibliographic selection of Costa Rica's risk assessments is correct, ample, very adequate, encompasses existing sources and clearly represents a good faith effort to consult and include relevant available information. Costa Rica states that the expert, Robert Griffin, notes that an unusually high proportion of the evidence used for the PRA is from relatively recent sources (last 20 years), and that the type of information is largely peer-reviewed scientific papers, which is considered highly reliable information according to section 2.2 of ISPM No. 8.

6.67. Costa Rica adds that the Panel's clarification on this point is of particular importance, given that, in Costa Rica's view, the need to continually gather scientific articles that do not report the presence of a pest in a territory could amount to a requirement to prove a negative, which is highly difficult, if not impossible. Costa Rica submits that, to the extent that no bibliographical source reports the presence of a pest in an area, it can be understood that the pest has not been recorded in that area; and that ISPM No. 8 states that if there are no records of the presence of the pest in the general surveillance data of an area, it may be reasonable to conclude that a pest is or has always been absent.

6.68. In Mexico's view, Costa Rica's request is based on an erroneous interpretation of the Interim Report and the experts' responses. Mexico does not consider this to be the appropriate stage of the proceedings for the Panel to provide further guidance regarding the bibliographical sources that Costa Rica should have consulted as part of its general surveillance. Mexico considers the Panel to have accurately reflected the experts' responses since, in their responses to question No. 91, the experts did not assess whether Costa Rica made any further attempt to consult other bibliographical sources; rather, they only responded to the question whether the bibliographic selection of the risk assessments was correct.

6.69. Mexico agrees with Costa Rica's assertion that "[t]o the extent that no bibliographical source reports the presence of a pest in an area, it can be understood that the pest has not been recorded in that area", but points out that the NPPO of the country implementing a phytosanitary measure must constantly update the bibliographical sources justifying the phytosanitary measures being applied. Mexico adds that more than four years have passed since Reports ARP-002-2017 and ARP-006-2016 were published, and Costa Rica has not revised the assessments despite having additional information at its disposal.

6.70. The Panel notes that question No. 91 for the experts, to which Costa Rica refers, concerns the type, quantity and quality of the bibliographic selection that Costa Rica used to prepare and substantiate Report ARP-002-2017. The Panel has reflected the experts' opinions in that respect later in its report. Paragraph 7.483 refers to Costa Rica's general surveillance activities with respect to ASBVd, and not what is described above.

6.71. Regarding Costa Rica's general surveillance activities with respect to ASBVd, as indicated in paragraph 7.472, it seems to the expert Pablo Cortese that the continuity of the activities undertaken over time is not well documented, nor is it clear how the activities are actually documented, and he gives as an example that a revision of sources is alluded to, but that the sources are the same as in the PRA, and they are also not clearly specific to ASBVd in all cases.

6.72. The purpose of paragraph 7.483 is to note that the Panel does not find in the record any attempt by Costa Rica to continually evaluate sources, i.e. there is a lack of information corroborating that Costa Rica continues to gather and explore bibliographical sources, such as scientific articles subsequent to Reports ARP-002-2017 and ARP-006-2016, in order to check whether any of them contain information relating to the presence of ASBVd in Costa Rica. This is in spite of Costa Rica's claim that the sources of information emanating from the general surveillance were revised on three separate occasions. The Panel has adjusted the language of paragraph 7.483 to further clarify the point made therein.

6.8.4 Paragraph 7.486

6.73. Costa Rica refers to paragraph 7.486, in which the Panel states that, although the Panel may assume that this information relates to the report by Dr Obregón, the report does not provide further details. Costa Rica considers that this paragraph could be clarified, and that the Panel does not need to assume anything.

6.74. Costa Rica claims that the report mentioned by the Panel, namely its response to the Panel's request for information, states that a specific example of the SFE's role in the passive general surveillance with respect to ASBVd is contained in Exhibit MEX-129 (ASBVd diagnostic testing by

Laboratorios Dr Obregón), and cites Exhibit CRI-18.⁵⁵⁸ Costa Rica refers to the Panel's statement in paragraph 7.756 on Exhibit CRI-18.

6.75. Costa Rica points out that its response to the Panel's request for information is clear in that Costa Rica's monitoring actions concern the report by Dr Obregón, and requests the Panel to consider amending paragraph 7.486 by deleting "although the Panel may assume that" and "the report does not provide further details".

6.76. Mexico believes that agreeing to delete the statements would change the meaning of the Panel's finding from an assumption to an assertion. For Mexico, it is indisputable that the traceability that Costa Rica attributes to the samples from the farm and tree from which Dr Obregón obtained them is unclear.

6.77. The Panel notes that paragraph 7.486 contains two citations – the "*Informe de vigilancia para la determinación de la ausencia del ASBVd en las plantaciones de aguacate en Costa Rica*" (Surveillance report for determining the absence of ASBVd in avocado plantations in Costa Rica) of 2019, contained in Exhibit CRI-17, and Costa Rica's response to the Panel's information request. The 2019 surveillance report for determining the absence of ASBVd in avocado plantations in Costa Rica does not specify whether it addresses Dr Obregón's report. However, when Costa Rica's response to the Panel's information request deals with the report, references are made to Exhibits MEX-129 and CRI-18, which relate to Dr Obregón's samples. In light of the foregoing, the Panel has agreed to amend paragraph 7.486.

6.9 Requests for review concerning the specific surveillance system as part of the basis for the determination of absence of ASBVd in Costa Rica

6.9.1 Paragraph 7.570

6.78. Regarding paragraph 7.570, Costa Rica states that the assertion by the expert Pablo Cortese that "only a few samples were examined in a few days, and those places were not selected, or it is not clear what the criteria were for selecting those places" should be considered in light of Costa Rica's explanation of the dates of the samples.

6.79. According to Costa Rica, Mr Cortese's assertion refers to the sample dates as indicated in the Excel tables setting out the results of the specific surveys carried out in the context of the pest ASBVd (2104, 2015-2016, 2017-2018 and 2019), contained in Annex 9 of Costa Rica's response to the Panel's information request.

6.80. Costa Rica submits that it contended during the meeting with the experts that Mr Cortese's assertion is based on the understanding that the dates contained in Annex 9 are the dates on which the samples were collected. Costa Rica nevertheless states that "the date contained in the Excel table [...] is not the date of the sample as such, but rather the date on which the sample was entered into the digital system". For example, "[t]he sampling period [...] of the first specific survey was from 1 September 2014 to 8 October 2014, as can be corroborated by Exhibit MEX-115. In other words, it was more than one month and one week of sampling. The information was simply digitized on the two days that appear in the Excel table".⁵⁵⁹ Costa Rica adds that the second sampling survey lasted over two months "from 24 November 2015 to 14 January 2016", the third "from 27 November 2017 to 13 February 2018, i.e. two and a half months of sampling", and the fourth started on "19 February 2019 and ended on 9 April 2019, i.e. almost two months".⁵⁶⁰

6.81. Costa Rica states that, to provide a complete version of the factual elements of this dispute, it would be grateful if its explanation of the dates of the samples could be reflected in the Panel Report.

⁵⁵⁸ Costa Rica's request for review of the Interim Report, para. 2.37 (citing Costa Rica's response to the Panel's information request, paras. 14-15). (emphasis added by Costa Rica)

⁵⁵⁹ Costa Rica's request for review of the Interim Report, para. 2.42 (citing Costa Rica, transcript of the Panel's meeting with the parties and the experts, day 4, pp. 42-43).

⁵⁶⁰ Costa Rica's request for review of the Interim Report, para. 2.42 (citing Costa Rica, transcript of the Panel's meeting with the parties and the experts, day 4, pp. 42-43).

6.82. Mexico submits that paragraph 7.570 faithfully expresses the opinion of Pablo Cortese, and the requested amendment should therefore be rejected. Mexico claims that Costa Rica had the opportunity to inform the expert of its arguments and concerns with respect to the opinions expressed, and that the expert's opinion did not change in light of Costa Rica's comments and observations.

6.83. The Panel observes that the duration of each sampling survey was reflected in paragraph 7.491 according to the documentary information provided by the parties. In response to Costa Rica's request, the Panel has reviewed this information again. The Panel has not found all the exact start and end dates of the sampling surveys indicated by Costa Rica. The Panel has added footnotes with further details concerning the dates of the sampling surveys, based on the information that it has been able to corroborate from the exhibits in the record.

6.84. With regard to the dates of the samples, Costa Rica stated at the Panel's meeting with the parties and the experts that "the date contained in the Excel table, which is Annex [9] of the Additional Surveillance Report, is not the date of the sample as such, but rather the date on which the sample was entered into the digital system", and that it is not that there were only two days of sampling, but that the information was simply digitized on the two days that appear in the Excel table.⁵⁶¹

6.85. First, the Panel observes that the comment made by Pablo Cortese during the second day of the Panel's meeting with the parties and the experts (page 39 of the transcript), to which paragraph 7.570 refers, focuses on the issue of selecting the sample sites, and not the dates of the samples. Costa Rica's comment during the fourth day of the meeting (pages 42-43 of the transcript) was made in reaction to Mr Cortese's comment during the third day of the meeting (page 35 of the transcript) regarding information contained in Annex 9 and, in particular, regarding the work days of the sampling surveys that the expert found, and his comment that he was struck by the fact that all the samples were taken on only two days in 2014, for example. Second, the Panel observes that the title of the Excel table column in Annex 9 to which Costa Rica appears to refer is "dt_Visita" (dt_Visit) for years 2014-2016 and "Fecha_Visita_Seguimiento" (Follow-up_Visit_Date) for years 2017-2019. Furthermore, the completed monitoring forms contained in Exhibit CRI-149 include the visit dates, and those found in Annex 9 match the dates indicated in the "dt_Visit"/"Follow-up_Visit_Date" column. The Panel is therefore unable to corroborate Costa Rica's claim.

6.86. In view of the foregoing, the Panel does not consider it appropriate to amend the report based on Costa Rica's statement made at the Panel's meeting with the parties and the experts. However, the Panel has reflected Costa Rica's statement and the above observation in a footnote to paragraph 7.770, in which Annex 9 is described and it is mentioned that the visit date is given.

6.9.2 Paragraphs 7.572 through 7.581

6.87. With regard to paragraphs 7.572 through 7.581, Costa Rica requests the Panel to clarify why prioritizing avocado-producing areas in the sampling surveys is not "scientifically sound". Costa Rica points out that, while it has always acknowledged that there is a risk of ASBVd being introduced in backyards and waste disposal sites (through spontaneous germination), it has also been vehemently and repeatedly underscored in this dispute that "diversion from intended use of avocado waste (i.e. its seed) is a deep-rooted cultural practice, especially in the highland area where the Hass variety is grown"⁵⁶², that "farmers successfully use the Hass seed to obtain a rootstock and graft Hass onto it"⁵⁶³, and that it was common for them "not to acquire their certified propagation material from nurseries, but to use seed that is sometimes of unknown origin".⁵⁶⁴

⁵⁶¹ Costa Rica, transcript of the Panel's meeting with the parties and the experts, day 4, p. 42.

⁵⁶² Costa Rica's request for review of the Interim Report, para. 2.45 (citing Costa Rica's response to Panel question No. 169, para. 197).

⁵⁶³ Costa Rica's request for review of the Interim Report, para. 2.45 (citing Costa Rica's response to Panel question No. 166, para. 190).

⁵⁶⁴ Costa Rica's request for review of the Interim Report, para. 2.45 (citing Costa Rica's response to Panel question No. 13; CONSULSANTOS (2010), (Exhibit MEX-119); Centro de Investigación en Cultura y Desarrollo, Universidad Estatal a Distancia de Costa Rica, "Prácticas culturales de siembra y manejo de semillas de aguacate en Costa Rica", informe de investigación, 10 de octubre de 2019 (Cultural practices in planting and managing avocado seeds in Costa Rica (2019)), (Exhibit CRI-44), p. 12; and Ministerio de Agricultura y

6.88. Costa Rica states that it would appreciate further details as to why it would be deficient to stagger the surveys and prioritize areas considered to be most at risk, i.e. Hass avocado production areas, where diversion from intended use is a cultural practice among farmers, who use Hass seeds to obtain a rootstock and graft Hass onto it. Costa Rica asserts that Pablo Cortese said that priority should be given to areas where there is more likelihood of the disease being detected and that sites where diversion from intended use is most likely to occur should be selected. Costa Rica adds that the expert Fernando Pliego Alfaro said that it appears that Hass is grown at a certain altitude, and therefore if diversion from intended use occurs in respect of Hass on Hass, Costa Rica should ensure that this entire zone is very well sampled because it is the niche where the disease can actually appear.

6.89. Mexico submits that Costa Rica's proposal suggests that it is attempting to return to the debate regarding the diversion from intended use practices in its territory and the sampling of such practices. However, Mexico believes that the assessment of the facts and the responses from the experts are clearly addressed not only in the paragraphs mentioned, but also throughout the entire Interim Report. In Mexico's view, this is not the appropriate stage to request a *de novo* review, and if Costa Rica requires more information in order to understand how an area of risk should be prioritized, it should refer to the information presented by Pablo Cortese during the third day of the meeting with the experts. Mexico states that Mr Cortese highlighted the importance of prioritization and how Costa Rica failed to do this.

6.90. The Panel observes that, throughout the section on the coverage of the sampling surveys and representativeness of the samples, the Panel explains in detail why it arrives at its conclusion in paragraph 7.581 that the sampling survey's coverage, centred on the main areas of production, fails to properly assess the risk of other areas where there is a probability of the disease being detected, and that Costa Rica's sampling surveys, which underpin the determination that its entire territory is free of ASBVd, are not sufficiently representative considering the risk, which affects the reliability of the determination of absence of ASBVd in Costa Rica, and therefore the scientific legitimacy of this determination.

6.91. With respect to Costa Rica's assertion that, in the 2014 sampling survey, sampling focused on the producing area because of the risk of ASBVd being introduced into Los Santos, the Panel notes in paragraph 7.560 that Costa Rica itself recognizes that its concern is not limited to production sites; that, from its first written submission, Costa Rica has asserted that diversion from intended use is a practice common to both private individuals, who plant seeds in their yards, and farmers who do the same with the seeds of consumed or discarded fruits; and that Costa Rica notes that, while diversion from intended use is one of the risk factors for the introduction of ASBVd into Costa Rica, it is not the only one, and mentions the risk arising from seeds discarded as waste.

6.92. The Panel analyses in detail the relevant claims in Reports ARP-002-2017 and ARP-006-2016 and goes on to explain in paragraph 7.565 that both Costa Rica's arguments and Reports ARP-002-2017 and ARP-006-2016 themselves show that Costa Rica's concern regarding the introduction of ASBVd is not limited to production sites, but also extends to places where diversion from intended use by private individuals exists and places where spontaneous germination occurs, which includes places where wild and backyard trees grow in Costa Rican territory, and Costa Rica itself suggests that there is a risk of ASBVd being introduced in all regions of the country, by pointing out the presence of avocado trees across the whole of the country.

6.93. The Panel also reflects the experts' opinions, including that of the surveillance expert, Pablo Cortese, in the sense that, according to the information provided, all existing risk sites were not taken into account; that the main consequence of this is that there could be an incipient outbreak of this disease that would not be found; and that only a few samples were examined in a few days, and those places were not selected, or it is not clear what the criteria were for selecting those places, and, for him, some uncertainties remain.

6.94. It is in this context that the Panel states that it does not consider Costa Rica's explanation that it focused on the production zone because of the risk of introduction into that zone to be scientifically sound.

Ganadería de Costa Rica, "Manual para el Establecimiento y Manejo de un Vivero de Aguacate (*Persea americana* Mill.)", aprobado el 22 de mayo de 2017 (Manual for Nurseries (2017)), (Exhibit CRI-43), p. 20).

6.95. The Panel continues its explanation by noting, for example, that:

- a. It is not apparent from the evidence submitted throughout the proceedings that Costa Rica has considered and prioritized the areas where the risk of the emergence of ASBVd is highest, and it is not clear that there is any criterion for selecting ASBVd sampling sites that takes into account sites at particular risk. However, it is apparent from the exhibits concerning Costa Rica's sampling surveys that Costa Rica's intention was to conduct its sampling solely at production sites, and primarily in the largest production zone (paragraph 7.576).
- b. It finds no support in the record for Costa Rica's response following the Panel's second meeting with the parties, according to which its surveillance covers all areas where avocado is present, but prioritizes production zones, as it is in these zones that there is a greater risk of the introduction, establishment and spread of ASBVd because of diversion from intended use, and the practice of Hass-on-Hass grafting, among other factors (paragraph 7.577).
- c. It finds no evidence that Costa Rica had, in its first two sampling surveys conducted prior to the drafting of Reports ARP-002-2017 and ARP-006-2016, adequately considered the characteristics of the avocado population in its territory and the relevant cultivation practices, and that it had prioritized the areas most at risk (paragraph 7.578).
- d. By the time of its last sampling survey in 2019, Costa Rica had still not designed a sampling survey taking into account these characteristics and practices, despite its assertion that samples were taken from backyard trees in the period 2015-2019, and that, throughout the surveillance exercise, sampling is conducted in backyards, in urban gardens and even on roadsides (paragraph 7.579).

6.96. The Panel also notes that Pablo Cortese states that one must always make every effort to find evidence and be certain that this pest is not present.⁵⁶⁵ Furthermore, Mr Cortese points out that reference is made to the entire production area, but when he sees the maps and reports, the same area is not covered every year, despite the fact that the maps are not very detailed. The expert adds that it is impossible to see what is covered – whether it is the entire area in all years, or certain parts. It is also unclear to him whether sites are covered, and whether in that selection of sites the ones with the highest likelihood of occurrence or outbreak of the disease were prioritized, because of the issue of diversion from intended use.⁵⁶⁶

6.97. The Panel considers its explanation to be detailed, and does not believe that it is necessary to provide further clarification. The Panel has adjusted the language in paragraph 7.572 and has added a paragraph 7.571 to reflect Mr Cortese's comments in the previous paragraph.

6.9.3 Paragraphs 7.648 through 7.671

6.98. Costa Rica refers to paragraphs 7.648, 7.651 and 7.671, and requests the Panel to clarify what type of evidence is required to verify the use in practice or the application of the surveillance protocols and sampling methodology reviewed by the Panel. Costa Rica also requests the Panel to provide further details on the obligation to have protocols and specific methodologies (as opposed to general procedures) for sampling surveys of all quarantine pests in a country, especially bearing in mind that quarantine pests are precisely the pests that are absent in a country's territory and which may be extremely numerous.

6.99. Mexico submits that the Panel's responsibility is to clarify the consistency of Costa Rica's measures based on the SPS Agreement, rather than telling Costa Rica how to fulfil its obligations correctly. Mexico points out that the type of evidence that a WTO Member should use and submit in proceedings depends on the assertion to be substantiated and not on what a panel may deem to be correct. In Mexico's view, Costa Rica should know what type of evidence is sufficient and necessary

⁵⁶⁵ Pablo Cortese, transcript of the Panel's meeting with the parties and the experts, day 3, p. 60.

⁵⁶⁶ Pablo Cortese, transcript of the Panel's meeting with the parties and the experts, day 3, p. 36.

to substantiate its claims, and the Panel does not have the authority to tell Costa Rica what type of evidence is required to verify the facts that it asserts.

6.100. The Panel notes that the intention behind the Panel's statement in paragraph 7.648, that the use in practice of the steps described in Exhibits MEX-64 and MEX-65 cannot be confirmed, is to emphasize the fact that these steps are not reflected in any document from prior to the 2014 and 2015-2016 sampling surveys. Similarly, in paragraph 7.652, the Panel notes that Costa Rica asserts that officials responsible for the ASBVd sampling surveys received copies of these documents, but the nine steps on the "collection of and handling processes for sunblotch (viroid) samples in avocado (*Persea americana*)" contained in Exhibits MEX-64 and MEX-65 do not appear in any document in the record relating to the 2017-2018 and 2019 sampling surveys, nor is reference made to them. The Panel has made adjustments to paragraph 7.648 in order to further clarify the sentence in question.

6.101. Likewise, the intention behind the Panel's statement in paragraph 7.651, that there is no evidence of the use of the procedure in Exhibit CRI-146, is to highlight the fact that no reference is made to this document in any document relating to the first three sampling surveys, which were conducted when the procedure seems to have been in force. The Panel has made adjustments to paragraph 7.651 in order to further clarify the sentence in question.

6.102. With regard to Costa Rica's request for further information on what Costa Rica characterizes as "the obligation to have protocols and specific methodologies", the Panel notes that, after describing an exhibit submitted by Costa Rica (Exhibit CRI-82) and Pablo Cortese's opinion in that respect, the Panel explains in paragraph 7.654 of the Interim Report (paragraph 7.663 of the Final Report) that, in its view, in the case of ASBVd a more specific procedure would also be required, since the particular characteristics of the pest to be detected (ASBVd, in this case) and those of the pathway (crop) of concern (avocado, in this case) must be considered, and that this would allow the surveillance to be focused, and ensure a rigorous process and a reliable outcome.

6.103. In a very similar context, after describing an exhibit submitted by Costa Rica (Exhibit CRI-88) and Mr Cortese's opinion in that respect, the Panel considers in paragraph 7.660 of the Interim Report (paragraph 7.665 of the Final Report), that, although Costa Rica points out that neither the SPS Agreement nor the ISPMs require WTO Members to introduce pest-specific surveillance protocols, the lack of specific protocols for ASBVd reduces the scientific rigour of the sampling surveys by failing to take into account the particular requirements of ASBVd detection surveys.

6.104. The Panel refers to the specific circumstances of this case, considering the parties' arguments, the exhibits submitted and the experts' opinions. The Panel makes no general finding that there is an obligation to have protocols and specific methodologies for sampling surveys of all quarantine pests for a country, as Costa Rica suggests. Costa Rica also states that quarantine pests are pests that are absent in a country's territory and which may be extremely numerous. However, Costa Rica identified ASBVd as a pest of interest or concern, and this is the pest on which the Panel's work is focused in this dispute.

6.105. Furthermore, regarding crops, as the report notes, the exhibits to which the Panel refers in these paragraphs (Exhibits CRI-82 and CRI-88) specifically mention coffee and pineapple, respectively, but neither of the exhibits refer to avocado crops. In other words, the Costa Rican authority itself refers to certain specific crops in its procedures.

6.106. It is worth mentioning that, with respect to the description of the survey methodology and the sampling procedure in particular, ISPM No. 6 provides guidance stating that the procedure would be determined by the biology of pest or purpose of survey. As regards pest surveys, said ISPM states that the selection of survey procedures may be determined by the type of sign or symptom by which the pest can be recognized, and by the accuracy or sensitivity of techniques used to test for the pest.⁵⁶⁷ The Panel recalls that ISPM No. 6 is a tool that is illustrative for determining what would be considered to be legitimately scientific in a risk assessment according to the standards of the scientific community in relation to the inputs of a risk assessment related to the determination of a pest status in a territory.

⁵⁶⁷ ISPM No. 6, (Exhibit MEX-75), p. 6.

6.107. Revised ISPM No. 6 states that surveillance protocols should provide clear instructions for carrying out a surveillance activity in a consistent manner, and that surveillance managers and officers should be aware of current methodologies associated with specific groups of pests and should ensure that the methods are used appropriately to deliver reliable surveillance outcomes.⁵⁶⁸

6.108. In view of the foregoing, the Panel considers that Costa Rica's request for further explanation from the Panel of what Costa Rica characterizes as "the obligation to have protocols and specific methodologies (as opposed to general procedures) for sampling surveys of all quarantine pests in a country" is not in line with the Panel's statement, and has no merit. However, in order to further clarify its explanation, the Panel has rearranged and adjusted paragraph 7.654 of the Interim Report (paragraph 7.663 of the Final Report), and has added paragraph 7.664.

6.9.4 Paragraph 7.722

6.109. Costa Rica observes that Annex 9 contains codes from 2014 because it lists all the survey results from 2014 to 2019, while Exhibit CRI-87 provides the backyard avocado sampling sites for the years 2015-2019. Costa Rica requests the Panel to explain in more detail what the drawback would be for a document to refer to a longer period (2014 to 2019), and for another document to set out information concerning one phase of this period (2015 to 2019).

6.110. Mexico points out that the text of paragraph 7.722 clearly expresses the doubts and inconsistencies found in Annex 9, as well as in Exhibit CRI-87, therefore no further explanation is required in the report. Mexico adds that Costa Rica misunderstands the Panel's determination, since it clearly explains the drawback for Annex 9, which refers to the period 2014 to 2019, not to contain the codes found in Exhibit CRI-87, which apparently covers a shorter period.

6.111. The Panel observes that it has not stated that it is problematic *per se* for a document (Annex 9) to refer to a longer period than another document (Exhibit CRI-87).

6.112. The Panel notes that, assuming that Annex 9 contains Costa Rica's ASBVd sample record for 2014-2019, including samples from backyards⁵⁶⁹, what paragraph 7.722 identifies as incongruous is that: (i) some of the SFE codes in Exhibit CRI-87 are not found in Annex 9; (ii) other SFE codes are given more than once in Exhibit CRI-87, and only once in Annex 9; (iii) some codes in Exhibit CRI-87 correspond to samples from 2014 in Annex 9, when the backyard sampling surveys, according to Costa Rica and Exhibit CRI-87, were carried out in 2015-2019.

6.113. However, if by its comment Costa Rica was suggesting that these were different records, and that Annex 9 on the 2014-2019 surveys should not contain information on the backyard sampling surveys, then this would aggravate the lack of traceability of the backyard sampling surveys, which would reinforce the Panel's conclusion with respect to the lack of evidence on the record to demonstrate that samples were taken from backyard trees.

6.114. In view of the foregoing, the Panel has left the wording of paragraph 7.722 unchanged. The Panel has inserted a footnote to clarify this paragraph.

6.9.5 Paragraph 7.773

6.115. Costa Rica notes that, in paragraph 7.773, the Panel refers to the "memorandum on the 2019 sampling survey", Exhibit CRI-21, and that this document mentions the forms contained in "R-03-LAB-LDP-BM-PO-08_Traceability form for the preparation and extraction of samples" and "LAB-LDP-BM-PT-06_Molecular detection of avocado sunblotch viroid (ASBVd)", with the consecutive numbers 2019-18 through 2019-30, 2019-35, 2019-36 and 2016-38". Costa Rica asserts that this memorandum does not concern the traceability of samples in a broad sense, rather it merely concerns the final report on the results of the laboratory analyses conducted in 2019; and that the

⁵⁶⁸ Secretaría de la CIPF, *Vigilancia*, NIMF No. 6 (Roma, FAO en nombre de la Secretaría de la CIPF, adoptada en 2018, publicada en 2019), accessed 8 January 2021, <http://www.fao.org/3/w7991s/w7991s.pdf>, p. 7.

⁵⁶⁹ This is considering that Costa refers to this Annex as the report on the results of its specific surveys from 2014 to 2019.

information on the traceability of the samples in a broad sense is included in Annex 9 to Costa Rica's response to the Panel's information request.

6.116. Costa Rica adds that the "procedure LAB-LDP-BM-PT-06_Molecular detection of avocado sunblotch viroid (ASBVd)" is Exhibit CRI-12, and that, as is mentioned in Exhibit CRI-21, the "records and the data generated and stored on the equipment are available in the laboratory should they need to be consulted".⁵⁷⁰ Costa Rica claims that it provided the Panel with all the documents requested during the proceedings, such as Exhibits CRI-149 and CRI-150. Costa Rica adds that it did not provide the internal laboratory records because they were not requested and because it considered the information in Annex 9 to be sufficiently detailed.

6.117. Mexico submits that, if Costa Rica failed to provide the internal laboratory records, this should not be subject to review or reconsideration by the Panel. Mexico asserts that a Member should provide information based on its claims, and that such information should be sufficient to demonstrate these claims. In Mexico's view, it is not the Panel's responsibility to advise a Member on its claims, the evidence it should submit during proceedings, or the adjustments it could have made to suit its interests.

6.118. The Panel notes that paragraph 7.773 refers specifically to the assertion about traceability that appears in Exhibit CRI-21. The Panel has made an adjustment to the paragraph to point out that its assertion concerns the laboratory analysis process of the 2019 sampling survey.

6.119. The Panel also notes that the same paragraph refers to the absence from the record of the form R-03-LAB-LDP-BM-PO-08_Traceability form for the preparation and extraction of samples, and the forms with the consecutive numbers 2019-18 through 2019-30, 2019-35, 2019-36 and 2016-38. The Panel has added a sentence to clarify that these documents were at no point incorporated into the record. The Panel does not consider further changes to paragraph 7.773 to be necessary.

6.120. The Panel's observation of the fact that it did not find the forms in question in the record is part of its task of making an objective assessment of the facts. The Panel gave the parties an opportunity to submit any additional information and supporting documentation relating to the ASBVd surveillance system in Costa Rica already in their possession. Costa Rica therefore had the opportunity to submit all the evidence it considered relevant to its ASBVd surveillance system.

6.121. Moreover, the Panel never mentions that the procedure LAB-LDP-BM-PT-06_Molecular detection of avocado sunblotch viroid (ASBVd), contained in Exhibit CRI-12, is not in the record. In fact, the Panel refers to this procedure in its analysis of Costa Rica's diagnostic procedures. The Panel also analyses Exhibits CRI-149, CRI-150 and Annex 9 in other paragraphs of its report. These exhibits bear no relation to the Panel's finding in paragraph 7.773 regarding the forms that do not appear in the record.

6.9.6 Paragraph 7.824 of the Interim Report

6.122. Costa Rica considers the assertion in paragraph 7.824 of the Interim Report, that no document on the ASBVd detection protocol dating from before 2017 is in the record, to be factually incorrect. Costa Rica points out that Exhibit MEX-115, dated 29 October 2014, expressly indicates that the Cellular and Molecular Biology Research Centre (CIBCM) of the University of Costa Rica (UCR) followed the protocol and recommendations of Agdia Inc. (Indiana, United States), and that in Exhibit MEX-134, dated 6 April 2015, the CIBCM of the UCR describes the protocol followed for the detection of ASBVd. Costa Rica adds that Memorandum LDP-003-16 (Annex 4 to Costa Rica's response to the Panel's information request), dated 27 January 2016, states that the methods available at the Pest Diagnostic Laboratory of the SFE were used, and offers a detailed description of the procedure followed in the case of ASBVd.

6.123. Costa Rica requests the Panel to incorporate into its analysis of Costa Rica's diagnostic procedures for ASBVd all exhibits in the record reflecting the procedure followed both by the UCR and the Pest Diagnostic Laboratory of the SFE for the detection of ASBVd, particularly the exhibits mentioned above. Costa Rica further requests the Panel to review its conclusion that there is no

⁵⁷⁰ Costa Rica's request for review of the Interim Report, para. 2.53 (citing Final report on the 2019 sampling survey, (Exhibit CRI-21), p. 4).

evidence demonstrating that a diagnostic procedure existed prior to 2017, which affects the scientific legitimacy of the determination of absence of ASBVd in Costa Rica based on the sampling surveys of 2014 and 2015-2016.

6.124. Mexico requests the Panel to reject Costa Rica's request. Mexico considers the Panel to have conducted a careful analysis of the evidence referred to in Costa Rica's request for review, and it is therefore unnecessary to accept Costa Rica's proposal. Mexico adds that, in any case, even if the Panel agrees to include the documents to which Costa Rica refers, the determination of the absence of ASBVd in Costa Rican territory continues to lack scientific legitimacy for the reasons exhaustively presented by the Panel in its Interim Report.

6.125. The Panel observes that Exhibit MEX-115 contains a memorandum from the CIBCM of the UCR on the samples from the 2014 sampling survey, stating that the samples were prepared immediately and the RNA was spotted onto the membranes following the protocol and recommendations of Agdia Inc. (Indiana, United States). It is stated that the membranes were sent to Agdia Inc. for hybridization with the ASBVd-specific probe, using the diagnostic services of Agdia Inc.

6.126. Exhibit MEX-134 contains a memorandum from the CIBCM of the UCR regarding the samples that tested positive or inconclusive following the analysis carried out by Agdia Inc. The memorandum states that total RNA was extracted from the samples submitted by SFE officials using liquid nitrogen and the RNeasy Plant Mini Kit (QIAGEN) in accordance with the manufacturer's recommendations, and that the positive control RNA was obtained from ASBVd-infected avocado leaves kept in its freezer at -70°C. The memorandum also states that the reverse transcription (RT) and the polymerase chain reaction (PCR) were carried out using the protocols and the pair of viroid-specific ASBV1 and ASBV2 primers designed by Schnell et al. (Plant Dis. 81:1023-1026, 1997); and that the RT was carried out using the Sensiscript RT Kit (QIAGEN) and the ASBV1 primer. It adds that the RT-PCR product was analysed in agarose gel. It further states that all amplification products obtained were sent to MacroGen Korea to be purified and sequenced directly, and that the sequences obtained for each of the avocado samples were compared using the BLASTn algorithm with the sequences available in the GenBank.

6.127. Based on the information contained in Exhibits MEX-115 and MEX-134 relating to the evidence gathered in 2014, the first sampling survey was conducted with the support of the CIBCM of the UCR, using the diagnostic services of Agdia Inc (Indiana, United States) and MacroGen Inc. (Korea). The record contains no further information regarding the recommendations of Agdia Inc., or the diagnostic protocols of Agdia Inc. (Indiana, United States) and MacroGen Inc. (Korea), and the methodology applied by the CIBCM of the UCR is presented as a recount together with the presentation of the results. Costa Rica's response to the Panel's information request of 3 August 2020 provides some explanation of the CIBCM's methods.⁵⁷¹

6.128. Annex 4 to Costa Rica's response to the Panel's information request contains a memorandum from the Pest Diagnostic Laboratory of the SFE concerning 151 of the 244 samples from the 2015-2016 sampling survey. The memorandum states that the samples were analysed in the Molecular Biology Section of the Pest Diagnostic Laboratory of the SFE, and that the RT-PCR technique was used to determine the presence/absence of the viroid in the samples. It indicates that the methods available at the laboratory were used, and it describes the application of the methods to the samples in question.⁵⁷²

6.129. Annex 12 contains a CIBCM memorandum describing the diagnostic process for the other 177 samples from the 2015-2016 sampling survey. As in the CIBCM memorandum of 2014

⁵⁷¹ Costa Rica's response to the Panel's information request of 3 August 2020, pp. 23-24.

⁵⁷² It states: RNA was extracted using the Maxwell 16 MDx Instrument together with the Maxwell 16 LEV Plant RNA Kit (Promega AS1430). The "RNasin Plus RNase Inhibitor" (Promega, N2611) was added to the RNA extracts. The quantity and quality of the genomic RNA extracts obtained were verified using spectrophotometry. The reverse transcription was carried out using the "Maxima First Strand cDNA Synthesis Kit for RT-qPCR" (Thermo Scientific, K1642), and specific primers developed by Schnell et al., 1997 and Taq DNA recombinant (Thermo Scientific, EP0402) were used for the PCR. In addition, a real-time PCR was conducted on the cDNA from all the samples to amplify the plant cytochrome oxidase (COX), according to Li et al., 2006, which functions as an internal control. ... One positive control and one blank control (a no template control (NTC)) were included at each stage of the process (RNA extraction, RT and PCR) and for each batch. (Costa Rica's response to the Panel's information request of 3 August 2020, Annex 4, p. 2).

(Exhibit MEX-134), this memorandum describes how total RNA was extracted from the samples, how the RT and PCR were carried out, and how the RT-PCR product was analysed. The description is similar to that of the diagnostic process for the 25 inconclusive samples from 2014 in Exhibit MEX-134, the only difference being that another kit was used for the RT.

6.130. Based on the information in Annexes 4 and 12 relating to the evidence gathered in 2015-2016, the Panel notes that the CIBCM of the UCR provided support for 177 of the samples, and that the remaining 151 were analysed by the Pest Diagnostic Laboratory of the SFE. Regarding the analysis by the CIBCM of the UCR, as in 2014, no protocol is presented, and the methodology applied by the CIBCM of the UCR is presented as a recount together with the presentation of the results. With regard to the Pest Diagnostic Laboratory of the SFE, the methodology applied is also set out as a recount together with the presentation of the results, but the record contains no diagnostic protocol for ASBVd applicable in 2015-2016 giving instructions on the methodology to follow when conducting the diagnostic test for ASBVd.

6.131. In light of the foregoing, the Panel has inserted paragraphs 7.829 through 7.837, setting out the statements in the above paragraphs regarding Exhibits MEX-115 and MEX-134, and Annexes 4 and 12 of Costa Rica's response to the Panel's information request. The Panel has adjusted its conclusion on this point.

6.9.7 Paragraph 7.844

6.132. Mexico requests the Panel to conduct a review of Exhibit MEX-221, Comparison of the ASBVd sampling protocols of Mexico and Costa Rica (2019), cited in paragraph 7.844, since this exhibit is a technical opinion by Mexico's NPPO, namely the Directorate General of Plant Health of the National Health, Food Safety and Agri-food Quality Service (SENASICA) under the Ministry of Agriculture and Rural Development, which has technical and scientific legitimacy to issue opinions of this kind. Mexico states that it understands the Panel's limitations in that it is not responsible for evaluating Costa Rica's ASBVd diagnostic protocol, and that this exhibit's very purpose is to demonstrate that Costa Rica's protocol is unreliable, since obtaining an objective analysis of ASBVd would depend on aspects such as the type of sample, verification of the quality and quantity of RNA, the method for verifying RNA integrity, and the diagnostic techniques carried out by a laboratory.

6.133. Costa Rica submits that the Panel examined Exhibit MEX-221 and this is expressly reflected in its report. In Costa Rica's view, it is normal for Members to have different protocols, and it cannot therefore be concluded that a diagnostic protocol is in violation of WTO rules because it differs from another. Costa Rica adds that the Panel did evaluate and consider the exhibit to which Mexico refers, and arrived at a reasoned conclusion thereon.

6.134. In order to reflect the description of Exhibit MEX-221 more accurately, the Panel has indicated in paragraph 7.844 that a technical opinion issued by SENASICA is presented in the exhibit. However, although it is a technical opinion issued by Mexico's NPPO, it is still a comparison between the ASBVd diagnostic protocols of Mexico and Costa Rica. The Panel has maintained its conclusion that it does not consider that Mexico has shown, based on scientific evidence, and not merely by comparison with its own protocol, that Costa Rica's diagnostic protocol is not legitimately scientific. The Panel has made a minor adjustment to paragraph 7.844.

6.10 Request for review concerning spontaneous germination in Reports ARP-002-2017 and ARP-006-2016

6.135. Costa Rica notes that in paragraphs 7.1142 and 7.1143 the Panel refers to Costa Rica's efforts to document the occurrence of spontaneous germination and that these efforts appear to be a step in the right direction. However, Costa Rica adds that the Panel mentions that the evidence provided remains insufficient to document spontaneous germination due to the lack of a systematic, disciplined and objective investigation and analysis. Costa Rica requests further guidance on this matter from the Panel, and states that it would be particularly important for the Panel to explain in detail what type of documents would be sufficient and what type of systematic investigation and analysis Costa Rica should carry out to document spontaneous germination.

6.136. Mexico requests the Panel to reject Costa Rica's request. Mexico does not consider it to be the Panel's responsibility to tell a Member how to fulfil its obligations, and that Costa Rica's requests in this respect seem to disregard the role of panels.

6.137. The Panel indicated that Costa Rica's efforts appear to be a step in the right direction in order to note that Costa Rica has sought to gather further information on spontaneous germination subsequent to Reports ARP-002-2017 and ARP-006-2016.

6.138. In section 7.4.5.3.3.9, the Panel details the sources cited in support of the statements regarding spontaneous germination in Reports ARP-002-2017 and ARP-006-2016. In section 7.4.5.3.3.10, the Panel details all documents provided by Costa Rica during the proceedings which are not included in the reports. In both cases, the Panel explains in detail how it reached its conclusions relating to the insufficiency of scientific evidence for the occurrence of spontaneous germination in Costa Rica.

6.139. The Panel notes that, in accordance with Article 15.2 of the DSU, within the interim review stage "a party may submit a written request for the panel to review precise aspects of the interim report prior to circulation of the final report to the Members". In its report, the Panel has not made any suggestion as to how Costa Rica could fulfil its obligations under Article 5.1 of the SPS Agreement. During the proceedings, none of the parties requested the Panel to exercise its authority under Article 19.1 of the DSU to suggest ways in which the Member concerned could bring its measure into conformity with the SPS Agreement. This has therefore not been part of the discussion between the parties during the proceedings. The interim review is not the appropriate procedural stage at which to request the Panel to exercise its authority to suggest ways in which Costa Rica could bring its measure into conformity with the SPS Agreement with regard to this aspect in particular.

6.140. As a guide, the Panel refers to the Appellate Body's statement with respect to the obligation under Article 2.2 of the SPS Agreement (of which Article 5.1 is viewed as a specific application) that an SPS measure not be maintained without sufficient scientific evidence. The Appellate Body in *Japan – Agricultural Products II* considered "sufficient" to mean "of a quantity, extent, or scope adequate to a certain purpose or object", and that, accordingly, "'sufficiency' is a relational concept. 'Sufficiency' requires the existence of a sufficient or adequate relationship between two elements, *in casu*, between the SPS measure and the scientific evidence".⁵⁷³ The Appellate Body stated that Article 2.2 requires that there be a rational or objective relationship between the SPS measure and the scientific evidence, and that whether there is such a relationship will depend upon the particular circumstances of the case, including the characteristics of the measure at issue and the quality and quantity of the scientific evidence.⁵⁷⁴ Thus, the evidence has to be sufficient to support a rational and objective relationship between the SPS measure in question and the scientific evidence.

6.141. In light of the foregoing, the Panel does not consider it appropriate to provide the explanations requested by Costa Rica. However, in order to further clarify its conclusion in paragraph 7.1143, the Panel has replaced the phrase "while these efforts by Costa Rica appear to be a step in the right direction" with "while Costa Rica has sought to gather further information on spontaneous germination subsequent to Reports ARP-002-2017 and ARP-006-2016".

6.11 Request for review concerning the evaluation of the likelihood of entry

6.11.1 Paragraph 7.1202

6.142. With regard to paragraph 7.1202, Mexico notes that the Panel concludes that there is no information indicating that Mexico would have helped Costa Rica to gather more information on the presence of ASBVd in Mexico. Mexico submits that the Panel failed to take into account the information provided by Mexico, specifically in its response to Panel question No. 59, in which it notes the occasions on which it has shared information with Costa Rica. According to Mexico, this includes Exhibits MEX-9, MEX-10, MEX-11, MEX-12, MEX-18, MEX-138, and MEX-201. Mexico claims that these exhibits show that, since 2015, there has been a diplomatic and technical exchange between the SFE and SENASICA; and that it shared information with Costa Rica during the reviews

⁵⁷³ Appellate Body Report, *Japan – Agricultural Products II*, para. 73.

⁵⁷⁴ Appellate Body Report, *Japan – Agricultural Products II*, para. 84 (citing Panel Report, *Japan – Agricultural Products II*, para. 8.29 and 8.42).

of the measures subject to consultations under the Single FTA and during the consultation period before the DSB of the WTO.

6.143. Costa Rica submits that Mexico did not offer, either in its response to Panel question No. 59 or in the five exhibits mentioned, any information on the prevalence of ASBVd in its territory that Costa Rica could have used in its risk assessment. According to Costa Rica, the documents in question contain Mexico's assessment of the phytosanitary situation in Costa Rica and the measures it has taken, but no information on the prevalence of ASBVd in Mexico.

6.144. The Panel notes that, in response to Panel question No. 59 on the information provided by Mexico to Costa Rica for the preparation of the risk analysis, Mexico cites Exhibits MEX-201, MEX-138 and MEX-18. In its request for review of paragraph 7.1202, Mexico also includes Exhibits MEX-9, MEX-10, MEX-11 and MEX-12. With regard to all these exhibits, the Panel notes the following:

- a. In Exhibit MEX-9, which contains the minutes of the bilateral meeting between Mexico and Costa Rica, Mexico mentions the presence of ASBVd in Mexico and that ASBVd has not been detected in consignments of avocados from Mexico to Costa Rica, without further details.
- b. Exhibits MEX-10 and MEX-12 contain letters regarding consultations within the framework of the Single FTA, with logistical information.
- c. Exhibit MEX-11 contains Mexico's questions for Costa Rica.
- d. Exhibit MEX-18, a background overview by Mexico of the measures applied by Costa Rica, does not contain any specific information on the presence and/or distribution of ASBVd in Mexico, and dates from 2019, which is after Reports ARP-002-2017 and ARP-006-2016.
- e. Exhibit MEX-138 contains the technical report of a visit to Mexico by an SFE official from Costa Rica. The report states that the official toured avocado plantations looking for symptoms of ASBVd, but did not find any, or noted that the sporadic cases of defoliation and yellowing leaves at one of the plantations could only be verified in a laboratory. The report indicates that the owner of a packing plant claimed that he had seen fruit with symptoms in the field but that fruit with these symptoms rarely arrived at the packing plant. The document states that there are no official surveys determining areas where ASBVd is present in Mexico.
- f. Exhibit MEX-201 is a communication in which it is claimed that Mexico would have no objection to sending Costa Rica information with which to conduct the PRA procedure, after completion of the documentation procedure of the emergency measure, as well as the documentation stating that Costa Rica is free of ASBVd. The communication contains no further information.

6.145. In its request for review, Mexico makes no reference to specific information regarding the presence and/or distribution of ASBVd in Mexico, and no such information can be found in the exhibits identified by Mexico. In light of the foregoing, the Panel does not consider it appropriate to amend paragraph 7.1202. However, the Panel has added footnote 2166 to paragraph 7.1202 describing the content of Exhibits MEX-18, MEX-138 and MEX-201 as cited by Mexico in response to Panel question No. 59.

6.11.2 Paragraph 7.1221

6.146. Costa Rica notes that, in paragraph 7.1221, the Panel enquires as to the scientific basis for Costa Rica's assertion that "[t]his viroid is systemic in the tissues of the plant (Ploetz et al. 2011), so as long as the plant tissues are in a good condition, the pest will remain infectious". Costa Rica adds that this matter is of utmost importance because, as it remains active, the seed may transmit the viroid.⁵⁷⁵

⁵⁷⁵ Costa Rica's request for review of the Interim Report, para. 2.59 (citing Costa Rica's first written submission, paras. 5.125 and 5.135).

6.147. Costa Rica considers the second statement mentioned in paragraph 7.1221 (as long as the plant tissues are in a good condition, the pest will remain infectious) to be a logical consequence of the first (that the viroid is systemic in the tissues of the plant), particularly in light of the definition of a viroid and its systemic nature. Costa Rica states that the expert Fernando Pliego Alfaro explained that a pest is "systemic" when "it is inside the plant, in the plant's vascular bundle, and it therefore moves inside the plant, from one site to another" and is "very different, for example, from ... a fly or ... a mite that goes on the outside of the fruit", and that "[i]t is as if it were in our blood, right? and it goes all over the body. Well, it is the same thing. That is what 'systemic' means".⁵⁷⁶

6.148. Costa Rica submits that the fact the pest in this case is a systemic viroid means that it is found in all the plant's tissues, and, therefore, the tissues of an infected fruit will remain infected unless they are damaged, thereby also threatening the survival of the viroid. Costa Rica notes that the expert Pablo Cortese points out that "[t]he pathogen can remain in the fruit as long as the fruit's tissues are in good condition. The systemic characteristic is to do with its distribution within the plant".⁵⁷⁷ Thus, according to Costa Rica, "[i]f transported or stored for too long or the conditions are inadequate, the integrity of the fruit's tissues, and therefore the pathogen's survival, may be affected".⁵⁷⁸

6.149. Costa Rica requests the Panel to review the wording of paragraph 7.1221, considering that the second statement in question is a logical consequence of the first.

6.150. Mexico points out that the Panel stresses the need for a scientific link between the sentence "[t]his viroid is systemic in the tissues of the plant (Ploetz et al. 2011)" and the statement that "as long as the plant tissues are in a good condition, the pest will remain infectious". Mexico submits that it is not enough for the second statement to be a "logical consequence" of the first reference because, for the purposes of the SPS Agreement, the reasoning of the risk assessor must be coherent, objective and based on scientific evidence. Mexico adds that the second statement lacks scientific evidence substantiating it, and that it is applied inconsistently since there is no link between the two statements and no reasoning by Costa Rica's risk analyst. Mexico adds that Robert Griffin highlighted the importance of the assessment that the analyst must carry out with respect to the scientific evidence, which, according to Mexico, is not reflected in the PRAs under analysis. Mexico does not believe that the modification requested by Costa Rica should be made.

6.151 The Panel observes that, in the comment cited by Costa Rica, Fernando Pliego Alfaro explains what it is meant when referring to ASBVd as a viroid that is found systemically in the avocado plant, indicating that "systemic" means that it is inside the plant and that it moves within the plant. This does not confirm that the second statement in question ("as long as the plant tissues are in a good condition, the pest will remain infectious") is a logical consequence of the first ("[t]his viroid is systemic in the tissues of the plant").

6.152. Furthermore, the Panel notes that Pablo Cortese's comments highlighted by Costa Rica also do not confirm that the second statement in question is a logical consequence of the first. Mr Cortese's first comment concerns the question whether there is a correlation between the systemic distribution of the pest and its capacity to remain in a life stage that would be associated with commodities, containers or conveyances. The expert explains that the pathogen can remain in the fruit as long as the fruit's tissues are in good condition, and that the systemic characteristic is to do with its distribution within the plant. The expert does not make the connection asserted by Costa Rica.

6.153. Mr Cortese's second comment that "[i]f transported or stored for too long or the conditions are inadequate, the integrity of the fruit's tissues, and therefore the pathogen's survival, may be affected" stems from his response in relation to the assertion in Reports ARP-002-2017 and ARP-006-2016 that "[t]he speed and conditions of transport and duration of the life cycle of the pest in relation to time in transport and storage have no effect on the survival (infectivity) of the pest".⁵⁷⁹

⁵⁷⁶ Costa Rica's request for review of the Interim Report, para. 2.61 (citing Fernando Pliego Alfaro, transcript of the Panel's meeting with the parties and the experts, day 4, pp. 7-8).

⁵⁷⁷ Costa Rica's request for review of the Interim Report, para. 2.62 (citing Pablo Cortese's response to Panel question No. 48(a) for the experts).

⁵⁷⁸ Costa Rica's request for review of the Interim Report, para. 2.62 (citing Pablo Cortese's response to Panel question No. 49(a) for the experts).

⁵⁷⁹ ARP-002-2017, (Exhibit MEX-84), p. 35; ARP-006-2016, (Exhibit MEX-85), p. 16.

The expert comments that he "[p]artially agrees", and that "this will depend on the pathogen's survival in the fruit", before adding that "[i]f transported or stored for too long or the conditions are inadequate, the integrity of the fruit's tissues, and therefore the pathogen's survival, may be affected".⁵⁸⁰ The Panel also notes that, by adding "thus", Costa Rica has made a link between Mr Cortese's comments that he does not make.

6.154. Furthermore, regarding whether there is any correlation between the systemic distribution of the pest and its ability to survive during transport, Pablo Cortese states "not directly; the ability to survive in transit is linked to the pathogen remaining in the fruit", and the virology expert, Ricardo Flores Pedauyé, does not believe that there is.⁵⁸¹ Fernando Pliego Alfaro states that there is, "the pest survives more easily because it is systemic and is inside the tissue".⁵⁸²

6.155. In the Panel's view, the experts' explanations show that there is some discussion on the matter, but not that the second statement in question is a logical consequence of the first, and they confirm the need for scientific evidence and for an explanation of this element of the risk assessment in question.

6.156. In any event, the experts' testimony during the proceedings are not tantamount to evidence or explanations in Reports ARP-002-2017 and ARP-006-2016. The experts' testimony during these proceedings cannot make up for the lack of scientific evidence and the absence of the risk assessor's reasoning in the risk assessment contained in said reports. Without any explanation given in Reports ARP-002-2017 and ARP-006-2016, it is unclear why the second statement would be a logical consequence of the first.⁵⁸³

6.157. In light of the foregoing, the Panel has decided to leave paragraph 7.1221 unchanged.

6.11.3 Paragraph 7.1226

6.158. Costa Rica requests the Panel to reconsider the statement in paragraph 7.1226 that "there is no explanation under this point of the connection between the viability and germination of avocado seeds and the survival of ASBVd in fresh avocado fruit during commercial procedures", in light of the relevant factual elements in the record. Costa Rica notes that: (i) the cited sources, for instance, Wutscher and Maxwell (1969) and Spalding et al. (1976) confirm that the seed is viable after commercial procedures⁵⁸⁴; (ii) the experts confirm that "in standard transport and storage conditions of 5°C or 7°C, there is no reason to think that the seed will lose its viability"⁵⁸⁵; (iii) ASBVd is a viroid that is found systemically in the fruit, and "[b]eing a systemic pest, it is found in the plants' tissues [including the seed] and it can, therefore, survive during commercial procedures"⁵⁸⁶; and, (iv) it is therefore logical to say that commercial procedures do not affect the viability (germination capacity) of a seed infected with ASBVd.

6.159. Costa Rica considers that the connection between viability and germination of avocado seeds and the survival of ASBVd in fresh avocado fruit during commercial procedures can be seen from Costa Rica's risk assessments. Costa Rica requests the Panel to review this matter accordingly.

⁵⁸⁰ Pablo Cortese's response to Panel question No. 49(a) for the experts.

⁵⁸¹ Responses of Pablo Cortese and Ricardo Flores Pedauyé to Panel question No. 48(b) for the experts.

⁵⁸² Fernando Pliego Alfaro's response to Panel question No. 48(b) for the experts.

⁵⁸³ The Panel recalls that the same question regarding the correlation between the statement about the systemic nature of the pest, and the statement that as long as the plant tissues are in a good condition, the pest will remain infectious, arises in relation to two parts of Reports ARP-002-2017 and ARP-006-2016 (the speed and conditions of transport and duration of the life cycle of the pest in relation to time in transport and storage; and the vulnerability of the life stages during transport or storage). As the Panel explains in section 7 of this Report, neither of the two parts contain any substantiation or explanation of the correlation claimed.

⁵⁸⁴ Costa Rica's request for review of the Interim Report, para. 2.65 (citing Costa Rica, first written submission, para. 5.115, citing in turn Wutscher and Maxwell (1969), (Exhibit MEX-132); and Spalding et al. (1976), (Exhibit MEX-133); second written submission, para. 3.35, citing in turn Wutscher and Maxwell (1969), (Exhibit MEX-132); and Spalding et al. (1976), (Exhibit MEX-133)).

⁵⁸⁵ Costa Rica's request for review of the Interim Report, para. 2.65 (citing Fernando Pliego Alfaro, transcript of the Panel's meeting with the parties and the experts, day 1, p. 57).

⁵⁸⁶ Costa Rica's request for review of the Interim Report, para. 2.65 (citing Fernando Pliego Alfaro's response to Panel question No. 50 for the experts).

6.160. Mexico requests the Panel to reject Costa Rica's request, since, in Mexico's view, the Panel assessed objectively the exhibits cited by Costa Rica, and its determination in paragraph 7.1226 is appropriate.

6.161. Mexico adds that the exhibits cited by Costa Rica do not apply to this situation because: (i) the reference to Wutscher and Maxwell (1969) should not be taken as definitive, as it is a study that concerns avocados of the Lula variety, not Hass, which is the variety that Costa Rica imports from Mexico, and Costa Rica has failed to demonstrate with scientific evidence that these same conclusions can be extended to the Hass variety; (ii) the bibliographic reference to Spalding et al. (1976) should also not be taken as definitive, since it is a study that concerns avocados of the Lula variety, and not Hass; (iii) Costa Rica's rationale with regard to its climatic conditions and the temperature for transport and storage was a circumstance discussed at the meeting with the experts, it is therefore for the Panel to determine the weight of each of the pieces of evidence; and (iv) the fact that ASBVd is a viroid that is found systemically in the fruit does not explain the connection between the viability and germination of the avocado seed and the survival of ASBVd in fresh avocado fruit during commercial procedures.

6.162. The Panel observes that, in paragraphs 7.1224-7.1226, it analyses the content of the element of commercial procedures (for example, refrigeration) applied to consignments in the country of origin, country of destination, or in transport or storage in Reports ARP-002-2017 and ARP-006-2016, including the cited scientific evidence.

6.163. On Costa Rica's first point, the Panel addresses in paragraph 7.1226 the cited sources (Wutscher and Maxwell (1969) and Spalding et al. (1976)), noting that studies on the viability and germination of seeds are cited; that the cited studies on the viability and germination of seeds subjected to different temperatures are relevant to avocados and constitute respected scientific sources; but that, nevertheless, under the point being analysed, there is no explanation of the connection between the viability and germination of avocado seeds and the survival of ASBVd in fresh avocado fruit during commercial procedures.

6.164. The conclusion that Costa Rica asks the Panel to review has nothing to do with whether the studies corroborate or not that seeds are viable following commercial procedures. Rather, it concerns the absence of an explanation of the connection between the viability and germination of avocado seeds and the survival of ASBVd in fresh avocado fruit during commercial procedures.

6.165. Having noted the absence of an explanation in Reports ARP-002-2017 and ARP-006-2016 of the connection between the viability and germination of avocado seeds and the survival of ASBVd in fresh avocado fruit during commercial procedures, the Panel adds that the studies cited are limited to the Lula variety, and one refers to the storage of seeds in polyethylene bags. The Panel addresses this matter in its analysis of the next request for review.

6.166. With regard to Costa Rica's second and third points, the Panel reiterates that the experts' testimony (in this instance, that of Fernando Pliego Alfaro) during the proceedings are not tantamount to evidence or explanations in Reports ARP-002-2017 and ARP-006-2016; and that the experts' testimony during these proceedings cannot make up for the lack of scientific evidence and the absence of the risk assessor's reasoning in the risk assessment contained in said reports.

6.167. Moreover, as the Panel points out in paragraph 7.1224, Costa Rica uses the statement that the pest is systemic in the plant tissue, citing Ploetz et al. (2011), without explaining the connection between this statement and the statement that "[t]he pest is unaffected by commercial procedures".

6.168. With regard to Costa Rica's fourth point, without any explanation given in Reports ARP-002-2017 and ARP-006-2016, it is unclear why it is logical to assert, as Costa Rica submits, that commercial procedures do not affect the viability (germination capacity) of a seed infected with ASBVd.

6.169. In view of the foregoing, the Panel does not consider it appropriate to modify its statement that there is no explanation under this point of the connection between the viability and germination of avocado seeds and the survival of ASBVd in fresh avocado fruit during commercial procedures. The Panel has added in paragraph 7.1225 the language of Reports ARP-002-2017 and ARP-006-2016 in more detail.

6.11.4 Paragraphs 7.1226 and 7.1239

6.170. Costa Rica notes that, in reviewing the studies addressed in paragraphs 7.1226 and 7.1239, the Panel emphasizes that "the studies cited are limited to the Lula variety" in paragraph 7.1226, and that the "source refers specifically to nurseries" in paragraph 7.1239. For Costa Rica, it is understandable that there will not always be studies on the exact issue being addressed by a risk assessment. Costa Rica asserts that this does not mean, however, that studies on very similar issues cannot be taken into consideration. Costa Rica requests further explanation from the Panel on the value that it assigns to the studies mentioned in its analysis and on what Costa Rica describes as the possibility, or not, that Members have to take into consideration studies on very similar (although distinct) issues to those addressed in a risk assessment.

6.171. Mexico considers that the Panel should reject Costa Rica's request, since it is for the Panel alone to decide which evidence it selects in its determination; and points out that the Panel is not required to attribute to the exhibits the same meaning and weight that the parties do. Mexico submits that, based on the avocado's characteristics, Costa Rica should have taken the precaution of analysing the extent to which a study carried out for the Lula variety may be applicable to the Hass variety. According to Mexico, Costa Rica has failed to demonstrate with scientific evidence that the conclusions with respect to the Lula variety are equally applicable to the Hass variety.

6.172. Regarding the studies on the Lula variety, the Panel observes that in paragraph 7.1226, having noted the absence of an explanation in the reports of the connection between the viability and germination of avocado seeds and the survival of ASBVd in fresh avocado fruit during commercial procedures, the Panel adds that the studies cited are limited to the Lula variety, and one refers to the storage of seeds in polyethylene bags.

6.173. The Panel would like to point out that these sources refer respectively to a study of Lula variety avocados exposed to sub-freezing temperatures in a freeze chamber⁵⁸⁷ and a study on the germination capacity of seeds from Florida-grown Lula avocados after being stored in perforated and non-perforated polyethylene bags, and in plastic mesh bags for several months in a chamber.⁵⁸⁸ Moreover, the second study explicitly concludes that additional information is needed to show the effectiveness of the storage procedure with seeds of other Florida avocado cultivars stored for up to a year under both laboratory and commercial conditions.⁵⁸⁹

6.174. The Panel understands that data may be extrapolated in risk assessments if that extrapolation is justified on the basis of an analysis of the applicability of the data to the specific case. In Reports ARP-002-2017 and ARP-006-2016, the risk assessor extrapolates the information from Wutscher and Maxwell (1969) and Spalding et al. (1976) on the Lula variety without any analysis or explanation justifying that the information on the Lula variety, taken from studies carried out under controlled conditions, can be extrapolated to the particular situation of Hass avocados imported for consumption.

6.175. The Panel has adjusted paragraph 7.1226, in order to further clarify its comment with respect to the use of studies on the Lula variety in Reports ARP-002-2017 and ARP-006-2016.

6.176. With regard to the study on nurseries, the Panel has already explained in paragraph 7.1239 that, in Reports ARP-002-2017 and ARP-006-2016, it is stated that the generation of rootstock from infected fruit trees (including those of the Hass cultivar) can significantly increase the incidence of ASBVd citing Vallejo Pérez et al. (2017); that although this assertion is found in that source, the source refers specifically to nurseries; and that it is not explained in Costa Rica's risk assessments why the assertion on the significant increase in the incidence of ASBVd is used in the context of a fruit imported for consumption, when the statement in the source refers to plants in nurseries, where the magnitude of the spread would be different. This is because the purpose of a nursery is the production of plants. The Panel has added this last sentence to paragraph 7.1239.

⁵⁸⁷ Wutscher and Maxwell (1969), (Exhibit MEX-132).

⁵⁸⁸ Spalding et al. (1976), (Exhibit MEX-133).

⁵⁸⁹ Spalding et al. (1976), (Exhibit MEX-133), p. 258.

6.11.5 Paragraph 7.1228

6.177. Costa Rica notes that the Panel observes in paragraph 7.1228 that the scientific conclusions on the different elements of this factor, i.e. that ASBVd survives in avocados for consumption during the transport and storage of this fruit (if the avocado fruit stays alive and if ASBVd is present in the transported fruit), appear to be supported by the virology expert, Ricardo Flores Pedauy . Costa Rica points out, however, that the Panel considers that the conclusions are not sufficiently documented or explained in Reports ARP-002-2017 and ARP-006-2016. Costa Rica notes that this finding is unclear, and requests the Panel to elaborate on it. Costa Rica states that it would be of great importance for the Panel to describe in detail what type of documents and explanations would be sufficient to document and explain scientific matters that are supported by the Panel's experts.

6.178. Mexico submits that it is not for the Panel to carry out the analysis requested by Costa Rica, and that the Panel's role is limited to understanding how these conclusions on probabilities were reached. In Mexico's view, it is therefore clear that the evidence and arguments submitted by Costa Rica are insufficient. Mexico adds the Panel's analysis in the aforementioned paragraph focuses on determining whether the PRAs have scientific information that supports their conclusions. According to Mexico, most of Costa Rica's comments focus on asking the Panel to reconsider its conclusions taking into account evidence produced *ex post facto* in the context of the proceedings and that is not mentioned in the PRAs, as well as the experts' comments. Mexico states that it is for the Panel to decide the weight to be given to the evidence submitted by the parties.

6.179. The Panel observes that the experts help the Panel to gain a better understanding of the scientific and technical issues in the dispute. The purpose of a panel consulting with experts is not to perform its own risk assessment.⁵⁹⁰ As the Panel points out in the report, it is the WTO Member's task to perform the risk assessment. The panel's task is to review the risk assessment, and, in particular, whether that risk assessment is supported by coherent reasoning and respectable scientific evidence.

6.180. Accordingly, a panel's task is not to make up for, in consultation with experts, the lack of expert judgement, scientific evidence and/or explanations in the risk assessment on which the SPS measures in question are supposed to be based. The Panel reiterates that the experts' testimony during the proceedings are not tantamount to evidence or explanations in Reports ARP-002-2017 and ARP-006-2016. The experts' testimony during these proceedings cannot make up for the lack of scientific evidence and the absence of the risk assessor's reasoning in the risk assessment contained in said reports.

6.181. Moreover, the Panel found that the conclusions are not sufficiently documented or explained in Reports ARP-002-2017 and ARP-006-2016, having analysed in detail in paragraphs 7.1215 through 7.1227 the factor on the probability of survival during transport or storage addressed in said reports. Therefore, the explanation that Costa Rica requests on this finding is in the Panel Report. The Panel also refers to paragraph 6.140 above with respect to the sufficiency of evidence.

6.182. The Panel has made some adjustments to paragraph 7.1228 to reflect the points made in the preceding paragraphs.

6.11.6 Paragraph 7.1246

6.183. Costa Rica submits that the Panel mentions in paragraph 7.1246 that there is no explanation in Costa Rica's risk assessments that associates the high degree of transmission through symptomless seeds with the introduction of ASBVd in the PRA area even though this topic is discussed in the datasheet for the risk assessment.

6.184. Costa Rica asserts that the datasheet is an essential part of Costa Rica's risk assessments, and that, as can be seen from Manual NR-ARP-PO-01_M-01, in particular, "FORMATO PARA ELABORAR ARP POR PLAGA" (form to prepare PRA for a pest), a risk assessment is "carried out to determine the quarantine risk for the importation of 'common name' for 'class' (scientific name) of

⁵⁹⁰ Appellate Body Reports, *US/Canada – Continued Suspension*, para. 592.

'country' and on the basis of datasheet (datasheet reference)".⁵⁹¹ According to Costa Rica, therefore, its risk assessments must be read together with the datasheets in question.

6.185. Costa Rica requests the Panel to review paragraph 7.1246 on the basis of a joint reading of the risk assessments and the ASBVd datasheet, where, according to Costa Rica, it did highlight that transmission through the seed of symptomless fruit is very high.

6.186. Mexico requests that the Panel reject Costa Rica's request, given that nowhere in that paragraph, or in the Interim Report as a whole, does the Panel deny that the datasheet has been used in the risk assessments. Mexico adds that each of the assertions in the risk assessment must be supported by scientific evidence, and that there must be elements that shed light on how Costa Rica's risk analyst reached the conclusion set out in each of the reports.

6.187. Mexico submits that the Panel cannot base its analysis on assumptions that a particular conclusion was substantiated by a source cited in the PRA, but which was not referenced in the specific conclusion of the risk assessment. Mexico adds that the assertion that there is a high probability must in turn be demonstrated on specific scientific bases and not only by categorical and general references.

6.188 The Panel states in paragraph 7.1244 that, under the element of risks from by-products and waste, Reports ARP-002-2017 and ARP-006-2016 indicate that the waste of fresh avocado fruit are the skins and seeds; that, as it contains a viable seed, there is a risk of pest introduction through the waste; and that the germination of a seed from a symptomless fruit would introduce the pest into the PRA area. The Panel notes in the following paragraph that the reports cite Ploetz et al. (2011) when asserting that the germination of a seed from a symptomless fruit would introduce the pest into the PRA area, but that Ploetz et al. (2011) does not make any statements on the introduction of ASBVd into an area.

6.189. During the proceedings, Costa Rica referred to the seed's high degree of transmission. Precisely because it has read Reports ARP-002-2017 and ARP-006-2016 in their entirety (including the datasheet), the Panel acknowledged the comment in the datasheet that transmission through the seed of symptomless fruit is very high (95%), according to Hadidi et al. (2003). The Panel observed however that, under the element on the risks from by-products and waste, there is no reference to the datasheet or to the statement contained therein, and concluded that there is no explanation under this element that associates the high degree of transmission through symptomless seeds with the introduction of ASBVd in the PRA area.

6.190. Despite the effort made by the Panel to find information in Reports ARP-002-2017 and ARP-006-2016 that is possibly linked to this element of the risk assessment, based on the arguments presented by Costa Rica in this dispute, the Panel could not assume the considerations that the risk assessor took into account when assessing the element in question and reaching a conclusion of "high" probability. Even reading the risk assessment together with the datasheet, the Panel could not substitute its own reasoning for that of the risk assessor.

6.191. In light of the foregoing, the Panel does not consider it necessary to modify its finding in paragraph 7.1246. Nevertheless, the Panel has made adjustments to this paragraph to add that under the element on the risks from by-products and waste there is no reference to Hadidi et al. (2003), and that the considerations that led the risk assessor to conclude a "high" probability are unclear.

6.12 Request for review concerning the general arguments on the evaluation of the likelihood of entry, establishment and spread in Reports ARP-002-2017 and ARP-006-2016

6.192. Referring to paragraphs 7.1429 and 7.1437, Mexico requests the Panel to revise its statements with respect to Mexico's arguments concerning the level of specificity required of the scientific evidence that Costa Rica presented in its risk analysis, based on the facts and arguments

⁵⁹¹ Costa Rica's request for review of the Interim Report, para. 2.72 (citing Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 30).

put forward by Mexico throughout the dispute. Mexico reiterates some of its arguments put forward throughout the dispute.

6.193. Costa Rica asserts that the level of specificity for the scientific evidence suggested by Mexico is so narrow that it would be counterproductive to the preparation of the risk assessments, since relevant scientific information on pests and hosts would be ignored just because it is not pertinent to the countries concerned. According to Costa Rica, the Panel fully considered Mexico's arguments on the specificity of scientific evidence and on the relevance of its fresh fruit PRA (2015), and rejected them in a reasoned manner.

6.194. In paragraphs 7.1429 through 7.1437, the Panel addressed Mexico's arguments on the level of specificity required of scientific evidence, including those referring to previous disputes. In particular, the Panel analyses in paragraph 7.1432 the observation by the Appellate Body in *Japan – Apples*, and explains in paragraph 7.1433 why the situation in that case is different from that in the matter before this Panel.

6.195. The Panel also explains in paragraph 7.1434 that the analysis of fresh fruit imported for consumption from Mexico implies the need for certain specific considerations, such as the volume and frequency of imports of fresh avocados for consumption from Mexico, the quality control procedures in place in Mexico to discard symptomatic fruit, the distribution of fresh avocado fruit imports in Costa Rica's markets, the product's intended use, and, according to Costa Rica, diversion from intended use and spontaneous germination.

6.196. The Panel has addressed Mexico's arguments in section 7.4.5.3.6, and does not consider it necessary to revise its opinion. Nevertheless, in light of the parties' comments, the Panel has made additions to paragraph 7.1432, in order to elaborate on the difference between the situation of Costa Rica's risk assessment and that of the PRA in *Japan – Apples*. The Panel has also adjusted paragraph 7.1434, in order to convey that the analysis of the issues identified therein would give the risk assessment the specificity required in this case and would have an impact on the magnitude of the risk of the particular pathway (i.e. fresh avocado fruit).

6.13 Request for review concerning the titles of sections 7.6.4.1.1 and 7.6.4.1.2

6.197. Costa Rica indicates that the title of section 7.6.4.1.1 is "Whether Costa Rica has adopted its own levels of protection in different situations" and that the title of section 7.6.4.1.2 is "Whether Costa Rica's levels of protection exhibit arbitrary or unjustifiable distinctions in their treatment of different situations". Costa Rica considers that, in accordance with the legal standard under Article 5.5 described by the Panel in paragraphs 7.1948-7.1975, Article 5.5 concerns different *but comparable* situations, and suggests that the Panel add the words "but comparable" to the two titles.

6.198. Mexico requests the Panel to reject Costa Rica's request. Mexico notes that it suffices to indicate that these are different situations, and that Article 5.5 of the SPS Agreement refers only to "levels ... consider[ed] to be appropriate in different situations", therefore it is not necessary to add the words "but comparable".

6.199. The **Panel** observes that Article 5.5 of the SPS Agreement refers to "arbitrary or unjustifiable distinctions in the levels [the Member] considers to be appropriate in *different situations*". As Costa Rica acknowledges, the Panel describes in section 7.6.3 the legal standard under Article 5.5 of the SPS Agreement. In that section, the Panel points out that, according to the Appellate Body in *EC – Hormones*, this element of Article 5.5 implies that a Member has established different levels of protection which it regards as appropriate for itself in differing situations⁵⁹²; and the situations exhibiting differing levels of protection cannot be compared unless they are comparable.⁵⁹³ The Panel analyses in section 7.6.4.1.1 the comparability of the situations identified by Mexico under Article 5.5.

⁵⁹² Appellate Body Report, *EC – Hormones*, para. 216.

⁵⁹³ Appellate Body Report, *EC – Hormones*, para. 217.

6.200. In the view of this Panel, the titles of sections 7.6.4.1.1 and 7.6.4.1.2 indicate the elements of the Panel's analysis under Article 5.5 of the SPS Agreement to which these sections refer, and the Panel does not consider it necessary to modify these titles.

6.14 Request for review concerning whether either of Mexico's proposed alternative measures are significantly less restrictive to trade than Resolutions DSFE-003-2018 and DSFE-002-2018

6.201. Costa Rica notes that paragraph 7.1931 addresses the impact on trade of its phytosanitary requirements, and that the exporting country has the option of choosing between three alternatives: (i) certifying that the consignment is free of ASBVd; (ii) certifying that the consignment comes from an ASBVd-free place of production; or (iii) complying with a systems approach programme established bilaterally with Costa Rica. Costa Rica adds that, to reflect the alternative nature of these requirements, it suggests a change to paragraph 7.1931 to indicate that "it is necessary to comply *either* with one of two certificates, *or* with a systems approach, *which, regardless of which option is chosen, implies* an effort by the exporting country to ensure that its avocado fruit for export to Costa Rica are free of ASBVd, which in turn would require adjustments to avocado production and marketing."⁵⁹⁴

6.202. Mexico states that it does not consider the drafting change to be necessary, given that it is understandable and distinguishes between alternatives to the phytosanitary requirements.

6.203. The Panel has made adjustments to the wording of the paragraph, taking into account Costa Rica's suggestion to reflect the alternative nature of the requirements. As a result of these changes, the Panel has added two footnotes (footnotes 710 and 3033 of the final report) relating to Costa Rica's comments on the option of complying with a systems approach programme established bilaterally with Costa Rica, in response to Panel question No. 53.

6.15 Requests for review concerning the summary of the parties' arguments

6.204. Costa Rica considers that paragraph 7.2272 contains a typographical error, and indicates that the words "asserts that" should be deleted from the sentence "Costa Rica submits that in the context of Article 5.1 it asserts that the PRAs were carried out in line with the manual". Mexico agrees with Costa Rica's request. The Panel notes that this is not a typographical error, but that the purpose of the sentence is to point out that Costa Rica submits that its explanation that the PRAs were carried out following the manual is found in the context of Article 5.1. The Panel has made a minor adjustment to paragraph 7.2272.

6.205. Costa Rica considers that paragraph 7.2276 is unclear, and suggests an amendment to the wording to reflect its arguments more clearly. Mexico submits that the wording proposed by Costa Rica alters the meaning of the paragraph originally drafted by the Panel, but concurs with Costa Rica that the paragraph does not accurately reflect what is stated in paragraph 5.40 of Costa Rica's first written submission. The Panel has accepted Costa Rica's suggestion regarding paragraph 7.2276.

7 FINDINGS

7.1 General principles regarding the applicable standard of review, treaty interpretation, burden of proof, and order of analysis

7.1.1 Function of the Panel and applicable standard of review

7.1. Article 11 of the DSU describes the function of panels as "assist[ing] the DSB in discharging its responsibilities under [the DSU] and the covered agreements". To this end, panels should "make ... findings ... [that] will assist the DSB in making the recommendations or in giving the rulings provided for in the covered agreements". In addition, Article 3.4 of the DSU stipulates that "[r]ecommendations or rulings made by the DSB shall be aimed at achieving a satisfactory settlement of the matter in accordance with the rights and obligations under this Understanding and under the covered agreements."

⁵⁹⁴ Costa Rica's request for review of the Interim Report, para. 2.77. (emphasis added)

7.2. Article 11 of the DSU also establishes the standard of review that panels must apply in order to fulfil their function stating that a panel should "make an objective assessment of the matter before it, including an objective assessment of the facts of the case and the applicability of and conformity with the relevant covered agreements".

7.3. In SPS cases that deal with to Article 5.1 of the SPS Agreement, where a panel examines whether the measure at issue is based on a risk assessment, the review power of the panel is not to determine whether the risk assessment undertaken by a WTO Member is correct, but rather to determine whether that risk assessment is supported by coherent reasoning and respectable scientific evidence and is, in this sense, objectively justifiable.⁵⁹⁵

7.4. With regard to the review under Article 5.6 of the SPS Agreement, panels are charged with, *inter alia*, identifying the appropriate level of protection (ALOP) of the Member whose SPS measure has been challenged. A panel would typically be expected to accord weight to the respondent's articulation of its ALOP, particularly where that ALOP was specified in advance of the adoption of the SPS measure, where the ALOP is specified with sufficient precision, and where it has been consistently expressed by the responding Member. A panel, however, is not required to defer completely to a respondent's characterization of its own ALOP. Rather, a panel must ascertain the respondent's ALOP on the basis of the totality of the arguments and evidence on the record.⁵⁹⁶

7.5. On the evaluation of the facts, the Appellate Body has noted that a panel must consider all the evidence presented to it, assess its credibility, determine its weight, and ensure that its factual findings have a proper basis in that evidence.⁵⁹⁷ A panel must further provide in its report reasoned and adequate explanations and coherent reasoning to support its findings.⁵⁹⁸ Within these parameters, it is generally within the discretion of the panel to decide which evidence it chooses to utilize in making findings.⁵⁹⁹ Although a panel must consider evidence before it in its totality, and evaluate the relevance and probative force of all of the evidence⁶⁰⁰, a panel is not required to discuss, in its report, each and every piece of evidence put before it⁶⁰¹, or to accord to factual evidence of the parties the same meaning and weight as do the parties.⁶⁰²

7.6. With regard to the treatment of evidence and experts' statements, the Appellate Body in *Australia – Apples* found that "a panel enjoys a margin of discretion in the assessment of the facts, including the treatment of evidence."⁶⁰³ The Appellate Body explained that a panel's "role as the trier of facts requires it to review and consider all the evidence that it receives from the parties or that it seeks pursuant to Article 13 of the DSU", and added that, in its reasoning on a given issue, a panel must weigh and balance all the relevant evidence, including testimony by experts.⁶⁰⁴ Nonetheless, as the Appellate Body noted in *EC – Hormones*, a panel "cannot realistically refer to all statements made by the experts advising it".⁶⁰⁵ A panel may reproduce the relevant statements by the experts, but still fail to make an objective assessment of the facts under Article 11 if it then fails to properly assess the significance of these statements in its reasoning. Conversely, a panel that does not expressly reproduce certain statements of the experts may still make an objective assessment of the facts, especially when its reasoning reveals that it has assessed the significance of these statements or that these statements are manifestly not relevant.⁶⁰⁶ Moreover, the

⁵⁹⁵ Appellate Body Reports, *US/Canada – Continued Suspension*, para. 590.

⁵⁹⁶ Appellate Body Reports, *India – Agricultural Products*, para. 5.221; and *Korea – Radionuclides*, para. 5.24.

⁵⁹⁷ Appellate Body Report, *Brazil – Retreaded Tyres*, para. 185 (referring to Appellate Body Report, *EC – Hormones*, paras. 132-133). See also Appellate Body Reports, *EC – Asbestos*, para. 161; *EC – Bed Linen (Article 21.5 – India)*, paras. 170, 177 and 181; *EC – Sardines*, para. 299; *EC – Tube or Pipe Fittings*, para. 125; *Japan – Apples*, para. 221; *Japan – Agricultural Products II*, paras.141-142; *Korea – Alcoholic Beverages*, paras. 161-162; *Korea – Dairy*, para. 138; *US – Carbon Steel*, para. 142; *US – Gambling*, paras. 330 and 363; *US – Oil Country Tubular Goods Sunset Reviews*, para. 313; and *EC – Selected Customs Matters*, para. 258.

⁵⁹⁸ Appellate Body Report, *US – Upland Cotton (Article 21.5 – Brazil)*, fn 618 to para. 293.

⁵⁹⁹ Appellate Body Report, *EC – Hormones*, para. 135.

⁶⁰⁰ Appellate Body Reports, *US – Continued Zeroing*, para. 331; and *Korea – Dairy*, para. 137.

⁶⁰¹ Appellate Body Reports, *Australia – Apples*, para. 271; and *Brazil – Retreaded Tyres*, para. 202.

⁶⁰² Appellate Body Reports, *Australia – Salmon*, para. 267; and *US – COOL*, para. 299.

⁶⁰³ Appellate Body Report, *Australia – Apples*, para. 271.

⁶⁰⁴ Appellate Body Report, *Australia – Apples*, para. 275.

⁶⁰⁵ Appellate Body Report, *EC – Hormones*, para. 138. See also Appellate Body Report, *Australia – Apples*, paras. 271 and 275.

⁶⁰⁶ Appellate Body Report, *Australia – Apples*, para. 275.

Appellate Body stated in *Japan – Apples* that panels "enjoy a margin of discretion in assessing the value of the evidence, and the weight to be ascribed to that evidence".⁶⁰⁷

7.7. A panel's obligation to make an objective assessment of the matter also refers to the applicability of and conformity with the relevant covered agreements, that is, the analysis of the consistency or inconsistency of the challenged measures with the applicable provisions.⁶⁰⁸ To that end, a panel may freely "use arguments submitted by any of the parties – or to develop its own legal reasoning – to support its own findings and conclusions on the matter under its consideration".⁶⁰⁹ In other words, each panel must assess the provisions of the relevant agreements and reach its own conclusions without necessarily limiting itself to the arguments or approaches put forward by any of the parties.⁶¹⁰ Where there is an absence of argumentation, however, a panel cannot intervene to raise arguments on a party's behalf and make the case for the complainant.⁶¹¹

7.1.2 Interpretation of the relevant treaty provisions

7.8. In order to fulfil their function, panels may be called upon to interpret the provisions at issue in a dispute. In this regard, Article 3.2 of the DSU states that the WTO dispute settlement system "is a central element in providing security and predictability to the multilateral trading system" and serves "to clarify the existing provisions of those agreements in accordance with customary rules of interpretation of public international law".

7.9. The Appellate Body has understood that the "customary rules of interpretation of public international law" mentioned in the DSU refer to the rules of interpretation that form part of general customary international law, which have been codified in Articles 31⁶¹², 32⁶¹³ and 33⁶¹⁴ of the

⁶⁰⁷ Appellate Body Report, *Japan – Apples*, para. 166 (citing Appellate Body Report, *EC – Asbestos*, para. 161).

⁶⁰⁸ Appellate Body Report, *EC – Hormones*, para. 118.

⁶⁰⁹ Appellate Body Report, *EC – Hormones*, para. 156.

⁶¹⁰ Appellate Body Reports, *Canada – Renewable Energy / Canada – Feed-In Tariff Program*, para. 5.215.

⁶¹¹ Appellate Body Report, *EC – Fasteners (China)*, para. 566. See also Appellate Body Reports, *China – HP-SSST (Japan) / China – HP-SSST (EU)*, para. 5.236; and *Canada – Renewable Energy / Canada – Feed-In Tariff Program*, para. 5.215.

⁶¹² Article 31 of the Vienna Convention, entitled "General rule of interpretation", states:

1. A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in light of its object and purpose.

2. The context for the purpose of the interpretation of a treaty shall comprise, in addition to the text, including its preamble and annexes:

(a) any agreement relating to the treaty which was made between all the parties in connection with the conclusion of the treaty;

(b) any instrument which was made by one or more parties in connection with the conclusion of the treaty and accepted by the other parties as an instrument related to the treaty.

3. There shall be taken into account, together with the context:

(a) any subsequent agreement between the parties regarding the interpretation of the treaty or the application of its provisions;

(b) any subsequent practice in the application of the treaty which establishes the agreement of the parties regarding its interpretation;

(c) any relevant rules of international law applicable in the relations between the parties.

4. A special meaning shall be given to a term if it is established that the parties so intended.

⁶¹³ Article 32 of the Vienna Convention, entitled "Supplementary means of interpretation", states:

Recourse may be had to supplementary means of interpretation, including the preparatory work of the treaty and the circumstances of its conclusion, in order to confirm the meaning resulting from the application of Article 31, or to determine the meaning when the interpretation according to Article 31:

(a) leaves the meaning ambiguous or obscure; or

(b) leads to a result which is manifestly absurd or unreasonable.

⁶¹⁴ Article 33 of the Vienna Convention, entitled "Interpretation of treaties authenticated in two or more languages", states:

1. When a treaty has been authenticated in two or more languages, the text is equally authoritative in each language, unless the treaty provides or the parties agree that, in case of divergence, a particular text shall prevail.

2. A version of the treaty in a language other than one of those in which the text was authenticated shall be considered an authentic text only if the treaty so provides or the parties so agree.

3. The terms of the treaty are presumed to have the same meaning in each authentic text.

4. Except where a particular text prevails in accordance with paragraph 1, when a comparison of the authentic texts discloses a difference of meaning which the application of articles 31 and 32 does not remove,

Vienna Convention on the Law of Treaties (Vienna Convention).⁶¹⁵ These rules of treaty interpretation apply to any treaty, in any field of public international law, and not just to the WTO agreements, and impose certain common disciplines upon treaty interpreters, irrespective of the content of the treaty provision being examined and irrespective of the field of international law concerned.⁶¹⁶

7.1.3 Burden of proof

7.10. The DSU does not contain any express provision on the burden of proof. However, based on general principles of law, the Appellate Body has explained that the burden of proof rests upon the party asserting a fact, whether that party be the complainant or the defendant.⁶¹⁷

7.11. In view of the foregoing, the initial burden of proving a violation lies with the complaining party, which must establish a *prima facie* case (i.e. establish a presumption) of the contested measure's inconsistency with a particular provision of the covered agreement. When that *prima facie* case is made, the burden of proof moves to the defending party, which must in turn counter or refute the claimed inconsistency.⁶¹⁸ A *prima facie* case "is one which, in the absence of effective refutation by the defending party, requires a panel, as a matter of law, to rule in favour of the complaining party presenting the *prima facie* case".⁶¹⁹ A *prima facie* case must be based on evidence and legal argument put forward by the complaining party in relation to each of the elements of the claim.⁶²⁰

7.12. In the context of the covered agreements, precisely how much and precisely what kind of evidence will be required to establish such a presumption will necessarily vary from measure to measure, provision to provision, and case to case.⁶²¹

7.13. In the case at hand, and pursuant to the aforementioned principles, it behoves Mexico to establish a *prima facie* case for its claims that the measures at issue are inconsistent with the SPS Agreement and the GATT 1994. Should Mexico succeed in establishing a *prima facie* case for its claims, it would then be for Costa Rica to refute them.

7.1.4 Order of analysis

7.14. Before analysing Mexico's claims, the Panel must define the order in which it will examine those claims.

7.15. As a general principle, panels are free to structure the order of their analysis as they see fit, unless there exists a mandatory sequence of analysis.⁶²² It is the nature of the relationship between two provisions that will determine whether there exists a mandatory sequence of analysis which, if not followed, would amount to an error of law or would have repercussions for the substance of the analysis.⁶²³

7.16. Furthermore, although panels may decide to follow the particular order of legal claims suggested by the complaining party, they may also follow a different order of analysis so as to apply

the meaning which best reconciles the texts, having regard to the object and purpose of the treaty, shall be adopted.

The Panel also notes that, in accordance with Article XVI of the Marrakesh Agreement Establishing the World Trade Organization (WTO Agreement), the texts of agreements in Spanish, French and English are equally authentic. The terms of the covered agreements are presumed to have the same meaning in each authentic text and, in the event that a difference in meaning is found, the meaning which best reconciles the three texts, having regard to the object and purpose of the treaty, shall be adopted. (Appellate Body Reports, *Canada – Renewable Energy / Canada – Feed-In Tariff Program*, fn 512 to para. 5.66).

⁶¹⁵ Appellate Body Reports, *US – Gasoline*, pp. 16-17; and *Japan – Alcoholic Beverages II*, p. 11.

⁶¹⁶ Appellate Body Report, *US – Hot-Rolled Steel*, para. 60.

⁶¹⁷ Appellate Body Report, *US – Wool Shirts and Blouses*, pp. 12-16.

⁶¹⁸ Appellate Body Report, *EC – Hormones*, para. 98.

⁶¹⁹ Appellate Body Report, *EC – Hormones*, para. 104.

⁶²⁰ Appellate Body Report, *US – Gambling*, para. 140.

⁶²¹ Appellate Body Report, *US – Wool Shirts and Blouses*, p. 14.

⁶²² Appellate Body Report, *Canada – Wheat Exports and Grain Imports*, para. 126.

⁶²³ Appellate Body Report, *Canada – Wheat Exports and Grain Imports*, paras. 109 and 127.

the correct interpretation of the WTO law at issue.⁶²⁴ However, a panel may not ignore the fundamental structure and logic of a provision in deciding the proper sequence of steps in its analysis.⁶²⁵

7.17. In this dispute, **Mexico** has brought claims under Articles 1.1, 2.1, 2.2, 2.3, 3.1, 3.3, 5.1, 5.2, 5.3, 5.5, 5.6 and 6.1 of the SPS Agreement and Articles III:4 and XI:1 of the GATT 1994.

7.18. With respect to the order of claims made under the GATT 1994 and the SPS Agreement, Mexico notes that it agrees with the panel's approach in *EC – Hormones (Canada)*. Therefore it presents its claims under the SPS Agreement first and then its claims under the GATT 1994.⁶²⁶

7.19. **Costa Rica** did not submit any specific arguments with respect to the order of analysis, and, when presenting its arguments with respect to Mexico's claims, followed the order in which Mexico set out its claims, that is, first those under the SPS Agreement and then those under the GATT 1994.

7.20. With regard to the relationship between the SPS Agreement and the GATT 1994, the **Panel** notes that the eighth recital of the preamble of the SPS Agreement reflects the Members' desire "to elaborate rules for the application of the provisions of GATT 1994 which relate to the use of sanitary or phytosanitary measures, in particular the provisions of Article XX(b)". The SPS Agreement can therefore be understood as a development, as regards SPS measures, of the general exception established under Article XX(b) of the GATT 1994.

7.21. The panel in *EC – Hormones*, after asserting that "[t]he SPS Agreement contains ... no explicit requirement of a prior violation of a provision of GATT which would govern the applicability of the SPS Agreement"⁶²⁷, turned to the question of which of the two agreements should be examined first. The panel considered that, given that the SPS Agreement specifically addresses the type of measure at issue in that dispute, it would be more efficient to first examine the claims raised under the SPS Agreement.⁶²⁸ The panel explained that, if it were to examine the GATT 1994 first, it would need to revert to the SPS Agreement.⁶²⁹

7.22. This Panel concurs with the panel in *EC – Hormones*, so it will first consider whether the SPS Agreement, the more specific agreement invoked by Mexico, applies to Costa Rica's measures.

7.23. With regard to its claims under the SPS Agreement, Mexico began with the issue of the applicability of the SPS Agreement, before presenting its claims in the following order: (i) Articles 3.1 and 3.3; (ii) Articles 5.1, 5.2, 5.3, and 2.2; (iii) Articles 5.5 and 2.3; (iv) Article 5.6; (v) Article 6.1; and (vi) Articles 1.1 and 2.1. Costa Rica followed the same structure as Mexico when presenting its arguments so as to facilitate treatment of the case.⁶³⁰

7.24. The Panel will be guided by the order of analysis followed by Mexico and Costa Rica when developing their arguments, because both parties have followed a logical sequence. For example, given that the provisions of Article 5 of the SPS Agreement are a more specific expression of the provisions in Article 2 of the SPS Agreement, previous panels have addressed obligations under Article 5 of the Agreement first.⁶³¹ Mexico and Costa Rica followed this sequence when presenting their arguments.

⁶²⁴ Appellate Body Report, *US – Zeroing (EC) (Article 21.5 – EC)*, para. 277.

⁶²⁵ Appellate Body Report, *Canada – Autos*, para. 151 (citing Appellate Body Report, *US – Shrimp*, para. 119).

⁶²⁶ Mexico's first written submission, para. 122.

⁶²⁷ Panel Reports, *EC – Hormones (United States)*, para. 8.36; and *EC – Hormones (Canada)*, para. 8.39.

⁶²⁸ Panel Reports, *EC – Hormones (United States)*, para. 8.42; and *EC – Hormones (Canada)*, para. 8.45.

⁶²⁹ Panel Reports, *EC – Hormones (United States)*, para. 8.42; and *EC – Hormones (Canada)*, para. 8.45.

⁶³⁰ Costa Rica's first written submission, para. 5.4.

⁶³¹ Panel Report, *US – Animals*, para. 7.264. See also Appellate Body Reports, *EC – Hormones*, para.180; *US/Canada – Continued Suspension*, para.674; and *Australia – Salmon*, para.138; and Panel Reports, *Australia – Salmon (Article 21.5 – Canada)*, paras. 7.85 and 7.161; *EC – Approval and Marketing of Biotech Products*, para.7.3399; and *US – Poultry (China)*, para. 7.157.

7.25. However, as the Panel will explain when addressing Mexico's claims under Articles 3.1 and 3.3 of the SPS Agreement, Mexico's arguments with respect to those claims concern factual and legal issues which are dealt with more specifically in Mexico's other claims. Therefore, the Panel will not start with Mexico's claims under Articles 3.1 and 3.3 of the SPS Agreement.

7.26. In particular, part of Mexico's arguments under Articles 3.1 and 3.3 of the SPS Agreement refer to the risk assessments in the Reports ARP-002-2017 and ARP-006-2016, and to the methodology used to produce those risk assessments, set out in Manual NR-ARP-PO-01_M-01. As Articles 5.1, 5.2, and 5.3 of the SPS Agreement are the provisions that most specifically address risk assessments, the Panel will begin by analysing Mexico's claims under Articles 5.1, 5.2, 5.3, and 2.2, before turning to Mexico's claims under Articles 3.1 and 3.3 of the SPS Agreement.

7.27. The rest of Mexico's arguments under Articles 3.1 and 3.3 of the SPS Agreement concern factual and legal issues relating to the phytosanitary requirements in Resolutions DSFE-002-2018 and DSFE-003-2018, which are dealt with more specifically in Mexico's claims under Articles 5.5 and 2.3, 5.6 and 6.1. The Panel will therefore start by analysing those claims before addressing Mexico's claims under Articles 3.1 and 3.3 of the SPS Agreement.

7.28. In light of the foregoing, the Panel will first consider whether the measures at issue are sanitary or phytosanitary (SPS) measures subject to the SPS Agreement. If the measures identified by Mexico are found to be SPS measures subject to the SPS Agreement, the Panel will proceed to analyse Mexico's claims under that Agreement in the following order: (i) Articles 5.1, 5.2, 5.3, and 2.2; (ii) ALOP and Article 5.6; (iii) Articles 5.5 and 2.3; (iv) Article 6.1; (v) Articles 3.1 and 3.3; and (vi) Articles 1.1 and 2.1. Once the Panel has concluded its examination of Mexico's claims under the SPS Agreement, it will address Mexico's claims under Articles III:4 and XI:1 of the GATT 1994.

7.2 How to address the measures at issue and the scope of the SPS Agreement

7.2.1 General introduction to the section

7.29. Mexico asserts that the specific measures at issue are those by which, both individually and jointly, Costa Rica restricts the importation of fresh avocados for consumption from Mexico. Mexico contends that the requirements set out in Resolutions DSFE-002-2018 and DSFE-003-2018, Reports ARP-002-2017 and ARP-006-2016, and the methodology in Manual NR-ARP-PO-01_M-01 together constitute import restrictions on fresh avocados for consumption from Mexico.⁶³²

7.30. Mexico submits that the five measures must be evaluated individually and jointly⁶³³, and requests that the Panel make specific findings for each of the measures, as well as a finding on the operation of the measures at issue in conjunction with each other.⁶³⁴

7.31. Mexico also submits that Costa Rica's measures are phytosanitary measures in accordance with paragraph 1 of Annex A to the SPS Agreement, and that these measures have affected international trade, so they are, individually and jointly, phytosanitary measures pursuant to the first sentence of Article 1.1 of the SPS Agreement; and, consequently, the provisions of the SPS Agreement apply to them.⁶³⁵

7.32. For its part, Costa Rica contends that Mexico has failed to demonstrate that Costa Rica's measures function together as an inseparable whole⁶³⁶, and that it is inappropriate to assess Mexico's claims on the basis of a general measure or of a set of measures.⁶³⁷

7.33. Costa Rica asserts that Mexico has put forward claims with respect to three instruments that it has identified as individual measures, but that these do not, in and of themselves, meet the criteria

⁶³² Mexico's first written submission, paras. 93-94; response to Panel question No. 99, para. 116.

⁶³³ Mexico's comments on Costa Rica's response to Panel question No. 112, para. 4.

⁶³⁴ Mexico's response to Panel question No. 112, para. 14.

⁶³⁵ Mexico's first written submission, paras. 141-142.

⁶³⁶ Costa Rica's second written submission, para. 2.3.

⁶³⁷ Costa Rica's second written submission, paras. 2.1 and 2.6; closing statement at the second Panel meeting, para. 1.2.

for the applicability of the SPS Agreement.⁶³⁸ Costa Rica submits that the Reports ARP-002-2017 and ARP-006-2016 and the Manual NR-ARP-PO-01_M-01 do not constitute phytosanitary measures in accordance with the definition given in Annex A(1)⁶³⁹; and that Mexico has failed to demonstrate that they may affect international trade, either directly or indirectly.⁶⁴⁰

7.34. The Panel will determine below: (i) whether the measures identified by Mexico are measures for the purposes of the dispute settlement procedure; (ii) whether the Panel will analyse individually the measures identified by Mexico, and, if so, (iii) whether the aforementioned measures are, in and of themselves, or individually, SPS measures covered by the SPS Agreement; and (iv) whether the Panel will analyse jointly the measures identified by Mexico.

7.2.2 The Panel's analysis

7.2.2.1 Whether the measures identified by Mexico are measures for the purposes of the dispute settlement procedure

7.35. **Mexico** asserts that the specific measures at issue are those by which, both individually and jointly, Costa Rica restricts the importation of fresh avocados for consumption from Mexico. Mexico contends that the requirements set out in Resolutions DSFE-002-2018 and DSFE-003-2018, Reports ARP-002-2017 and ARP-006-2016, and the methodology in Manual NR-ARP-PO-01_M-01 together constitute import restrictions on fresh avocados for consumption from Mexico.⁶⁴¹ Mexico considers these measures at issue, both individually and jointly, to be inconsistent with Costa Rica's obligations under the SPS Agreement and the GATT 1994.⁶⁴²

7.36. Mexico notes that it identified five individual measures, namely Resolutions DSFE-003-2018 and DSFE-002-2018, Reports ARP-002-2017 and ARP-006-2016, and Manual NR-ARP-PO-01_M-01, and that these instruments are linked and operate in conjunction with each other, forming the basis upon which Costa Rica prohibits or restricts the importation of fresh avocados for consumption from Mexico.⁶⁴³ For Mexico, the establishment of the phytosanitary requirements provided for in the resolutions cannot be understood without the existence of the PRA reports, and those PRA reports cannot be considered in isolation without the manual, in which the SFE established the methodology for preparing the reports.⁶⁴⁴

7.37. Mexico submits that the resolutions are decrees that have the quality of an administrative act and are based on Law No. 7664, issued by the Congress of Costa Rica; that the PRA reports are administrative acts carried out by the UARP of the SFE and constitute the basis for the resolutions; and that the manual is a document, prepared and approved by the SFE that all UARP officials apply when carrying out qualitative analysis of pests, hence it is an administrative act.⁶⁴⁵

7.38. With regard to the repeal of the manual, Mexico notes that even though the manual has been repealed, it remains relevant to the present dispute⁶⁴⁶, and was the tool used to carry out the PRAs in force.⁶⁴⁷ Mexico asserts that the Panel should rule on the measures contested at the outset of proceedings, since they form the basis for the violations that affect international trade between Mexico and Costa Rica.⁶⁴⁸ Mexico submits that should the Panel make findings with respect to Manual NR-ARP-PO-01_M-01 this would have an effect on Costa Rica's risk assessments, when determining whether those assessments are inconsistent with the SPS Agreement, and will, in turn, have

⁶³⁸ Costa Rica's response to Panel question No. 112, para. 3; closing statement at the second Panel meeting, para. 1.2.

⁶³⁹ Costa Rica's response to Panel question No. 112, para. 3; response to Panel question No. 115, paras. 18-19; and response to Panel question No. 119, para. 37.

⁶⁴⁰ Costa Rica's first written submission, para. 5.2 and fn 94; closing statement at the second Panel meeting, para. 1.2; and response to Panel question No. 117, para. 32.

⁶⁴¹ Mexico's first written submission, paras. 93-94; response to Panel question No. 99, para. 116.

⁶⁴² Mexico's first written submission, para. 120.

⁶⁴³ Mexico's response to Panel question No. 99, paras. 113-114; response to Panel question No. 111, para. 2.

⁶⁴⁴ Mexico's response to Panel question No. 111, para. 2.

⁶⁴⁵ Mexico's response to Panel question No. 99, para. 114.

⁶⁴⁶ Mexico's comments on Costa Rica's response to Panel question No. 118, para. 5.

⁶⁴⁷ Mexico's comments on Costa Rica's response to Panel question No. 119, paras. 3 and 7.

⁶⁴⁸ Mexico's response to Panel question No. 118, para. 43; comments on Costa Rica's response to Panel question No. 118, para. 3.

implications for the phytosanitary requirements, as the risk assessor based his or her assessment on a manual inconsistent with the SPS Agreement.⁶⁴⁹

7.39. **Costa Rica** does not contest that the SPS Agreement may be applicable to this dispute in general, or that each of the three measures, namely the phytosanitary requirements, the PRAs and the manual, may fall within the Panel's terms of reference. However, Costa Rica expresses some concern about how Mexico has brought its claims and met its burden of proof as the complaining party.⁶⁵⁰

7.40. With regard to the repeal of the manual, Costa Rica submits that, in the event that the Panel considers that the SPS Agreement applies to the manual and determines that the latter is inconsistent with the SPS Agreement, the fact that it has been repealed means that it would be inappropriate to issue recommendations.⁶⁵¹

7.41. The **Panel** notes that, pursuant to Article 7.1 of the DSU, the request for the establishment of a panel governs its terms of reference, unless the parties agree otherwise.⁶⁵² Pursuant to Article 6.2 of the DSU, that request for the establishment of a panel shall identify the specific measures at issue. Pursuant to this Article, the complaining party enjoys certain discretion in the identification of the specific measures at issue.⁶⁵³

7.42. In its panel request, Mexico indicated that the specific measures at issue were "those by which Costa Rica prohibits or restricts, either jointly or individually, the importation of fresh avocados for consumption from Mexico".⁶⁵⁴ With the phrase "[t]hese measures include, but are not limited to", Mexico identified:

Resolutions DSFE-003-2018 and DSFE-002-2018 issued by the State Phytosanitary Service of the Ministry of Agriculture and Livestock of Costa Rica, dated 29 January 2018.

Reports ARP-002-2017 and ARP-006-2016 by the Pest Risk Analysis Unit of the State Phytosanitary Service, dated 10 July 2017, as well as Manual NR-ARP-PO-01_M-01 containing the qualitative methodology applied in the said risk analyses.⁶⁵⁵

7.43. Mexico added that its panel request relates "to the aforementioned measures at issue and to any additional measures that amend, supersede, update or replace them".⁶⁵⁶

7.44. There is no specific definition of the term "measure" in the DSU, but the Appellate Body has explained that a measure for the purposes of dispute settlement proceedings can be, "[i]n principle, any act or omission attributable to a WTO Member".⁶⁵⁷

7.45. The resolutions, reports and manual identified by Mexico as specific measures at issue are acts attributable to Costa Rica, and therefore fall within the broad definition of what can constitute a "measure" for the purposes of the WTO dispute settlement system.

7.46. Moreover, the Panel considers that Mexico presented, with sufficient clarity, the measures it is challenging in this dispute, and is therefore of the opinion that the measures were properly identified in accordance with Article 6.2 of the DSU, and are thus within its terms of reference. The Panel also notes that Costa Rica does not dispute that each of the measures identified by Mexico may fall within the Panel's terms of reference.

⁶⁴⁹ Mexico's comments on Costa Rica's response to Panel question No. 118, para. 1.

⁶⁵⁰ Costa Rica's first written submission, para. 5.1.

⁶⁵¹ Costa Rica's response to Panel question No. 118, para. 35.

⁶⁵² Appellate Body Report, *US – Upland Cotton*, para. 293 (citing Appellate Body Report, *US – Carbon Steel*, para. 124).

⁶⁵³ Appellate Body Report, *EC – Selected Customs Matters*, para. 149.

⁶⁵⁴ Mexico's panel request, WT/DS524/2, p. 2.

⁶⁵⁵ Mexico's panel request, WT/DS524/2, p. 2.

⁶⁵⁶ Mexico's panel request, WT/DS524/2, p. 2.

⁶⁵⁷ Appellate Body Report, *US – Corrosion-Resistant Steel Sunset Review*, para. 81.

7.47. The Panel further notes that Manual NR-ARP-PO-01_M-01, prepared and adopted in May 2016, has been repealed. A new manual was produced on 14 September 2017 and adopted on 16 March 2018.⁶⁵⁸ Mexico requested consultations with Costa Rica on 8 March 2017⁶⁵⁹, and the establishment of a panel on 22 November 2018.⁶⁶⁰ This Panel was established on 18 December 2018.⁶⁶¹ In light of the foregoing, the manual was in force at the time of Mexico's request for consultations, but does not appear to have been in force when Mexico requested the establishment of this Panel or when this Panel was established. However, this manual was the tool used to guide the preparation of Reports ARP-002-2017 and ARP-006-2016, which were not amended following the issuance of the new manual, so, even though it has been repealed, the manual continues to have an effect on the reports.

7.48. In *US – Upland Cotton*, the Appellate Body considered that Articles 3.3, 4.2, and 6.2 of the DSU "do not preclude a Member from making representations with respect to measures whose legislative basis has expired, if that Member considers, with reason, that benefits accruing to it under the covered agreements are still being impaired by those measures". The Appellate Body added that if the effect of such measures remains in dispute following consultations, the complaining party may request the establishment of a panel, and that Article 6.2 "does not suggest that such measures could not be the subject of a panel request as 'specific measures at issue'".⁶⁶²

7.49. In *EC – Bananas III (Article 21.5 – Ecuador II) / EC – Bananas III (Article 21.5 – United States)*, referring to its report in *US – Upland Cotton*, the Appellate Body considered that "if the DSU does not exclude from the scope of consultations, or from the scope of panel proceedings, a measure that was no longer in force when the dispute was initiated, then, *a fortiori*, a panel is not precluded from making findings with respect to measures that expire during the course of the proceedings."⁶⁶³

7.50. The Appellate Body also noted in *EU – PET (Pakistan)* that, within the margin of discretion that a panel has in the exercise of its inherent adjudicative powers, "it is for the panel to decide how it takes into account subsequent modifications to, or expiry or repeal of, the measure at issue."⁶⁶⁴

7.51. In *EU – PET (Pakistan)*, the Appellate Body stated that a complaining Member's continued request for findings following the expiry of the measure at issue is a relevant consideration, and that the panel should objectively assess whether the "matter" before it, within the meaning of Articles 7.1 and 11 of the DSU, has been fully resolved or still requires to be examined.⁶⁶⁵ In this case, the Appellate Body confirmed that the panel had made an objective assessment that "the matter" before it still required to be examined because the parties continued to be in disagreement as to the applicability of and conformity with the relevant covered agreements with respect to the European Commission's findings underpinning the expired measure at issue.⁶⁶⁶

7.52. With regard to the formulation of recommendations, the Appellate Body has indicated that the fact that a measure has expired "may affect" what recommendation a panel may make⁶⁶⁷, but has subsequently clarified that it was not suggesting that a panel was precluded from making a recommendation on such a measure in a particular case.⁶⁶⁸ The Appellate Body added that "[i]n general, in cases where the measure at issue consists of a law or regulation that has been repealed during the panel proceedings, it would seem there would be no need for a panel to make a recommendation in order to resolve the dispute".⁶⁶⁹

⁶⁵⁸ New Manual NR-ARP-M-01, (Exhibit CRI-105), p. 1.

⁶⁵⁹ Request for consultations by Mexico, WT/DS524/1.

⁶⁶⁰ Mexico's panel request, WT/DS524/2, p. 1.

⁶⁶¹ DSB, Minutes of the meeting held on 18 December 2018, WT/DSB/M/423, p. 38.

⁶⁶² Appellate Body Report, *US – Upland Cotton*, para. 270.

⁶⁶³ Appellate Body Reports, *EC – Bananas III (Article 21.5 – Ecuador II) / EC – Bananas III (Article 21.5 – United States)*, para. 269.

⁶⁶⁴ Appellate Body Report, *EU – PET (Pakistan)*, para. 5.19.

⁶⁶⁵ Appellate Body Report, *EU – PET (Pakistan)*, paras. 5.42-5.43.

⁶⁶⁶ Appellate Body Report, *EU – PET (Pakistan)*, para. 5.51.

⁶⁶⁷ Appellate Body Report, *US – Upland Cotton*, para. 272. See also Appellate Body Reports, *EC – Bananas III (Article 21.5 – Ecuador II) / EC – Bananas III (Article 21.5 – United States)*, para. 270.

⁶⁶⁸ Appellate Body Reports, *China – Raw Materials*, para. 264.

⁶⁶⁹ Appellate Body Reports, *China – Raw Materials*, para. 264.

7.53. It follows from the foregoing that panels have the authority to make findings on measures that were no longer in force when the panel was established if the effects of those measures continue to be felt. Although, in general, it appears unnecessary for a panel to make recommendations on a repealed measure, the panel is not precluded from doing so in any particular case.

7.54. The Panel notes that Mexico has requested findings only on Manual NR-ARP-PO-01_M-01 that existed when this Panel was established and not on the new 2018 manual. As noted, the 2016 manual was used to prepare Reports ARP-002-2017 and ARP-006-2016, hence its effects continue to be felt.

7.55. The Panel is of the view that the repeal of Manual NR-ARP-PO-01_M-01 does not resolve the matter before it, given the manual's ongoing effects on the reports' preparation, and given the disagreement between the parties on the applicability of the relevant covered agreements and on the manual's consistency with those agreements.

7.56. The Panel therefore considers that it is not precluded from making findings or recommendations with respect to Manual NR-ARP-PO-01_M-01, even though that document has been repealed.

7.2.2.2 Whether the Panel will analyse individually the measures identified by Mexico

7.57. In its replies to the Panel's questions following the first meeting of the Panel with the parties and in its second written submission, **Mexico** argued that the identified measures should be analysed jointly and as a whole, given their close relationship. Mexico indicated that, while recognizing that the measures are based on various instruments and that some of them should be analysed individually in accordance with specific provisions of the SPS Agreement and the GATT 1994, the Panel's conclusions and findings should refer to the measures jointly, since they function as an inseparable whole and cannot be understood on their own.⁶⁷⁰ For Mexico, a fragmented analysis of each of the instruments would lead to equally disjointed and meaningless findings.⁶⁷¹

7.58. In its replies to the Panel's questions following the second meeting of the Panel with the parties, Mexico clarified that it had requested the Panel to make findings specific to each of the measures, as well as a finding on the operation of the measures in conjunction with each other.⁶⁷²

7.59. Mexico states that if the measures are only dealt with jointly and not analysed individually, it could result in the dispute not being fully resolved, since there are elements of each of the measures that must be analysed to avoid future violations of the SPS Agreement.⁶⁷³ Mexico considers relevant the panel's decision in *Japan – Apples (Article 21.5 – United States)*, which, according to Mexico, treated the requirements imposed by Japan as elements of one single measure, but made specific findings on each of them, as it believed that approach would assist in the prompt resolution of the dispute.⁶⁷⁴

7.60. When analysing the provisions that are the subject of the complaint, Mexico requests the Panel to rule on each measure individually, since each of the measures violates specific elements of the SPS Agreement.⁶⁷⁵ According to Mexico, failing to proceed in this manner, would run the risk of maintaining the specific violations identified in each of these measures. Mexico is of the view that if the Panel determines that only the resolutions are inconsistent with the SPS Agreement, it would mean that the PRAs, particularly the analysis and reasoning behind them, and on which the resolutions are based and, thus, the phytosanitary requirements, would remain outside the scope of an examination under the SPS Agreement.⁶⁷⁶

⁶⁷⁰ Mexico's response to Panel question No. 99, para. 116; second written submission, paras. 7-8.

⁶⁷¹ Mexico's response to Panel question No. 99, para. 121.

⁶⁷² Mexico's response to Panel question No. 112, para. 14.

⁶⁷³ Mexico's response to Panel question No. 112, para. 16; comments on Costa Rica's response to Panel question No. 112, para.11.

⁶⁷⁴ Mexico's response to Panel question No. 112, para. 17.

⁶⁷⁵ Mexico's response to Panel question No. 112, para. 18.

⁶⁷⁶ Mexico's opening statement at the second Panel meeting, para. 21; response to Panel question No. 112, para. 18.

7.61. Mexico asserts that, by applying the SPS Agreement to each of the measures individually, the Panel could identify specific elements of each measure that result in a violation of the SPS Agreement, and that differentiate them from each other, and of the measure as a whole.⁶⁷⁷

7.62. For its part, **Costa Rica** notes that, even though Mexico expressly requests that the measures be considered "jointly" as an inseparable whole and specifically states that it is not requesting a separate decision for each of the measures, its table in response to Panel question No. 99 clearly separates the measures according to each claim, and those measures are the same as the five distinct legal instruments identified by Mexico. According to Costa Rica, in addition to contradicting its request that the measures be analysed as an inseparable whole, Mexico confuses the concepts of "measure" and "legal instrument", which are different.⁶⁷⁸

7.63. Costa Rica states that the complaint should be dealt with on the basis of the measures as they were presented individually⁶⁷⁹, and submits that the most important consequence of addressing the measures at issue individually is that the Panel must consider the applicability of the SPS Agreement to each of these measures individually and separately from the rest.⁶⁸⁰ Costa Rica states that if any of the measures does not meet, in itself, the applicability criteria of the SPS Agreement, that measure should not be assessed in light of the Agreement's substantive obligations, nor should the Panel issue rulings and/or recommendations with respect to it.⁶⁸¹ Giving the example of trade implications, Costa Rica adds that it is not appropriate to use, by virtue of "cross-cutting" sufficiency, other measures at issue that may meet the applicability criteria to overcome or compensate for a measure falling short of those criteria.⁶⁸²

7.64. The **Panel** notes that Mexico has maintained, on the one hand, that the Panel's conclusions and findings should refer to the measures jointly, since they function as an inseparable whole and cannot be understood on their own. Mexico has also indicated, on the other hand, that it recognizes that the measures are based on various instruments, and that some of them should be analysed individually in accordance with specific provisions of the SPS Agreement and the GATT 1994. Subsequently, Mexico has requested specific findings on each of the measures, as well as a finding on the operation of the measures in conjunction with each other.

7.65. As stated above, the five instruments identified by Mexico as the measures at issue are, individually, properly within this Panel's terms of reference, so there is no reason why this Panel may not consider the measures individually, as Mexico has requested.

7.66. However, the Panel agrees with Costa Rica that one of the consequences of addressing the measures at issue individually is that the Panel must examine the applicability of the SPS Agreement to each of these measures separately. In fact, if Mexico wishes the Panel to make findings on the measures identified individually, as separate SPS measures to which the SPS Agreement applies, the Panel must examine the applicability of the SPS Agreement to each of these measures individually as well. The Panel will undertake this analysis below.

7.2.2.3 Whether Costa Rica's measures are sanitary or phytosanitary measures covered by the SPS Agreement

7.67. Article 11 of the DSU stipulates that a panel should make an objective assessment of the applicability of the relevant covered agreements to the matter before it. Accordingly, a panel in a dispute in which provisions of the SPS Agreement are cited, must first determine whether the challenged measures are subject to the disciplines of that Agreement.⁶⁸³

7.68. Article 1 of the SPS Agreement establishes the Agreement's scope of application as follows:

⁶⁷⁷ Mexico's comments on Costa Rica's response to Panel question No. 112, para. 7.

⁶⁷⁸ Costa Rica's second written submission, paras. 2.2 and 2.7-2.8. See also Costa Rica's response to Panel question No. 112, para. 10.

⁶⁷⁹ Costa Rica's comments on Mexico's response to Panel question No. 112, para. 10.

⁶⁸⁰ Costa Rica's response to Panel question No. 112, para. 2.

⁶⁸¹ Costa Rica's response to Panel question No. 112, para. 2.

⁶⁸² Costa Rica's response to Panel question No. 112, para. 2.

⁶⁸³ Panel Report, *Korea – Radionuclides*, para. 7.19.

1. This Agreement applies to all sanitary and phytosanitary measures which may, directly or indirectly, affect international trade. Such measures shall be developed and applied in accordance with the provisions of this Agreement.

2. For the purposes of this Agreement, the definitions provided in Annex A shall apply.

7.69. In accordance with the wording of this Article, there are two conditions for determining the applicability of the SPS Agreement to a measure. First, the measure must be a sanitary or phytosanitary (SPS) measure in the terms of the Agreement itself and, second, the measure must be able, directly or indirectly, to affect international trade.⁶⁸⁴

7.70. It should also be clarified that the fact that a measure is an SPS measure within the meaning of the definition set forth in Annex A(1) "does not mean that it is, *ipso facto*, subject to every provision of the *SPS Agreement*"⁶⁸⁵ and that "[a] determination of which particular provisions are applicable to a given measure, must be done on a case-by-case basis".⁶⁸⁶

7.71. In accordance with the foregoing, the Panel must examine the applicability of the SPS Agreement with respect to each of the measures identified by Mexico, namely, Resolutions DSFE-002-2018 and DSFE-003-2018, Reports ARP-002-2017 and ARP-006-2016, and Manual NR-ARP-PO-01_M-01, separately.

7.72. In order to determine whether Resolutions DSFE-002-2018 and DSFE-003-2018, Reports ARP-002-2017 and ARP-006-2016, and Manual NR-ARP-PO-01_M-01 are SPS measures subject to the SPS Agreement, the Panel will examine (i) whether these instruments are SPS measures within the meaning of the definition given in paragraph 1 of Annex A to the SPS Agreement; and (ii) whether they may, directly or indirectly, affect international trade. The Panel will consider these two conditions for the applicability of the SPS Agreement with respect to each of the measures identified by Mexico as individual measures.

7.2.2.3.1 Resolutions DSFE-002-2018 and DSFE-003-2018

7.2.2.3.1.1 Whether Resolutions DSFE-002-2018 and DSFE-003-2018 are SPS measures pursuant to paragraph 1 of Annex A to the SPS Agreement

7.73. With respect to the first condition for a measure to be covered by the SPS Agreement, i.e. that the measure is an SPS measure in accordance with the terms of the Agreement, the Appellate Body noted in *Australia – Apples* that "[a] unique feature of the *SPS Agreement* is that it defines the measures that are subject to its disciplines", and that definition is given in Annex A(1).⁶⁸⁷

7.74. According to paragraph 1 of Annex A to the SPS Agreement, entitled "Definitions", the SPS measures that are relevant to this dispute are defined as follows:

1. Sanitary or phytosanitary measure – Any measure applied:

(a) to protect animal or plant life or health within the territory of the Member from risks arising from the entry, establishment or spread of pests, diseases, disease-carrying organisms or disease-causing organisms;

...

Sanitary or phytosanitary measures include all relevant laws, decrees, regulations, requirements and procedures including, *inter alia*, end product criteria; processes and production methods; testing, inspection, certification and approval procedures;

⁶⁸⁴ Panel Reports, *Korea – Radionuclides*, para. 7.22; *EC – Hormones (Canada)*, para. 8.39; *EC – Hormones (US)*, para. 8.36; and *EC – Approval and Marketing of Biotech Products*, para. 7.2554.

⁶⁸⁵ Panel Report, *Korea – Radionuclides*, para. 7.33 (citing Panel Report, *EC – Approval and Marketing of Biotech Products*, para. 7.1337).

⁶⁸⁶ Panel Report, *Korea – Radionuclides*, para. 7.33 (citing Panel Report, *US – Poultry (China)*, para. 7.139).

⁶⁸⁷ Appellate Body Report, *Australia – Apples*, para. 170.

quarantine treatments including relevant requirements associated with the transport of animals or plants, or with the materials necessary for their survival during transport; provisions on relevant statistical methods, sampling procedures and methods of risk assessment; and packaging and labelling requirements directly related to food safety.

7.75. In *Korea – Radionuclides*, the Appellate Body explained that "SPS measures relate to a 'protected interest' as set out in Annex A(1) to the SPS Agreement, which corresponds to protection against a specific risk, or preventing or limiting damage from certain causes."⁶⁸⁸

7.76. The Appellate Body in *Australia – Apples* noted that a fundamental element of the definition of "SPS measure" set out in Annex A(1) is that such a measure must be one "applied to protect" at least one of the listed interests or "to prevent or limit" specified damage.⁶⁸⁹ The Appellate Body considered that Annex A(1) contains objectives introduced by the word "to", which in adverbial relation with the infinitive verb "protect" indicates a purpose or intention⁶⁹⁰, and, thus, establishes "a required link between the measure and the protected interest".^{691, 692}

7.77. The Appellate Body explained that the word "applied" in the definition of SPS measures set out in Annex A(1) points to the application of the measure and, thus, suggests that the relationship of the measure and one of the objectives listed in that paragraph must be manifest in the measure itself or otherwise evident from the circumstances related to the application of the measure.⁶⁹³ Thus, when determining whether a measure is "applied ... to protect" in the sense of one of the subparagraphs in Annex A(1), a panel must examine not only the stated objectives of the measure, but also the text and structure of the relevant measure, its surrounding regulatory context, and the way in which it is designed and applied.⁶⁹⁴ Should scrutiny of such circumstances reveal "a clear and objective relationship" between the measure and the specific purposes enumerated in Annex A(1), the objective purpose of the measure is seen to fall within that provision and that, therefore, the measure is within the jurisdiction of the SPS Agreement.⁶⁹⁵

7.78. The subparagraph of paragraph 1 of Annex A to the SPS Agreement invoked by Mexico is subparagraph (a), which establishes that an SPS measure is "any measure applied to protect ... plant life or health within the territory of a Member from risks arising from the entry, establishment or spread of pests, diseases, disease-carrying organisms or disease-causing organisms".

7.79. With regard to the last sentence of Annex A(1), the Appellate Body in *Australia – Apples* noted that it follows, and relates to, all of the first sentence, including all of the purposes enumerated in subparagraphs (a) through (d), and that the first part of this sentence contains a list of legal instruments linked by the conjunction "and" ("laws, decrees, regulations, requirements and procedures").⁶⁹⁶

7.80. The Appellate Body explained that this list is modified by the words "include" and "all relevant"; that the word "relevant" is a reference back to the preceding sentence in Annex A(1), that is, to the list of specific purposes that are the defining characteristic of every SPS measure, and that the words "include" and "all", which also introduce the list of instruments, suggest that the list is both illustrative and expansive. Thus, according to the Appellate Body, "[t]aken together, the words 'include' and 'all relevant' therefore suggest that measures of a type not expressly listed may

⁶⁸⁸ Appellate Body Report, *Korea – Radionuclides*, para. 5.59. (fn omitted)

⁶⁸⁹ Appellate Body Report, *Australia – Apples*, para. 172.

⁶⁹⁰ Appellate Body Report, *Australia – Apples*, para. 172.

⁶⁹¹ Appellate Body Report, *Australia – Apples*, para. 172.

⁶⁹² The Panel notes that the Spanish version of the SPS Agreement refers to measures applied "*para proteger la salud y la vida de los animales o para preservar los vegetales*" ("to protect animal or plant life or health"), while the English version uses the same verb, "to protect", in conjunction with the life and health of both animals and plants. According to the *Diccionario de la lengua española* published by the Real Academia Española, "*preservar*" means "*proteger*" ("to protect"). (*Diccionario de la lengua española*, Real Academia Española, accessed 30 November 2021, <https://dle.rae.es/preservar>).

⁶⁹³ Appellate Body Report, *Australia – Apples*, para. 172; and Panel Report, *Korea – Radionuclides*, para. 7.25.

⁶⁹⁴ Appellate Body Report, *Australia – Apples*, para. 173; and Panel Report, *Korea – Radionuclides*, para. 7.25.

⁶⁹⁵ Appellate Body Report, *Australia – Apples*, para. 173; and Panel Report, *Korea – Radionuclides*, para. 7.25.

⁶⁹⁶ Appellate Body Report, *Australia – Apples*, para. 175.

nevertheless constitute SPS measures when they are 'relevant', that is, when they are 'applied' for a purpose that corresponds to one of those listed in subparagraphs (a) through (d)".⁶⁹⁷ The Appellate Body added that, conversely, "the fact that an instrument is of a type listed in the last sentence of Annex A(1) is not, in itself, sufficient to bring such an instrument within the ambit of the *SPS Agreement*".⁶⁹⁸

7.81. Turning to the second part of the last sentence, the Appellate Body in *Australia – Apples* noted that this provision introduces a list of instruments with the words "including, *inter alia*", emphasizing that the list is only indicative.⁶⁹⁹ The Appellate Body added that "[t]he list thus serves to illustrate, through a set of concrete examples, the different types of measures that, when they exhibit the appropriate nexus to one of the specified purposes, will constitute SPS measures and, accordingly, be subject to the disciplines set out in the *SPS Agreement*."⁷⁰⁰

7.82. **Mexico** submits that Resolutions DSFE-002-2018 and DSFE-003-2018 are phytosanitary measures within the meaning of paragraph 1 of Annex A to the SPS Agreement, since they regulate the importation of plants, specifically avocados, and are intended to prevent the introduction of a pest, ASBVd, into Costa Rican territory. Mexico adds that these resolutions are referred to as "phytosanitary measures" and that they state that the requirements are established "as a phytosanitary measure".⁷⁰¹

7.83. Mexico points out that, while the category "resolutions" is not listed in the last part of paragraph 1 of Annex A to the SPS Agreement, both resolutions were distributed to the Members of the SPS Committee.⁷⁰²

7.84. Mexico adds that there is a link between the nature of the measures and their objective, since their application is mandatory in order to mitigate, purportedly, the risks associated with the importation of regulated articles that are vectors of ASBVd and establish phytosanitary requirements for the importation of fresh avocado fruit from Mexico and other countries where ASBVd is present.⁷⁰³

7.85. For its part, **Costa Rica** accepts that the phytosanitary requirements are obligations and requirements to protect the objectives set out in Annex A(1), and as such would qualify as a phytosanitary measure.⁷⁰⁴

7.86. The **Panel** will next examine whether Resolutions DSFE-002-2018 and DSFE-003-2018 constitute phytosanitary measures within the meaning of paragraph 1 of Annex A to the SPS Agreement.

7.87. As detailed above, in order to determine whether a measure has been "applied to protect" within the meaning of one of the subparagraphs of Annex A(1), a panel must examine not only the stated objectives of the measure, but also the text and structure of the measure, its surrounding regulatory context and the way in which it is designed and applied, and that scrutiny of such circumstances must reveal "a clear and objective relationship" between the measure and the specific purposes enumerated in that provision.⁷⁰⁵

7.88. Mexico claims, and Costa Rica does not dispute, that the objective of Resolutions DSFE-002-2018 and DSFE-003-2018 is to prevent the introduction of ASBVd into Costa Rican territory, and that these are SPS measures pursuant to the definition in Annex A(1). Moreover, both resolutions were notified to the WTO as phytosanitary measures.⁷⁰⁶

⁶⁹⁷ Appellate Body Report, *Australia – Apples*, para. 175.

⁶⁹⁸ Appellate Body Report, *Australia – Apples*, para. 175.

⁶⁹⁹ Appellate Body Report, *Australia – Apples*, para. 176.

⁷⁰⁰ Appellate Body Report, *Australia – Apples*, para. 176.

⁷⁰¹ Mexico's first written submission, para. 129.

⁷⁰² Mexico's first written submission, para. 129.

⁷⁰³ Mexico's first written submission, para. 130.

⁷⁰⁴ Costa Rica's response to Panel question No. 116, para. 27.

⁷⁰⁵ Appellate Body Report, *Australia – Apples*, para. 173; and Panel Report, *Korea – Radionuclides*, para. 7.25.

⁷⁰⁶ Committee on Sanitary and Phytosanitary Measures, Notification, Addendum, G/SPS/N/CRI/191/Add.1, 7 February 2018; Committee on Sanitary and Phytosanitary Measures, Notification, Addendum, G/SPS/N/CRI/162/Add.2, 7 February 2018.

7.89. Resolution DSFE-003-2018 states that it establishes, "as a phytosanitary measure", three alternative requirements with regard to ASBVd for imports of fresh avocado fruit for consumption from Mexico.⁷⁰⁷ The same applies to Resolution DSFE-002-2018, which also states that it establishes, "as a phytosanitary measure", three alternative requirements with regard to ASBVd for imports of fresh avocado fruit for consumption from Mexico and other countries where ASBVd is present, and the requirements for avocado plants for planting.⁷⁰⁸ Both resolutions contemplate phytosanitary protection, pursuant to the IPPC, stating that the Convention recognizes the importance of controlling plant pests and diseases and plant products, and pursuant to the Law on Phytosanitary Protection of Costa Rica, which declares that the application of phytosanitary measures is in the public interest and mandatory in order to protect, *inter alia*, plants from the damage caused by pests, and to avoid and prevent the introduction and spread of pests.⁷⁰⁹

7.90. In addition, the wording of the three alternative requirements imposed by Costa Rica with regard to ASBVd transmitted by the route of fresh avocado fruit for consumption, namely a phytosanitary certificate stating that the fruit is free of ASBVd, a phytosanitary certificate from a place of production free of ASBVd or a systems approach programme⁷¹⁰, shows that these requirements seek to protect against the introduction of ASBVd, so it is clear that they are phytosanitary requirements applied to protect avocados in Costa Rica and prevent the entry, establishment or spread of ASBVd in that country.

7.91. In light of the foregoing, the Panel is of the view that, according to its text, structure, regulatory context, application and stated objective, the phytosanitary requirements contained in Resolutions DSFE-002-2018 and DSFE-003-2018 are clearly related to the objective of protecting plant (avocados) life or health within the territory of Costa Rica from risks arising from the entry, establishment or spread of pests, diseases, disease-carrying organisms or disease-causing organisms (ASBVd), which corresponds to paragraph 1(a) of Annex A to the SPS Agreement.

7.92. Therefore, the Panel considers that Resolutions DSFE-002-2018 and DSFE-003-2018 have a clear and objective relationship with the purpose enumerated in Annex A(1)(a).

7.93. Similarly, Resolutions DSFE-002-2018 and DSFE-003-2018 can be defined as decrees or requirements and are therefore included in the indicative list of SPS measures contained in the second part of Annex A(1).

7.94. In view of the foregoing, the Panel finds that Resolutions DSFE-002-2018 and DSFE-003-2018, which contain the phytosanitary requirements, constitute phytosanitary measures within the meaning of paragraph 1 of Annex A to the SPS Agreement.

7.2.2.3.1.2 Whether Resolutions DSFE-002-2018 and DSFE-003-2018 may, directly or indirectly, affect international trade

7.95. Article 1.1 of the SPS Agreement states that the "Agreement applies to all sanitary and phytosanitary measures which may, directly or indirectly, affect international trade". Therefore, for an SPS measure to be subject to the disciplines of the SPS Agreement, it must be one that "may, directly or indirectly, affect international trade".⁷¹¹

⁷⁰⁷ Resolution DSFE-003-2018, (Exhibit MEX-4), pp. 4-5.

⁷⁰⁸ Resolution DSFE-002-2018, (Exhibit MEX-103), p. 4.

⁷⁰⁹ Resolution DSFE-003-2018, (Exhibit MEX-4), pp. 1-4; Resolution DSFE-002-2018, (Exhibit MEX-103), pp. 1-4.

⁷¹⁰ It should be noted that Costa Rica maintains that a systems approach programme "consists of integrating phytosanitary measures applied from before the crop is planted (including packing facilities, transport and exit points) until the entry point and post-entry, as agreed between the exporting country and the importing country in order to comply with the importing country's appropriate level of protection. The most important requirement of the system will be that, at least, two measures are independent with a cumulative effect." (Costa Rica's response to Panel question No. 53, para. 1). The Panel observes that no systems approach programme with respect to ASBVd exists between Costa Rica and any other country, therefore it only has the foregoing explanation of what, for Costa Rica, this systems approach programme involves. (See Costa Rica's response to Panel question No. 53, para. 2).

⁷¹¹ Panel Reports, *Korea – Radionuclides*, para. 7.28; and *US – Poultry (China)*, para. 7.87.

7.96. The panel in *Korea – Radionuclides* interpreted the word "may" as "having the potential to", noting that for the SPS Agreement to be applicable to an SPS measure, the measure "must have the potential to affect international trade, directly or indirectly".⁷¹²

7.97. Other panels have found that an import ban always affects international trade⁷¹³, and that testing requirements and other administrative procedures that can delay or deny entry of products into a Member likewise affect international trade.⁷¹⁴

7.98. It should be added that the panel in *EC – Approval and Marketing of Biotech Products* noted that "it is not necessary to demonstrate that an SPS measure has an actual effect on trade."⁷¹⁵

7.99. **Mexico** submits that the requirements implemented pursuant to the resolutions directly affect free international trade, since Costa Rica has applied unjustified measures from 2015 onwards.⁷¹⁶

7.100. Mexico notes that, while it is not necessary to prove that Costa Rica's phytosanitary measures have actual trade effects⁷¹⁷, the requirements imposed by Costa Rica through its restrictive measures directly affect international trade, as they are necessary requirements for the importation of fresh avocado fruit from Mexico to Costa Rica that had an immediate and direct effect on avocado exports from Mexico. Mexico adds that, following Costa Rica's implementation of its phytosanitary measures in 2015, imports of Mexican avocados to that country stopped⁷¹⁸, and that, in 2020, the value of imports of that product has remained at zero.⁷¹⁹ Mexico links this to the high cost of compliance with Costa Rica's phytosanitary measures for the export of fresh avocados, which, for Mexico, are unsustainable.⁷²⁰

7.101. **Costa Rica**, for its part, believes that it is clear that what caused Mexico's trade concerns and triggered this dispute, given that they have a direct impact on avocado exports, are the phytosanitary requirements, which, according to Costa Rica, are the real measures at issue.⁷²¹ Costa Rica points out that it is compliance with the phytosanitary requirements that allegedly imposes high costs on imports, and it is this that affects trade.⁷²²

7.102. The **Panel** notes that the alternative phytosanitary requirements contained in Resolutions DSFE-002-2018 and DSFE-003-2018 constitute a condition for importing avocados into Costa Rica from countries where ASBVd is present, including Mexico. Failure to meet one of those requirements means that countries where ASBVd is present cannot export their avocados to Costa Rica. As phytosanitary requirements that must be satisfied in order for Mexico and other countries to be able to export fresh avocado fruit for consumption to Costa Rica, the Panel considers that Resolutions DSFE-002-2018 and DSFE-003-2018 have altered or modified the import conditions for avocados, thus they have had an effect on international trade and, therefore, may affect international trade within the meaning of Article 1.1 of the SPS Agreement.

7.103. The Panel also notes that the parties do not appear to disagree on whether the phytosanitary requirements in Resolutions DSFE-002-2018 and DSFE-003-2018 may affect international trade, by impacting on avocado exports to Costa Rica.

7.104. The Panel therefore finds that Resolutions DSFE-002-2018 and DSFE-003-2018, which contain the phytosanitary requirements, may affect international trade within the meaning of Article 1.1 of the SPS Agreement, thus the Agreement applies to those resolutions.

⁷¹² Panel Report, *Korea – Radionuclides*, para. 7.22.

⁷¹³ Panel Reports, *Korea – Radionuclides*, para. 7.30; and *EC – Hormones (United States)*, para. 8.23.

⁷¹⁴ Panel Reports, *Korea – Radionuclides*, para. 7.30; and *EC – Approval and Marketing of Biotech Products*, para. 7.435.

⁷¹⁵ Panel Report, *EC – Approval and Marketing of Biotech Products*, para. 7.435.

⁷¹⁶ Mexico's comments on Costa Rica's response to Panel question No. 117, para. 9.

⁷¹⁷ Mexico's response to Panel question No. 117, para. 36; comments on Costa Rica's response to Panel question No. 117, paras. 1-2.

⁷¹⁸ Mexico's first written submission, paras. 138-140. See also Mexico's response to Panel question No. 117, para. 39.

⁷¹⁹ Mexico's response to Panel question No. 117, para. 39.

⁷²⁰ Mexico's response to Panel question No. 111, para. 13.

⁷²¹ Costa Rica's comments on Mexico's response to Panel question No. 111, para. 3.

⁷²² Costa Rica's comments on Mexico's response to Panel question No. 111, para. 9.

7.2.2.3.1.3 Conclusion on Resolutions DSFE-002-2018 and DSFE-003-2018

7.105. Having found that Resolutions DSFE-002-2018 and DSFE-003-2018, which contain the phytosanitary requirements, constitute SPS measures within the meaning of paragraph 1 of Annex A to the SPS Agreement, and that they may affect international trade, the Panel concludes that these resolutions are, individually, SPS measures subject to the SPS Agreement, pursuant to Article 1.1 of that Agreement.

7.2.2.3.2 Reports ARP-002-2017 and ARP-006-2016

7.2.2.3.2.1 Whether Reports ARP-002-2017 and ARP-006-2016 are SPS measures pursuant to paragraph 1 of Annex A to the SPS Agreement

7.106. **Mexico** asserts that Reports ARP-002-2017 and ARP-006-2016 are phytosanitary measures on the basis of the SPS Agreement, since they are applied for the purpose of preventing the introduction of ASBVd, even if their nature is not expressly listed in the last part of paragraph 1 of Annex A to the SPS Agreement.⁷²³

7.107. Mexico contends that the PRAs are phytosanitary measures because they were prepared for the purpose of identifying and assessing the risk of entry, establishment and spread of ASBVd in Costa Rican territory associated with the importation of fresh avocado fruit from Mexico, and on the basis of these risk analyses Costa Rica tried to justify the application of the three specific phytosanitary measures for the purpose of protecting the avocado plantations from the risks posed by ASBVd, a purpose that is covered by paragraph 1(a) of Annex A to the SPS Agreement.⁷²⁴

7.108. Mexico asserts that Costa Rica's risk assessment is a phytosanitary measure for the purposes of the SPS Agreement, since: (i) it is a measure applied to protect avocado trees in Costa Rican territory from risks arising from the entry, establishment or spread of ASBVd; and (ii) the PRAs are included in the instruments referred to in the second part of Annex A(1), which contains an indicative list, and the requirement is for the measure to reveal a clear and objective relationship with at least one of the purposes set out in subparagraphs (a) through (d), which, according to Mexico, occurs in the present case.⁷²⁵

7.109. Mexico adds that the definition in Annex A(1) includes as a phytosanitary measure "provisions on relevant statistical methods, sampling procedures and methods of risk assessment", so there is no need to assert that phytosanitary measures must necessarily be aimed at plant health protection directly.⁷²⁶ For Mexico, the objective of a PRA is not a neutral element, and in various sections of the PRA Costa Rica emphasizes the objective of protecting plants.⁷²⁷

7.110. In Mexico's view, risk assessments can be viewed as measures because the concept of "measure" under the SPS Agreement is broad; that there is nothing in the text of Annex A(1) to suggest a more restrictive interpretation of the word "measure" in the context of the SPS Agreement⁷²⁸; and that any act or omission attributable to a WTO Member can be a measure of that Member for purposes of dispute settlement proceedings.⁷²⁹

⁷²³ Mexico's first written submission, para. 131.

⁷²⁴ Mexico's first written submission, paras. 133 and 135.

⁷²⁵ Mexico's response to Panel question No. 115, para. 27 (referring to Appellate Body Report, *Australia – Apples*, para. 176).

⁷²⁶ Mexico's comments on Costa Rica's response to Panel question No. 121, para. 2.

⁷²⁷ Mexico's comments on Costa Rica's response to Panel question No. 121, para. 4.

⁷²⁸ Mexico's response to Panel question No. 111, para. 4 (referring to Appellate Body Report, *Australia – Apples*, para. 181); comments on Costa Rica's response to Panel question No. 113, para. 2 (referring to Appellate Body Report, *Australia – Apples*, para. 181); comments on Costa Rica's response to Panel question No. 114, para. 1 (referring to Appellate Body Report, *Australia – Apples*, para. 181).

⁷²⁹ Mexico's response to Panel question No. 111, para. 4 (citing Appellate Body Report, *Australia – Apples*, para. 171, in turn referring to Appellate Body Report, *US – Corrosion-Resistant Steel Sunset Review*, para. 81).

7.111. Mexico further submits that the nature of PRAs is that they entail measures implemented in an attempt to justify requirements that restrict, and in the case of Mexico, ban *de facto* the importation of fresh avocados.⁷³⁰

7.112. Mexico adds that the risk analysis in this dispute is not *per se* an instrument that assesses "the probability of entry, establishment or spread" of the disease concerned, but rather is an activity specifically designed and undertaken to justify *ex post facto* decisions, which resulted in a *de facto* prohibition on the importation of fresh Hass avocados for consumption from Mexico.⁷³¹

7.113. Mexico asserts that in previous cases where PRAs have not been identified as measures *per se*, panels and the Appellate Body have made findings on the consistency of these risk analyses with specific provisions of the SPS Agreement.⁷³² Mexico notes that in *Japan – Apples* and *Australia – Apples*, PRAs were implicitly considered as measures, and that even if the PRA or IRA (final risk analysis report) was not identified in any of the measures at issue, the Appellate Body in *Australia – Apples* referred to the panel's finding that the IRA was inconsistent with Article 5.1.⁷³³

7.114. **Costa Rica**, for its part, considers that risk assessments do not in themselves constitute phytosanitary measures within the meaning of paragraph 1 of Annex A to the SPS Agreement.⁷³⁴

7.115. According to Costa Rica, a risk assessment could not at the same time meet the definition of SPS measures in paragraph 1 of Annex A to the SPS Agreement and the definition of "risk assessment" in paragraph 4 of that Annex⁷³⁵, and the actual structure of the SPS Agreement suggests that the intention was to keep both categories or concepts separate.⁷³⁶ Costa Rica submits that the category or function that should be assigned to the risk assessment is the one given by its own definition and in the other provisions referring to it, and it is therefore a search, analysis and deliberation process designed to provide a picture of the risk status in the country of importation.⁷³⁷

7.116. Costa Rica asserts that a risk assessment is not an act that can be placed within the concept, set forth in Annex A(1), of "measure applied" for the protection of certain interests.⁷³⁸ Costa Rica asserts that the SPS Agreement refers on multiple occasions to terms derived from the verb "apply" in relation to the term "measures", and that in all these instances the Agreement refers to the application of measures in the sense that these measures have tangible effects on the protection of SPS interests.⁷³⁹

7.117. Costa Rica states that "applying" means the "implementation" of a measure to obtain a "certain effect"; and that a risk assessment, as an investigation process involving the assessment and weighing of probabilities and factual consequences, is not an act that implements something specific or that gives rise to specific effects on imports.⁷⁴⁰ In Costa Rica's view, it may be the starting point for the formulation or development of measures that do so, but a risk assessment does not in itself reflect the existence of "applied measures".⁷⁴¹

7.118. Costa Rica also submits that a risk assessment does not fall within one of the categories referred to in the second part of Annex A(1). Costa Rica states that while this list has an expansive and illustrative purpose, the common denominator of the elements mentioned therein is their link

⁷³⁰ Mexico's comments on Costa Rica's response to Panel question No. 115, para. 5.

⁷³¹ Mexico's response to Panel question No. 114, para. 25; comments on Costa Rica's response to Panel question No. 114, para. 3.

⁷³² Mexico's comments on Costa Rica's response to Panel question No. 112, para. 8.

⁷³³ Mexico's opening statement at the second meeting of the Panel, para. 24; response to Panel question No. 113, para. 21 (referring to Appellate Body Report, *Australia – Apples*, para. 258); comments on Costa Rica's response to Panel question No. 113, para. 4.

⁷³⁴ Costa Rica's response to Panel question No. 115, para. 25; comments on Mexico's response to Panel question No. 115, para. 25.

⁷³⁵ Costa Rica's response to Panel question No. 115, paras. 18 and 23.

⁷³⁶ Costa Rica's comments on Mexico's response to Panel question No. 115, para. 22.

⁷³⁷ Costa Rica's response to Panel question No. 114, para. 15. See also Costa Rica's response to Panel question No. 115, para. 19.

⁷³⁸ Costa Rica's response to Panel question No. 115, para. 19.

⁷³⁹ Costa Rica's response to Panel question No. 115, para. 20.

⁷⁴⁰ Costa Rica's response to Panel question No. 115, para. 20; comments on Mexico's response to Panel question No. 115, para. 23.

⁷⁴¹ Costa Rica's response to Panel question No. 115, para. 20.

to risk management, which, according to Costa Rica, is fully consistent with the identification of the protection purposes of the "applied" measures, provided for in the first part of paragraph 1, and with the need to define risk assessment separately in Annex A(4).⁷⁴²

7.119. Costa Rica further submits that if risk assessments were SPS measures *per se*, then they should be subject to various obligations under the SPS Agreement, and this would lead to an absurd situation because risk assessments are benchmarks for assessing the validity of the measures. Costa Rica adds that it would make no sense for the obligation under Article 5.1 to apply to risk assessments, since they would then have to be based in turn on a risk assessment.⁷⁴³

7.120. Costa Rica considers that, under Article 5.1 of the SPS Agreement, risk assessments should be the basis for the measures or the justification on which phytosanitary measures should be based, and that it is clear that "risk assessments" must have an identity and nature that is distinct from the "measures".⁷⁴⁴ In Costa Rica's view, this provision implicitly attributes to risk assessment the nature of a precondition for the adoption of SPS measures.⁷⁴⁵ Costa Rica adds that, pursuant to the other rules of the SPS Agreement, risk assessment occurs prior to the adoption of phytosanitary measures.⁷⁴⁶

7.121. Costa Rica submits that a risk assessment and a phytosanitary measure may be closely linked, but are conceptually and functionally distinct (and separable); and that the risk assessment is the process of searching for information and knowledge, the outcome of which may or may not lead to the adoption of a phytosanitary measure, and the phytosanitary measure is a specific act relating to imports with the explicit purpose of phytosanitary protection.⁷⁴⁷

7.122. According to Costa Rica, risk assessment seeks to identify the risk and determine its magnitude, and is an investigation process, the end result of which must be to obtain particular knowledge, regardless of whether or not a specific protection measure is ultimately taken. Costa Rica states that the phytosanitary measure is a management process aimed at preventing that risk and protecting plants from the consequences associated with its occurrence, hence the phytosanitary measure is defined as a measure "applied" for the protection of the purposes provided for in Annex A(1).⁷⁴⁸

7.123. Costa Rica further notes that WTO Members have consistently understood that risk assessments are not SPS measures within the meaning of paragraph 1 of Annex A to the SPS Agreement, and that it shares this understanding.⁷⁴⁹

7.124. Costa Rica asserts that in order to reach the ultimate finding that a "measure" is inconsistent with Article 5.1 of the SPS Agreement, a panel should first resolve certain intermediate issues; and that if, for example, a panel concludes that the risk assessment is not appropriate (intermediate reasoning), it may then find that the measure is not based on an appropriate risk assessment and is therefore inconsistent with Article 5.1 of the SPS Agreement (ultimate finding).⁷⁵⁰ Costa Rica argues that in no previous dispute under the SPS Agreement has the panel or Appellate Body considered "risk assessments" as measures at issue⁷⁵¹, and neither have they found – in the "Conclusions and recommendations" section of their reports – that a risk assessment is, as such, inconsistent with any provision of the SPS Agreement.⁷⁵²

⁷⁴² Costa Rica's response to Panel question No. 115, para. 22.

⁷⁴³ Costa Rica's response to Panel question No. 115, para. 24.

⁷⁴⁴ Costa Rica's response to Panel question No. 114, para. 14; comments on Mexico's response to Panel question No. 114, paras. 20-21. See also Costa Rica's comments on Mexico's response to Panel question No. 116, para. 27.

⁷⁴⁵ Costa Rica's comments on Mexico's response to Panel question No. 114, paras. 20-21.

⁷⁴⁶ Costa Rica's response to Panel question No. 114, para. 17.

⁷⁴⁷ Costa Rica's response to Panel question No. 121, paras. 39-40; comments on Mexico's response to Panel question No. 122, para. 37.

⁷⁴⁸ Costa Rica's response to Panel question No. 121, para. 39; comments on Mexico's response to Panel question No. 122, para. 37.

⁷⁴⁹ Costa Rica's response to Panel question No. 113, para. 13.

⁷⁵⁰ Costa Rica's comments on Mexico's response to Panel question No. 113, para. 15.

⁷⁵¹ Costa Rica's comments on Mexico's response to Panel question No. 113, para. 13.

⁷⁵² Costa Rica's comments on Mexico's response to Panel question No. 113, para. 19.

7.125. First, the **Panel** observes that Mexico has challenged Reports ARP-002-2017 and ARP-006-2016 as measures at issue, which contain Costa Rica's ASBVd risk assessments with regard, respectively, to the pathway of fresh avocados for consumption from Mexico and to fresh avocado fruit for consumption and avocado plants for planting imported from countries with ASBVd, including Mexico, as well as the recommendations for specific phytosanitary measures to be applied. The core of Mexico's argument regarding whether Reports ARP-002-2017 and ARP-006-2016 constitute a phytosanitary measure within the meaning of paragraph 1 of Annex A to the SPS Agreement is that the risk assessment in those reports is a phytosanitary measure within the meaning of said paragraph.

7.126. The Panel notes that this is the first dispute that addresses the issue of whether a risk assessment may constitute an SPS measure within the meaning of the SPS Agreement. In none of the previous disputes under the SPS Agreement that concerned a risk assessment have the complainants identified the risk assessment as a measure at issue, but rather, they have introduced the risk assessment into the dispute claiming, *inter alia*, that the SPS measure was not based on an assessment, as appropriate to the circumstances, of the risks to human, animal or plant life or health, in accordance with Article 5.1 of the SPS Agreement.⁷⁵³

7.127. As detailed above, "SPS measures relate to a 'protected interest', ... which corresponds to protection against a specific risk, or preventing or limiting damage from certain causes"⁷⁵⁴; that a fundamental element of the definition is that such a measure must be one "applied to protect" at least one of the interests listed in Annex A(1), or "to prevent or limit" damage specified therein⁷⁵⁵; and that Annex A(1) contains objectives introduced with the word "to", which in relation with the infinitive verb "protect" indicates a purpose or intention⁷⁵⁶, and thus establishes "a required link between the measure and the protected interest".⁷⁵⁷

7.128. The Panel also recalls that, in order to determine whether a measure has been "applied to protect" within the meaning of one of the subparagraphs of Annex A(1), a panel must examine not only the stated purposes of the measure, but also the text and structure of the measure, its surrounding regulatory context and the way in which it is designed and applied, and that the scrutiny of such circumstances must reveal "a clear and objective relationship" between the measure and the specific purposes enumerated in that provision.⁷⁵⁸

7.129. The Panel will next consider whether the necessary link exists between Reports ARP-002-2017 and ARP-006-2016 and one of the protected interests enumerated in Annex A(1).

7.130. Reports ARP-002-2017 and ARP-006-2016 indicate that they were prepared, respectively, with the stated purpose of "determining the risk of plant pests associated with the importation of fresh avocado fruit (*Persea americana* Mill.) for human consumption from Mexico"⁷⁵⁹ and of "determining the phytosanitary risk associated with the importation of fresh avocado (*Persea americana* Mill.) fruit for consumption and plants for planting of the same species, from countries where the Avocado sunblotch viroid (ASBVd) pest is present".⁷⁶⁰ Report ARP-002-2017 also states that it begins with a review of a phytosanitary policy, and that the phytosanitary policy reviewed is the one covering the importation into Costa Rica of fresh avocados (*Persea americana* Mill.) for consumption, with the purpose of identifying and evaluating the quarantine pest risk associated with the importation of that product.⁷⁶¹

7.131. As can be seen from their text and structure, Reports ARP-002-2017 and ARP-006-2016 are documents prepared by a risk analyst from the UARP of the SFE of Costa Rica. The reports provide technical and scientific information on the cultivation of avocados and ASBVd, and contain the risk analyst's assessment of the probability of entry, establishment and spread after the establishment

⁷⁵³ See *EC – Hormones, Australia – Salmon, Japan – Agricultural Products II, Japan – Apples, US/Canada – Continued Suspension, Australia – Apples*.

⁷⁵⁴ Appellate Body Report, *Korea – Radionuclides*, para. 5.59. (fn omitted)

⁷⁵⁵ Appellate Body Report, *Australia – Apples*, para. 172.

⁷⁵⁶ Appellate Body Report, *Australia – Apples*, para. 172.

⁷⁵⁷ Appellate Body Report, *Australia – Apples*, para. 172.

⁷⁵⁸ Appellate Body Report, *Australia – Apples*, para. 173; and Panel Report, *Korea – Radionuclides*, para. 7.25.

⁷⁵⁹ ARP-002-2017, (Exhibit MEX-84), p. 3.

⁷⁶⁰ ARP-006-2016, (Exhibit MEX-85), p. 3.

⁷⁶¹ ARP-002-2017, (Exhibit MEX-84), p. 10.

of ASBVd in Costa Rica, and on the potential economic consequences, with regard to the pathway of fresh avocados for consumption from Mexico and of fresh avocado fruit for consumption and avocado plants for planting imported from countries with ASBVd, including Mexico, respectively. The reports also contain a section on risk management, which contains general recommendations for the SFE Directorate, and recommendations on the application of the specific phytosanitary measures that were imposed by Resolutions DSFE-002-2018 and DSFE-003-2018.

7.132. Reports ARP-002-2017 and ARP-006-2016 thus contain technical and scientific information on the cultivation of avocados and ASBVd, the risk assessment for ASBVd, and also recommendations on phytosanitary requirements to be applied as phytosanitary measures, but do not in themselves impose such phytosanitary requirements.

7.133. As noted above, no previous dispute has raised the issue of whether a relationship of the type that exists between the risk assessments contained in Reports ARP-002-2017 and ARP-006-2016 and the protection of avocados from the risks associated with ASBVd could constitute the necessary link between a measure and one of the protected interests listed in Annex A(1), in order that those risk assessments or the reports that contain them can be considered phytosanitary measures within the meaning of paragraph 1 of Annex A to the SPS Agreement.

7.134. In this Panel's view, Reports ARP-002-2017 and ARP-006-2016 are clearly linked to Costa Rica's phytosanitary policy to protect avocados from the risks associated with ASBVd. In this regard, Reports ARP-002-2017 and ARP-006-2016 may be considered as related to the objective of protecting plants (avocados) within Costa Rican territory from risks arising from the entry, establishment or spread of pests, diseases, disease-carrying organisms or disease-causing organisms (ASBVd), which corresponds to paragraph 1(a) of Annex A to the SPS Agreement.

7.135. However, as has been stated, the purpose of the reports is to determine the phytosanitary risk associated with the importation of fresh avocado fruit for consumption and avocado plants for planting. While they recommend measures, their specific purpose is not to, nor can they alone, protect plants (avocados) within Costa Rican territory from risks arising from the entry, establishment or spread of pests, diseases, disease-carrying organisms or disease-causing organisms (ASBVd).

7.136. Reports ARP-002-2017 and ARP-006-2016 do not, by themselves, impose the phytosanitary requirements, which are those that have a clear and objective relationship with the purpose of protecting plants (avocado trees) from risks arising from the entry, establishment or spread of pests, diseases, disease-carrying organisms or disease-causing organisms (ASBVd). In contrast, the relationship between the reports and the stated objective is not obvious.

7.137. This calls into question whether the reports can constitute, by themselves or individually, a measure "to protect" or, more specifically, "to protect plants" within Costa Rican territory against risks arising from the entry, establishment or spread of pests, diseases, disease-carrying organisms or disease-causing organisms, and whether, in this regard, the necessary link exists between the measure and the protected interest, so that it can be considered an SPS measure in accordance with paragraph 1 of Annex A to the SPS Agreement.

7.138. The Panel also notes that the definition of SPS measures in Annex A(1) begins with the phrase "[a]ny measure *applied*" before proceeding with the objectives listed in that provision.

7.139. The Appellate Body in *Australia – Apples* noted that a fundamental element of the definition of "SPS measure" set out in Annex A(1) is that such a measure must be one "applied to protect" at least one of the listed interests or "to prevent or limit" specified damage.⁷⁶² The Appellate Body explained that the word "applied" in the definition of SPS measures points to the application of the measure and, thus, suggests that the relationship of the measure and one of the objectives listed in Annex A(1) "must be manifest in the measure itself or otherwise evident from the circumstances *related to the application of the measure*".⁷⁶³

⁷⁶² Appellate Body Report, *Australia – Apples*, para. 172.

⁷⁶³ Appellate Body Report, *Australia – Apples*, para. 172; and Panel Report, *Korea – Radionuclides*, para. 7.25. (emphasis added)

7.140. The *Diccionario de la lengua española* published by the Real Academia Española defines "aplicar" ("to apply") as "[e]mplear, administrar o poner en práctica un conocimiento, medida o principio, a fin de obtener un determinado efecto o rendimiento en alguien o algo" ("[e]mploying, administering or implementing knowledge, a measure or principle in order to obtain a given effect or output from someone or something").⁷⁶⁴ Considering the previous definition, the Panel agrees with Costa Rica in that, in the context of paragraph 1 of Annex A to the SPS Agreement, the word "apply" means to implement a measure in order to obtain a certain effect.

7.141. Mexico asserts that Costa Rica tries to reduce the meaning of "application" of measures to those that have only tangible effects, but that the nature of the PRAs is precisely that they entail measures implemented in an attempt to justify requirements that restrict, and in the case of Mexico, ban *de facto* the importation of fresh avocados.⁷⁶⁵ The Panel notes that Mexico's assertion refers to its argument that this is an activity specifically designed and undertaken to justify *ex post facto* decisions⁷⁶⁶, or, in other words, that the PRAs justify the phytosanitary requirements *ex post facto*. However, Mexico has not adequately explained or substantiated this assertion.

7.142. In this Panel's view, Reports ARP-002-2017 and ARP-006-2016 are not, in themselves, a measure *applied* to protect in the sense of being implemented in order to have the effect of protecting avocado trees. Costa Rica's risk assessments, which are contained in those reports, do not have any "application" in or a specific effect on the protection of avocado trees. Even though the reports recommend the three alternative phytosanitary requirements, in order to have concrete effects on the protection of avocado trees, those requirements had to be reflected in Resolutions DSFE-002-2018 and DSFE-003-2018.

7.143. Consequently, even though the alternative phytosanitary requirements recommended in the reports, but actually imposed through the resolutions, do constitute phytosanitary measures within the meaning of paragraph 1 of Annex A to the SPS Agreement, the reports are not, by themselves, measures applied to protect, in the sense of having the effect of protecting avocado trees.

7.144. The Panel further notes that Mexico's argument does not focus on the recommendation of the phytosanitary requirements, but rather on the evaluation of the likelihood of entry, establishment and spread contained in these reports constitutes a phytosanitary measure within the meaning of paragraph 1 of Annex A to the SPS Agreement.

7.145. The Panel notes that, in *Australia – Apples*, Australia contended that its individual measures were not SPS measures because they did not require "some action or course of action (including an identifiable omission) that a Member may put into practical operation for the purpose of protecting against some relevant risk".⁷⁶⁷ Australia gave as an example its administrative processes or procedures that, according to Australia, should be seen as ancillary requirements that, considered in isolation and not together with the principal measures, would be meaningless and ineffective for achieving any protection from risk.⁷⁶⁸

7.146. The Appellate Body in that case rejected the distinction between ancillary and principal measures, recalling that it had interpreted the word "measure" in a broad sense; that it had rejected the notion that only certain types of measures could be challenged in dispute settlement proceedings; and that nothing in the text of Annex A(1) suggests a more restrictive interpretation of the word "measure" in the context of the SPS Agreement.⁷⁶⁹

7.147. The Panel agrees with the Appellate Body that the word "measure" must be interpreted broadly, but this does not mean that such measures should not also comply with the specific features of the definition of SPS measures in paragraph 1 of Annex A to the SPS Agreement.

⁷⁶⁴ *Diccionario de la lengua española*, Real Academia Española, accessed 30 November 2021, <https://dle.rae.es/aplicar>.

⁷⁶⁵ Mexico's comments on Costa Rica's response to Panel question No. 115, para. 5.

⁷⁶⁶ Mexico's response to Panel question No. 114, para. 25; comments on Costa Rica's response to Panel question No. 114, para. 3.

⁷⁶⁷ Appellate Body Report, *Australia – Apples*, para. 180.

⁷⁶⁸ Appellate Body Report, *Australia – Apples*, para. 180.

⁷⁶⁹ Appellate Body Report, *Australia – Apples*, para. 181.

7.148. In addition, this Panel notes that Australia submitted that "ancillary" measures are not covered by the definition of SPS measures, since they refer to measures that "support, verify and operationalise" other, principal measures.⁷⁷⁰ The distinction made by Australia was between measures that "actively" reduce risks and measures that do not.⁷⁷¹ The Panel observes that this case involved "activities or requirements, such as administrative processes or procedures that have no operation other than to enhance the efficacy of some active mechanism for protecting animal or plant life or health from risk".⁷⁷² The Appellate Body itself stated that the last sentence of Annex A(1) refers to laws, decrees, regulations, requirements and procedures, in general, without limiting in any sense the scope of these instruments or exempting certain types of measures, and noted that Australia had not objected to the panel's classification of its measures as regulations, requirements or procedures.⁷⁷³

7.149. This Panel is of the view that the situation of a risk assessment is different from that of the activities or requirements analysed in *Australia – Apples*, since such activities or requirements can be implemented in order to obtain a certain effect, and if this effect is to support, verify or make operational certain measures that directly seek to reduce a phytosanitary risk, then these activities or requirements have a clear and objective relationship with the purpose of protecting against the risk under consideration.

7.150. The second sentence of paragraph 1 of Annex A to the SPS Agreement, as explained, states that:

Sanitary or phytosanitary measures include all relevant laws, decrees, regulations, requirements and procedures including, *inter alia*, end product criteria; processes and production methods; testing, inspection, certification and approval procedures; quarantine treatments including relevant requirements associated with the transport of animals or plants, or with the materials necessary for their survival during transport; provisions on relevant statistical methods, sampling procedures and methods of risk assessment; and packaging and labelling requirements directly related to food safety.

7.151. The Appellate Body has stated that the word "relevant" in this second sentence is a reference back to the preceding sentence in Annex A(1), that is, to the list of specific purposes that are the defining characteristic of every SPS measure, and that the words "include" and "all", which also introduce the list of instruments, suggest that the list is both illustrative and expansive. For the Appellate Body, therefore, "taken together, the words 'include' and 'all relevant' ... suggest that measures of a type not expressly listed may nevertheless constitute SPS measures when they are 'relevant', that is, when they are 'applied' for a purpose that corresponds to one of those listed in subparagraphs (a) through (d)."⁷⁷⁴

7.152. Risk assessments are not explicitly mentioned in the list of instruments included in the second sentence of paragraph 1 of Annex A to the SPS Agreement. Although that list refers to relevant risk assessment methods, it does not appear to be concerned with risk assessments prepared for a specific pathway or pathways, unlike Annex A(4), as will be expounded below. However, this would not be decisive, since this is only an indicative list, not a closed one, and measures applied with a purpose corresponding to one of those enumerated in subparagraphs (a) through (d) of the same paragraph would be relevant.

7.153. It is also important to highlight that risk assessment has its own definition in Annex A, "Definitions", paragraph 4, which is separate from the definition of an SPS measure given in paragraph 1 of the same Annex. Despite the extensive list of instruments that can be considered an SPS measure, the inclusion of a specific definition for risk assessment in the "Definitions" section of Annex A calls into question whether a risk assessment is an instrument that could *per se* be considered a phytosanitary measure within the meaning of Annex A(1), and suggests that it is an instrument that is important in the context of the SPS Agreement but distinct from a phytosanitary measure within the meaning of Annex A(1).

⁷⁷⁰ Panel Report, *Australia – Apples*, para. 7.105.

⁷⁷¹ Panel Report, *Australia – Apples*, para. 7.106.

⁷⁷² Appellate Body Report, *Australia – Apples*, para. 180.

⁷⁷³ Appellate Body Report, *Australia – Apples*, para. 181.

⁷⁷⁴ Appellate Body Report, *Australia – Apples*, para. 175.

7.154. Mexico also submits that in previous cases where PRAs have not been identified as measures *per se*, panels and the Appellate Body have made findings on the consistency of these risk analyses with specific provisions of the SPS Agreement⁷⁷⁵, including in *Japan – Apples* and *Australia – Apples*, and points out in particular that the Appellate Body in *Australia – Apples* referred to the panel's finding that the IRA was inconsistent with Article 5.1.⁷⁷⁶

7.155. Costa Rica, for its part, states that under Article 5.1 of the SPS Agreement, if a panel concludes that the risk assessment is not appropriate (intermediate reasoning), it may then find that the measure is not based on a proper risk assessment and is therefore inconsistent with Article 5.1 (ultimate finding).⁷⁷⁷ Costa Rica submits that, however, in no previous dispute under the SPS Agreement has the panel or Appellate Body considered "risk assessments" as measures at issue⁷⁷⁸, or ever found that a risk assessment is, in itself, inconsistent with any provision of the SPS Agreement.⁷⁷⁹

7.156. Without seeking to advance its position with respect to Mexico's substantive claims concerning the risk assessments, the Panel will analyse whether Mexico's above-mentioned assertions that panels and the Appellate Body have made findings on the consistency of PRAs with specific provisions of the SPS Agreement are correct, in particular with Articles 5.1 and 5.2 of the SPS Agreement.

7.157. In *Australia – Apples*, the panel analysed the IRA and found that, with respect to its analysis of the likelihood of entry, establishment and spread of fire blight, European canker and apple leafcurling midge (ALCM) and the potential consequences associated with their entry, establishment or spread in Australia, Australia's IRA was not a "proper" or "appropriate" risk assessment in accordance with the provisions of Article 5.1 and paragraph 4 of Annex A to the SPS Agreement.⁷⁸⁰ The panel indicated that, accordingly, Australia's *requirements* regarding fire blight, European canker and ALCM on New Zealand apples were *inconsistent* with Articles 5.1 and 5.2 of the SPS Agreement.⁷⁸¹

7.158. Furthermore, the panel found that, because of the methodological flaws that magnified the assessment of risk, Australia's IRA was not a proper risk assessment within the meaning of Article 5.1 and paragraph 4 of Annex A to the SPS Agreement. Accordingly it found that, because of these flaws, Australia's *requirements* regarding fire blight and European canker on New Zealand apples were *inconsistent* with Articles 5.1 and 5.2 of the SPS Agreement.⁷⁸² In its conclusions and recommendation, the panel stated that Australia's measures at issue regarding fire blight, European canker and ALCM, as well as the requirements identified by New Zealand as "general" measures that were linked to all three pests at issue in that dispute, were inconsistent with Articles 5.1 and 5.2 of the SPS Agreement.⁷⁸³

7.159. The Appellate Body in *Australia – Apples* referred to the panel's consideration that the faults it found with the IRA's reasoning were numerous and serious enough to render the IRA inconsistent with Article 5.1 of the SPS Agreement.⁷⁸⁴ However, in the same paragraph, the Appellate Body clarified that it was a question of whether a comprehensive analysis of all the steps and factors examined could be sufficient to determine whether various flaws were, when taken together, serious enough "to render a risk assessment one that does not constitute a proper risk assessment within the meaning of Article 5.1 of the SPS Agreement."⁷⁸⁵ This is consistent with the Appellate Body's statement that "the Panel found that the IRA contained certain methodological flaws that magnified the risk assessed and that, because of these flaws, the IRA was not a proper risk assessment within

⁷⁷⁵ Mexico's comments on Costa Rica's response to Panel question No. 112, para. 8.

⁷⁷⁶ Mexico's opening statement at the second meeting of the Panel; response to Panel question No. 113, para. 21 (referring to Appellate Body Report, *Australia – Apples*, para. 258); comments on Costa Rica's response to Panel question No. 113, para. 4.

⁷⁷⁷ Costa Rica's comments on Mexico's response to Panel question No. 113, para. 15.

⁷⁷⁸ Costa Rica's comments on Mexico's response to Panel question No. 113, para. 13.

⁷⁷⁹ Costa Rica's comments on Mexico's response to Panel question No. 113, para. 19.

⁷⁸⁰ Panel Report, *Australia – Apples*, paras. 7.471, 7.778 and 7.886.

⁷⁸¹ Panel Report, *Australia – Apples*, paras. 7.472, 7.779 and 7.887.

⁷⁸² Panel Report, *Australia – Apples*, paras. 7.510 and 7.781.

⁷⁸³ Panel Report, *Australia – Apples*, para. 8.1.

⁷⁸⁴ Appellate Body Report, *Australia – Apples*, para. 258.

⁷⁸⁵ Appellate Body Report, *Australia – Apples*, para. 258.

the meaning of Article 5.1 of the SPS Agreement."⁷⁸⁶ The Appellate Body concluded that the panel did not err in finding that the IRA was not a proper risk assessment within the meaning of Article 5.1 and paragraph 4 of Annex A to the SPS Agreement, and confirmed that Australia's SPS measures were inconsistent with Articles 5.1 and 5.2.⁷⁸⁷

7.160. Similarly, the panel in *Japan – Apples* found that Japan's PRA did not meet the requirements of a risk assessment within the meaning of Article 5.1, as defined in paragraph 4 of Annex A to the SPS Agreement, and that, in light of its finding that Japan's PRA did not amount to a risk assessment within the meaning of Article 5.1, concluded, as a consequence, that Japan's measures were not based on a risk assessment.⁷⁸⁸ The Appellate Body upheld this finding of the panel, stating that, because the PRA was not a risk assessment within the meaning of the SPS Agreement, it followed, as the panel had found, that Japan's phytosanitary measure was not based on a risk assessment as required by Article 5.1 of the SPS Agreement.⁷⁸⁹

7.161. Hence, considering the analysis under Article 5.1 in the aforementioned disputes and in other previous disputes⁷⁹⁰, this Panel agrees with Costa Rica that in no previous dispute under the SPS Agreement has the panel or Appellate Body considered "risk assessments" as measures at issue.⁷⁹¹ This is made more evident when reading Article 5.1 of the SPS Agreement, which provides that "Members shall ensure that their sanitary or phytosanitary measures are based on an assessment, as appropriate to the circumstances, of the risks to human, animal or plant life or health, taking into account risk assessment techniques developed by the relevant international organizations." The question of whether a risk assessment was conducted as required by Article 5.1 of the SPS Agreement is not a question of whether the risk assessment is a phytosanitary measure consistent with said Article.

7.162. The Panel agrees with the interpretation that the definition of "sanitary or phytosanitary measure" within the meaning of paragraph 1 of Annex A to the SPS Agreement should be read in a broad manner, and does not rule out the possibility that an instrument containing a risk assessment may have aspects that would allow it to fall within the definition of an SPS measure. However, in view of all the foregoing, the Panel disagrees with Mexico's argument that Reports ARP-002-2017 and ARP-006-2016, which contain the relevant risk assessments in this dispute, should be considered, individually, as an SPS measure within the meaning of paragraph 1 of Annex A to the SPS Agreement.

7.163. In light of the foregoing, the Panel finds that Mexico has failed to demonstrate that Reports ARP-002-2017 and ARP-006-2016 constitute, individually, phytosanitary measures within the meaning of paragraph 1 of Annex A to the SPS Agreement.

⁷⁸⁶ Appellate Body Report, *Australia – Apples*, para. 255.

⁷⁸⁷ Appellate Body Report, *Australia – Apples*, paras. 261-262.

⁷⁸⁸ Panel Report, *Japan – Apples*, paras. 8.290-8.291.

⁷⁸⁹ Appellate Body Report, *Japan – Apples*, para. 216.

⁷⁹⁰ In *EC – Hormones*, the Appellate Body upheld the panel's conclusion that the import ban was not based on a risk assessment within the meaning of Articles 5.1 and 5.2, and therefore was inconsistent with Article 5.1. (Appellate Body Report, *EC – Hormones*, para. 208).

In *Australia – Salmon*, the Appellate Body stated that the final report (the PRA report) did not constitute a proper risk assessment within the meaning of Article 5.1 and the first definition in Annex A(4), and concluded that the measure at issue, i.e. the import prohibition on fresh, chilled or frozen salmon, was not based on a risk assessment as required by Article 5.1 of the SPS Agreement, and, therefore, that Australia had acted inconsistently with Article 5.1 of the SPS Agreement. (Appellate Body Report, *Australia – Salmon*, paras. 135-136 and 279).

In *Japan – Agricultural Products II*, the Appellate Body observed that the risk assessment did not evaluate the likelihood of entry, establishment or spread of the pest in question according to the SPS measures that might be applied within the meaning of Article 5.1, and concluded that the phytosanitary measure, i.e. the varietal testing requirement, was inconsistent with Article 5.1. (Appellate Body Report, *Japan – Agricultural Products II*, paras. 113-114 and 143).

⁷⁹¹ Costa Rica's comments on Mexico's response to Panel question No. 113, para. 13.

7.2.2.3.2.2 Whether Reports ARP-002-2017 and ARP-006-2016 may, directly or indirectly, affect international trade

7.164. **Mexico** submits that the PRAs affect international trade or, as the case may be, may affect trade directly or indirectly.⁷⁹²

7.165. Mexico states that the PRAs indirectly affect international trade given the close relationship that they have with the phytosanitary requirements imposed by Costa Rica.⁷⁹³ Mexico adds that presuming that the PRAs do not affect trade *per se* would imply believing unduly that they are not subject to the application of the SPS Agreement or that they are not relevant to the present dispute, which according to Mexico is incorrect.⁷⁹⁴

7.166. In its comments on Costa Rica's responses to the Panel's questions following the Panel's second meeting with the parties, Mexico reiterates that the PRAs indirectly affect international trade given their close relationship with phytosanitary requirements, and points out that, to the extent that the PRAs "facilitate" the *ex post* justification of requirements, they indirectly affect international trade.⁷⁹⁵

7.167. Mexico argues that the PRAs constitute an indirect impact on international trade, since they are designed in such a way that the SFE concluded the existence of a risk that was not based on scientific evidence and, therefore, cannot be justifiable. Mexico adds that the PRAs have the potential to affect trade indirectly, since they recommended the implementation of certain requirements and reached conclusions that, when considered by the authority at the moment of defining risk management, hampered international trade, and, in the case of Mexico, banned *de facto* the importation of fresh avocados for consumption. For Mexico, if the risk analyst had not reached the conclusions he did, he would not have made the recommendations to the SFE, which resulted in the entire trade in fresh avocados between Costa Rica and Mexico coming to a halt.⁷⁹⁶

7.168. **Costa Rica**, for its part, asserts that according to the standard of the effect on trade established by Article 1.1 of the SPS Agreement, in the sense of modifying the conditions of competition, Mexico has failed to demonstrate that the risk assessments fulfil this requirement.⁷⁹⁷

7.169. Costa Rica submits that Mexico does not set out why the PRAs, as separate measures, may affect international trade⁷⁹⁸, it has failed to demonstrate that the risk assessments may affect international trade, either directly or indirectly, and has not even attempted to provide some kind of reasoning in this regard.⁷⁹⁹

7.170. Costa Rica states that Mexico recognizes that the PRAs do not affect trade *per se*⁸⁰⁰ and has decided that it does not need to demonstrate the individual impact of the challenged measures, since it considers that all of them operate as an inseparable whole, and that, in any case, the impact of the requirements would satisfy the requirement of impact on trade with respect to the whole.⁸⁰¹

7.171. Costa Rica also states that the risk assessments only reflect processes of consideration; and that, by their very nature, are not likely to affect, directly or indirectly, international trade within the meaning of Article 1.1 of the SPS Agreement.⁸⁰² Costa Rica considers that a risk assessment is not a factor that is likely to undermine competitive opportunities for imports; and that the risk

⁷⁹² Mexico's response to Panel question No. 100, para. 124.

⁷⁹³ Mexico's response to Panel question No. 100, para. 125.

⁷⁹⁴ Mexico's response to Panel question No. 100, para. 125; comments on Costa Rica's response to Panel question No. 117, para. 3.

⁷⁹⁵ Mexico's comments on Costa Rica's response to Panel question No. 117, para. 4.

⁷⁹⁶ Mexico's comments on Costa Rica's response to Panel question No. 117, para. 5.

⁷⁹⁷ Costa Rica's response to Panel question No. 117, para. 34. See also Costa Rica's comments on Mexico's response to Panel question No. 120, para. 36.

⁷⁹⁸ Costa Rica's first written submission, para. 5.2 and fn 94; closing statement at the second meeting of the Panel, para. 1.2.

⁷⁹⁹ Costa Rica's second written submission, para. 2.9; response to Panel question No. 117, para. 32; comments on Mexico's response to Panel question No. 117, para. 29.

⁸⁰⁰ Costa Rica's second written submission, para. 2.9; response to Panel question No. 117, para. 32; comments on Mexico's response to Panel question No. 117, para. 29.

⁸⁰¹ Costa Rica's response to Panel question No. 117, para. 32.

⁸⁰² Costa Rica's response to Panel question No. 112, para. 3.

assessment is an investigative process that ultimately evolves into a report, which does not impose phytosanitary requirements applicable to imports, and hence does not deny opportunities of access to imported products.⁸⁰³

7.172. For Costa Rica, to affect international trade directly or indirectly, a measure must be capable of altering or undermining competitive opportunities for imports, and if, by its nature, a measure does not even have the capacity to cause such changes, it cannot be considered to be a measure that directly or indirectly affects international trade within the meaning of Article 1.1 of the SPS Agreement.⁸⁰⁴

7.173. The **Panel** has found that Mexico has failed to demonstrate that Reports ARP-002-2017 and ARP-006-2016 constitute, individually, phytosanitary measures within the meaning of paragraph 1 of Annex A to the SPS Agreement. While the conditions for the applicability of the SPS Agreement are cumulative, in order to be exhaustive in its analysis, the Panel will address Mexico's arguments as to whether the reports may, directly or indirectly, affect international trade.

7.174. The Panel notes that in previous disputes under the SPS Agreement there has not been much controversy about the condition that SPS measures "may, directly or indirectly, affect international trade", so this phrase has not been discussed extensively by other panels or the Appellate Body.

7.175. The term "affect" has been interpreted in the context of other covered agreements. The Appellate Body has stated that "[t]he ordinary meaning of the word 'affecting' implies a measure that has 'an effect on', which indicates a broad scope of application."⁸⁰⁵ In addition, in the context of Article I:1 of the General Agreement on Trade in Services (GATS), the Appellate Body in *EC – Bananas III* added that "[t]his interpretation is further reinforced by the conclusions of previous panels that the term 'affecting' in the context of Article III of the GATT [1947] is wider in scope than such terms as 'regulating' or 'governing'".⁸⁰⁶ The panel in *China – Publications and Audiovisual Products* considered that "[t]he word 'affecting' covers not only measures which directly regulate or govern the sale of domestic and imported like products, but also measures which create incentives or disincentives with respect to the sale, offering for sale, purchase, and use of an imported product 'affect' those activities."⁸⁰⁷

7.176. The Panel considers that the broad interpretation given to the word "affect" under other covered agreements, in the sense of denoting a measure that has "an effect on", may also be relevant for the purposes of Article 1.1 of the SPS Agreement.⁸⁰⁸

7.177. In Article 1.1 of the SPS Agreement, the term "affect" is accompanied by the words "may" and "directly or indirectly". The *Diccionario de la lengua española* of the Real Academia Española defines "*poder*" ("be able to") as "*tener expedita la facultad o potencia de hacer algo*" ("have the ready ability or power to do something") or "*ser contingente o posible que suceda algo*" ("be conceivable or possible that something happens")⁸⁰⁹, and "*indirectamente*" ("indirectly") as "*que no*

⁸⁰³ Costa Rica's response to Panel question No. 117, para. 33.

⁸⁰⁴ Costa Rica's comments on Mexico's response to Panel question No. 117, para. 28.

⁸⁰⁵ Appellate Body Reports, *EC – Bananas III*, para. 220 (in the context of Article I:1 of the General Agreement on Trade in Services (GATS)); and *US – FSC (Article 21.5 – EC)*, paras. 209-210 (in the context of Article III:4 of the GATT 1994).

⁸⁰⁶ Appellate Body Report, *EC – Bananas III*, para. 220 (referring to Panel Reports, *EC – Bananas III (Ecuador)*; *EC – Bananas III (Mexico)*; and *EC – Bananas III (US)*, para. 7.281).

⁸⁰⁷ Panel Report, *China – Publications and Audiovisual Products*, para. 7.1450.

⁸⁰⁸ While the Panel is mindful that caution must be exercised when referring to similar words and phrases in other provisions of the covered agreements for the purpose of determining the meaning of a particular word or phrase, this Panel agrees with the panel in *Australia – Apples* that, because Annex A(1) to the SPS Agreement and, in the present case, Article III:4 of the GATT 1994 and Article I:1 of the GATS form part of the same treaty by virtue of Article II:2 of the WTO Agreement, each constitutes context relevant to the interpretation of the others. (Appellate Body Report, *Australia – Apples*, fn 285 to para. 173).

⁸⁰⁹ *Diccionario de la lengua española*, Real Academia Española, accessed 30 November 2021, <https://dle.rae.es/poder>. The English version of the SPS Agreement uses the term "may", which is defined as "have the ability or power to", "have the possibility, opportunity, or suitable conditions to; be likely to". (*The Shorter Oxford English Dictionary*, A. Stevenson (ed.), Oxford University Press, 2007, Vol. II). The French version uses the phrase "*peuvent, directement ou indirectement, affecter le commerce international*".

va rectamente a un fin, aunque se encamine a él" ("that does not go straight to an end, although it points to it").⁸¹⁰

7.178. As has been explained, the panel in *Korea – Radionuclides* interpreted the word "may" as "have the potential to", stating that for the SPS Agreement to be applicable to an SPS measure, the measure "*must have the potential* to affect international trade, directly or indirectly".⁸¹¹ This Panel agrees with this interpretation.

7.179. This Panel considers that the terms "may affect" and "directly or indirectly" indicate that this second condition for the applicability of the SPS Agreement could encompass a broad range of potential effects on international trade. However, in this Panel's view, in order to give meaning to the second condition for the applicability of the SPS Agreement, the complainant must demonstrate that there is some potential or possibility for the SPS measure to exert an effect, directly or indirectly, on international trade. For this reason, the Panel will examine whether Mexico has demonstrated that Reports ARP-002-2017 and ARP-006-2016 have the potential to produce an effect, either directly or indirectly, on international trade.⁸¹²

7.180. It should be noted that there is no need to demonstrate actual effects on international trade. In this regard, this Panel agrees with the panel in *EC – Approval and Marketing of Biotech Products* that "it is not necessary to demonstrate that an SPS measure has *an actual effect* on trade."⁸¹³

7.181. As the Panel noted in paragraph 7.102 above, the phytosanitary requirements set forth in Resolutions DSFE-002-2018 and DSFE-003-2018 constitute a condition for importing avocados into Costa Rica from countries where ASBVd is present, including Mexico, and Resolutions DSFE-002-2018 and DSFE-003-2018 have altered or modified the import conditions for avocados, thus they have had an effect on international trade and, therefore, may affect international trade within the meaning of Article 1.1 of the SPS Agreement.

7.182. The Panel notes that Mexico's argument that Reports ARP-002-2017 and ARP-006-2016 indirectly affect international trade is based on the relationship between these reports and Resolutions DSFE-002-2018 and DSFE-003-2018. In other words, the effects on international trade to which Mexico refers arise from the phytosanitary requirements actually imposed by Resolutions DSFE-002-2018 and DSFE-003-2018.

7.183. In this Panel's view, throughout the proceedings, Mexico referred to the relationship between Reports ARP-002-2017 and ARP-006-2016 and Resolutions DSFE-002-2018 and DSFE-003-2018, but failed to explain how the relationship between said resolutions and the reports implies that Reports ARP-002-2017 and ARP-006-2016 may in themselves, or individually, have any effect on international trade, even indirectly.

7.184. At its last opportunity in the proceedings, Mexico argued that the PRAs indirectly affect international trade given the close relationship between them and the phytosanitary requirements, stating that, to the extent that the PRAs "facilitate" the *ex post* justification of the requirements, they indirectly affect international trade.⁸¹⁴ However, Mexico has failed to adequately explain or substantiate its assertion that the PRAs facilitate the *ex post* justification of the requirements.

7.185. Also at its last opportunity in the proceedings, Mexico argued that the PRAs constitute an indirect effect on international trade, since they are designed in such a way that the SFE concluded the existence of a risk that was not based on scientific evidence and, therefore, cannot be justifiable.⁸¹⁵

7.186. The Panel considers that the question of whether the phytosanitary requirements are based on scientific evidence is an issue relating to the consistency of the phytosanitary measures with the

⁸¹⁰ *Diccionario de la lengua española*, Real Academia Española, accessed 30 November 2021, <https://dle.rae.es/indirecto>.

⁸¹¹ Panel Report, *Korea – Radionuclides*, para. 7.22. (emphasis added)

⁸¹² Panel Reports, *Korea – Radionuclides*, para. 7.22; *EC – Hormones (Canada)*, para. 8.39; *EC – Hormones (US)*, para. 8.36; and *EC – Approval and Marketing of Biotech Products*, para. 7.2554.

⁸¹³ Panel Report, *EC – Approval and Marketing of Biotech Products*, para. 7.435. (emphasis added)

⁸¹⁴ Mexico's comments on Costa Rica's response to Panel question No. 117, para. 4.

⁸¹⁵ Mexico's comments on Costa Rica's response to Panel question No. 117, para. 5.

relevant obligations of Articles 5 and 2.2 of the SPS Agreement, and not to the applicability of the Agreement to a measure. The Panel will conduct the relevant analysis by addressing Mexico's claims in the context of these Articles.

7.187. In certain situations, it may be necessary to analyse some elements relating to the examination of the consistency of a measure at issue with the provisions of one of the covered agreements invoked at an early stage of the Panel's analysis in which the measures at issue are determined.⁸¹⁶ In this case, the Panel does not consider it appropriate to address prematurely Mexico's questioning of the scientific basis for the risk assessments, as this does not answer the question of whether the reports can, individually, exert any effect on international trade.

7.188. Mexico also added at its last opportunity in the proceedings that the PRAs have the potential to affect trade indirectly, since they recommended the implementation of certain requirements and reached conclusions that, when considered by the authority at the moment of defining risk management, hampered international trade and, in the case of Mexico, banned *de facto* the importation of fresh avocados for consumption. Mexico asserts that if the risk analyst had not reached the conclusions he did, he would not have made the recommendations to the SFE, which resulted in the entire trade in fresh avocados between Costa Rica and Mexico coming to a halt.⁸¹⁷

7.189. The Panel disagrees with Mexico's argument. The Panel considers that, even though the reports recommend the three alternative phytosanitary requirements, such reports do not, by themselves, individually, have the potential to affect, directly or indirectly, international trade, which Resolutions DSFE-002-2018 and DSFE-003-2018 do and through which the recommended phytosanitary requirements were actually imposed.

7.190. Even though the alternative phytosanitary requirements recommended in the reports and actually imposed through the resolutions did affect international trade, the reports were unable individually in themselves to have an impact on international trade, either directly or indirectly.

7.191. While it may be true that if the risk analyst had not reached the conclusions that he in fact reached, he would not have made the recommendations of the three alternative requirements, it is also true that, without the imposition of Resolutions DSFE-002-2018 and DSFE-003-2018, these recommendations would have remained mere recommendations.

7.192. The Panel considers that the impact on international trade that Mexico has referred to during the proceedings stems from the imposition of the phytosanitary requirements through the resolutions, and not from the completion or issuance of the reports with the recommendations made by the risk analyst. Even if the recommendations presented in the reports were taken into account when determining the requirements to be imposed, these reports, by themselves or individually, did not have any effect on international trade. Without any other action being taken, i.e. the imposition of the phytosanitary requirements at issue in this dispute through the resolutions, there would be no effect, direct or indirect, on international trade, even with the existence of the reports.

7.193. While this Panel does not rule out the possibility of reports existing that contain risk assessments with aspects that may affect, directly or indirectly, international trade, the Panel considers that Mexico has failed to demonstrate that Reports ARP-002-2017 and ARP-006-2018 may individually affect international trade, even indirectly.

⁸¹⁶ Such a situation arose in *Russia – Railway Equipment*, in which the existence of an overarching unwritten and systematic measure was being discussed. The Appellate Body stated that the rationale behind the suspensions and rejections of imports of railway products related to the impossibility for the relevant organization (FBO) to assess conformity of the complainant's railway products with the respondent's relevant technical regulations due to the security situation in the complainant's territory. The Appellate Body considered that the panel had examined the consistency of components of the alleged measure (with the Agreement on Technical Barriers to Trade (TBT Agreement)) only insofar as the justification underlying their consistency would lead to the conclusion that these decisions were taken independently of each other. The Appellate Body said that the panel's focus on the rationale underlying the instructions and decisions formed an important part of its analysis as to the existence of the unwritten measure in the particular circumstances of the case, in addition to the complainant's description of the alleged measure as one that contained in itself an element of inconsistency. (Appellate Body Report, *Russia – Railway Equipment*, paras. 5.240 and 5.242).

⁸¹⁷ Mexico's comments on Costa Rica's response to Panel question No. 117, para. 5.

7.194. In view of the foregoing, the Panel therefore finds that Mexico has failed to demonstrate that Reports ARP-002-2017 and ARP-006-2016 may by themselves, individually, affect, directly or indirectly, international trade, and so Mexico has failed to demonstrate that these reports fulfil the condition of Article 1.1 of the SPS Agreement for the provisions of the SPS Agreement to be applicable to them as individual SPS measures.

7.2.2.3.2.3 Conclusion regarding Reports ARP-002-2017 and ARP-006-2016

7.195. The Panel has found that Mexico has failed to demonstrate that Reports ARP-002-2017 and ARP-006-2016 constitute, individually, SPS measures in accordance with the definition in Annex A(1); and that Mexico has also failed to demonstrate that said reports may individually affect, directly or indirectly, international trade within the meaning of Article 1.1 of the SPS Agreement. In light of the foregoing, the Panel concludes that Mexico has failed to demonstrate that Reports ARP-002-2017 and ARP-006-2016 are SPS measures to which, individually, the SPS Agreement is applicable.

7.2.2.3.3 Manual NR-ARP-PO-01_M-01

7.2.2.3.3.1 Whether Manual NR-ARP-PO-01_M-01 is an SPS measure pursuant to paragraph 1 of Annex A to the SPS Agreement

7.196. **Mexico** claims that Manual NR-ARP-PO-01_M-01 is a phytosanitary measure pursuant to paragraph 1 of Annex A to the SPS Agreement.⁸¹⁸

7.197. Mexico states that the manual, as the instrument from which the other measures derive, pursues the objective set out in subparagraph (a), i.e. it is an instrument designed to protect plant life or health within Costa Rica's territory from risks arising from the entry, establishment or spread of pests.⁸¹⁹ Mexico also claims that the manual may be classified as a "method of risk assessment" because it was developed to guide the risk analyst in conducting a PRA.⁸²⁰ According to Mexico, the manual falls within one of the categories of measures listed in the last part of paragraph 1 of Annex A to the SPS Agreement and is applied to protect plant life or health, which means that there is a link between the nature of the measure and its objective.⁸²¹

7.198. Mexico states that the manual is an instrument developed by the government itself and applied by the SFE⁸²² to protect the objective described in Annex A(1)(a), and that this instrument was used specifically to attempt to justify requirements that restrict, and in the case of Mexico, prohibit *de facto* the importation of fresh avocados for consumption, without there being sufficient scientific evidence to conclude that a risk exists.⁸²³ Mexico adds that the manual affected the risk analyst's assessment and reasoning, and was designed so that the PRAs would come to pre-determined conclusions that would justify the imposition of trade-restrictive measures.⁸²⁴

7.199. **Costa Rica**, for its part, does not consider Manual NR-ARP-PO-01_M-01 to be a phytosanitary measure within the meaning of Annex A(1).⁸²⁵

7.200. Costa Rica asserts that the manual is a regulatory framework in the abstract intended to guide the work of a risk analyst where a risk analysis is required for a particular case, but that it does not constitute a phytosanitary measure. Costa Rica adduces that it is not a measure "applied" to protect a phytosanitary interest against a specific risk arising from imports, and does not constitute *per se* a measure that affects imports in the way that a risk management measure does.⁸²⁶

⁸¹⁸ Mexico's response to Panel question No. 120, para. 46.

⁸¹⁹ Mexico's response to Panel question No. 120, para. 48.

⁸²⁰ Mexico's first written submission, para. 136; response to Panel question No. 120, para. 49.

⁸²¹ Mexico's first written submission, para. 136.

⁸²² Mexico's response to Panel question No. 120, para. 51; comments on Costa Rica's response to Panel question No. 120, para. 1.

⁸²³ Mexico's comments on Costa Rica's response to Panel question No. 120, para. 1.

⁸²⁴ Mexico's comments on Costa Rica's response to Panel question No. 120, para. 2.

⁸²⁵ Costa Rica's response to Panel question No. 119, para. 37; comments on Mexico's response to Panel question No. 118, para. 30; comments on Mexico's response to Panel question No. 119, para. 33.

⁸²⁶ Costa Rica's response to Panel question No. 120, para. 38; comments on Mexico's response to Panel question No. 120, para. 35.

According to Costa Rica, the "purpose" of the manual is not to protect as such, but instead to guide the analyst in preparing PRAs.⁸²⁷

7.201. Costa Rica expresses serious doubts that the phrase "provisions on relevant statistical methods, sampling procedures and methods of risk assessment", contained in the second paragraph of paragraph 1 of Annex A to the SPS Agreement, is referring to manuals used internally to prepare PRAs. Costa Rica notes that all the procedures listed in this paragraph cover aspects relating to the application or management of SPS measures once they are adopted, and not aspects relating to the assessment process that takes place beforehand to determine whether or not a particular risk exists in the first place.⁸²⁸

7.202. The **Panel** will analyse below whether the required link exists between Manual NR-ARP-PO-01_M-01 and one of the protected interests listed in Annex A(1). Accordingly, the Panel recalls that it must examine not only the stated objectives of the measure, but also the text and structure of the measure, its surrounding regulatory context and the way in which it is designed and applied, and that scrutiny of these circumstances must reveal "a clear and objective relationship" between the measure and the specific purposes enumerated in Annex A(1).⁸²⁹

7.203. Mexico has identified that the manual's purpose is that set out in Annex A(1)(a), i.e. to protect plant life or health within the territory of the Member from risks arising from the entry, establishment or spread of pests, diseases, disease-carrying organisms or disease-causing organisms.

7.204. Manual NR-ARP-PO-01_M-01 is described as a guide for determining PRA procedures⁸³⁰, the purpose of which is to "[g]uide risk analysts in conducting a PRA, through an assessment of the available scientific evidence that would enable them to determine whether an organism is a regulated pest, to evaluate its risk and to identify risk management options, in compliance with the Phytosanitary Protection Law and international standards".⁸³¹ The manual also states that it "applies to all Risk Analysis Unit officials when conducting qualitative pest analyses by entry pathway".⁸³²

7.205. According to its content, Manual NR-ARP-PO-01_M-01 lays down the structure for PRAs and guides risk analysts through their analysis of the three PRA stages: initiation, pest risk assessment and pest risk management. The manual sets out the considerations to be taken into account by the analyst at each stage, as well as the elements to be included in the analysis of the probability of pest introduction and spread for quarantine pests, and the probabilities values to be assigned to the risk factors according to the given criteria, in order to obtain a final score and establish a risk rating. The manual is of a general nature and is applicable to any organism or pathway. The manual contains the methodology used to prepare the risk assessments contained in Reports ARP-002-2017 and ARP-006-2016.

7.206. Based on the foregoing, the Panel notes that the manual provides the risk analyst with instructions for preparing any qualitative pest analysis in Costa Rica. While it does form part of the regulatory system for phytosanitary matters in Costa Rica, the manual is solely a guide to be used by the risk analyst to prepare a PRA. This manual is not therefore a requirement or procedure that seeks in itself to protect plant life or health within Costa Rica's territory from any specific risk, within the meaning of Annex A(1)(a). Instead, it is an instrument that guides the risk analyst in the process of identifying and assessing such a risk.

7.207. In the view of this Panel, the manual is linked to Costa Rica's overall phytosanitary policy, and may be considered as being generally related to Costa Rica's objective of or interest in protecting plant life or health within Costa Rica's territory from risks arising from the entry, establishment or spread of pests, diseases, disease-carrying organisms or disease-causing organisms, which corresponds to paragraph 1(a) of Annex A to the SPS Agreement.

⁸²⁷ Costa Rica's comments on Mexico's response to Panel question No. 120, para. 35.

⁸²⁸ Costa Rica's comments on Mexico's response to Panel question No. 120, para. 34.

⁸²⁹ Appellate Body Report, *Australia – Apples*, para. 173; and Panel Report, *Korea – Radionuclides*, para. 7.25.

⁸³⁰ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 1.

⁸³¹ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 1.

⁸³² Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 1.

7.208. However, the purpose of the manual is to guide the risk analyst in preparing phytosanitary PRAs, and, in turn, that of the PRAs is to determine a specific phytosanitary risk. The manual neither specifically seeks nor is able by itself to protect plant life or health, including of avocados, within Costa Rica's territory from risks arising from the entry, establishment or spread of pests, diseases, disease-carrying organisms or disease-causing organisms.

7.209. The foregoing calls into question whether the manual may constitute, in itself or individually, a measure "to protect" or, more specifically, "to protect ... plant life or health" in Costa Rica's territory from risks arising from the entry, establishment or spread of pests, diseases, disease-carrying organisms and disease-causing organisms, and whether, as a result, there exists the link between the measure and the protected interest that is required for the manual to be considered as an SPS measure pursuant to paragraph 1 of Annex A to the SPS Agreement.

7.210. With respect to the manual's purpose, in its last opportunity to do so in these proceedings, Mexico argues that the manual is an instrument that was used specifically to attempt to justify requirements that restrict the importation of fresh avocados for consumption.⁸³³ Mexico adds that the manual affected the risk analyst's assessment and reasoning, and was designed so that PRAs would come to pre-determined conclusions that would justify the imposition of trade-restrictive measures.⁸³⁴ However, Mexico does not adequately explain or substantiate how the manual was used to attempt to justify requirements that restrict the importation of fresh avocados for consumption, how it was designed so that Reports ARP-002-2017 and ARP-006-2016 would come to pre-determined conclusions that justified the imposition of trade-restrictive measures, or how this demonstrates a clear and objective relationship with the purpose of protecting plant life or health within the meaning of Annex A(1)(a).

7.211. As explained, the definition of an SPS measure in Annex A(1) begins with the phrase "[a]ny measure *applied*", and, in the context of this paragraph, the word "apply" may be interpreted as implementing a measure to obtain a certain effect.

7.212. In the view of this Panel, the manual is not in itself a measure *applied* to protect in the sense of producing as an effect the protection of plant life or health, including avocados. The manual contains the methodology for preparing PRAs and may be considered to be "applied" when the PRA is being prepared, but it does not have an "application" pertaining to or a specific effect on the protection of plant life or health.

7.213. The text of the second sentence of paragraph 1 of Annex A to the SPS Agreement includes "relevant ... methods of risk assessment" as an example of an SPS measure. Mexico claims that the manual may be classified as a "method of risk assessment" because it was developed to guide the risk analyst when conducting a PRA.⁸³⁵ Costa Rica expresses serious doubts that the phrase "provisions on relevant statistical methods, sampling procedures and methods of risk assessment" is referring to manuals used internally to prepare PRAs, and notes that all the procedures listed in Annex A(1) cover aspects relating to the application or management of SPS measures once they are adopted, and not aspects relating to the assessment process that takes place beforehand to determine whether or not a particular risk exists in the first place.⁸³⁶

7.214. The Panel recalls that, in *Australia – Apples*, the Appellate Body noted that "the fact that an instrument is of a type listed in the last sentence of Annex A(1) is not, in itself, sufficient to bring such an instrument within the ambit of the SPS Agreement."⁸³⁷ The illustrative list provides examples of "different types of measures that, when they exhibit the appropriate nexus to one of the specified purposes, will constitute SPS measures".⁸³⁸ Although Manual NR-ARP-PO-01_M-01, which serves as a guide for preparing PRAs, could fall within the methods of risk assessment category, the Panel does not consider that Mexico has demonstrated that the manual has an "application" pertaining to or a specific effect on the protection of plant life or health, which, in other words, is the required link between the measure and the protected interest.

⁸³³ Mexico's comments on Costa Rica's response to Panel question No. 120, para. 1.

⁸³⁴ Mexico's comments on Costa Rica's response to Panel question No. 120, para. 2.

⁸³⁵ Mexico's first written submission, para. 136; response to Panel question No. 120, para. 49.

⁸³⁶ Costa Rica's comments on Mexico's response to Panel question No. 120, para. 34.

⁸³⁷ Appellate Body Report, *Australia – Apples*, para. 175; Panel Report, *US – Animals*, para. 7.32.

⁸³⁸ Appellate Body Report, *Australia – Apples*, para. 176.

7.215. The Panel reiterates its agreement that the definition of "sanitary and phytosanitary measure" within the meaning of paragraph 1 of Annex A to the SPS Agreement should be read broadly, and does not rule out that an instrument such as an internal manual may present aspects that mean it may be covered by the definition of an SPS measure. However, the Panel does not consider that Mexico has substantiated its argument that Manual NR-ARP-PO-01_M-01 should individually be considered as an SPS measure within the meaning of paragraph 1 of Annex A to the SPS Agreement.

7.216. As has been explained, a determining factor for a measure to constitute an SPS measure as defined in paragraph 1 of Annex A to the SPS Agreement is whether the measure shows the required link with one of the purposes specified in the paragraph. The Panel does not consider that Mexico has demonstrated that the manual is applied for one of the purposes listed in Annex A(1). Accordingly, the Panel finds that Mexico has failed to demonstrate that Manual NR-ARP-PO-01_M-01 is, individually, an SPS measure pursuant to the definition in that paragraph.⁸³⁹

7.2.2.3.3.2 Whether Manual NR-ARP-PO-01_M-01 may, directly or indirectly, affect international trade

7.217. **Mexico** argues that Manual NR-ARP-PO-01_M-01 affects international trade, or, as the case may be, may directly or indirectly affect trade.⁸⁴⁰

7.218. Mexico notes that the manual indirectly affects international trade due to its close relationship with the phytosanitary requirements imposed by Costa Rica.⁸⁴¹ Mexico adds that assuming that the Manual does not affect trade *per se* would imply believing unduly that it is not subject to the application of the SPS Agreement or that it has no relevance for this dispute, which in Mexico's view is incorrect.⁸⁴²

7.219. In its comments on Costa Rica's responses to the Panel's questions following the second meeting of the Panel with the parties, Mexico reiterates that the manual indirectly affects international trade due to its close relationship with the phytosanitary requirements. Mexico also notes that the manual indirectly affects international trade insofar as it facilitates the *ex post* justification of these requirements.⁸⁴³

7.220. Mexico also argues that, by preparing a simplified manual, Costa Rica's objective was to control the risk assessor's judgement, which would ensure that the assessor, when preparing the PRAs, would simplify his or her judgements on the evidence, the quality of the evidence, the level of uncertainty and the acceptability of the risks. According to Mexico, this meant that the PRAs could, in a preconceived manner, establish a risk that would otherwise be unjustifiable. Mexico states that if the 2016 manual had not been prepared with this characteristic (simplified), the risk assessor would not have concluded in the PRAs that there was a high risk; that the manual resulted in the preparation of an inadequate PRA that led to the implementation of requirements that affected international trade in fresh avocados for consumption between Mexico and Costa Rica; and that the impact of the manual's application extends to the SFE's resolutions, which is why, according to Mexico, the manual has an indirect effect on international trade.⁸⁴⁴

⁸³⁹ The Panel would like to clarify that its conclusion that Mexico has failed to demonstrate that Manual NR-ARP-PO-01_M-01 individually constitutes an SPS measure as defined in paragraph 1 of Annex A to the SPS Agreement is limited to the particular circumstances of this dispute, including the way in which Mexico has presented its case in that regard. In addition, as the Panel has found, this manual is clearly covered by the broad definition of what may constitute a "measure" for the purposes of the WTO dispute settlement system. With regard to this broad definition, in *US – Zeroing (EC)*, for example, the parties agreed that the United States' Anti-Dumping Manual was a measure for the purposes of a WTO dispute.

⁸⁴⁰ Mexico's response to Panel question No. 100, para. 124.

⁸⁴¹ Mexico's response to Panel question No. 100, para. 125.

⁸⁴² Mexico's response to Panel question No. 100, para. 125; comments on Costa Rica's response to Panel question No. 117, para. 3.

⁸⁴³ Mexico's comments on Costa Rica's response to Panel question No. 117, para. 4.

⁸⁴⁴ Mexico's comments on Costa Rica's response to Panel question No. 117, para. 6.

7.221. **Costa Rica**, for its part, states that, under the standard of Article 1.1 of the SPS Agreement that a measure must affect trade in the sense that it modifies the conditions of competition, Mexico has failed to demonstrate that Manual NR-ARP-PO-01_M-01 satisfies this requirement.⁸⁴⁵

7.222. Costa Rica claims that Mexico has failed to demonstrate that the manual may affect international trade as a separate measure⁸⁴⁶, either directly or indirectly, and has not even attempted to provide some kind of reasoning in this regard.⁸⁴⁷

7.223. Costa Rica notes that Mexico recognizes that the manual does not affect trade *per se*⁸⁴⁸ and has decided that it does not need to demonstrate the individual impact of the measures at issue because it considers that all of these measures operate as an inseparable whole, and that, in any case, the impact of the requirements would satisfy the stipulation that trade be affected with respect to the measures as a whole.⁸⁴⁹

7.224. Costa Rica also notes that the manual merely reflects methodological and bureaucratic guidelines, and that, by its very nature, it is not likely to affect, directly or indirectly, international trade within the meaning of Article 1.1 of the SPS Agreement.⁸⁵⁰ Costa Rica asserts that the manual is a set of guidelines designed to standardize, improve and provide guidance for the proper conduct of risk assessments, and is neutral as regards the product (containing no references to ASBVd or any other pest) and the origin of the goods. It does not provide for any impact on imports and is therefore incapable, in itself, of giving rise to a risk of imports being affected.⁸⁵¹ According to Costa Rica, to affect international trade directly or indirectly, a measure must be capable of altering or undermining competitive opportunities for imports, and if, by its nature, a measure does not even have the capacity to cause such changes, it cannot be considered to be a measure that directly or indirectly affects international trade within the meaning of Article 1.1 of the SPS Agreement.⁸⁵²

7.225. The **Panel** has found that Mexico has failed to demonstrate that Manual NR-ARP-PO-01_M-01 is, individually, an SPS measure pursuant to that definition. While the conditions for the applicability of the SPS Agreement are cumulative, in order to be exhaustive in its analysis, the Panel will address Mexico's arguments as to whether the manual may, directly or indirectly, affect international trade.

7.226. The Panel notes that Mexico puts forward arguments on the effect on international trade of Manual NR-ARP-PO-01_M-01 that are very similar to those that it presented in relation to Reports ARP-002-2017 and ARP-006-2016.

7.227. Mexico's argument that the manual indirectly affects international trade is based on the relationship between this manual and Resolutions DSFE-002-2018 and DSFE-003-2018. In other words, the effects on international trade to which Mexico refers in relation to the manual stem from the phytosanitary requirements actually imposed by the resolutions.

7.228. In the view of this Panel, throughout the proceedings, Mexico referred to the relationship between the manual and Resolutions DSFE-002-2018 and DSFE-003-2018, but failed to explain how this relationship means that the manual may by itself have some effect on international trade, even indirectly.

7.229. Mexico argues that, by preparing a simplified manual, Costa Rica's objective was to control the risk analyst's judgement, which would ensure that the assessor, when preparing the PRAs, would simplify his or her judgements on the evidence, the quality of the evidence, the level of uncertainty and the acceptability of the risks. According to Mexico, this meant that the PRAs could, in a

⁸⁴⁵ Costa Rica's response to Panel question No. 117, para. 34. See also Costa Rica's comments on Mexico's response to Panel question No. 120, para. 36.

⁸⁴⁶ Costa Rica's first written submission, para. 5.2 and fn 94; closing statement at the second meeting of the Panel, para. 1.2.

⁸⁴⁷ Costa Rica's second written submission, para. 2.9; response to Panel question No. 117, para. 32; comments on Mexico's response to Panel question No. 117, para. 29.

⁸⁴⁸ Costa Rica's second written submission, para. 2.9; response to Panel question No. 117, para. 32; comments on Mexico's response to Panel question No. 117, para. 29.

⁸⁴⁹ Costa Rica's response to Panel question No. 117, para. 32.

⁸⁵⁰ Costa Rica's response to Panel question No. 112, para. 3.

⁸⁵¹ Costa Rica's response to Panel question No. 117, para. 33.

⁸⁵² Costa Rica's comments on Mexico's response to Panel question No. 117, para. 28.

preconceived manner, establish a risk that would otherwise be unjustifiable.⁸⁵³ However, Mexico fails to adequately explain the relevance of, or substantiate, its assertions that "Costa Rica's objective was [for the manual] to control the risk assessor's judgement" and that "the PRAs could, in a preconceived manner, establish a risk that would otherwise be unjustifiable".

7.230. Mexico also states that the manual resulted in the preparation of an inadequate PRA that led to the implementation of requirements that affected international trade in fresh avocados for consumption between Mexico and Costa Rica, and that the impact of the manual's application extends to the SFE's resolutions, which is why, according to Mexico, the manual has an indirect effect on international trade.⁸⁵⁴ The Panel considers, however, that the effect on international trade to which Mexico refers stems from the imposition of the phytosanitary requirements through the resolutions, and Mexico fails to adequately explain or substantiate what the effects on international trade are as a result of applying the manual and how these effects on international trade extend to the resolutions.

7.231. In light of the foregoing and in the view of this Panel, Mexico has failed to demonstrate how the manual in itself may, individually, affect international trade. While this Panel does not rule out the possibility that a manual presenting aspects that may, directly or indirectly, affect international trade exists, the Panel considers that Mexico has failed to demonstrate that Manual NR-ARP-PO-01_M-01 by itself may, individually, affect international trade, even indirectly.

7.232. The Panel therefore concludes that Mexico has failed to demonstrate that Manual NR-ARP-PO-01_M-01 may, individually, affect, directly or indirectly, trade, and has therefore failed to demonstrate that this manual satisfies the condition of Article 1.1 of the SPS Agreement in order for the provisions of the SPS Agreement to be applicable to it as an individual phytosanitary measure.

7.2.2.3.3 Conclusion on Manual NR-ARP-PO-01_M-01

7.233. The Panel has found that Mexico has failed to demonstrate that Manual NR-ARP-PO-01_M-01 constitutes, individually, an SPS measure as defined in Annex A(1); and that Mexico has also failed to demonstrate that said manual may, individually, affect, directly or indirectly, international trade within the meaning of Article 1.1 of the SPS Agreement. In view of the foregoing, the Panel concludes that Mexico has failed to demonstrate that Manual NR-ARP-PO-01_M-01 is an SPS measure to which the SPS Agreement applies individually.

7.2.2.4 Whether the Panel will analyse jointly the measures identified by Mexico

7.234. **Mexico** argues that the measures' close relationship means that they must be analysed jointly as well as individually⁸⁵⁵, and notes that the Panel's conclusions and findings must refer to the measures jointly because they operate as an inseparable whole.⁸⁵⁶

7.235. Mexico states that the requirements contained in Resolutions DSFE-002-2018 and DSFE-003-2018, the Reports ARP-002-2017 and ARP-006-2016, and the methodology contained in Manual NR-ARP-PO-01_M-01 jointly constitute restrictions on the importation of fresh avocados for consumption from Mexico.⁸⁵⁷

7.236. Mexico points out that a measure may comprise more than one instrument and that, in this case, the resolutions establish the phytosanitary requirements, the PRAs set out the alleged reasoning for recommending such requirements, and the manual guides the risk analyst in preparing these PRAs. Mexico adds that the resolutions expressly refer to the PRAs, which, in turn, cite the manual as the source based on which they were prepared, and that each instrument cannot be understood in isolation or separately.⁸⁵⁸

⁸⁵³ Mexico's comments on Costa Rica's response to Panel question No. 117, para. 6.

⁸⁵⁴ Mexico's comments on Costa Rica's response to Panel question No. 117, para. 6.

⁸⁵⁵ Mexico's response to Panel question No. 99, para. 116; second written submission, para. 7.

⁸⁵⁶ Mexico's second written submission, para. 7.

⁸⁵⁷ Mexico's first written submission, paras. 93-94; response to Panel question No. 99, para. 116.

⁸⁵⁸ Mexico's response to Panel question No. 99, para. 115.

7.237. Mexico argues that the measures must be assessed as a whole because of their design and functionality, since many of the elements of the measures are interrelated and can be mutually justified, and the inconsistency of any of the measures individually with the provisions of the SPS Agreement would necessarily affect the others as a whole. Mexico asserts that if the manual presents inconsistencies with the SPS Agreement, this could have an impact on the PRAs, and that if it is found that the PRAs were not subject to the requirement to conduct a risk assessment appropriate to the circumstances, this would necessarily affect the resolutions that are based on them.⁸⁵⁹ According to Mexico, each instrument has a range of components, which means that the importation of avocados from Mexico has thus been restricted and prohibited *de facto*.⁸⁶⁰

7.238. Mexico also notes that the five measures it has identified, by operating as a whole, give rise to a phytosanitary restriction on the importation into Costa Rica of fresh avocados for consumption.⁸⁶¹ Mexico states that the characteristics with which the measures were designed mean that it is possible to ascertain that these measures have a collective impact that impairs the benefits accruing to Mexico under the SPS Agreement.⁸⁶²

7.239. Mexico also asserts that the risk assessments and the manual form an inseparable part of the measure giving rise to a *de facto* ban imposed by Costa Rica⁸⁶³, and that the Panel should therefore conduct a collective assessment that includes an analysis of the consistency of Costa Rica's risk assessments and manual.⁸⁶⁴

7.240. **Costa Rica**, for its part, states that the Panel should reject Mexico's request for its claims to be assessed on the basis of a measure as a whole.⁸⁶⁵

7.241. Costa Rica argues that this type of claim has been dealt with in past disputes where the complainant has succeeded in demonstrating that the measure is legitimately a collective measure, with its own identity, and that Mexico has made no effort to prove that the measures operate collectively as an inseparable whole. Costa Rica notes that a complainant challenging an overarching measure will need to provide evidence relating to two elements: (i) how the different components operate together as part of a single measure; and (ii) how a single measure exists as distinct from its components.⁸⁶⁶ Costa Rica asserts that Mexico has failed to demonstrate any of these elements.⁸⁶⁷

7.242. According to Costa Rica, the complainant must demonstrate that the general or overarching measure is clearly distinguishable from its components, which is particularly relevant if these components have also been challenged as separate measures, and the general or overarching measure must have a functional life of its own, independent of any other measure, for it to be able to give rise independently to a violation of WTO obligations.⁸⁶⁸

7.243. Costa Rica adds that Mexico fails to demonstrate how the reference to the PRAs in the resolutions or the citing of the manual as the source of the PRAs may lead to the conclusion that the documents are inseparable or constitute a single measure.⁸⁶⁹

7.244. Costa Rica considers that the fact that there is a link between a risk assessment and a set of phytosanitary requirements, and that the former explains the existence of the latter, is a matter that concerns the justification or the consistency of the phytosanitary measure with the SPS Agreement. Costa Rica asserts that, nevertheless, it is not a question of whether this link may

⁸⁵⁹ Mexico's response to Panel question No. 111, para. 8.

⁸⁶⁰ Mexico's response to Panel question No. 111, para. 9.

⁸⁶¹ Mexico's response to Panel question No. 111, para. 12.

⁸⁶² Mexico's comments on Costa Rica's response to Panel question No. 117, para. 8.

⁸⁶³ Mexico's comments on Costa Rica's response to Panel question No. 115, para. 3.

⁸⁶⁴ Mexico's comments on Costa Rica's response to Panel question No. 115, para. 4.

⁸⁶⁵ Costa Rica's second written submission, para. 2.1.

⁸⁶⁶ Costa Rica's second written submission, paras. 2.3-2.5; response to Panel question No. 112, para. 6 (citing Appellate Body Reports, *Argentina – Import Measures*, para. 5.108).

⁸⁶⁷ Costa Rica's second written submission, para. 2.6; closing statement at the second meeting of the Panel, para. 1.2; and comments on Mexico's response to Panel question No. 111, para. 2.

⁸⁶⁸ Costa Rica's response to Panel question No. 112, para. 6 (citing Costa Rica's second written submission, para. 2.5).

⁸⁶⁹ Costa Rica's response to Panel question No. 112, para. 7; response to Panel question No. 116, para. 27; comments on Mexico's response to Panel question No. 116, para. 26.

be understood as demonstrating the indivisibility of these components and of whether it gives the collective phytosanitary measure an identity distinct from that phytosanitary measure based on the requirements.⁸⁷⁰

7.245. Costa Rica notes that the phytosanitary requirements are clear and are made explicit in the resolutions⁸⁷¹, and that even assuming, *arguendo*, that the requirements may not be understood without the PRAs and the manual, this mere assertion does not mean that the five individual instruments become one measure as a whole.⁸⁷² Costa Rica also notes that neither the PRAs nor the manual provide the whole with the singularity that would give the alleged collective measure an identity that would distinguish it from the individual measures.⁸⁷³

7.246. The **Panel** will examine below whether the measures identified by Mexico, i.e. Resolutions DSFE-003-2018 and DSFE-002-2018, Reports ARP-002-2017 and ARP-006-2016, and Manual NR-ARP-PO-01_M-01 may be analysed as a measure as a whole.

7.247. The Appellate Body and previous panels have addressed the question of whether there exists a single measure or a measure comprising several measures as a whole. The parties to this dispute refer to previous cases in which the panels dealt with the measures at issue as a whole. Mexico considers the panel reports in *Japan – Apples (Article 21.5 – United States)*⁸⁷⁴ and *US – COOL*⁸⁷⁵ to be relevant. Costa Rica, on the other hand, refers to *Argentina – Import Measures*.⁸⁷⁶

7.248. In *Japan – Apples*, the complainant identified nine requirements as one single measure, and the panel noted that these requirements cumulatively constituted the measures actually applied to the importation of the product in question, and that they were a set of interrelated requirements that had to be met in order for US apples to be exported to Japan.⁸⁷⁷ The parties agreed that the requirements should be treated as one single measure.⁸⁷⁸ The panel saw no "legal, logical or factual obstacle" to treating such requirements as one single phytosanitary measure within the meaning of the SPS Agreement, and, on the contrary, there were good reasons to do so, in particular the fact that both parties themselves argued the case as an "all or nothing" exercise.⁸⁷⁹

7.249. The panel in *US – COOL* noted that the main factors considered by panels and the Appellate Body in relation to the question of whether to treat several requirements or provisions as a single measure or multiple measures include the following: (i) the manner in which the complainant presented its claims in respect of the concerned instruments; (ii) the respondent's position; and (iii) the legal status of the requirements or instruments, including the operation of, and the relationship between, the requirements or instruments, namely whether a certain requirement or instrument had autonomous status.⁸⁸⁰

7.250. In that dispute, the panel considered the measures at issue in light of the aforementioned factors, and noted that it would examine whether and, if so, to what extent the measures operated, legally or substantively, in conjunction with each other or depended on each other.⁸⁸¹ The panel noted that, legally, one of the measures at issue, the 2009 Final Rule (AMS), did not have autonomous status; it laid out the specificities pertaining to the country of origin labelling (COOL) requirements that were necessary to implement the contents of the other measure at issue, the COOL statute.⁸⁸² The panel explained that, given the close legal and substantive link between the COOL statute and the 2009 Final Rule (AMS), it was appropriate to examine the relevant elements of both instruments pertaining to the COOL requirements for meat products "as an integral part" of

⁸⁷⁰ Costa Rica's response to Panel question No. 112, para. 9.

⁸⁷¹ Costa Rica's comments on Mexico's response to Panel question No. 111, para. 1.

⁸⁷² Costa Rica's comments on Mexico's response to Panel question No. 111, para. 2.

⁸⁷³ Costa Rica's comments on Mexico's response to Panel question No. 111, para. 1.

⁸⁷⁴ Mexico's response to Panel question No. 112, para. 17.

⁸⁷⁵ Mexico's comments on Costa Rica's response to Panel question No. 112, para. 9 (citing

Panel Reports, *US – COOL*, para. 7.50).

⁸⁷⁶ Appellate Body Reports, *Argentina – Import Measures*, para. 5.108 (referring to Panel Reports, *US – COOL*, para. 7.50).

⁸⁷⁷ Panel Report, *Japan – Apples*, para. 8.16.

⁸⁷⁸ Panel Report, *Japan – Apples*, para. 8.15.

⁸⁷⁹ Panel Report, *Japan – Apples*, para. 8.17.

⁸⁸⁰ Panel Reports, *US – COOL*, para. 7.50.

⁸⁸¹ Panel Reports, *US – COOL*, paras. 7.50 and 7.52.

⁸⁸² Panel Reports, *US – COOL*, para. 7.54.

one single COOL measure, and that there were sufficient "legal, logical and factual" bases to treat the COOL statute and 2009 Final Rule (AMS) as the "COOL measure".⁸⁸³

7.251. In *Argentina – Import Measures*, the complainants identified five trade-related requirements (TRRs) and maintained that there was a single unwritten measure (TRR measure) comprising a combination of one or more of the five identified TRRs.⁸⁸⁴ The Appellate Body noted that the scope of measures that can be challenged in WTO dispute settlement is broad⁸⁸⁵, and that the constituent elements that must be substantiated with evidence and arguments in order to prove the existence of a measure challenged will be informed by how such measure is described or characterized by the complainant.⁸⁸⁶ The Appellate Body gave the example of how a complainant challenging a single measure composed of several different instruments will normally need to "provide evidence of how the different components operate together as part of a single measure and how a single measure exists as distinct from its components".⁸⁸⁷ The Appellate Body concluded that the panel correctly found that the complainants had demonstrated the existence of a TRR measure, which was composed of several individual TRRs operating together in an interlinked fashion as part of a single measure in pursuit of the objectives of import substitution and trade deficit reduction.⁸⁸⁸

7.252. As has been done in previous disputes, in order to determine whether the measures identified by Mexico may be viewed as a measure as a whole, this Panel will examine the manner in which Mexico has presented its claims in respect of the concerned instruments, including how it has described or characterized the measure, Costa Rica's position, the legal status of the requirements or instruments, including the operation of, and the relationship between, the requirements or instruments, as well as the relevant evidence that Mexico has submitted, particularly in relation to how the different components operate together as part of a single measure and how a single measure exists, distinct from its components.⁸⁸⁹

7.253. In its panel request, Mexico identified the specific measures at issue as "those by which Costa Rica prohibits or restricts, either jointly or individually, the importation of fresh avocados for consumption from Mexico".⁸⁹⁰ Mexico noted that these measures comprised Resolutions DSFE-003-2018 and DSFE-002-2018, Reports ARP-002-2017 and ARP-006-2016, and Manual NR-ARP-PO-01_M-01.⁸⁹¹

7.254. Mexico argues that the five measures *as a whole* constitute restrictions on the importation of fresh avocados for consumption from Mexico⁸⁹², and describes them as an inseparable whole due to their close relationship.⁸⁹³ Mexico also states that the risk assessments and the manual form an inseparable part of the measure giving rise to a *de facto* ban imposed by Costa Rica⁸⁹⁴, and that the Panel should therefore conduct a collective assessment that includes an analysis of the consistency of Costa Rica's risk assessments and manual.⁸⁹⁵

7.255. Costa Rica's position is that Mexico has failed to demonstrate that the measures operate collectively as an inseparable whole, for which reason the Panel should reject Mexico's request for its claims to be assessed on the basis of a measure as a whole.⁸⁹⁶

⁸⁸³ Panel Reports, *US – COOL*, para. 7.61.

⁸⁸⁴ Appellate Body Reports, *Argentina – Import Measures*, para. 1.4.

⁸⁸⁵ Appellate Body Reports, *Argentina – Import Measures*, para. 5.106.

⁸⁸⁶ Appellate Body Reports, *Argentina – Import Measures*, para. 5.108.

⁸⁸⁷ Appellate Body Reports, *Argentina – Import Measures*, para. 5.108 (referring to Panel Reports, *US – COOL*, para. 7.50).

⁸⁸⁸ Appellate Body Reports, *Argentina – Import Measures*, para. 5.146.

⁸⁸⁹ Appellate Body Reports, *Russia – Railway Equipment*, paras. 5.239 and 5.242; *Argentina – Import Measures*, para. 5.108; and Panel Reports, *US – COOL*, para. 7.50; *Indonesia – Chicken*, paras. 7.616 and 7.665.

⁸⁹⁰ Mexico's panel request, WT/DS524/2, p. 2.

⁸⁹¹ Mexico's panel request, WT/DS524/2, p. 2.

⁸⁹² Mexico's first written submission, para. 94.

⁸⁹³ Mexico's response to Panel question No. 99, para. 116; second written submission, para. 7.

⁸⁹⁴ Mexico's comments on Costa Rica's response to Panel question No. 115, para. 3.

⁸⁹⁵ Mexico's comments on Costa Rica's response to Panel question No. 115, para. 4.

⁸⁹⁶ Costa Rica's second written submission, paras. 2.3-2.5; response to Panel question No. 112, para. 6 (citing Appellate Body Reports, *Argentina – Import Measures*, para. 5.108).

7.256. With regard to the legal status of the instruments, the Panel recalls that the measures identified by Mexico as the measures at issue comprise:

- a. Manual NR-ARP-PO-01_M-01, issued by the UARP of the SFE and described as "a guide for determining pest risk analysis procedures"⁸⁹⁷;
- b. Report ARP-002-2017, issued by the UARP of the SFE, which is a risk analysis prepared "[t]o determine the risk of plant pests associated with the importation of fresh avocados (*Persea americana* Mill.) for human consumption from Mexico"⁸⁹⁸;
- c. Report ARP-006-2016, issued by the UARP of the SFE, which is a risk analysis prepared "to determine the phytosanitary risk associated with the importation of fresh avocado (*Persea americana* Mill.) fruit for consumption and plants of the same species for planting, from countries where the pest Avocado sunblotch viroid (ASBVd) is present"⁸⁹⁹;
- d. Resolution DSFE-003-2018, issued by the Executive Directorate of the SFE, which establishes as a phytosanitary measure the phytosanitary requirements for imports of fresh avocado fruit for consumption from Mexico⁹⁰⁰; and
- e. Resolution DSFE-002-2018, issued by the Executive Directorate of the SFE, which establishes as a phytosanitary measure the phytosanitary requirements for the importation of fresh avocado fruit and avocado plants for planting that are vectors of ASBVd from any country in which the pest ASBVd is present.⁹⁰¹

7.257. With regard to the relationship between these measures, the methodology used for preparing the risk assessments contained in Reports ARP-002-2017 and ARP-006-2016 is set out in Manual NR-ARP-PO-01_M-01⁹⁰²; Resolution DSFE-003-2018 refers to the issuance of the risk assessment contained in Report ARP-002-2017⁹⁰³; and Resolution DSFE-002-2018 refers to the issuance of the risk assessment contained in Report ARP-006-2016.⁹⁰⁴

7.258. It should be noted that Mexico has neither explained nor demonstrated with specific evidence that is additional to the instruments themselves how the different components operate together as part of a single measure, or how a single measure exists, distinct from its components.

7.259. The Panel notes that, although Mexico characterized the measures at issue as "those by which Costa Rica prohibits or restricts, either jointly or individually, the importation of fresh avocados for consumption from Mexico", the requirements that Mexico alleges to be restrictions or prohibitions on the importation of avocados were imposed through the resolutions, and not through the reports or the manual.

7.260. In the Panel's view, unlike the aforementioned cases that involve an overarching or single measure, this dispute does not involve a set of requirements that have to be met in order to import the product in question⁹⁰⁵, or a statute, which is the legal basis for certain requirements, and the regulation adopted to implement the statute⁹⁰⁶, or different requirements that function as a single measure by acting in different combinations to realize common objectives.⁹⁰⁷

7.261. The case before this Panel involves two reports containing technical and scientific information on avocado farming and ASBVd, the assessment of the risks relating to ASBVd, as well as recommendations on phytosanitary requirements to be imposed. It also involves a manual used to

⁸⁹⁷ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 1.

⁸⁹⁸ ARP-002-2017, (Exhibit MEX-84), p. 3.

⁸⁹⁹ ARP-006-2016, (Exhibit MEX-85), p. 3.

⁹⁰⁰ Resolution DSFE-003-2018, (Exhibit MEX-4), pp. 1 and 4-5.

⁹⁰¹ Resolution DSFE-002-2018, (Exhibit MEX-103), pp. 1 and 4-5.

⁹⁰² ARP-002-2017, (Exhibit MEX-84), p. 3; ARP-006-2016, (Exhibit MEX-85), p. 3.

⁹⁰³ Resolution DSFE-003-2018, (Exhibit MEX-4), p. 1.

⁹⁰⁴ Resolution DSFE-002-2018, (Exhibit MEX-103), p. 1.

⁹⁰⁵ See Panel Report, *Japan – Apples*, paras. 8.11-8.19.

⁹⁰⁶ See Panel Reports, *US – COOL*, para. 7.60.

⁹⁰⁷ See Panel Reports, *Argentina – Import Measures*, paras. 6.221-6.231; and Appellate Body Reports, *Argentina – Import Measures*, para. 5.148.

prepare the risk assessments contained in these technical and scientific reports, and the resolutions through which the phytosanitary requirements were imposed. The reports contain technical and scientific information with respect to the risk under consideration and recommendations on the requirements to be imposed, but they do not impose or establish requirements. The manual sets out the methodology for preparing the reports, but it does not impose or establish requirements.

7.262. More specifically, the resolutions relate to the reports because these reports were prepared to assess the risk in relation to which the phytosanitary requirements contained in the resolutions were imposed; and the reports relate to the manual because they were prepared using the methodology contained in the manual. The reports and the manual help to explain the phytosanitary requirements contained in the resolutions, but the resolutions are the measures that impose the phytosanitary requirements.

7.263. The Panel does not consider that the relationship between these measures justifies or demonstrates the existence of one phytosanitary measure consisting of the five measures identified by Mexico taken as a whole.

7.264. However, in order to assess the consistency of the resolutions, which contain the phytosanitary requirements, with certain provisions of the SPS Agreement, the Panel will necessarily have to consider the reports and the manual. In other words, assessing the reports and the manual is part of the Panel's terms of reference in this dispute because Mexico has put forward claims that oblige the Panel to examine these instruments. These claims notably cover Articles 5.1 to 5.3 of the SPS Agreement, which specifically refer to risk assessment as the basis for phytosanitary measures.

7.265. Costa Rica considers that the fact that there is a link between a risk assessment and a set of phytosanitary requirements, and that the former explains the existence of the latter, is a matter that concerns the justification or the consistency of the phytosanitary measure with the SPS Agreement, particularly with respect to the obligations under Article 5.⁹⁰⁸ There does not therefore appear to be any disagreement between the parties as to the relationship between the measures identified by Mexico in terms of their role in the justification of Costa Rica's phytosanitary requirements.

7.266. The panel in *US – Export Restraints* noted that "[i]n considering whether any or all of the measures individually can give rise to a violation of WTO obligations, the central question that must be answered is whether each measure operates in some concrete way in its own right."⁹⁰⁹ The panel analysed the legal status of each of the measures and determined that one of them (a statement) did not have an operational life or legal status independent of the other measure (a statute) such that it could, on its own, give rise to a violation of WTO rules.⁹¹⁰ However, the panel made findings by reading the statute in light of the statement, recognizing the statement's fundamental importance as the authoritative interpretation of the statute. Likewise, this Panel will need to read the resolutions, which contain the phytosanitary requirements, together with the reports and the manual.

7.267. In light of the foregoing, the Panel concludes that Mexico has failed to demonstrate the existence of a phytosanitary measure comprising the five measures identified by Mexico taken as a whole. However, in order to analyse the claims put forward by Mexico, this Panel will read Resolutions DSFE-002-2018 and DSFE-003-2018, which contain the phytosanitary requirements, together with Reports ARP-002-2017 and ARP-006-2016 and Manual NR-ARP-PO-01_M-01, and will make any necessary findings and recommendations in relation to these instruments, with a view to securing a positive solution to the dispute.

7.2.3 Overall conclusion of this section

7.268. The Panel concludes the following:

⁹⁰⁸ Costa Rica's response to Panel question No. 112, para. 9.

⁹⁰⁹ Panel Report, *US – Export Restraints*, para. 8.85.

⁹¹⁰ Panel Report, *US – Export Restraints*, paras. 8.98-8.99.

- a. Mexico has demonstrated that Resolutions DSFE-002-2018 and DSFE-003-2018, which contain the phytosanitary requirements, individually constitute phytosanitary measures subject to the SPS Agreement.
- b. Mexico has failed to demonstrate that Reports ARP-002-2017 and ARP-006-2016 and Manual NR-ARP-PO-01_M-01 individually constitute phytosanitary measures subject to the SPS Agreement.
- c. Mexico has failed to demonstrate the existence of a phytosanitary measure consisting of the five measures identified by Mexico taken as a whole. However, in order to analyse the claims put forward by Mexico, this Panel decided that it would read Resolutions DSFE-002-2018 and DSFE-003-2018, which contain the phytosanitary requirements, together with Reports ARP-002-2017 and ARP-006-2016 and Manual NR-ARP-PO-01_M-01, and would make any necessary findings and recommendations in relation to these instruments, with a view to securing a positive solution to the dispute.

7.3 Whether Mexico has demonstrated that ASBVd is present in Costa Rica

7.269. Before analysing Mexico's claims, the Panel will consider whether Mexico has demonstrated as a matter of fact that ASBVd is present in Costa Rica, because this is a factual matter that is relevant for the analysis of all of Mexico's claims.

7.270. **Mexico** submits that, although Costa Rica asserts that ASBVd is absent in its territory, the following evidence makes it possible to infer that it is present in the territory of Costa Rica:

- a. A memorandum from the Cellular and Molecular Biology Research Centre (CIBCM) of the University of Costa Rica (UCR)⁹¹¹;
- b. Affidavits of a nursery worker, and of Costa Rican traders and importers⁹¹²;
- c. Laboratory analysis results of samples taken in 2014 and 2015-2016 in Costa Rica⁹¹³;
- d. The trade in fresh avocados for consumption from Mexico for more than 20 years without Costa Rica having brought a complaint relative to those shipments⁹¹⁴;
- e. Costa Rica's trade in fresh avocados for consumption from other countries where ASBVd is present, even after the application of the measures at issue, such as Peru and Guatemala⁹¹⁵;

⁹¹¹ Mexico's first written submission, para. 79 (citing Centro de Investigaciones en Biología Celular y Molecular de la Universidad de Costa Rica, Oficio CIBCM-PCDV-044-2014, 29 de octubre de 2014 (Memorandum CIBCM-PCDV-044-2014 (2014)), (Exhibit MEX-115)).

⁹¹² Mexico's first written submission, para. 79 (citing Declaración Jurada de Jesús Alberto Salas Sanabria, 25 de marzo de 2019 (Affidavit of Jesús Alberto Salas Sanabria (2019)), (Exhibit MEX-93); Declaración Jurada de Eduardo Ramírez Castro, 25 de marzo de 2019 (Affidavit of Eduardo Ramírez Castro (2019)), (Exhibit MEX-94); Declaración Jurada de Manrique Loáiciga González, 27 de marzo de 2019 (Affidavit of Manrique Loáiciga González (2019)), (Exhibit MEX-95); and Declaración Jurada de Randall Benavides Rivera, 28 de marzo de 2019 (Affidavit of Randall Benavides Rivera (2019)), (Exhibit MEX-96)).

⁹¹³ Mexico's first written submission, para. 79 (citing O. Borbón Martínez, Jefe de Unidad de Biometría y Sistemas de Información, Departamento de Operaciones Regionales del Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, "Muestreo del viroide manchado solar (ASBVd) (Sunblotch) en el cultivo de aguacate (*Persea americana*), a nivel nacional, 2014" (Sampling survey 2014), (Exhibit MEX-64); and O. Borbón Martínez, Departamento de Operaciones Regionales del Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, "Muestreo del viroide manchado solar (ASBVd) (Sunblotch) en el cultivo de aguacate (*Persea americana*), Región central oriental, diciembre 2015 y enero 2016" (Sampling survey 2015-2016), (Exhibit MEX-65)).

⁹¹⁴ Mexico's first written submission, para. 79 (citing Claudia Marín, "Crece: Nunca se debió prohibir la importación del aguacate Hass", *Elmundo.cr* (2019) ("Crece: Nunca se debió prohibir la importación del aguacate Hass", *Elmundo.cr* (2019)), (Exhibit MEX-90), p. 2).

⁹¹⁵ Mexico's first written submission, para. 79 (citing "Importadores prevén un precio más alto para el aguacate Hass de Perú", *La Nación* (2015), (Exhibit MEX-91), p. 1; and "Exigen a gobierno tico transparencia en negociación aguacate mexicano", *prensa-latina.cu* (28 de febrero de 2019) ("Exigen a gobierno tico transparencia en negociación aguacate mexicano", *prensa-latina.cu* (2019)), (Exhibit MEX-92), p. 9).

- f. Evidence of the importation of propagation material to Costa Rica from California, United States, through the Cantonal Agricultural Centre of Tarrazú⁹¹⁶, which presumably could have been infected with ASBVd and its disease, as some literature hypothesizes that the disease spread to Israel and Australia from California.⁹¹⁷ According to Mexico, the importation of propagation material from California to the Canton of Tarrazú was recorded by Costa Rica's own Ministry of Agriculture and Livestock (MAG)⁹¹⁸ and confirmed by Francisco Cordero Navarro, who has been in charge of the Cantonal Agricultural Centre of Tarrazú for 39 years, and who notes that grafting of the Hass variety began in the 1990s.⁹¹⁹

7.271. Mexico adds that there are determining factors from which it can be inferred that ASBVd and its disease are present in the territory of Costa Rica, namely, that:

- a. Costa Rica failed to declare the absence of ASBVd and its disease on the basis of ISPM Nos. 6 and 8, as it did not implement an officially approved surveillance system; the specific surveys failed to provide the basic information suggested in section 2.1 of ISPM No. 8; there is not enough information to conclude that those persons who determined the absence can be considered technical experts, or what methodology was used; and Costa Rica failed to justify scientifically, where relevant, why it had to deviate from ISPM Nos. 6 and 8.
- b. Costa Rica failed to declare its territory a PFA on the basis of ISPM No. 4.
- c. The sampling surveys conducted in 2014, 2015 and 2016 lack a scientific methodology and a statistical basis.
- d. There is evidence, scientific testimonies and statements by members of the avocado industry from which it can be inferred that ASBVd is present in Costa Rica's territory.⁹²⁰

7.272. Mexico also submits that questions remain about Costa Rica's processing of the 25 samples taken as part of the 2014 survey that proved positive, which were subject to a second molecular verification method, a situation that is clarified in a memorandum from April 2015 (almost five months after the sampling survey was completed). For Mexico, in light of the characteristics of ASBVd and its irregular distribution, it is particularly questionable that there was no follow-up of the trees from which those samples were taken, so that it could be confirmed that effectively ASBVd was not present in the country.⁹²¹

7.273. With regard to Memorandum CIBCM-PCDV-021-2015 dated 6 April 2015⁹²², Mexico submits that it reports that none of the samples tested positive for ASBVd, and that 25 avocado leaf samples

⁹¹⁶ Mexico's first written submission, para. 79 (citing Ministerio de Agricultura y Ganadería de Costa Rica, Región Central Oriental, "Caracterización de la Agrocadena de Aguacate, Zona de los Santos" (2007) (Los Santos Zone (2007)), (Exhibit MEX-97), p. 7).

⁹¹⁷ Mexico's first written submission, para. 79 (citing Whitsell (1952), (Exhibit MEX-42)); and Geering (2018), (Exhibit MEX-43)); second written submission, para. 43 (citing Geering (2018), (Exhibit MEX-43), p. 2).

⁹¹⁸ Mexico's second written submission, para. 44 (citing Los Santos Zone (2007), (Exhibit MEX-97), p. 7).

⁹¹⁹ Mexico's second written submission, para. 44 (citing Declaración Jurada de Francisco Cordero Navarro, 23 de septiembre de 2019 (Affidavit of Francisco Cordero Navarro (2019)), (Exhibit CRI-47)).

⁹²⁰ Mexico's first written submission, para. 388 (citing Sampling survey 2014, (Exhibit MEX-64); Sampling survey 2015-2016, (Exhibit MEX-65); Servicio Nacional de Sanidad, Inocuidad y Calidad Agroalimentaria (SENASICA), México, Memorandum No. SUBD/1058, 23 de noviembre de 2015 (Memorandum No. SUBD/1058 (2015)), (Exhibit MEX-127); Laboratorio de Diagnóstico Integral Fitosanitario (LADIFIT), "Informe de resultados", prueba de laboratorio 15/125-Vr, del Dr Obregón Gómez, 14 de enero de 2016 (LADIFIT, Laboratory test 15/125-Vr (2016)), (Exhibit MEX-128); Laboratorios Doctor Obregón, "Diagnóstico Viroide Mancha de sol del Aguacate (ASBVd) en Costa Rica", 18 de noviembre de 2015 (Avocado sunblotch viroid (ASBVd) detection in Costa Rica (2015)), (Exhibit MEX-129); Affidavit of Jesús Alberto Salas Sanabria (2019), (Exhibit MEX-93); Affidavit of Eduardo Ramírez Castro (2019), (Exhibit MEX-94); Affidavit of Manrique Loáiciga González (2019), (Exhibit MEX-95); and Affidavit of Randall Benavides Rivera (2019), (Exhibit MEX-96)).

⁹²¹ Mexico's second written submission, para. 32.

⁹²² Centro de Investigación en Biología Celular y Molecular de la Universidad de Costa Rica, Oficio CIBCM-PCDV-021-2015, 6 de abril de 2015 (Memorandum CIBCM-PCDV-021-2015 (2015)), (Exhibit MEX-134).

from different production areas of the country were analysed, but does not specify the places from which the samples were taken.⁹²³

7.274. Mexico also notes that, according to section 1.1 of ISPM No. 6, sources of information include: research institutions, universities, scientific societies (including amateur specialists), producers, consultants and the general public, and that it is recommended that the NPPOs develop a system whereby appropriate information is collected, verified and compiled. Mexico argues that, in this regard, the evidence submitted by Mexico comes from the CIBCM of the UCR itself, as well as from laboratory analysis and information obtained from statistical sources.⁹²⁴ Mexico states that, while it is the prerogative of the NPPO of each WTO Member to decide the value it attaches to the information available, this does not mean that an NPPO should discredit information because it comes from a source other than the NPPO, or because it contradicts the final determination in the NPPO's evaluation. For Mexico, certain evidence can and should be considered relevant and helpful in determining a pest's possible presence in a given territory, even though the information was not produced by an NPPO or is indirect information.⁹²⁵

7.275. For its part, **Costa Rica** submits that Mexico has failed to present any evidence that ASBVd is present in Costa Rica⁹²⁶, and that the multiple sampling surveys and diagnostic tests provided by Costa Rica in these proceedings prove the absence of ASBVd.⁹²⁷ Costa Rica asserts that there is no evidence whatsoever on the record that demonstrates the presence of ASBVd in its territory.⁹²⁸

7.276. Costa Rica asserts that:

- a. Mexico has engaged in mere speculation and has failed to demonstrate that ASBVd is present in Costa Rica, and the three pieces of evidence submitted by Mexico (the memorandum from the CIBCM of the UCR, Dr Obregón's report on two samples, and the testimonies of importers) do not confirm the alleged presence of ASBVd in Costa Rica⁹²⁹;
- b. The four sampling surveys carried out by Costa Rica, with 1,325 samples analysed by molecular tests, have, to date, produced negative results for ASBVd in all instances, and confirm the absence of ASBVd in its territory⁹³⁰;
- c. This absence is confirmed by the phytosanitary databases of CABI and the EPPO⁹³¹; and
- d. Costa Rica considered ISPM Nos. 6 and 8 in its surveillance work and when determining the country's phytosanitary situation.⁹³²

7.277. Costa Rica argues that the evidence submitted by Mexico does not prove the alleged presence of ASBVd in its territory.⁹³³ Furthermore, Costa Rica asserts that:

- a. The memorandum of the CIBCM of the UCR simply indicates that in the 2014 sample survey there were 25 false positives.⁹³⁴ Costa Rica notes that Mexico argues that the presence of ASBVd was confirmed in 2014 by pointing to positive samples, but that, after

⁹²³ Mexico's first written submission, para. 445.

⁹²⁴ Mexico's specific comments on the experts' responses to Panel question No. 77 for the experts.

⁹²⁵ Mexico's comments on the responses of Pablo Cortese and Ricardo Flores Pedauyé to the Panel's additional questions for Pablo Cortese and Ricardo Flores Pedauyé, paras. 12 and 18.

⁹²⁶ Costa Rica's first written submission, para. 5.98.

⁹²⁷ Costa Rica's second written submission, paras. 3.30-3.31.

⁹²⁸ Costa Rica's observations on Mexico's comments on the responses of Pablo Cortese and Ricardo Flores Pedauyé to the Panel's additional questions for Pablo Cortese and Ricardo Flores Pedauyé, para. 8.

⁹²⁹ Costa Rica's opening statement at the first meeting of the Panel, para. 30; response to Panel question No. 26; second written submission, paras. 3.30, 3.75 and 3.84; specific comments on the experts' responses to Panel questions Nos. 77 and 78 for the experts.

⁹³⁰ Costa Rica's first written submission, para. 3.27; opening statement at the first meeting of the Panel, para. 29; response to Panel question No. 26, para. 7.

⁹³¹ Costa Rica's first written submission, paras. 5.99 and 5.207.

⁹³² Costa Rica's opening statement at the first meeting of the Panel, para. 27; response to Panel question No. 29; second written submission, para. 3.85.

⁹³³ Costa Rica's opening statement at the first meeting of the Panel, para. 30.

⁹³⁴ Costa Rica's opening statement at the first meeting of the Panel, para. 30 (citing Memorandum CIBCM-PCDV-044-2014 (2014), (Exhibit MEX-115)).

those samples were sent by the Molecular Biology Laboratory of the UCR to Korea to be sequenced, these proved to be false positives.⁹³⁵ According to Costa Rica, its status as free of ASBVd is confirmed by the two most reliable international phytosanitary databases, those of EPPO and CABI.⁹³⁶

- b. Dr Obregón's report on two samples allegedly infected with ASBVd was rebutted by the SFE, and contains no evidence whatsoever pertaining to the alleged sampling methodology or the chain of custody. Costa Rica adds that the SFE located the producer concerned and took a sample from the same tree from which the original sample was allegedly taken, as well as 10 other surrounding trees, producing negative results for ASBVd⁹³⁷ through RT-PCR, which were sent to the Pest Diagnostic Laboratory of the SFE, in accordance with the entire sample custody protocol until the sample was received by the laboratory.⁹³⁸
- c. The testimonies on the alleged presence of the pest were given, for the most part, by importers who disagree with any additional import requirement, which detracts from the value of those testimonies, as the party has a clear interest. Moreover, they are statements by individuals and not expert reports, they are imprecise, without scientific merit and with internal contradictions that cast doubt on their validity.⁹³⁹

7.278. Costa Rica further submits that Mexico confuses the determination of a pest status in an area (ISPM No. 8), together with the surveillance it entails (ISPM No. 6), with the establishment of a PFA (ISPM No. 4), the requirements for which are stricter, as they serve a commercial purpose. Costa Rica adds that, according to ISPM No. 5, the "status" of a pest is the "presence or absence, at the present time, of a pest in an area, including where appropriate its distribution, as officially determined using expert judgement on the basis of current and historical pest records and other information". Costa Rica asserts that it has no obligation or commercial need to establish itself as a PFA.⁹⁴⁰

7.279. The **Panel** observes that Mexico asserts that there is evidence from which it can be inferred that ASBVd is present in Costa Rica. However, throughout the dispute, Mexico equates this "inference" that ASBVd is present in Costa Rica with asserting or proving that ASBVd is present in Costa Rica, by basing some of its arguments on the premise that ASBVd is present in Costa Rica.⁹⁴¹ Therefore, the Panel will analyse whether Mexico has demonstrated, as a matter of fact, that ASBVd is present in Costa Rica.

7.280. The Panel recognizes that information on the presence or absence of a pest in the territory of a WTO Member may only be in the possession of that Member. Nevertheless, Mexico has asserted

⁹³⁵ Costa Rica's first written submission, paras. 3.21, 5.99 and 5.208 (citing Memorandum CIBCM-PCDV-021-2015 (2015), (Exhibit MEX-134)).

⁹³⁶ Costa Rica's first written submission, para. 5.99 (citing Centro de Biotecnología Agrícola Internacional (CABI), Crop Protection Compendium, Datasheet report for Avocado sunblotch viroid (avocado sun blotch), 12 de septiembre de 2019 (CABI (2019)), (Exhibit CRI-14); and EPPO, Global Database, Avocado sunblotch viroid (ASBVd) Distribution details in Costa Rica, 21 de septiembre de 2019 (EPPO Costa Rica (2019)), (Exhibits CRI-41 and MEX-208); and EPPO Global Database, World distribution (2019), (Exhibit MEX-48)).

⁹³⁷ Costa Rica's opening statement at the first meeting of the Panel, para. 30.

⁹³⁸ Costa Rica's response to the Panel's information request of 3 August 2020, pp. 14-15.

⁹³⁹ Costa Rica's opening statement at the first meeting of the Panel, para. 30.

⁹⁴⁰ Costa Rica's first written submission, para. 5.100.

⁹⁴¹ For example, in its claim under Article 5.1 of the SPS Agreement, Mexico asserts that it "presented conclusive evidence demonstrating that the disease and the pathogenic agent have been present in Costa Rica." (Mexico's first written submission, para. 461). As part of that claim, Mexico also submits that Costa Rica failed to consider the circumstances that had a direct impact on the outcome of the risk assessments, such as "the presence of sunblotch and ASBVd in Costa Rica". (Mexico's first written submission, para. 386). In its claim under Article 5.5, Mexico asserts that, "[i]f we consider the viroid to be present in both territories, distinctions in the regulations aimed at fruit from Mexico and the absence of regulation for Costa Rican avocado producers point to unjustifiable or arbitrary differences." (Mexico's first written submission, para. 537). In its claim under Article 6.1, Mexico submits that the measures Costa Rica imposed on Mexico and other avocado-producing countries would need to be attenuated for the following reasons: "[i]n the avocado-producing areas of Costa Rica's territory, signs have also been found of the presence of ASBVd in areas where avocados are produced." (Mexico's first written submission, para. 607). In its claim under Article 3.1 of the SPS Agreement, Mexico states that "[t]he laboratory analysis results for the first sampling survey show the presence of ASBVd and sunblotch disease in Costa Rica, and yet Costa Rica continues to assert the absence thereof." (Mexico's second written submission, para. 297).

in the present dispute settlement proceedings that ASBVd is present in Costa Rica, thus the burden of proving that assertion lies with Mexico in these dispute settlement proceedings.

7.281. Mexico refers to affidavits made by a nursery worker, and Costa Rican traders and importers as evidence of the presence of ASBVd in Costa Rica. Exhibits MEX-93, MEX-94, MEX-95, and MEX-96 submitted by Mexico are affidavits by an agricultural engineer, an entrepreneur, an import manager and university professor, and an economist and importer and exporter of avocados and fruit in general, respectively.

7.282. The agricultural engineer attests that in 1966 he facilitated, as a Costa Rican official, the entry of a shipment of avocados containing genetic material, that the shipment did not bear any certification, but that he identified sunblotch disease, and that the same disease has been present on Gerardo Ocampo's estates in the Rincón de la Vieja, Liberia, since 1966. He states that ASBVd has always existed and it has never been an epidemic that has caused irreparable losses to the economy and commercialization of avocado.⁹⁴²

7.283. The entrepreneur attests that the pathology that could be sunblotch has been observed in the Los Santos zone and descending into the Valle del General and San José; and states that no certification is or was required for marketing on the domestic market.⁹⁴³

7.284. The import manager and university professor attests that he exchanged views with Dr Obregón and became aware of the symptoms of sunblotch following the imposition of Costa Rica's measures, and that he had seen sunblotch in fruit after 2015, but that he did not know how to identify it before. He adds that Costa Rica does not have the technical infrastructure for, nor has it carried out proper monitoring of the disease; and that, in order to trade in domestic avocados, the Government of Costa Rica does not request any certification on diseases.⁹⁴⁴

7.285. The economist and importer and exporter of avocados and fruit in general attests that he has been aware of the disease since 2015, and that he has observed it in Costa Rican Hass avocado, including in fruit obtained from a farm in Santa María de Dota, San José, and in the Los Santos zone, as well as in avocados imported from Peru in 2018. He states that the Government of Costa Rica does not impose any requirement for the marketing of domestic fruit, including avocado.⁹⁴⁵

7.286. In this connection, the expert Pablo Cortese who advised this Panel is of the opinion that the affidavits submitted by Mexico in support of its argument concerning the presence of ASBVd in Costa Rica are not officially recognized or validated by the NPPO, and should not be taken into account and should not constitute evidence within the meaning of the ISPM Nos. 6 and 8 to establish the presence of ASBVd in Costa Rica.⁹⁴⁶

7.287. It is the opinion of this Panel that the aforementioned statements, according to which the symptoms of ASBVd and its disease have been identified visually, are not sufficiently reliable to prove the presence of ASBVd in Costa Rica. In effect, as mentioned in section 2.3.2.4 above, diagnosis based on symptoms is not reliable, hence other reasonably sensitive diagnostic methods are necessary to determine the phytosanitary status of a tree.⁹⁴⁷ Moreover, in light of Mr Cortese's remarks, the Panel notes that the probative force of the affidavits of an agricultural engineer, an entrepreneur, an import manager and university professor, and an economist and importer and exporter of avocados and fruit cannot be equated with scientific evidence which could reliably prove the presence of ASBVd in a territory. Accordingly, the Panel does not consider that the presence of ASBVd in Costa Rica's territory can be inferred from the affidavits submitted by Mexico, as Mexico claims.

7.288. It should be noted that ISPM No. 8, which can serve as an illustrative tool with regard to the determination of pest status in an area, states that pest record information is available from many

⁹⁴² Affidavit of Jesús Alberto Salas Sanabria (2019), (Exhibit MEX-93).

⁹⁴³ Affidavit of Eduardo Ramírez Castro (2019), (Exhibit MEX-94).

⁹⁴⁴ Affidavit of Manrique Loáiciga González (2019), (Exhibit MEX-95).

⁹⁴⁵ Affidavit of Randall Benavides Rivera (2019), (Exhibit MEX-96).

⁹⁴⁶ Pablo Cortese's response to Panel question No. 77 for the experts; Pablo Cortese's response to additional Panel question No. 1 for Pablo Cortese.

⁹⁴⁷ Saucedo Carabez *et al.* (2019), (Exhibit MEX-175), p. 8.

sources and has varying levels of reliability.⁹⁴⁸ ISPM No. 8 contains guidance for evaluating the reliability of a pest record. The most reliable source is the NPPO record, and the least reliable source is a personal communication, unpublished.⁹⁴⁹

7.289. Mexico also refers to a memorandum from the CIBCM of the UCR. Exhibit MEX-115 contains the memorandum from the CIBCM of the UCR, dated 29 October 2014, which confirms that the membranes spotted with the samples taken between 1 September 2014 and 8 October 2014 were sent to Agdia Inc. (Indiana, United States) for hybridization with ASBVd-specific probes, and presents the results, which include 16 samples that tested positive for ASBVd and five suspect samples.

7.290. The record of the dispute also includes Exhibit MEX-134. This exhibit contains another memorandum from the CIBCM of the UCR, dated 6 April 2015, which details the amplification and shipment to MacroGen Inc. (Korea) of 25 samples for sequencing, and which confirms that none of the samples tested positive, and that both the band observed in the gels and the earlier hybridization carried out by Agdia Inc. (Indiana, United States) seem to be responsible for the false positives because of non-specific reactivity. The results are appended to the document.

7.291. With respect to the false positive and suspect samples, Exhibits CRI-15 and CRI-16 are also relevant. Exhibit CRI-16 contains the memorandum from the CIBCM of the UCR, dated 17 March 2017, which states that the 25 samples included in the document contained in Exhibit MEX-134 correspond to the resampling and analysis of the 16 samples that Agdia Inc. reported presented hybridization with the ASBVd probe and the five samples where the hybridization was considered inconclusive, as reported in the document contained in Exhibit MEX-115. The memorandum adds that it also included four samples that the analysis carried out by Agdia Inc. found to be negative.

7.292. Exhibit CRI-15 contains the memorandum from the CIBCM of the UCR, dated 9 September 2019, which details the explanation of the number of avocado samples re-evaluated using RT-PCR and those that were eventually sequenced. It states that two samples were not sent to MacroGen Korea because there was no amplification, and therefore there was nothing that could be subjected to the sequencing procedure.

7.293. The Panel considers the concerns expressed by the virology expert, Ricardo Flores Pedauy , with regard to these assays to be relevant. On the basis of the documents pertaining to the false positives, Mr Flores Pedauy  states that there are marked discrepancies between the results of the two techniques used, which gave rise to doubts. Mr Flores Pedauy  explains that ASBVd usually accumulates to high levels, so it tends to be detected easily by both molecular hybridization (less sensitive) and RT-PCR (more sensitive). The expert observes, however, that, with regard to the aforementioned 25 samples, of the 16 hybridized samples that tested positive, none generated the expected RT-PCR product when they were sequenced (which was only observed in the positive control from a third country), and that the authors of the analysis concluded that the hybridization signals were non-specific. Mr Flores Pedauy  said he was surprised by this marked discrepancy, which was not consistent with his own experience of this type of analysis.^{950, 951}

7.294. The Panel understands that the false positives in Costa Rica's first sampling survey of 2014 arouse certain doubts, and notes that the virology expert who advised the Panel expressed surprise at the results of the analysis of the tests in question submitted by Costa Rica. However, the Panel does not consider that the evidence in the record is sufficient to conclude that the initial positive or suspect results were not false positives, and that they prove the presence of ASBVd in Costa Rica.

⁹⁴⁸ ISPM No. 8, (Exhibit MEX-76), p. 6.

⁹⁴⁹ ISPM No. 8, (Exhibit MEX-76), p. 7.

⁹⁵⁰ Ricardo Flores Pedauy 's response to additional Panel question No. 1 for Ricardo Flores Pedauy .

⁹⁵¹ The Panel refers to Costa Rica's remark on the inputs provided by the expert Ricardo Flores Pedauy  in the sense that the Panel should value the inputs provided by this expert differently from those provided by the other experts, which, according to Costa Rica, could be explained, contextualized, qualified and expanded upon orally by the experts, and have been the focus of the exchange of views between the Panel, the parties and the other experts. In this regard, while it would have been preferable if Mr Flores Pedauy  could have attended the meeting with the experts, the Panel disagrees with Costa Rica's view, insofar as this means that the Panel should give less weight to that expert's responses. The Panel will consider the responses of Mr Flores Pedauy  to both the Panel's first questions and its additional questions such as they were presented in writing.

7.295. Furthermore, Mexico identifies what it refers to as the results of the laboratory analysis of samples taken in 2014 and 2015-2016 in Costa Rica as evidence of the presence of ASBVd in Costa Rica, citing Exhibits MEX-64 and MEX-65.⁹⁵² The Panel observes that Exhibits MEX-64 and MEX-65 contain neither laboratory analysis results nor any other information indicating that ASBVd is present in Costa Rica.

7.296. Mexico also submits Exhibits MEX-127 and MEX-128/MEX-240, which contain, respectively, a SENASICA memorandum, dated 23 November 2015, with a report on the positive ASBVd results of two samples in the Annex, and the report on the positive ASBVd result of one sample. These exhibits indicate that they refer to leaf samples collected in San Isidro de León Cortez, Costa Rica, and sent by Dr Miguel Obregón Gómez. In both cases, the diagnostic tests were carried out by the Comprehensive Phytosanitary Diagnostic Laboratory (LADIFIT) in Mexico.

7.297. In addition, Mexico submits Exhibit MEX-129 as evidence of the presence of ASBVd⁹⁵³, which contains a document on ASBVd from Doctor Obregón's laboratory from 2015 that states that trees with symptoms similar to those described in the literature have been observed in different parts of Costa Rica since 1996.⁹⁵⁴ The document indicates that some avocado producers had sent samples for the corresponding diagnostic test, which was why Dr Obregón had been working with Dr Daniel Téliz Ortiz, a research professor of the *Colegio de posgraduados* of Mexico, who processed the samples. The document adds that ASBVd was found in three of them.⁹⁵⁵

7.298. The three aforementioned Exhibits, i.e. MEX-127, MEX-128 and MEX-129, are related to the samples sent by Dr Obregón, which were tested for ASBVd in Mexico. To rebut this evidence, Costa Rica submitted Exhibit CRI-18, which is a letter, dated 18 December 2015, in which the Executive Director of the SFE states that as of that date the results were available for approximately 150 samples that tested negative for ASBVd, including for the farm located in San Isidro de León Cortez and specifically the tree sampled and georeferenced by Dr Obregón.⁹⁵⁶ This exhibit also contains what is referred to as the sampling record of that tree.⁹⁵⁷

7.299. Similarly, in a press release dated 28 January 2016, the Government of Costa Rica stated that, as part of the phytosanitary inspection programme, the SFE had carried out continuous surveillance of the country's avocado plantations, and that in response to the allegation made by the plant pathologist, Miguel Obregón, an inspection sweep had been made of the production area of the Los Santos zone, where approximately 93% of production is concentrated, including the place Dr Obregón mentioned as possibly infected with the disease, as well as the areas of Frailes, San Cristóbal, Bustamante de Desamparados and Cartago. The Government of Costa Rica added that 322 samples were collected, and that all the results, including those of the tree sampled and georeferenced by Dr Obregón, were negative for ASBVd. It quotes the Director of the SFE, who maintained that at all times officials had implemented the chain of custody of the sample according to established official protocols, thereby ensuring the traceability of that sample.⁹⁵⁸

7.300. Mr Cortese notes that, in accordance with ISPM No. 6, phytosanitary surveillance is a national obligation, that is to say, an official process that must be carried out by the NPPO or another institution designated by the NPPO, but always supervised and audited by the latter⁹⁵⁹, and that the positive results for ASBVd of the LADIFIT tests of the samples taken in San Isidro de León Cortez, Costa Rica, and sent by Dr Obregón, are neither official nor officially approved by the NPPO, thus they do not have probative force or the traceability required under ISPM No. 6.⁹⁶⁰

⁹⁵² Mexico's first written submission, para. 79 (citing Sampling survey 2014, (Exhibit MEX-64); and Sampling survey 2015-2016, (Exhibit MEX-65)).

⁹⁵³ Mexico's first written submission, paras. 51 and 388.

⁹⁵⁴ Avocado Sunblotch Viroid (ASBVd) Diagnostic Testing in Costa Rica (2015), (Exhibit MEX-129), p. 7.

⁹⁵⁵ Avocado Sunblotch Viroid (ASBVd) Diagnostic Testing in Costa Rica (2015), (Exhibit MEX-129), p. 7.

⁹⁵⁶ Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, Oficio DSFE.1023.2015, 18 de diciembre de 2015 (Obregón rebuttal (2015)), (Exhibit CRI-18), p. 4.

⁹⁵⁷ Obregón rebuttal (2015), (Exhibit CRI-18), p. 3.

⁹⁵⁸ Servicio Fitosanitario del Estado (SFE), Comunicado de prensa CP-02-2016, "Costa Rica confirma que 'Mancha del sol' continua ausente" (28 de enero de 2016) (SFE, "Costa Rica confirms that 'sunblotch' is still absent" (2016)), (Exhibit MEX-89).

⁹⁵⁹ Pablo Cortese's response to Panel question No. 77 for the experts.

⁹⁶⁰ Pablo Cortese's response to additional Panel question No. 1 for Pablo Cortese.

7.301. The expert Pablo Cortese refers to ISPM No. 6, which states that all NPPOs should be in a position to validate declarations of the absence or limited distribution of quarantine pests.⁹⁶¹ ISPM No. 6 states that within countries there are many sources of pest information; that these sources may include: NPPOs, other national and local government agencies, research institutions, universities, scientific societies (including amateur specialists), producers, consultants, museums, the general public, scientific and trade journals, unpublished data and contemporary observations; and that, in addition, the NPPO may obtain information from international sources such as FAO, RPPOs, etc.⁹⁶² ISPM No. 6 also states that, to utilize data from these sources, it is recommended that NPPOs develop a system whereby appropriate information is collected, verified and compiled.⁹⁶³

7.302. Bearing in mind Mr Cortese's opinion, the Panel notes that the laboratory analysis in the evidence submitted by Mexico was carried out in a laboratory (LADIFIT) in Mexico, and not in Costa Rica, and that it does not appear that the samples have been provided to Costa Rica for it to review or inspect the results. The Panel also notes that only three leaf samples from the same tree were positive, and that the evidence presented cannot confirm the traceability of the samples.

7.303. Costa Rica sets out in Exhibit CRI-18 how it addressed Dr Obregón's report. The Panel observes that said exhibit contains a sampling record dated 10 December 2015 for a sample the seal of which is found in Annex 9 to Costa Rica's response to the Panel's information request of 3 August 2020. Exhibit CRI-18 mentions the laboratory code and states that the result of the sample was negative, without presenting the result. The result does not appear in Annex 9, but can be found in Annex 4. However, given that the geographical coordinates of the tree sampled by Dr Obregón are not found in the exhibits submitted by Mexico, the Panel cannot corroborate the follow-up that Costa Rica asserts it gave to the tree sampled by Dr Obregón, even though Costa Rica's sampling record contains coordinates. In any event, the burden of proof in this instance lies with Mexico for having asserted in the present dispute settlement proceedings that ASBVd is present in Costa Rica, and the Panel does not consider that it can find, with the evidence provided, that ASBVd is present in Costa Rica as a matter of fact.

7.304. It should also be noted that, as stated above, pursuant to the guidance for evaluating the reliability of a pest record of ISPM No. 8, the NPPO record is considered the most reliable source, and the least reliable source is a personal communication, unpublished.⁹⁶⁴

7.305. Mexico also refers to evidence of the propagation material imported to Costa Rica from California, United States, through the Cantonal Agricultural Centre of Tarrazú. Mexico refers to Exhibits MEX-42, MEX-43, MEX-97 and CRI-47. However, the Panel does not find in the exhibits cited by Mexico any indication of propagation material imported to Costa Rica from California, United States.

7.306. Moreover, as evidence from which the presence of ASBVd in Costa Rica's territory can be inferred, Mexico identifies the fact that there has been what it describes as trade in fresh avocados for consumption from Mexico for more than 20 years without Costa Rica having brought a complaint relative to those shipments⁹⁶⁵, as well as Costa Rica's trade in fresh avocados for consumption from other countries where ASBVd is present, even after the application of the measures at issue, such as Peru and Guatemala.⁹⁶⁶

7.307. In that regard, Mexico notes that Costa Rica has failed to explain how, after more than 20 years of uninterrupted trade in avocados between Mexico and Costa Rica (as well as other countries where ASBVd is also present), there is no record whatsoever of the entry, establishment and spread of ASBVd in its territory despite the high risk involved according to Costa Rica's own PRAs.⁹⁶⁷ Mexico adds that it maintains its assertion with regard to the fundamental contradiction in Costa Rica's argument, namely: (i) that the risk of entry, establishment and spread of ASBVd defined

⁹⁶¹ ISPM No. 6, (Exhibit MEX-75), p. 4.

⁹⁶² ISPM No. 6, (Exhibit MEX-75), p. 5.

⁹⁶³ ISPM No. 6, (Exhibit MEX-75), p. 5.

⁹⁶⁴ ISPM No. 8, (Exhibit MEX-76), p. 7.

⁹⁶⁵ Mexico's first written submission, para. 79 (citing "Crece: Nunca se debió prohibir la importación del aguacate Hass", *Elmundo.cr* (2019), (Exhibit MEX-90), p. 2).

⁹⁶⁶ Mexico's first written submission, para. 79 (citing "Importadores prevén un precio más alto para el aguacate Hass de Perú", *La Nación* (2015), (Exhibit MEX-91), p. 1; and "Exigen a gobierno tico transparencia en negociación aguacate mexicano", *prensa-latina.cu* (2019), (Exhibit MEX-92), p. 9).

⁹⁶⁷ Mexico's second written submission, para. 21.

as high by Costa Rica is actually not, and the irrefutable proof of this is the alleged absence of ASBVd in its territory; or (ii) that, as a result of this high risk of entry, establishment and spread, ASBVd is already present in Costa Rica.⁹⁶⁸

7.308. The Panel understands Mexico's doubts regarding the trade between Costa Rica and countries in which ASBVd is present, including Mexico before 2015⁹⁶⁹, in particular, regarding the claim that allegedly there is a high risk of entry, establishment and spread of ASBVd, but that this pest is still absent in Costa Rica's territory. However, the Panel cannot determine, as a matter of fact, that ASBVd is present in Costa Rica on the basis of those doubts.

7.309. With regard to the declaration of Costa Rica's territory as a PFA, Mexico stated that it "agrees with the experts that Costa Rica was not required to establish a PFA within its territory".⁹⁷⁰

7.310. In light of the foregoing, the Panel concludes that Mexico has failed to demonstrate the fact it asserts in the present dispute settlement proceedings, namely, that ASBVd is present in Costa Rica. The Panel would like to clarify, however, that this conclusion is limited to the question of whether Mexico has demonstrated, as a matter of fact, that ASBVd is present in Costa Rica, which is a different issue to the determination that ASBVd is absent from Costa Rica, a matter that will be addressed at a later stage in the Panel's analysis.

7.4 Mexico's claims with respect to risk assessment obligations under the SPS Agreement

7.4.1 General introduction to the section

7.311. Mexico claims that: (i) Costa Rica's measures are inconsistent with Article 5.1 of the SPS Agreement, as they are not based on a risk assessment within the meaning of paragraph 4 of Annex A to the SPS Agreement or in accordance with Article 5.1 of the SPS Agreement⁹⁷¹; (ii) Costa Rica's measures are contrary to Article 5.2 of the SPS Agreement because Costa Rica has failed to demonstrate that it considered the factors required by the SPS Agreement in its risk assessments⁹⁷²; (iii) Costa Rica breached Article 5.3 of the SPS Agreement by failing to take into account the relevant economic factors in assessing risk and determining its measures⁹⁷³; and (iv) Costa Rica's measures are inconsistent with Article 2.2 of the SPS Agreement in that they are not based on scientific principles and have been maintained without sufficient scientific evidence.⁹⁷⁴

7.312. Costa Rica claims that Mexico has failed to demonstrate that Costa Rica's measures are inconsistent with Articles 5.1, 5.2, 5.3, and 2.2 of the SPS Agreement.

7.313. The Panel will next examine the relevant legal provisions and the legal standard applicable to them. The Panel will subsequently determine the structure of the analysis that it will follow in assessing Mexico's claims under Articles 5.1, 5.2, 5.3, and 2.2 of the SPS Agreement. The Panel will then proceed to analyse whether Mexico has substantiated its claims under these Articles.

7.4.2 The relevant legal provisions

7.314. Articles 5.1, 5.2, and 5.3 of the SPS Agreement provide as follows:

1. Members shall ensure that their sanitary or phytosanitary measures are based on an assessment, as appropriate to the circumstances, of the risks to human, animal or plant life or health, taking into account risk assessment techniques developed by the relevant international organizations.

⁹⁶⁸ Mexico's second written submission, paras. 21 and 180.

⁹⁶⁹ The Panel notes that the matter of the more than 20 years of trade is an issue contested between the parties. The Panel will address this matter in paragraphs 7.1536 through 7.1541 below.

⁹⁷⁰ Mexico's specific comments on the experts' responses to Panel questions Nos. 164, 165 and 167 for the experts; response to Panel question No. 129.

⁹⁷¹ Mexico's second written submission, paras. 169 and 188.

⁹⁷² Mexico's first written submission, paras. 428-429.

⁹⁷³ Mexico's first written submission, paras. 479-480.

⁹⁷⁴ Mexico's first written submission, para. 510.

2. In the assessment of risks, Members shall take into account available scientific evidence; relevant processes and production methods; relevant inspection, sampling and testing methods; prevalence of specific diseases or pests; existence of pest- or disease-free areas; relevant ecological and environmental conditions; and quarantine or other treatment.

3. In assessing the risk to animal or plant life or health and determining the measure to be applied for achieving the appropriate level of sanitary or phytosanitary protection from such risk, Members shall take into account as relevant economic factors: the potential damage in terms of loss of production or sales in the event of the entry, establishment or spread of a pest or disease; the costs of control or eradication in the territory of the importing Member; and the relative cost-effectiveness of alternative approaches to limiting risks.

7.315. Paragraph 4 of Annex A to the SPS Agreement defines the "risk assessment" relevant to this dispute as "[t]he evaluation of the likelihood of entry, establishment or spread of a pest or disease within the territory of an importing Member according to the sanitary or phytosanitary measures which might be applied, and of the associated potential biological and economic consequences".⁹⁷⁵

7.316. Article 2.2 establishes the following:

2. Members shall ensure that any sanitary or phytosanitary measure is applied only to the extent necessary to protect human, animal or plant life or health, is based on scientific principles and is not maintained without sufficient scientific evidence, except as provided for in paragraph 7 of Article 5.

7.4.3 The Panel's standard of review and the legal standard

7.317. In this section, the Panel will describe how other panels and the Appellate Body have understood the standard of review under Article 5.1 of the SPS Agreement and have interpreted the legal provisions relevant to Mexico's risk assessment claims, i.e. Articles 5.1, 5.2, 5.3, and 2.2 of the SPS Agreement. The Panel will be guided by this standard of review and these interpretations to the extent that they are relevant to its analysis.

7.4.3.1 The Panel's standard of review under Article 5.1 of the SPS Agreement

7.318. With regard to review under Article 5.1 of the SPS Agreement, the Appellate Body in *US/Canada – Continued Suspension* explained that "[i]t is the WTO Member's task to perform the risk assessment. The panel's task is to review that risk assessment."⁹⁷⁶ The Appellate Body clarified that where a panel acts as a risk assessor, it would be substituting its own scientific judgement for that of the risk assessor and making a *de novo* review and, consequently, would exceed its functions under Article 11 of the DSU.⁹⁷⁷

7.319. Therefore, according to the Appellate Body, in cases where a panel must examine a Member's risk assessment, its review power is not to determine whether the risk assessment undertaken is correct, but rather "to determine whether that risk assessment is supported by coherent reasoning and respectable scientific evidence and is, in this sense, objectively justifiable".⁹⁷⁸ A WTO Member

⁹⁷⁵ The definition of "risk assessment" in paragraph 4 of Annex A to the SPS Agreement also covers a second type of risk assessment, defined as the "evaluation of the potential for adverse effects on human or animal health arising from the presence of additives, contaminants, toxins or disease-causing organisms in food, beverages or feedstuffs". The SPS measures at issue in this dispute (i.e. the resolutions, which contain the phytosanitary requirements) are aimed at protecting plants from risks arising from the entry, establishment or spread of a pest or disease, and not from risks arising from additives, contaminants, toxins or disease-causing organisms in foods, so the type of risk assessment required is the one defined in the first part of paragraph 4 of Annex A.

⁹⁷⁶ Appellate Body Reports, *US/Canada – Continued Suspension*, para. 590.

⁹⁷⁷ Appellate Body Reports, *US/Canada – Continued Suspension*, para. 590.

⁹⁷⁸ Appellate Body Reports, *US/Canada – Continued Suspension*, para. 590.

may even base an SPS measure "on divergent or minority views, as long as these views are from qualified and respected sources".⁹⁷⁹

7.320. Accordingly, this Panel's role will be to determine whether Costa Rica's risk assessment is supported by coherent reasoning and respectable scientific evidence and is, in this sense, objectively justifiable.

7.4.3.2 Legal standard under Article 5.1 of the SPS Agreement

7.321. Pursuant to the text of Article 5.1 of the SPS Agreement, the evaluation under this Article requires a panel to examine: (i) whether there is a risk assessment, as appropriate to the circumstances, taking into account risk assessment techniques developed by the relevant international organizations; and, (ii) if there is a risk assessment, whether the SPS measure of the Member concerned is based on it.

7.322. On the basis of the definition in paragraph 4 of Annex A to the SPS Agreement, the Appellate Body noted that a risk assessment within the meaning of Article 5.1, of the type relevant to this dispute, must: "(1) *identify* the diseases whose entry, establishment or spread a Member wants to prevent within its territory, as well as the potential biological and economic consequences associated with the entry, establishment or spread of these diseases; (2) *evaluate the likelihood* of entry, establishment or spread of these diseases, as well as the associated potential biological and economic consequences; and (3) evaluate the likelihood of entry, establishment or spread of these diseases *according to the SPS measures which might be applied*."⁹⁸⁰

7.323. On the basis of the ordinary meaning of the terms in the definition of the first type of risk assessment in Annex A(4), as well as on the basis of the definition of "risk" and "risk assessment" developed by the relevant international organization in that case, the Appellate Body explained in *Australia – Salmon* that a proper risk assessment of this type must evaluate the probability of entry, establishment or spread of diseases and associated biological and economic consequences, and that it is not sufficient for it to conclude that there is a possibility of entry, establishment or spread of diseases and associated biological and economic consequences.⁹⁸¹

7.324. The assertion by the Appellate Body in *Australia – Salmon* that it is not sufficient for a risk assessment of the first type to conclude that there is a possibility of entry, establishment or spread of diseases and associated biological and economic consequences is also applicable in phytosanitary matters.⁹⁸² Indeed, ISPM No. 5, produced within the framework of the IPPC, defines "pest risk" (for quarantine pests) as "[t]he probability of introduction and spread of a pest and the magnitude of the associated potential economic consequences", and "pest risk assessment" (for quarantine pests) as "[e]valuation of the probability of the introduction and spread of a pest and the magnitude of the associated potential economic consequences".⁹⁸³

7.325. Science plays a "central" or "fundamental" role in a risk assessment.⁹⁸⁴ The Appellate Body in *EC – Hormones* agreed with the panel that a risk assessment under Article 5.1 is "a *scientific* process aimed at establishing the *scientific* basis for the sanitary measure a Member intends to take".⁹⁸⁵ The Appellate Body also considered the panel's statement "unexceptionable", "[t]o the

⁹⁷⁹ Appellate Body Reports, *US/Canada – Continued Suspension*, para. 591 (citing Appellate Body Report, *EC – Hormones*, para. 194). See also Appellate Body Report, *Korea – Radionuclides*, para. 5.106.

⁹⁸⁰ Appellate Body Report, *Australia – Salmon*, para. 121. (emphasis original) See also Appellate Body Reports, *Japan – Agricultural Products II*, para. 112; and *Japan – Apples*, para. 196.

⁹⁸¹ Appellate Body Report, *Australia – Salmon*, para. 123. See also Panel Report, *EC – Approval and Marketing of Biotech Products*, paras. 7.3045 and 7.3145.

⁹⁸² Appellate Body Report, *Australia – Salmon*, para. 123. See also Panel Report, *EC – Approval and Marketing of Biotech Products*, paras. 7.3045 and 7.3145.

⁹⁸³ ISPM No. 5, (Exhibit MEX-74), p. 14.

⁹⁸⁴ Appellate Body Reports, *India – Agricultural Products*, para. 5.19; *US/Canada – Continued Suspension*, para. 527; and *Australia – Apples*, para. 207.

⁹⁸⁵ Appellate Body Report, *EC – Hormones*, para. 187 (citing Panel Reports, *EC – Hormones (US)*, para. 8.107; and *EC – Hormones (Canada)*, para. 8.110). (emphasis original)

extent that the Panel intended to refer to a process characterized by systematic, disciplined and objective enquiry and analysis, that is, a mode of studying and sorting out facts and opinions".⁹⁸⁶

7.326. In *Australia – Apples*, the Appellate Body referred to *US/Canada – Continued Suspension* and explained that, in reviewing a risk assessment, a panel must scrutinize both the underlying scientific basis and the reasoning of the risk assessor based upon such underlying science.⁹⁸⁷

7.327. With respect to the first aspect, i.e. the scientific basis, the Appellate Body saw the panel's role as "limited to reviewing whether the scientific basis constitutes 'legitimate science according to the standards of the relevant scientific community'".⁹⁸⁸ The Appellate Body added that panels must determine whether "the scientific basis of the risk assessment comes from a respected and qualified source and can accordingly be considered 'legitimate science' according to the standards of the relevant scientific community".⁹⁸⁹

7.328. Regarding this criterion, the Appellate Body in *US/Canada – Continued Suspension* noted that, "[a]lthough the scientific basis need not represent the majority view within the scientific community, it must nevertheless have the necessary scientific and methodological rigour to be considered reputable science".⁹⁹⁰

7.329. Concerning the second aspect, i.e. the reasoning of the risk assessor, in *Australia – Apples*, the Appellate Body perceived the panel's role as involving "an assessment of whether the reasoning of the risk assessor is objective and coherent, that is, whether the conclusions find sufficient support in the scientific evidence relied upon".⁹⁹¹

7.330. The Appellate Body also clarified that a panel should first determine whether the scientific basis relied upon by the risk assessor is "legitimate" before reviewing whether the reasoning and the conclusions of the risk assessor that rely upon such a scientific basis are objective and coherent.⁹⁹²

7.331. Having done so, the panel must determine whether the results of the risk assessment sufficiently warrant the challenged SPS measures.⁹⁹³ According to the Appellate Body in *Australia – Apples*, this reasoning is consistent with the overarching requirement in Article 2.2 and reflected in Articles 5.1 and 5.2 that there be a "rational or objective relationship" between the SPS measures and the scientific evidence.⁹⁹⁴

7.332. In this regard, the Appellate Body in *India – Agricultural Products* noted that a panel's task encompasses a scrutiny of the scientific basis underlying a risk assessment and, ultimately, the SPS measure at issue.⁹⁹⁵

7.333. It should be noted that the Appellate Body in *Australia – Apples* explained that, in *US/Canada – Continued Suspension*, the Appellate Body "did not set out a series of steps that a panel must mechanically follow in the evaluation of a risk assessment", but suggested a way (or practical

⁹⁸⁶ Appellate Body Report, *EC – Hormones*, para. 187. See also Appellate Body Reports, *Australia – Apples*, para. 207; and *US/Canada – Continued Suspension*, para. 527 (citing Appellate Body Report, *EC – Hormones*, para. 187).

⁹⁸⁷ Appellate Body Report, *Australia – Apples*, para. 215. See also Appellate Body Reports, *US/Canada – Continued Suspension*, para. 591.

⁹⁸⁸ Appellate Body Report, *Australia – Apples*, para. 215. See also Appellate Body Reports, *US/Canada – Continued Suspension*, para. 591.

⁹⁸⁹ Appellate Body Report, *Australia – Apples*, para. 220. See also Appellate Body Reports, *US/Canada – Continued Suspension*, para. 591.

⁹⁹⁰ Appellate Body Reports, *US/Canada – Continued Suspension*, para. 591.

⁹⁹¹ Appellate Body Report, *Australia – Apples*, para. 215. See also Appellate Body Reports, *US/Canada – Continued Suspension*, para. 591.

⁹⁹² Appellate Body Report, *Australia – Apples*, para. 220.

⁹⁹³ Appellate Body Report, *Australia – Apples*, para. 215 (citing Appellate Body Reports, *US/Canada – Continued Suspension*, para. 591, in turn citing Appellate Body Report, *EC – Hormones*, para. 193).

⁹⁹⁴ Appellate Body Report, *Australia – Apples*, para. 215.

⁹⁹⁵ Appellate Body Report, *India – Agricultural Products*, para. 5.22 (citing Appellate Body Report, *Australia – Apples*, para. 215, in turn citing Appellate Body Reports, *US/Canada – Continued Suspension*, para. 591).

guidelines) centred on the notion that the risk assessment should be evaluated in light of the scientific evidence on which it relies.⁹⁹⁶

7.334. Also relevant is the observation of the panel in *Australia – Salmon (Article 21.5 – Canada)* that the reference made in Articles 5.1, 5.2, and 2.2 to a series of objective factors such as "risk assessment techniques developed by the relevant international organizations", "available scientific evidence", "scientific principles" and "sufficient scientific evidence" strengthened its view that the evaluation of probability needs to achieve a certain level of objectivity.⁹⁹⁷ This is in line with the Appellate Body's observation that the reference to a process characterized by systematic, disciplined and objective enquiry and analysis is unexceptionable.⁹⁹⁸

7.4.3.3 Legal standard under Article 5.2 of the SPS Agreement

7.335. Article 5.2 requires Members to take into account certain elements in the assessment of risks. These elements are: (i) available scientific evidence; (ii) relevant processes and production methods; (iii) relevant inspection, sampling and testing methods; (iv) prevalence of specific diseases or pests; (v) existence of pest- or disease-free areas; (vi) relevant ecological and environmental conditions; and (vii) quarantine or other treatment.

7.336. In considering the factors that should be taken into account in the assessment of risk, the Appellate Body in *EC – Hormones* referred to the factors in Article 5.2 of the SPS Agreement.⁹⁹⁹ With respect to these factors, the Appellate Body noted that a panel cannot exclude from the scope of a risk assessment "all matters not susceptible of quantitative analysis by the empirical or experimental laboratory methods commonly associated with the physical sciences", and that there are elements in Article 5.2 such as "relevant processes and production methods" and "relevant inspection, sampling and testing methods" that are not necessarily or wholly susceptible of investigation according to laboratory methods.¹⁰⁰⁰ Moreover, the Appellate Body explained that the listing of factors in Article 5.2 is not a closed list¹⁰⁰¹, and that "[i]t is essential to bear in mind that the risk that is to be evaluated ... is not only risk ascertainable in a science laboratory operating under strictly controlled conditions, but also risk ... in the real world".¹⁰⁰²

7.337. Referring to these observations, the Appellate Body reiterated, in *Australia – Apples*, that the list in Article 5.2 is not a "closed list" and "does not *a priori* exclude factors that are not susceptible of quantitative analysis by the empirical or experimental laboratory methods commonly associated with the physical sciences".¹⁰⁰³ Thus, Article 5.2 "requires a risk assessor to take into account the available scientific evidence, together with other factors".¹⁰⁰⁴

7.338. In *Australia – Apples*, the Appellate Body further explained that whether a risk assessor has taken into account the available scientific evidence in accordance with Article 5.2 of the SPS Agreement and whether its risk assessment is a proper risk assessment within the meaning of Article 5.1 and Annex A(4) "must be determined by assessing the relationship between the conclusions of the risk assessor and the relevant available scientific evidence".¹⁰⁰⁵

7.339. The panel in *US – Continued Suspension* was of the view that taking available scientific evidence into account "does not require that a Member conform its actions to a particular conclusion in a particular scientific study", since "[t]he available scientific information may contain a multiplicity of views and data on a particular topic".¹⁰⁰⁶ Article 5.2 aims to ensure that a Member, when assessing

⁹⁹⁶ Appellate Body Report, *Australia – Apples*, para. 219.

⁹⁹⁷ Panel Report, *Australia – Salmon (Article 21.5 – Canada)*, para. 7.48.

⁹⁹⁸ Appellate Body Report, *EC – Hormones*, para. 187. See also Appellate Body Reports, *Australia – Apples*, para. 207; and *US/Canada – Continued Suspension*, para. 527 (citing Appellate Body Report, *EC – Hormones*, para. 187).

⁹⁹⁹ Appellate Body Report, *EC – Hormones*, para. 187.

¹⁰⁰⁰ Appellate Body Report, *EC – Hormones*, para. 187.

¹⁰⁰¹ Appellate Body Report, *EC – Hormones*, para. 187.

¹⁰⁰² Appellate Body Report, *EC – Hormones*, para. 187. See also Appellate Body Reports, *US/Canada – Continued Suspension*, para. 527; and *India – Agricultural Products*, para. 5.19.

¹⁰⁰³ Appellate Body Report, *Australia – Apples*, para. 207.

¹⁰⁰⁴ Appellate Body Report, *Australia – Apples*, para. 208. See also Appellate Body Report, *India – Agricultural Products*, para. 5.19.

¹⁰⁰⁵ Appellate Body Report, *Australia – Apples*, para. 208.

¹⁰⁰⁶ Panel Report, *US – Continued Suspension*, para. 7.480.

risk, "has as wide a range as possible of scientific information before it to ensure that its measure will be based on sufficient scientific data and supported by scientific principles".¹⁰⁰⁷

7.340. With respect to the relationship between Articles 5.1 and 5.2 of the SPS Agreement, the panel in *Japan – Apples* considered that "[t]hese provisions directly inform each other", in that Article 5.2 "sheds light on the elements that are of relevance in the assessment of risks" foreseen in Article 5.1.¹⁰⁰⁸ That panel was of the opinion that Article 5.2 "imparts meaning to the general obligation" contained in Article 5.1, and that, in the course of its analysis under Article 5.1, it might also consider elements contained in Article 5.2.¹⁰⁰⁹

7.341. The panel in *Australia – Apples* also noted that Article 5.2 is inextricably linked to Article 5.1, as Article 5.2 enumerates a list of factors that must be taken into account by Members when conducting their risk assessments¹⁰¹⁰, and that Article 5.2 would be considered when looking at Article 5.1.¹⁰¹¹ In the same vein, the panel in *US – Poultry (China)* considered that Article 5.2 of the SPS Agreement "instructs WTO Members on how to conduct a risk assessment".¹⁰¹²

7.342. Following the reasoning of the panel in *Japan – Apples*, the panel in *US – Poultry (China)* noted that, in the course of its analysis under Article 5.1, it might also consider elements contained in Article 5.2.¹⁰¹³ Similarly, the panel in *US – Animals* explained that it agreed that claims under Article 5.2 should be examined within the context of the analysis of claims under Article 5.1.¹⁰¹⁴

7.343. The panel in *US – Animals* further considered that, when determining whether a risk assessment is "appropriate to the circumstances" in accordance with Article 5.1 of the SPS Agreement, the question of whether the elements set forth in Articles 5.2 and 5.3 were taken into account is relevant.¹⁰¹⁵

7.344. In short, as noted by other panels and the Appellate Body, the list in Article 5.2 is not a closed list, Article 5.2 requires the risk assessor to take into account available scientific evidence, together with other factors, and whether a risk assessor has taken into account the available scientific evidence in accordance with Article 5.2 must be determined by assessing the relationship between the conclusions of the risk assessor and the relevant available scientific evidence. In addition, other panels have included within an analysis of Article 5.1 of the SPS Agreement an assessment of whether the elements listed in Article 5.2 of the SPS Agreement were taken into account.¹⁰¹⁶

7.4.3.4 Legal standard under Article 5.3 of the SPS Agreement

7.345. Article 5.3 requires Members to take into account certain relevant economic factors both in assessing risk and in determining the measure to be applied for achieving the appropriate level of sanitary or phytosanitary protection from such risk. These relevant economic factors are: (i) the potential damage in terms of loss of production or sales in the event of the entry, establishment or spread of a pest or disease; (ii) the costs of control or eradication in the territory of the importing Member; and (iii) the relative cost-effectiveness of alternative approaches to limiting risks.

¹⁰⁰⁷ Panel Report, *US – Continued Suspension*, para. 7.480.

¹⁰⁰⁸ Panel Report, *Japan – Apples*, para. 8.230.

¹⁰⁰⁹ Panel Report, *Japan – Apples*, para. 8.232. See also Panel Report, *US – Poultry (China)*, para. 7.172 (citing Panel Report, *Japan – Apples*, para. 8.232).

¹⁰¹⁰ Panel Report, *Australia – Apples*, para. 7.211 (citing Appellate Body Reports, *US/Canada – Continued Suspension*, para. 527).

¹⁰¹¹ Panel Report, *Australia – Apples*, para. 7.211.

¹⁰¹² Panel Report, *US – Poultry (China)*, para. 7.171.

¹⁰¹³ Panel Report, *US – Poultry (China)*, para. 7.172 (citing Panel Report, *Japan – Apples*, para. 8.232).

¹⁰¹⁴ Panel Report, *US – Animals*, para. 7.320 (citing Panel Report, *Australia – Apples*, para. 7.211, in turn citing Panel Report, *Japan – Apples*, para. 8.230).

¹⁰¹⁵ Panel Report, *US – Animals*, para. 7.323.

¹⁰¹⁶ Panel Report, *US – Poultry (China)*, para. 7.173. See also Appellate Body Report, *India – Agricultural Products*, para. 5.8; and Panel Report, *EC – Approval and Marketing of Biotech Products*, para. 7.3019.

7.346. The panel in *Russia – Pigs (EU)*, interpreting this provision for the first time, considered that "there is no indication ... that the factors listed are only by way of example, rather this is presented as a complete list".¹⁰¹⁷

7.347. The panel in *Russia – Pigs (EU)* reviewed the interpretations that other panels have given of expressions similar to "shall take into account" in Articles 5.1, 5.2, 5.4, and 10.1 of the SPS Agreement and 12.3 of the TBT Agreement, and expressed its agreement with these interpretations.¹⁰¹⁸ The panel referred to, among other matters, the panel in *US – Animals*, which noted that "to take into account" means "to take into consideration, notice" and does not require any particular result of that consideration.¹⁰¹⁹

7.348. The panel in *Russia – Pigs (EU)* considered that a Member has the obligation to give consideration to the relevant economic factors listed in Article 5.3, and not to other economic factors, but that this obligation does not imply that consideration of the relevant economic factors will require a particular course of action from the Member imposing an SPS measure.¹⁰²⁰ According to that panel, it is the complaining party who bears the burden to demonstrate that the responding party did not take into account the relevant economic factors listed in that provision.¹⁰²¹

7.349. The panel in *Russia – Pigs (EU)* further noted that Article 5.3 refers to the obligation of taking into account the relevant economic factors listed therein in two different situations: (i) when assessing the risk to animal or plant life and health; and (ii) when determining the measure to be applied to achieve the appropriate level of sanitary or phytosanitary protection.¹⁰²²

7.350. The panel in *Russia – Pigs (EU)* considered that the first situation is informed by the obligation to base SPS measures on scientific principles (Article 2.2), through an assessment of risk appropriate to the circumstances (Articles 5.1 and 5.2), and was of the opinion that the obligation to take into account relevant economic factors when assessing risk is contingent upon the obligation to base an SPS measure on a risk assessment pursuant to Articles 5.1 and 5.2 of the SPS Agreement.¹⁰²³

7.351. For the panel in *Russia – Pigs (EU)*, any Member that does not base its SPS measures on a risk assessment, as defined in Article 5.1 and paragraph 4 of Annex A to the SPS Agreement, "would not be in a position to act in a manner consistent" with Article 5.3.¹⁰²⁴

7.352. The panel in *US – Animals* considered that, when determining whether a risk assessment is "appropriate to the circumstances" in accordance with Article 5.1, the question of whether the elements set forth in Articles 5.2 and 5.3 were taken into account is relevant.¹⁰²⁵

7.353. With respect to the second situation, i.e. determining the measure to be applied to achieve the ALOP, the panel in *Russia – Pigs (EU)* considered that the relevant economic factors listed in Article 5.3 should be taken into account in the context of compliance with Articles 2.2, 5.4, and 5.6 of the SPS Agreement.¹⁰²⁶

7.354. In short, the panel in *Russia – Pigs (EU)*, the only panel to interpret Article 5.3, considered that it provides a closed list of factors that must be taken into account in the assessment of risks and in determining the measure to be applied to achieve the ALOP, and that this obligation does not require a particular course of action from the Member imposing an SPS measure. Moreover, the panel in *US – Animals* has considered it relevant to analyse whether the elements in Article 5.3 have been taken into account when examining claims under Article 5.1.

¹⁰¹⁷ Panel Report, *Russia – Pigs (EU)*, para. 7.759.

¹⁰¹⁸ Panel Report, *Russia – Pigs (EU)*, paras. 7.760–7.767.

¹⁰¹⁹ Panel Report, *Russia – Pigs (EU)*, para. 7.763 (citing Panel Reports, *US – Animals*, para. 7.401, in turn citing Appellate Body Report, *Korea – Various Measures on Beef*, para. 111; and Panel Reports, *US – COOL*, para. 7.776).

¹⁰²⁰ Panel Report, *Russia – Pigs (EU)*, para. 7.767.

¹⁰²¹ Panel Report, *Russia – Pigs (EU)*, para. 7.768.

¹⁰²² Panel Report, *Russia – Pigs (EU)*, para. 7.769.

¹⁰²³ Panel Report, *Russia – Pigs (EU)*, para. 7.770.

¹⁰²⁴ Panel Report, *Russia – Pigs (EU)*, para. 7.775.

¹⁰²⁵ Panel Report, *US – Animals*, para. 7.323.

¹⁰²⁶ Panel Report, *Russia – Pigs (EU)*, para. 7.771.

7.4.3.5 Legal standard under Article 2.2 of the SPS Agreement

7.355. As its title indicates, Article 2 establishes "basic rights and obligations". In accordance with Article 2.2 of the SPS Agreement, Members shall ensure that any SPS measure is applied only to the extent necessary to protect human, animal or plant life or health, is based on scientific principles and is not maintained without sufficient scientific evidence, except as provided for in Article 5.7.

7.356. The Appellate Body in *Australia – Apples* stated that Article 2.2 "focuses on the need for an SPS measure to be based on scientific principles and sufficient scientific evidence".¹⁰²⁷

7.357. The Appellate Body in *India – Agricultural Products* explained that a panel's task under Article 2.2, as under Articles 5.1 and 5.2, encompasses a scrutiny of the scientific basis underlying a risk assessment and the SPS measure at issue.¹⁰²⁸

7.358. Regarding the sufficiency of scientific evidence, the Appellate Body in *Japan – Agricultural Products II* considered that the ordinary meaning of "sufficient" is "of a quantity, extent, or scope adequate to a certain purpose or object", and that, from this, it can be concluded that "'sufficiency' is a relational concept" that "requires the existence of a sufficient or adequate relationship between two elements, *in casu*, between the SPS measure and the scientific evidence".¹⁰²⁹ The Appellate Body in that dispute rejected the argument that direct application of Article 2.2 should be limited to situations in which the scientific evidence is "patently" insufficient.¹⁰³⁰ The Appellate Body noted that the obligation under Article 2.2 that an SPS measure not be maintained without sufficient scientific evidence requires that there be a rational or objective relationship between the SPS measure and the scientific evidence.¹⁰³¹

7.359. The Appellate Body in *India – Agricultural Products* stated that an assessment of whether a rational or objective relationship exists between the SPS measure and the scientific evidence must be undertaken in light of the particular circumstances of the case, including the characteristics of the measure at issue and the quality and quantity of the scientific evidence.¹⁰³²

7.360. In addition, the Appellate Body considered that an assessment of the consistency of an SPS measure with Article 2.2 would involve consideration of evidence relating to the specific risks against which the SPS measure seeks to protect.¹⁰³³ Similarly, the panel in *Japan – Apples (Article 21.5 – US)* noted that, in order for scientific evidence to support a measure sufficiently, it seems logical that such "scientific evidence must also be sufficient to demonstrate the existence of the risk which the measure is supposed to address", and that, as a result, it seems reasonable to consider "the extent of the relationship between the scientific evidence and the risk which this evidence is claimed to establish".¹⁰³⁴

7.361. The Appellate Body in *Japan – Apples* rejected the contention that, when analysing and assessing scientific evidence, a panel is obliged to give precedence to the importing Member's approach to scientific evidence and risk.¹⁰³⁵

7.362. Regarding the relationship between Articles 2.2 and 5.1, the Appellate Body has explained that Article 5.1 may be viewed as "a specific application of the basic obligations" contained in Article 2.2¹⁰³⁶ or as containing "more specific elaborations" of those basic obligations¹⁰³⁷, that the

¹⁰²⁷ Appellate Body Report, *Australia – Apples*, para. 209.

¹⁰²⁸ Appellate Body Report, *India – Agricultural Products*, para. 5.22.

¹⁰²⁹ Appellate Body Report, *Japan – Agricultural Products II*, para. 73.

¹⁰³⁰ Appellate Body Report, *Japan – Agricultural Products II*, para. 82.

¹⁰³¹ Appellate Body Report, *Japan – Agricultural Products II*, para. 84 (citing Panel Report, *Japan – Agricultural Products II*, paras. 8.29 and 8.42).

¹⁰³² Appellate Body Report, *India – Agricultural Products*, para. 5.26 (citing Appellate Body Reports, *Japan – Agricultural Products II*, para. 84; and *Japan – Apples*, para. 164).

¹⁰³³ Appellate Body Report, *India – Agricultural Products*, paras. 5.26-5.27.

¹⁰³⁴ Panel Report, *Japan – Apples (Article 21.5 – US)*, para. 8.45.

¹⁰³⁵ Appellate Body Report, *Japan – Apples*, paras. 166-167.

¹⁰³⁶ Appellate Body Reports, *EC – Hormones*, para. 180; *US/Canada – Continued Suspension*, para. 526; and *Australia – Apples*, para. 209.

¹⁰³⁷ Appellate Body Reports, *India – Agricultural Products*, para. 5.12; and *Australia – Apples*, para. 341.

two Articles "should constantly be read together"¹⁰³⁸ and that Article 2.2 "informs" Article 5.1, since the elements that define the basic obligation set out in Article 2.2 impart meaning to Article 5.1.¹⁰³⁹

7.363. However, the Appellate Body in *India – Agricultural Products* clarified that Articles 5.1 and 5.2 do not in any way serve to limit the scope of application of Article 2.2, or vice versa¹⁰⁴⁰, but that "all of these obligations apply together".¹⁰⁴¹

7.364. The Appellate Body in *Australia – Apples* noted that there is a "one-way, dependent relationship ... between the more specific provisions of Article 5.1 or Article 5.2, on the one hand, and the more general provisions of Article 2.2, on the other hand. Thus, ... a violation of Article 5.1 or Article 5.2 can be presumed to imply a violation of Article 2.2, but ... the reverse does not hold true".¹⁰⁴² Moreover, in *India – Agricultural Products*, the Appellate Body, referring to its previous reports, stated that an SPS measure found to be inconsistent with Articles 5.1 and 5.2 can be presumed, more generally, to be inconsistent with Article 2.2.¹⁰⁴³

7.365. The Appellate Body explained that, nonetheless, the terms used in these Articles "are not identical" and that, therefore, their respective scopes may not be entirely coextensive.¹⁰⁴⁴ Accordingly, although a finding of a violation of Articles 5.1 and 5.2 may give rise to a presumption of inconsistency with Article 2.2, such presumption cannot be irrebuttable, that is, it cannot be excluded that there may be circumstances in which an SPS measure that violates Articles 5.1 and 5.2 will not be inconsistent with Article 2.2.¹⁰⁴⁵

7.366. The Appellate Body also noted that, even though the presumption of inconsistency is rebuttable, establishing that there exists a rational or objective relationship between the SPS measure and the scientific evidence for the purposes of Article 2.2 would, in most cases, be difficult without a Member demonstrating that such a measure is based on an assessment of the risks, as appropriate to the circumstances.¹⁰⁴⁶

7.367. In short, as noted by the Appellate Body, a panel's task under Article 2.2 encompasses a scrutiny of the scientific basis underlying a risk assessment and the SPS measure at issue, and the obligation that an SPS measure not be maintained without sufficient scientific evidence requires that there be a rational or objective relationship between the SPS measure and the scientific evidence.

7.368. In addition, Articles 5.1 and 5.2 of the SPS Agreement constitute a specific application or a more specific elaboration of the basic obligation set out in Article 2.2, and a finding of a violation of Articles 5.1 and 5.2 may give rise to a rebuttable presumption of inconsistency with Article 2.2. Nevertheless, Members have an obligation to comply with all the requirements of both Article 2 and Article 5 of the SPS Agreement.

7.4.4 Structure of the Panel's analysis of Mexico's claims regarding risk assessment obligations

7.369. This Panel will now explain how it will structure its analysis of Mexico's claims under Articles 5.1, 5.2, 5.3, and 2.2 of the SPS Agreement, bearing in mind Costa Rica's risk assessment, Mexico's claims, and the practical guidance developed by other panels and the Appellate Body.

¹⁰³⁸ Appellate Body Reports, *EC – Hormones*, para. 180; *Australia – Salmon*, para. 130; and *India – Agricultural Products*, para. 5.20.

¹⁰³⁹ Appellate Body Report, *India – Agricultural Products*, para. 5.20 (citing Appellate Body Report, *EC – Hormones*, para. 180). See also Appellate Body Reports, *US/Canada – Continued Suspension*, para. 526; *Australia – Apples*, paras. 209 and 339; and *Australia – Salmon*, para. 130.

¹⁰⁴⁰ Appellate Body Report, *India – Agricultural Products*, para. 5.21. See also Appellate Body Report, *Japan – Agricultural Products II*, para. 82.

¹⁰⁴¹ Appellate Body Report, *India – Agricultural Products*, para. 5.21.

¹⁰⁴² Appellate Body Report, *Australia – Apples*, para. 340 (citing Appellate Body Report, *Australia – Salmon*, para. 138). See also Appellate Body Report, *India – Agricultural Products*, para. 5.23.

¹⁰⁴³ Appellate Body Report, *India – Agricultural Products*, para. 5.23 (citing Appellate Body Reports, *Australia – Salmon*, para. 138; and *Australia – Apples*, para. 340).

¹⁰⁴⁴ Appellate Body Report, *India – Agricultural Products*, para. 5.24.

¹⁰⁴⁵ Appellate Body Report, *India – Agricultural Products*, para. 5.24.

¹⁰⁴⁶ Appellate Body Report, *India – Agricultural Products*, para. 5.29 and fn 305.

7.4.4.1 Structure of the analysis under Article 5.1 of the SPS Agreement

7.370. As detailed above, in the course of its analysis under Article 5.1 of the SPS Agreement, the Panel must consider two issues: (i) whether there is a risk assessment, as appropriate to the circumstances, taking into account risk assessment techniques developed by the relevant international organizations; and, (ii) if there is a risk assessment, whether the SPS measure of the Member concerned is based on it.

7.371. On the first issue, i.e. whether there is a *risk assessment*, as appropriate to the circumstances, taking into account risk assessment techniques developed by the relevant international organizations, as explained, the definition of "risk assessment" relevant to the measure at issue in this dispute is the first definition contained in paragraph 4 of Annex A to the SPS Agreement. This definition is as follows: "[t]he evaluation of the likelihood of entry, establishment or spread of a pest or disease within the territory of an importing Member according to the sanitary or phytosanitary measures which might be applied, and of the associated potential biological and economic consequences." The Panel will begin its analysis of the first issue that it must examine under Article 5.1 by addressing this definition.

7.372. To this end, this Panel will follow the Appellate Body's indication that a risk assessment within the meaning of Article 5.1, of the type relevant to this dispute, must: "(1) *identify* the diseases whose entry, establishment or spread a Member wants to prevent within its territory, as well as the potential biological and economic consequences associated with the entry, establishment or spread of these diseases; (2) *evaluate the likelihood* of entry, establishment or spread of these diseases, as well as the associated potential biological and economic consequences; and (3) evaluate the likelihood of entry, establishment or spread of these diseases *according to the SPS measures which might be applied*."¹⁰⁴⁷

7.373. In dealing with this same first issue, the Panel will also analyse: (i) whether the risk assessment is appropriate to the circumstances; and (ii) whether risk assessment techniques developed by the relevant international organizations were taken into account.

7.374. Also with regard to this first issue of its analysis under Article 5.1, the Panel will examine whether, in the assessment of risk, Costa Rica took into account available scientific evidence and other factors as per Article 5.2 of the SPS Agreement, as well as the relevant economic factors listed in Article 5.3 of the SPS Agreement. The Panel will elaborate on its decision to address Articles 5.2 and 5.3 in the analysis of Article 5.1 in section 7.4.4.2 below.

7.375. In terms of how to approach the risk assessment in order to analyse whether it complies with the first issue in Article 5.1, including the definition in Annex A(4) and Articles 5.2 and 5.3, the Panel notes that there is no specific path that it must take. For example, the Appellate Body in *Australia – Apples* spoke of reviewing the risk assessment as a whole or through an analysis of individual steps and factors.

7.376. The Appellate Body in *Australia – Apples* noted that "whether a panel reviews the risk assessment as a whole, or whether it bases its overall conclusions on the analyses of the individual steps and factors reviewed, will depend on the type and structure of risk assessment reviewed, and possibly on how a complainant presents and develops its claims."¹⁰⁴⁸

7.377. The Appellate Body also considered that a panel is not required to establish whether each fault is, in itself, "serious enough to undermine the entire risk assessment".¹⁰⁴⁹ The Appellate Body explained that "[a] comprehensive analysis of all the steps and factors reviewed may be sufficient to determine whether various flaws are, when taken together, serious enough to render a risk assessment one that does not constitute a proper risk assessment."¹⁰⁵⁰

7.378. This Panel will examine Costa Rica's risk assessment by analysing the different elements and factors of it (similar to the review of "steps and factors" in *Australia – Apples*) and, on the basis of

¹⁰⁴⁷ Appellate Body Report, *Australia – Salmon*, para. 121. (emphasis original) See also Appellate Body Reports, *Japan – Agricultural Products II*, para. 112; and *Japan – Apples*, para. 196.

¹⁰⁴⁸ Appellate Body Report, *Australia – Apples*, para. 258.

¹⁰⁴⁹ Appellate Body Report, *Australia – Apples*, para. 258.

¹⁰⁵⁰ Appellate Body Report, *Australia – Apples*, para. 258.

this analysis, will draw its overall conclusions. To this end, the Panel will follow the structure of Costa Rica's risk assessment, as contained in Reports ARP-002-2017 and ARP-006-2016. The reports themselves facilitate the analysis conducted in this way, by including in step 2 (pest risk assessment) the sections on pest categorization and assessment of the probability of entry, including the probability of entry and establishment, the probability of spread, and potential economic consequences. The reports also contain the section on pest risk management.

7.379. Regarding the structure of the analysis of the different elements and factors of the risk assessment, the Panel will begin by addressing the issue of the determination of freedom from ASBVd in Costa Rica as part of the basis for Reports ARP-002-2017 and ARP-006-2016.

7.380. Subsequently, in line with the definition of "risk assessment" relevant to this dispute, contained in paragraph 4 of Annex A to the SPS Agreement, the guidance of the Appellate Body and the structure of Reports ARP-002-2017 and ARP-006-2016, the Panel will analyse: whether the pest or disease was identified, along with the associated potential biological and economic consequences; whether there was an evaluation of the likelihood of entry, establishment or spread of a pest or disease, and of the associated potential biological and economic consequences; and whether there was an evaluation of the likelihood of entry, establishment or spread of a pest or disease within the territory of an importing Member according to the sanitary or phytosanitary measures which might be applied.

7.381. As part of its review of the evaluation of the likelihood of entry, establishment or spread, and of the associated potential biological and economic consequences, the Panel will first address the methodology in Manual NR-ARP-PO-01_M-01 that was used in preparing the risk assessment contained in Reports ARP-002-2017 and ARP-006-2016.

7.382. Also as part of its review of the evaluation of the likelihood of entry, establishment or spread, and of the associated potential biological and economic consequences, the Panel will analyse diversion from intended use and spontaneous germination, which are fundamental, cross-cutting themes that permeate the evaluation of these three probabilities.

7.383. Separately, the Panel will address the rest of Mexico's arguments regarding the evaluation of the three probabilities, i.e. the probability of entry, establishment and spread in Reports ARP-002-2017 and ARP-006-2016. These arguments are related to scientific evidence and uncertainty.

7.384. In addition, Mexico has identified some specific circumstances that it believes Costa Rica should have considered in order for its risk assessment to be *appropriate to the circumstances*. To the extent that the Panel has not already addressed these arguments in its analysis of the various factors and elements of the risk assessment, the Panel will address them subsequently.

7.385. Then, the Panel will also address Mexico's specific arguments regarding whether risk assessment techniques developed by the relevant international organizations were taken into account.

7.386. As noted, the Appellate Body has explained that, in reviewing a risk assessment under Article 5.1, a panel should "determine whether that risk assessment is supported by coherent reasoning and respectable scientific evidence and is, in this sense, objectively justifiable".¹⁰⁵¹ Therefore, a panel must scrutinize both the scientific basis of the risk assessment and the reasoning of the risk assessor based upon such underlying science.¹⁰⁵² This Panel considers that, although they do not constitute steps that must be mechanically followed, these aspects are the axis of a panel's review of a risk assessment, which, as explained, should establish the scientific basis for an SPS measure.

¹⁰⁵¹ Appellate Body Report, *Australia – Apples*, para. 213 (citing Appellate Body Reports, *US/Canada – Continued Suspension*, para. 590).

¹⁰⁵² Appellate Body Report, *Australia – Apples*, para. 215. See also Appellate Body Reports, *US/Canada – Continued Suspension*, para. 591.

7.387. As the Panel also noted, Article 5.2 requires that, in the assessment of risks, Members take into account, *inter alia*, available scientific evidence, and Article 2.2 requires SPS measures to be based on scientific principles and not to be maintained without sufficient scientific evidence.

7.388. In *Australia – Apples*, the Appellate Body explained that whether a risk assessor has taken into account the available scientific evidence in accordance with Article 5.2 of the SPS Agreement and whether its risk assessment is a proper risk assessment within the meaning of Article 5.1 and Annex A(4) "must be determined by assessing the relationship between the conclusions of the risk assessor and the relevant available scientific evidence".¹⁰⁵³

7.389. In light of the foregoing, in the course of its analysis of Costa Rica's risk assessment, this Panel will scrutinize the scientific evidence and the reasoning of the risk assessor in order to determine whether there is a risk assessment in accordance with Article 5.1 that meets the definition in Annex A(4) and the requirements of Articles 5.2 and 5.3 of the SPS Agreement.

7.390. Subsequently, on the second issue that it must examine under Article 5.1, the Panel will analyse whether Costa Rica's SPS measure is based on the risk assessment. To this end, the Panel will analyse whether the results of the risk assessment sufficiently warrant the SPS measure at issue.

7.391. In summary, in its analysis under Article 5.1 of the SPS Agreement, the Panel will first analyse whether there is a risk assessment appropriate to the circumstances that takes into account risk assessment techniques developed by the relevant international organizations. In order to do this, the Panel will examine whether Costa Rica's risk assessment meets the definition in Annex A(4) and the criteria in Article 5.1, and whether the factors in Articles 5.2 and 5.3 of the SPS Agreement were taken into account. The Panel will carry out this review by analysing the different elements and factors of the risk assessment, and, on the basis of this analysis, will draw its overall conclusions. Subsequently, the Panel will analyse whether Costa Rica's SPS measure is based on this risk assessment.

7.392. In the course of its analysis of Costa Rica's risk assessment, this Panel will examine the scientific basis for the risk assessment and the reasoning of the risk assessor, which will enable it to determine whether the risk assessment is in line with the definition in Annex A(4) and the requirements of Articles 5.1, 5.2, and 5.3 of the SPS Agreement.

7.4.4.2 Treatment of Articles 5.2 and 5.3 of the SPS Agreement

7.393. As explained, the Panel will consider, as part of the first step of the analysis under Article 5.1, whether, in the assessment of risk, Costa Rica took into account available scientific evidence and other factors as per Article 5.2, as well as the relevant economic factors listed in Article 5.3. The Panel will elaborate on this decision below.

7.394. **Mexico** states that the various paragraphs of Article 5 set out distinct legal obligations with which Members must comply.¹⁰⁵⁴ For Mexico, Article 5.1 of the SPS Agreement is to be understood as the main obligation, and Articles 5.2 and 5.3 as containing specific disciplines with respect to this main obligation to base measures on a risk assessment appropriate to the circumstances.¹⁰⁵⁵

7.395. Mexico asserts that Articles 5.2 and 5.3 of the SPS Agreement stipulate the specific elements of a risk assessment on which Members must base their measures for the purposes of Article 5.1, and establish the way in which a risk assessment has to be carried out, but not the substantive obligation to base a measure on a risk assessment.¹⁰⁵⁶ Mexico therefore considers that, in order to determine whether a Member is complying with its obligation to base its measures on a risk assessment "appropriate to the circumstances" under Article 5.1 of the SPS Agreement, the question of whether it took into account the elements set forth in Articles 5.2 and 5.3 is also relevant.¹⁰⁵⁷

¹⁰⁵³ Appellate Body Report, *Australia – Apples*, para. 208.

¹⁰⁵⁴ Mexico's response to Panel question No. 108, para. 153 (citing Appellate Body Report, *Australia – Apples*, para. 341).

¹⁰⁵⁵ Mexico's response to Panel question No. 108, para. 153.

¹⁰⁵⁶ Mexico's response to Panel question No. 108, para. 155 (citing Panel Report, *Australia – Salmon*, para. 8.57).

¹⁰⁵⁷ Mexico's response to Panel question No. 108, para. 156.

7.396. **Costa Rica**, for its part, states that Articles 5.2 and 5.3 of the SPS Agreement inform the obligations under Article 5.1 of the SPS Agreement as a whole, and requests the Panel, in addressing this matter, to consider Articles 5.1, 5.2, and 5.3 as a whole, and not in a segmented manner.¹⁰⁵⁸

7.397. The **European Union's** opinion, as a third party, is that the various paragraphs of Article 5 of the SPS Agreement set out distinct legal obligations; and that Article 5.1 requires that the risk assessment must sufficiently warrant – that is to say, reasonably support – the SPS measure at stake, while Articles 5.2 and 5.3 qualify the way in which a risk assessment has to be carried out, not the substantive obligation to base an SPS measure on a risk assessment.¹⁰⁵⁹ The European Union adds that Articles 5.2 and 5.3 shed light on the elements that are of relevance in the assessment of risks foreseen in Article 5.1, meaning that Article 5.1 is the main obligation, with Articles 5.2 and 5.3 containing more specific disciplines concerning this main obligation.¹⁰⁶⁰

7.398. **Canada's** view, as a third party, is that, in assessing the risks under Article 5.1, a WTO Member is also required to consider the factors set out in Articles 5.2 and 5.3.¹⁰⁶¹ Canada mentions that Article 5.1 requires WTO Members to ensure that their SPS measures are based on a risk assessment, while Articles 5.2 and 5.3 apply to the assessment of these risks. Thus, they set out specific evidence, information and factors a WTO Member must take into account when it conducts a risk assessment.¹⁰⁶² For Canada, Article 5.2, along with Article 5.3, qualifies the way a risk assessment is conducted. However, WTO Members are still required, as a separate obligation, to base their SPS measures on a risk assessment.¹⁰⁶³

7.399. **El Salvador** considers, as a third party, that the obligations contained in Articles 5.2 and 5.3 of the SPS Agreement form part of the general obligation contained in Article 5.1 of said Agreement, in that they develop the factors that Members must take into account when conducting a risk assessment.¹⁰⁶⁴ Accordingly, El Salvador is of the view that the factors mentioned in Articles 5.2 and 5.3 should be considered when conducting a risk assessment, which should be carried out in a manner appropriate to the circumstances of each Member.¹⁰⁶⁵

7.400. The **Panel** notes that both provisions, namely Articles 5.2 and 5.3, relate to factors that Members are required to take into account in the assessment of risks, which is why previous panels have considered that a panel could assess arguments related to the factors in these two Articles in its analysis under Article 5.1 of the SPS Agreement.

7.401. As described above, the panel in *Japan – Apples* considered that "[t]hese provisions directly inform each other", in that Article 5.2 "sheds light on the elements that are of relevance in the assessment of risks" foreseen in Article 5.1.¹⁰⁶⁶ That panel was of the opinion that Article 5.2 "imparts meaning to the general obligation" contained in Article 5.1, and that, in the course of its analysis under Article 5.1, it might also consider elements contained in Article 5.2.¹⁰⁶⁷

7.402. The panel in *Australia – Apples* also noted that Article 5.2 is inextricably linked to Article 5.1, as the former provision enumerates a list of factors that Members must take into account when conducting their risk assessments¹⁰⁶⁸, and that Article 5.2 would be considered when looking at

¹⁰⁵⁸ Costa Rica's response to Panel question No. 108, para. 3.

¹⁰⁵⁹ European Union's response to Panel question No. 6, para. 17 (citing Appellate Body Reports, *Australia – Apples*, para. 341; and *US/Canada – Continued Suspension*, para. 528; and Panel Report, *Australia – Salmon*, para. 8.57).

¹⁰⁶⁰ European Union's response to Panel question No. 6, para. 18 (citing Panel Report, *US – Animals*, para. 7.320).

¹⁰⁶¹ Canada's response to Panel question No. 6, para. 15 (citing Panel Report, *Australia – Apples*, para. 7.211).

¹⁰⁶² Canada's opening statement at the first meeting of the Panel, para. 13.

¹⁰⁶³ Canada's opening statement at the first meeting of the Panel, para. 14.

¹⁰⁶⁴ El Salvador's response to Panel question No. 6.

¹⁰⁶⁵ El Salvador's response to Panel question No. 6.

¹⁰⁶⁶ Panel Report, *Japan – Apples*, para. 8.230.

¹⁰⁶⁷ Panel Report, *Japan – Apples*, para. 8.232. See also Panel Report, *US – Poultry (China)*, para. 7.172 (citing Panel Report, *Japan – Apples*, para. 8.232).

¹⁰⁶⁸ Panel Report, *Australia – Apples*, para. 7.211 (citing Appellate Body Reports, *US/Canada – Continued Suspension*, para. 527).

Article 5.1.¹⁰⁶⁹ In the same vein, the panel in *US – Poultry (China)* considered that Article 5.2 of the SPS Agreement "instructs WTO Members on how to conduct a risk assessment".¹⁰⁷⁰

7.403. Following the reasoning of the panel in *Japan – Apples*, the panel in *US – Poultry (China)* noted that, in the course of its analysis under Article 5.1, it might also consider elements contained in Article 5.2.¹⁰⁷¹ Similarly, the panel in *US – Animals* explained that it agreed that claims under Article 5.2 should be examined within the context of the analysis of claims under Article 5.1.¹⁰⁷²

7.404. The panel in *US – Animals* further considered that, when determining whether a risk assessment is "appropriate to the circumstances" in accordance with Article 5.1 of the SPS Agreement, the question of whether the elements set forth in Articles 5.2 and 5.3 were taken into account is relevant.¹⁰⁷³

7.405. This Panel agrees with the approach followed by other panels. Accordingly, in the view of this Panel, to assess Mexico's claims under Article 5.1, the Panel should also examine Mexico's claims as to whether, in the assessment of risk, the factors set out in Articles 5.2 and 5.3 of the SPS Agreement were taken into account. In other words, the Panel will consider, in its analysis of Costa Rica's risk assessment under Article 5.1 of the SPS Agreement, whether, in the assessment of risk, Costa Rica took into account available scientific evidence and other factors as per Article 5.2 and the relevant economic factors listed in Article 5.3.

7.406. It should be added that Mexico has included in its arguments a section containing specific arguments as to whether, in the assessment of risk, Costa Rica took into account available scientific evidence and other factors as per Article 5.2, and another section containing specific arguments concerning the relevant economic factors listed in Article 5.3. To the extent that the Panel has not already addressed these arguments in its analysis of the various elements of the risk assessment, the Panel will address them subsequently.

7.407. The Panel also notes that Mexico has presented arguments as to whether, *in determining its measures*, Costa Rica took into account the relevant economic factors in Article 5.3. The Panel will address these arguments after examining Mexico's claims regarding the risk assessment.

7.4.4.3 Treatment of Article 2.2 of the SPS Agreement

7.408. Subsequent to, and in light of, the analysis of Mexico's claims under Articles 5.1, 5.2, and 5.3 of the SPS Agreement, the Panel will address Mexico's claims under Article 2.2 of the SPS Agreement.

7.409. As explained above, Article 5.1 may be viewed as "a specific application of the basic obligations" contained in Article 2.2.¹⁰⁷⁴ In addition, as clarified by the Appellate Body in *India – Agricultural Products*, an SPS measure found to be inconsistent with Articles 5.1 and 5.2 of the SPS Agreement can be presumed, more generally, to be inconsistent with Article 2.2.¹⁰⁷⁵

7.410. However, as also explained above, although the relationship between these provisions gives rise to a presumption that a finding of a violation of Articles 5.1 and 5.2 will result in a finding of a violation of Article 2.2, such presumption cannot be irrebuttable.¹⁰⁷⁶ Lastly, it should be noted that, even though the presumption of inconsistency is rebuttable, the Appellate Body in *India – Agricultural Products* observed that establishing that there exists a rational or objective relationship between the SPS measure and the scientific evidence for the purposes of Article 2.2 would, in most

¹⁰⁶⁹ Panel Report, *Australia – Apples*, para. 7.211.

¹⁰⁷⁰ Panel Report, *US – Poultry (China)*, para. 7.171.

¹⁰⁷¹ Panel Report, *US – Poultry (China)*, para. 7.172 (citing Panel Report, *Japan – Apples*, para. 8.232).

¹⁰⁷² Panel Report, *US – Animals*, para. 7.320 (citing Panel Report, *Australia – Apples*, para. 7.211, in turn citing Panel Report, *Japan – Apples*, para. 8.230).

¹⁰⁷³ Panel Report, *US – Animals*, para. 7.323.

¹⁰⁷⁴ Appellate Body Report, *EC – Hormones*, para. 180.

¹⁰⁷⁵ Appellate Body Report, *India – Agricultural Products*, para. 5.23 (citing Appellate Body Reports, *Australia – Salmon*, para. 138; and *Australia – Apples*, para. 340).

¹⁰⁷⁶ Appellate Body Report, *India – Agricultural Products*, paras. 5.23 and 5.24.

cases, be difficult without a Member demonstrating that such a measure is based on an assessment of the risks, as appropriate to the circumstances.¹⁰⁷⁷

7.4.5 Analysis of the risk assessment contained in Reports ARP-002-2017 and ARP-006-2016

7.4.5.1 The determination of absence of ASBVd in Costa Rica in ARP-002-2017 and ARP-006-2016

7.4.5.1.1 Mexico's argument with respect to the determination of absence of ASBVd in Costa Rica and Costa Rica's questioning of the Panel's terms of reference with respect to that determination

7.411. As concluded in paragraph 7.310 above, the Panel does not consider that Mexico has demonstrated, as a matter of fact, that ASBVd is present in Costa Rica. However, this is not the only factual issue to be resolved with respect to the phytosanitary status of ASBVd in Costa Rica. The Panel notes that, from the outset of the proceedings, **Mexico** has argued not only that it can be concluded that ASBVd is present in the territory of Costa Rica, but also that the declaration of freedom from ASBVd lacks scientific basis and was not based on the relevant ISPMs.¹⁰⁷⁸

7.412. Mexico states that it is undeniable that the determination of Costa Rica's phytosanitary status is a basic and essential issue that forms an integral part of the risk assessment, of the determination of its ALOP, of the choice of the relevant risk management measures and, therefore, of this dispute.¹⁰⁷⁹

7.413. Mexico submits that it was incumbent upon Costa Rica to follow the international standards applicable to the determination of the phytosanitary status of ASBVd in its territory, especially when it intended to use that status as the starting point for its PRAs and the basis for its measures.¹⁰⁸⁰ Mexico adds that, in matters of plant and animal health, it is the importing countries that bear the initial burden of determining pest status in an area of their territory, which is a key part of their PRAs and the resulting determination of the measures to be implemented to mitigate the likely risks.¹⁰⁸¹ Mexico states that the onus is not on it to demonstrate the presence of ASBVd in Costa Rica, given that, under the obligation to base phytosanitary measures on a risk assessment, Costa Rica should have demonstrated that ASBVd was absent in its territory.¹⁰⁸²

7.414. Mexico points out that it is not challenging the determination of the status of ASBVd in Costa Rican territory as an individual measure subject to this dispute, but rather the PRAs that are based on that determination which, according to Mexico, is a key element that led to the imposition of the measures applied to imports of fresh avocados for consumption from Mexico.¹⁰⁸³

7.415. Mexico further contends that, contrary to the recommendations of ISPM Nos. 4 and 6, Costa Rica failed to follow the requirements and procedures to claim that its territory is free of ASBVd as part of its pest risk assessment. Its SPS measures therefore lack the scientific basis to claim that ASBVd is absent in Costa Rica.¹⁰⁸⁴ For Mexico, the reasoning behind the determination of phytosanitary status should be in accordance with ISPM Nos. 6 and 8.¹⁰⁸⁵

7.416. **Costa Rica** submits that Mexico did not include in its panel request the declaration of the absence of ASBVd in Costa Rica's territory as a measure at issue. Consequently, the determination of the pest's absence is not part of the matter referred to the DSB and is, therefore, outside the

¹⁰⁷⁷ Appellate Body Report, *India – Agricultural Products*, para. 5.29 and fn 305.

¹⁰⁷⁸ Mexico's first written submission, paras. 281–282.

¹⁰⁷⁹ Mexico's second written submission, para.10; opening statement at the Panel's second meeting, para. 33; closing statement at the Panel's second meeting, para.4.

¹⁰⁸⁰ Mexico's second written submission, para. 12.

¹⁰⁸¹ Mexico's second written submission, para. 12.

¹⁰⁸² Mexico's opening statement at the Panel's second meeting, para. 35.

¹⁰⁸³ Mexico's second written submission, para. 14.

¹⁰⁸⁴ Mexico's first written submission, para. 412.

¹⁰⁸⁵ Mexico's opening statement at the Panel's second meeting, para. 34.

Panel's terms of reference.¹⁰⁸⁶ As a result, Costa Rica does not consider that an examination obligation arises within the terms of reference of this Panel as to whether or not the determination of absence of ASBVd was based on ISPM Nos. 8 and 6.¹⁰⁸⁷

7.417. For Costa Rica, it is difficult to ascertain whether Mexico is challenging the determination of absence of ASBVd in Costa Rica as a measure in itself, as part of the risk assessment, or whether it is a premise or factual element to support its case with respect to harmonization, discrimination and regionalization. In Costa Rica's view, Mexico has not identified the provisions of the covered agreements to which the determination of absence of ASBVd in Costa Rica would relate or with which it would be inconsistent.¹⁰⁸⁸

7.418. Costa Rica adds that Mexico's late submission of these claims has prevented the third parties from expressing their views and is contrary to the Panel's Working Procedures.¹⁰⁸⁹

7.419. Costa Rica therefore requests the Panel to declare inadmissible what Costa Rica considers to be Mexico's procedural claim that the Panel should rule on the determination of absence of ASBVd, as well as the claims related thereto.¹⁰⁹⁰

7.420. Furthermore, in Costa Rica's view, the declaration of a territory's freedom from a pest is a matter of national sovereignty, as the experts have recognized, and the NPPO of Costa Rica is the competent organization to determine the absence of quarantine pests in its territory and is responsible for surveillance efforts.¹⁰⁹¹

7.421. The **Panel** considers that, during the initial stages of the proceedings, Mexico presented and explained its arguments regarding the lack of scientific basis for Costa Rica's determination of absence of ASBVd, and provided all the documents available to it on Costa Rica's surveillance activities for detecting ASBVd that were carried out to determine Costa Rica's phytosanitary status with respect to ASBVd.¹⁰⁹²

7.422. The Panel also notes that Costa Rica states that its PRAs are based on the fact that ASBVd is absent from all of its territory, and indicates that this is the main reason why Costa Rica has adopted phytosanitary requirements to enable it to maintain this status.¹⁰⁹³

7.423. Moreover, in its first written submission, in its description of the facts, Costa Rica states that ASBVd is absent in Costa Rica¹⁰⁹⁴; that it stepped up surveillance for ASBVd, in accordance with ISPM No. 6, and decided to conduct sampling surveys nationwide to determine its phytosanitary status with respect to ASBVd, in accordance with ISPM No. 8.¹⁰⁹⁵ In its second written submission, Costa Rica notes that the many sampling surveys and diagnostic tests provided by Costa Rica in these proceedings demonstrate the absence of ASBVd.¹⁰⁹⁶

7.424. It is clear to the Panel that Costa Rica's determination of absence of ASBVd is an important factual matter in the dispute. As will be discussed below, this is part of the basis of Reports ARP-002-2017 and ARP-006-2016, is part of the justification for the adoption of the phytosanitary requirements being challenged, and is a disputed factual matter to which both parties have referred

¹⁰⁸⁶ Costa Rica's response to Panel question No. 80, para. 1; response to Panel question No. 81, para. 1; letter from Costa Rica to the Panel, dated 6 October 2020, para. 7; and opening statement at the Panel's second meeting, para.4.1.

¹⁰⁸⁷ Costa Rica's response to Panel question No. 80, para. 1; response to Panel question No. 81, para. 1.

¹⁰⁸⁸ Costa Rica, letter from Costa Rica to the Panel, dated 6 October 2020, paras. 9-10; opening statement at the Panel's second meeting, para.4.2.

¹⁰⁸⁹ Costa Rica, letter from Costa Rica to the Panel, dated 6 October 2020, para. 12; opening statement at the Panel's second meeting, para.4.3.

¹⁰⁹⁰ Costa Rica, letter from Costa Rica to the Panel, dated 6 October 2020, para. 14; opening statement at the Panel's second meeting, para.4.3.

¹⁰⁹¹ Costa Rica's opening statement at the Panel's second meeting, para. 4.6.

¹⁰⁹² See, for example, Mexico's first written submission, para. 442 (citing Sampling survey 2014, (Exhibit MEX-64); Sampling survey 2015-2016, (Exhibit MEX-65); and Memorandum CIBCM-PCDV-021-2015 (2015), (Exhibit MEX-134)).

¹⁰⁹³ Costa Rica's first written submission, para. 5.98.

¹⁰⁹⁴ Costa Rica's first written submission, para. 3.18.

¹⁰⁹⁵ Costa Rica's first written submission, para. 3.20.

¹⁰⁹⁶ Costa Rica's second written submission, paras. 3.30-3.31.

throughout the dispute. The Panel's task includes making an objective assessment of the facts, including an analysis of the evidence that the parties use in support of their arguments, which in this case includes an assessment of the determination of freedom from ASBVd in Costa Rica on the basis of documents from its ASBVd surveillance system.¹⁰⁹⁷

7.425. The Panel recognizes that the determination of the presence or absence of a pest in the territory of a WTO Member is the responsibility of that Member, which is therefore also responsible for the relevant surveillance efforts in order to make such a determination. However, the fact that the determination of the phytosanitary status of a pest is the responsibility of that Member does not mean that such a determination cannot be assessed by a panel in the WTO dispute settlement system. A Member's phytosanitary status with respect to a pest can play a decisive role in the process of developing and imposing phytosanitary measures, and panels may be obliged to assess the determination of that phytosanitary status in order to carry out their task pursuant to Article 11 of the DSU.

7.426. The Panel recalls that, while its task is not to engage in a *de novo* review, a policy of total deference to the findings of the national authorities could not ensure an "objective assessment" as provided for in Article 11 of the DSU.¹⁰⁹⁸ In the circumstances of the case at hand, this Panel could not carry out its task under Article 11 of the DSU if it gave full deference to Costa Rica relating to the determination of its phytosanitary status in respect of ASBVd.

7.427. The Panel therefore concludes that the analysis of the determination of absence of ASBVd in Costa Rica as a factual question falls within its terms of reference.

7.4.5.1.2 Reports ARP-002-2017 and ARP-006-2016 and the determination of absence of ASBVd in the territory of Costa Rica

7.428. **Mexico** submits that Costa Rica's risk assessment emanates from a highly questionable basic presupposition, namely the determination of absence of ASBVd in all its territory, which is why it seeks to justify that there is a high level of risk arising from the alleged irreparable consequences of the trade in avocados imported from Mexico for consumption.¹⁰⁹⁹ For Mexico, a risk assessment underpinned by a fundamental assertion about the alleged absence of ASBVd, which lacks the technical and scientific rigour required under the ISPMs, cannot be considered as being consistent with the SPS Agreement.¹¹⁰⁰

7.429. Mexico points out that its complaint clearly falls under Article 5.1 of the SPS Agreement, and that, given that the risk assessment involves a technical-scientific procedure, the premises on which it is based, including the determination of phytosanitary status, must be supported specifically by evidence of a technical and scientific nature.¹¹⁰¹

7.430. Mexico states that, in order to evaluate the likelihood of entry, Costa Rica should have demonstrated in a reasoned and systematic manner that ASBVd and its disease were absent in its territory.¹¹⁰² Mexico considers that the declaration of freedom from ASBVd has no scientific basis, was not based on the relevant ISPMs, and it is possible to infer from the available information that ASBVd is present in the territory of Costa Rica.¹¹⁰³

7.431. Mexico also submits that Costa Rica failed to base the findings of its PRA on, nor did it take into account, valid scientific processes and methods that would demonstrate the alleged absence of

¹⁰⁹⁷ As mentioned in section 1.3.3.4 above, the Panel considered that it was necessary to request the parties to provide any additional information and supporting documentation on the Costa Rican surveillance system in respect of ASBVd, in order to be able to make an objective assessment of the facts of the dispute relating to the determination of freedom from ASBVd in Costa Rica. The Panel therefore sent its request for additional information and supporting documentation to the parties on 3 August 2020.

¹⁰⁹⁸ Appellate Body Report, *EC – Hormones*, para. 117 (citing Panel Report, *US – Underwear*, para. 7.10).

¹⁰⁹⁹ Mexico's opening statement at the Panel's first meeting, para. 14; second written submission, para. 11; opening statement at the Panel's second meeting, para. 33.

¹¹⁰⁰ Mexico's opening statement at the Panel's first meeting, para. 25.

¹¹⁰¹ Mexico's opening statement at the Panel's second meeting, para. 34.

¹¹⁰² Mexico's first written submission, para. 280.

¹¹⁰³ Mexico's first written submission, para. 281.

ASBVd in its territory.¹¹⁰⁴ In Mexico's view, Costa Rica failed to consider relevant inspection, sampling and testing methods in its risk assessment, because the sampling surveys conducted by Costa Rica to determine the absence of ASBVd lack the proper application of scientific methodology.¹¹⁰⁵

7.432. **Costa Rica**, on the other hand, notes that Mexico has failed to demonstrate that the presence or absence of a pest in the PRA area is a factor determining the probability of entry of a pest into a territory¹¹⁰⁶, but that, in any event, Costa Rica's PRAs are based on the fact that ASBVd is absent in Costa Rica, and that this is the main reason why Costa Rica has adopted phytosanitary requirements to enable it to maintain this status.¹¹⁰⁷

7.433. The **Panel** notes that, during the Panel's meeting with the parties and experts, the experts' opinion was sought as to whether the determination of the phytosanitary status of a pest is part of the risk assessment. The expert Robert Griffin is of the view that the phytosanitary status is part of the risk analysis, that the phytosanitary status depends on the pest, and that the status of the pest in the area protected by the PRA is the key to initiating the PRA.¹¹⁰⁸ The expert Pablo Cortese notes that the determination of phytosanitary status is the subject of ISPM Nos. 6 and 8, but that, clearly, the status of a pest in the area needs to be known in order to initiate the PRA.¹¹⁰⁹

7.434. The Panel notes that Report ARP-002-2017 states, at the initiation stage, in the section on "[j]ustifications for further study of the pest or for non-inclusion", that recent sampling surveys confirmed that ASBVd is absent in Costa Rica, and that those sampling surveys were conducted by the Regional Operations Department in the districts of Grecia, Heredia, Naranjo, Cartago, Desamparados, Dota, El Guarco, León Cortés, Tarrazú, Abangares, Tilarán, Liberia, Esparza, Orotina and Coto Brus.¹¹¹⁰ This was also noted in Report ARP-006-2016 in an introductory section on ASBVd.¹¹¹¹ The Reports also note that, despite the fact that Hadidi et al. (2003) and CABI (2017) state that ASBVd is present in Costa Rica, this is incorrect, as it is based on the article by Vargas et al. (1997), which only mentions the presence of ASBVd in Peru, not in Costa Rica.¹¹¹²

7.435. Report ARP-002-2017 also states, in its conclusion on the initiation stage, that the PRA was initiated pursuant to the revision of the national phytosanitary policy, in order to assess the risks associated with pests present in avocados in Mexico and absent in Costa Rica, including ASBVd.¹¹¹³ Report ARP-006-2016 concludes that ASBVd was identified at the initiation stage as a pest to be analysed.¹¹¹⁴

7.436. In addition, Reports ARP-002-2017 and ARP-006-2016 state, in their sections on pest risk management, that, based on the information arising from the risk analysis, the implementation of specific phytosanitary measures is recommended; that Costa Rica is free of the pest ASBVd, and should therefore adopt the necessary phytosanitary measures to prevent its entry into Costa Rican territory; and that, in this regard, the measures adopted should achieve the "maximum level of phytosanitary protection".¹¹¹⁵

7.437. The Panel recalls that Costa Rica contends that its PRAs are based on the fact that ASBVd is absent in all its territory, and notes that this is the main reason why Costa Rica has adopted phytosanitary requirements to enable it to maintain this status.¹¹¹⁶

¹¹⁰⁴ Mexico's first written submission, para. 453.

¹¹⁰⁵ Mexico's second written submission, paras. 192 and 198.

¹¹⁰⁶ Costa Rica's first written submission, para. 5.97; second written submission, fn 64 to para. 3.30.

¹¹⁰⁷ Costa Rica's first written submission, para. 5.98.

¹¹⁰⁸ Robert Griffin, transcript of the Panel's meeting with the parties and the experts, day 2, pp 4-5.

¹¹⁰⁹ Pablo Cortese, transcript of the Panel's meeting with the parties and the experts, day 2, p. 5.

¹¹¹⁰ ARP-002-2017, (Exhibit MEX-84), p. 13.

¹¹¹¹ ARP-006-2016, (Exhibit MEX-85), p. 9.

¹¹¹² ARP-002-2017, (Exhibit MEX-84), p. 13 (citing Hadidi et al. (2003), (Exhibit CRI-121); and Vargas et al. (1991), (Exhibit CRI-137)); ARP-006-2016, (Exhibit MEX-85), p. 9 (citing Hadidi et al. (2003), (Exhibit CRI-121); and Vargas et al. (1991), (Exhibit CRI-137)).

¹¹¹³ ARP-002-2017, (Exhibit MEX-84), p. 15.

¹¹¹⁴ ARP-006-2016, (Exhibit MEX-85), p. 14.

¹¹¹⁵ ARP-002-2017, (Exhibit MEX-84), p. 42; ARP-006-2016, (Exhibit MEX-85), p. 23.

¹¹¹⁶ Costa Rica's first written submission, para. 5.98.

7.438. In this Panel's view, and as can be seen from the text of Reports ARP-002-2017 and ARP-006-2016, the determination of absence of ASBVd in Costa Rica was a factual consideration for Costa Rica in carrying out its risk assessment. More specifically, it appears from Reports ARP-002-2017 and ARP-006-2016 that the determination of absence of ASBVd in Costa Rica was a consideration both at the initiation stage of the risk assessment and when making the risk management recommendations.

7.439. Regarding the determination of absence of ASBVd in Costa Rica as part of the initiation stage of the risk assessment, the Panel considers it important to mention ISPM No. 11, which, having been developed within the framework of the IPPC, is a risk assessment technique developed by a relevant international organization within the meaning of the SPS Agreement. ISPM No. 11 states that the pest risk assessment process can be divided into three interrelated steps: (i) pest categorization; (ii) assessment of the probability of introduction and spread; and (iii) assessment of potential economic consequences.¹¹¹⁷

7.440. Regarding the categorization of pests, ISPM No. 11 states that, at the outset, it may not be clear which pests of interest require a PRA, and that the categorization process will examine whether the criteria in the definition for a quarantine pest are satisfied.¹¹¹⁸ According to ISPM No. 11, one of the primary elements of categorization of a pest as a quarantine pest is its presence or absence in the PRA area.¹¹¹⁹ ISPM No. 11 states that, to be categorized as a quarantine pest, the pest must be absent from all or a defined part of the PRA area.¹¹²⁰ In fact, the definition of a quarantine pest, according to ISPM No. 5, "Glossary of phytosanitary terms", is a "pest of potential economic importance to the area endangered thereby and not yet present there, or present but not widely distributed and being officially controlled".¹¹²¹

7.441. Manual NR-ARP-PO-01_M-01 defines a quarantine pest, in accordance with ISPM No. 5, as "[a] pest of potential economic importance to the area endangered thereby and not yet present there, or present but not widely spread and being officially controlled".¹¹²²

7.442. In section A) on pest risk analysis for quarantine pests, at the initiation stage, the manual states that a list of pests associated with the crop is drawn up, including information to determine which quarantine pests will be subject to stage 2 (pest risk assessment), and, among the elements of information, is included an indication of whether the pest is regulated in Costa Rica and whether or not it is present in Costa Rica (yes or no).¹¹²³ The manual includes a point on observations or comments in the event that the pest is not present in the country, giving reasons why it is or is not to be included in the subsequent assessment, and indicating key references as a technical justification.¹¹²⁴

7.443. The manual notes that, if potential quarantine pests are not identified at that stage, the PRA is stopped at this point.¹¹²⁵ The manual states that pests that are considered to be of potential economic importance and that meet the geographical and regulatory criteria of ISPM No. 11 should be included in the list for consideration during stage 2.¹¹²⁶ Pursuant to ISPM No. 11, the categorization of the pest as a quarantine pest includes the following primary elements: (i) identity of the pest; (ii) presence or absence in the PRA area; (iii) regulatory status; (iv) potential for establishment and spread in the PRA area; (v) potential for economic consequences (including environmental consequences) in the PRA area.¹¹²⁷

7.444. The Panel notes that it is not clear which of the elements listed in ISPM No. 11 would be the "geographical criterion" referred to by Costa Rica, but stresses that Manual NNR-ARP-PO-01_M-01

¹¹¹⁷ ISPM No. 11, (Exhibit MEX-77), p. 10.

¹¹¹⁸ ISPM No. 11, (Exhibit MEX-77), p. 10.

¹¹¹⁹ ISPM No. 11, (Exhibit MEX-77), p. 10.

¹¹²⁰ ISPM No. 11, (Exhibit MEX-77), p. 11.

¹¹²¹ ISPM No. 5, (Exhibit MEX-74), p. 20.

¹¹²² Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 3.

¹¹²³ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 5.

¹¹²⁴ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 6.

¹¹²⁵ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 6.

¹¹²⁶ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 6.

¹¹²⁷ ISPM No. 11, (Exhibit MEX-77), p. 10.

includes the pest's status in the area in the definition of "quarantine pest" and among the information for determining which quarantine pests will be subject to stage 2 (pest risk assessment).

7.445. It is clear from all the foregoing that, in preparing the risk assessment, Costa Rica considered the determination of absence of ASBVd in Costa Rica for the initial decision on whether ASBVd could be categorized as a quarantine pest, and whether said pest would therefore be subject to the subsequent stages of the risk assessment process.

7.446. Moreover, as Costa Rica itself accepts, Reports ARP-002-2017 and ARP-006-2016 also took into consideration the determination of absence of ASBVd in Costa Rica for the recommendation of phytosanitary measures to be implemented.

7.447. In this regard, in this Panel's view, the phytosanitary status of Costa Rica with respect to ASBVd, which Costa Rica determined as being absent in its territory, is a basic premise of Costa Rica's risk assessment. This phytosanitary status was determined through what is known as its surveillance system. In Reports ARP-002-2017 and ARP-006-2016, Costa Rica refers to the literature review (Hadidi *et al.* (2003), CABI (2017) and Vargas *et al.* (1997)), which comes under general surveillance, and to sampling surveys, which come under specific surveillance. Although in Reports ARP-002-2017 and ARP-006-2016, of 10 July 2017, Costa Rica does not provide details of the sampling surveys or other general surveillance activities, it is clear that Costa Rica considered such activities as the basis for its determination of absence of ASBVd in its territory, a determination that formed part of the basis for its risk assessment.

7.448. The Panel recalls that, in cases where a panel has to examine a Member's risk assessment, its review power is to determine whether the risk assessment "is supported by coherent reasoning and respectable scientific evidence and is, in this sense, objectively justifiable".¹¹²⁸ When examining a risk assessment, a panel must scrutinize both the underlying scientific basis of the risk assessment and the reasoning of the risk assessor based upon such underlying science.¹¹²⁹ With respect to the first aspect, the panel's role is "limited to reviewing whether the scientific basis constitutes 'legitimate science according to the standards of the relevant scientific community'".¹¹³⁰ With respect to the second aspect, the panel's role involves "an assessment of whether the reasoning of the risk assessor is objective and coherent, that is, whether the conclusions find sufficient support in the scientific evidence relied upon".¹¹³¹

7.449. In the Panel's view, in order to be able to carry out this task, the Panel must analyse the determination of absence of ASBVd in Costa Rica as part of the basis for the risk assessment in Reports ARP-002-2017 and ARP-006-2016. The Panel must, therefore, analyse Costa Rica's ASBVd surveillance system as the basis for that determination, even though Costa Rica has failed to explain that basis in detail in its Reports ARP-002-2017 and ARP-006-2016.

7.450. It should be mentioned that, although actions within the surveillance system are not necessarily carried out by the risk analyst in the strict sense of the term, the interpretation of the risk assessment under the SPS Agreement does not imply a narrow understanding of what constitutes a risk assessment. Regarding risk assessment and risk management, the Appellate Body, in *EC – Hormones* noted that Article 5 of and Annex A to the SPS Agreement speak only of "risk assessment", and that the term "risk management" is not to be found in either Article 5 or any other provision of the SPS Agreement. Thus, the panel's distinction in that case, "which it apparently employ[ed] to achieve or support what appears to be a restrictive notion of risk assessment, has no textual basis".¹¹³² In addition, the definition of the first type of risk assessment in paragraph 4 of Annex A to the SPS Agreement includes considerations of what could be observed as risk management, defining it as "evaluation of the likelihood of entry, establishment or spread of a pest or disease within the territory of an importing Member *according to the sanitary or phytosanitary measures which might be applied*, and of the associated potential biological and economic

¹¹²⁸ Appellate Body Reports, *US/Canada – Continued Suspension*, para. 590.

¹¹²⁹ Appellate Body Report, *Australia – Apples*, para. 215. See also Appellate Body Reports, *US/Canada – Continued Suspension*, para. 591.

¹¹³⁰ Appellate Body Report, *Australia – Apples*, para. 215. See also Appellate Body Reports, *US/Canada – Continued Suspension*, para. 591.

¹¹³¹ Appellate Body Report, *Australia – Apples*, para. 215. See also Appellate Body Reports, *US/Canada – Continued Suspension*, para. 591.

¹¹³² Appellate Body Report, *EC – Hormones*, para. 181. See also Appellate Body Reports, *US/Canada – Continued Suspension*, para. 541.

consequences". Similarly, this Panel considers that risk assessment may also include considerations that form part of the initiation stage of the risk assessment, in particular, in this case, the determination of absence of ASBVd in Costa Rica, reached, as can be seen in its own Reports ARP-002-2017 and ARP-006-2016, by means of its ASBVd surveillance system.

7.451. Furthermore, pursuant to Article 5.1 of the SPS Agreement, risk assessment must be "appropriate to the circumstances", which, in the view of this Panel, could include the importing Member's phytosanitary status with respect to the pest in question. The parties appear to agree that the presence or absence of the pest is a relevant consideration in determining whether the risk assessment is "appropriate to the circumstances".¹¹³³

7.452. In light of the foregoing, the Panel concludes that it must analyse the determination of absence of ASBVd in Costa Rica as part of the basis for Reports ARP-002-2017 and ARP-006-2016, and it will address Costa Rica's surveillance system in respect of ASBVd, as this underpinned its determination that ASBVd is absent.

7.453. In that regard, the Panel emphasizes that, in accordance with its task under Article 5.1, it will not assess whether the determination of absence of ASBVd in Costa Rica is correct, but whether, on the basis of the evidence on the record, it can be found that the determination of absence of ASBVd in Costa Rica should be considered to be legitimately scientific in accordance with the standards of the scientific community.

7.4.5.1.2.1 The manner in which the Panel will analyse Mexico's arguments regarding the determination of absence of ASBVd in Costa Rica in the Reports ARP-002-2017 and ARP-006-2016

7.454. Mexico has referred to the determination of absence of ASBVd in Costa Rica in different sections of its submissions, statements, responses and comments, including in its factual sections, in its claims related to harmonization under Articles 3.1 and 3.3 of the SPS Agreement, and in its claims concerning risk assessment under Articles 5.1, 5.2, 5.3 and 2.2 of the SPS Agreement.

7.455. In its first written submission, Mexico advances some of its arguments relating to the determination of absence of ASBVd in Costa Rica in the context of its claims under Article 3 of the SPS Agreement, in the section "Aspects of ARP-006-2016 and ARP-002-2017 that are contrary to the principles of ISPM Nos. 2, 4, 6, 8, 11 and 32".¹¹³⁴ There, Mexico includes the point on Costa Rica's declaration that ASBVd is absent in its territory, and concludes that this declaration of freedom from ASBVd and its disease is not based on ISPM Nos. 6 and 8.¹¹³⁵

7.456. In the context of its claims under Articles 5.1, 5.2, 5.3 and 2.2 of the SPS Agreement, in its first written submission, Mexico makes reference to its arguments advanced under Articles 3.1 and 3.3.¹¹³⁶ In its second written submission, Mexico includes arguments relating to the determination of absence of ASBVd in a section entitled "Facts", under the statement that "Costa Rica's risk assessment is based on the questionable premise of the alleged absence of ASBVd in its territory", as well as in its section on legal arguments under Articles 5.1, 5.2, 5.3 and 2.2.¹¹³⁷ Mexico has also maintained throughout its submissions that Costa Rica's risk assessment is based on a highly questionable basic presupposition, namely the determination of absence of ASBVd in all its territory.¹¹³⁸

7.457. The Panel will address the factual arguments on the determination of absence of ASBVd made by Mexico throughout its submissions, and in particular the evidence presented in this regard,

¹¹³³ In the context of the phrase "appropriate to the circumstances", Mexico asserts that Costa Rica failed to consider the circumstances that directly affected the outcome of the SFE's risk assessment, such as the presence of ASBVd and its disease in Costa Rica. (Mexico's first written submission, para. 386).

For its part, Costa Rica asserts that it conducted a specific risk assessment for the particular case of ASBVd and the pathway of fresh avocado fruit for consumption, noting in particular specific national situations, such as the absence of the viroid in its territory. (Costa Rica's second written submission, para. 3.24).

¹¹³⁴ See, for example, Mexico's first written submission, paras. 195-204.

¹¹³⁵ Mexico's first written submission, para. 204.

¹¹³⁶ See, for example, Mexico's first written submission, paras. 388 and 412.

¹¹³⁷ See, for example, Mexico's second written submission, paras. 22-41, 178-179 and 192.

¹¹³⁸ Mexico's opening statement at the Panel's first meeting, para. 14; second written submission, para. 11; opening statement at the Panel's second meeting, para. 33.

when analysing the determination of absence of ASBVd in Costa Rica as part of the basis for Reports ARP-002-2017 and ARP-006-2016, within Mexico's claims relating to the risk assessment under Articles 5.1, 5.2, 5.3, and 2.2 of the SPS Agreement.

7.458. The Panel notes that Mexico's arguments relating to the determination of absence of ASBVd in Costa Rica are largely focused on the content of ISPM Nos. 4, 6, and 8. The Panel reiterates, however, that its examination under Article 5.1 of the SPS Agreement consists in assessing whether the determination of absence of ASBVd, as part of the scientific basis for Reports ARP-002-2017 and ARP-006-2016, must be considered to be legitimately scientific according to the standards of the scientific community concerned.¹¹³⁹

7.459. The Panel notes that ISPM No. 11, which directly relates to carrying out a PRA¹¹⁴⁰, and is a risk assessment technique developed by a relevant international organization, having been devised within the framework of the IPPC, refers to ISPM No. 8, which in turn refers to ISPM No. 6. Hence, ISPM Nos. 6 and 8 may be considered as illustrative tools for the inputs of a risk assessment related to the determination of a pest status in a territory. The Panel will therefore refer to the ISPMs as tools that are illustrative for determining what would be considered to be legitimately scientific in a risk assessment according to the standards of the scientific community.

7.460. However, the Panel will not carry out its analysis under Article 5.1 of the SPS Agreement on the basis of ISPM Nos. 6 and 8, in the sense of assessing whether the determination of absence of ASBVd and its disease "is based on" these ISPMs.

7.4.5.1.2.2 General surveillance system as part of the basis for the determination of absence of ASBVd in Costa Rica

7.461. **Costa Rica** states that, after learning that ASBVd was having a serious impact on Mexican avocado production, and as Mexico was the main supplier of avocados in Costa Rica, it initiated the process of verifying its phytosanitary status in order to determine whether ASBVd was still absent in its territory.¹¹⁴¹ Costa Rica submits that it did not simply declare the absence of the pest, in a capricious or arbitrary manner, but that it followed the general guidelines of ISPM Nos. 6 and 8 and the respective guides for the determination of absence, and made, and continues to make, every effort to provide proper general and specific surveillance.¹¹⁴²

7.462. In its first written submission, Costa Rica states that its phytosanitary status as free of ASBVd is confirmed by the two most widely recognized and technically authoritative international phytosanitary databases, namely those of CABI and the EPPO.¹¹⁴³

7.463. In its response to the Panel's information request of 3 August 2020, Costa Rica submits that the sources of information emanating from the general surveillance were revised on three separate occasions, between 2015 and 2018, in order to keep information on the status of ASBVd up to date. It also notes that Exhibits MEX-131 and MEX-123 contain Reports ARP-002-2017 and ARP-006-2016, the bibliographies to which list the relevant publications reviewed by the SFE with regard to ASBVd status in Costa Rica.¹¹⁴⁴

7.464. Costa Rica's response to the Panel's information request contains a general surveillance report from August 2020, which also notes that the bibliographical references consulted by the SFE for ASBVd to date are given in the reports submitted to the Panel as Exhibits MEX-131 and MEX-123 (Reports ARP-002-2017 and ARP-006-2016), and that, to the SFE's knowledge, no document contains a reliable report on the presence of ASBVd in Costa Rica.¹¹⁴⁵

¹¹³⁹ Appellate Body Report, *Australia – Apples*, para. 215. See also Appellate Body Reports, *US/Canada – Continued Suspension*, para. 591.

¹¹⁴⁰ According to its scope, ISPM No. 11 provides the details for carrying out a PRA to determine whether pests are quarantine pests (ISPM No. 11, (Exhibit MEX-77), p. 5).

¹¹⁴¹ Costa Rica's first written submission, para. 3.19.

¹¹⁴² Costa Rica's opening statement at the Panel's second meeting, para. 4.7.

¹¹⁴³ Costa Rica's first written submission, paras. 3.18, 5.99 and 5.207.

¹¹⁴⁴ Costa Rica's response to the Panel's information request of 3 August 2020, p. 12.

¹¹⁴⁵ Costa Rica's response to the Panel's information request of 3 August 2020, p. 12 and Annex 5, p. 6.

7.465. The general surveillance report from August 2020 contains a bibliographical reference section. It is mentioned in this section that the EPPO publication confirms that ASBVd is absent in Costa Rica, and that the CABI publication verifies the absence of ASBVd.¹¹⁴⁶

7.466. Subsequently, in response to the Panel's questions following the Panel's second meeting with the parties, Costa Rica states that the determination of absence of ASBVd in its territory was not based on the CABI and EPPO databases, but on the information obtained by the NPPO of Costa Rica from surveillance activities.¹¹⁴⁷

7.467. Costa Rica also points out that the CABI and EPPO databases are very useful for general consultations, and that they draw on bibliographical references and official information from the NPPO of each country. Therefore, where there are reasonable doubts about the content of the databases, or discrepancies between the bibliographical references and the official information, it is important to seek clarification from the NPPOs in charge of surveillance of the area concerned.¹¹⁴⁸

7.468. **Mexico** submits that the CABI and EPPO databases cannot form the basis of the determination of absence of a pest in a territory, and that such information is not sufficient to constitute scientific evidence in light of the SPS Agreement. Mexico notes that the information contained in these databases is purely referential, and is based on some bibliographical sources, on statistics reported by indirect sources, or on what the NPPO of each country reports, without any scientific or statistical corroboration of the information provided. In Mexico's view, these are data registers or databases that compile information, which is not verified, much less endorsed, by those organizations.¹¹⁴⁹

7.469. Mexico asserts that the EPPO webpage indicates that the NPPO of Costa Rica has conducted specific surveys for ASBVd, and that they all produced negative results, so the record of ASBVd is considered unreliable. For Mexico, this is an example of the lack of scientific rigour and consistency of the information in databases such as those of CABI and the EPPO, on which Costa Rica based its PRAs.¹¹⁵⁰

7.470. Mexico also states that, despite the fact that Costa Rica attempts to minimize the real importance that its analysts accorded to the CABI and EPPO databases for their determination of absence of ASBVd, the PRAs show otherwise. Mexico adds that Costa Rica considered that the information contained in these databases confirmed the phytosanitary status in its territory, but that it is clear that these data were provided by the NPPO of the country itself, which would call into question the reliability of Costa Rica's phytosanitary status.¹¹⁵¹

7.471. The **Panel** notes that Reports ARP-002-2017 and ARP-006-2016 indicate that, despite the fact that Hadidi et al. (2003) and CABI (2017) state that ASBVd is present in Costa Rica, this is incorrect, as it is based on the article by Vargas *et al.* (1997), which only mentions the presence of ASBVd in Peru, not in Costa Rica.¹¹⁵²

7.472. The Panel consulted the experts about the general surveillance that served as part of the basis for determining the absence of ASBVd in Costa Rica. The surveillance expert, Pablo Cortese, expressed the view initially that, although Exhibit CRI-17 of 2019 recounts some general surveillance activities, they were not explained in sufficient detail.¹¹⁵³ At the Panel's meeting with the parties and experts, and in light of Costa Rica's response to the Panel's information request of 3 August 2020, Mr Cortese expresses the view that Costa Rica submitted further information on the general surveillance activities that had been carried out, namely that the activities are set out in a more

¹¹⁴⁶ Costa Rica's response to the Panel's information request of 3 August 2020, p. 12 and Annex 5, p. 17.

¹¹⁴⁷ Costa Rica's response to the Panel's question No. 136, para. 92.

¹¹⁴⁸ Costa Rica's response to the Panel's question No. 136, para. 93.

¹¹⁴⁹ Mexico's opening statement at the Panel's first meeting, para. 15; response to Panel question No. 38, para. 53; second written submission, para. 42.

¹¹⁵⁰ Mexico's response to Panel question No. 38, para. 53 (citing EPPO Global Database, Costa Rica (2019), (Exhibits CRI-41 and MEX-208)).

¹¹⁵¹ Mexico's comments on Costa Rica's response to Panel question No. 136, para. 3.

¹¹⁵² ARP-002-2017, (Exhibit MEX-84), p. 13 (citing Hadidi et al. (2003), (Exhibit CRI-121)); and Vargas *et al.* (1991), (Exhibit CRI-137)); ARP-006-2016, (Exhibit MEX-85), p. 9 (citing Hadidi et al. (2003), (Exhibit CRI-121)); and Vargas *et al.* (1991), (Exhibit CRI-137)).

¹¹⁵³ Pablo Cortese's response to Panel question No. 82 for the experts.

organized fashion, and information is provided that had not been submitted originally. Mr Cortese states that it seems to him, however, that the continuity of the activities undertaken over time is not well documented, nor was it clear how the activities are actually documented. He gives as an example that a revision of sources was alluded to, but that the sources are the same as in the PRA, and they are also not clearly specific to ASBVd in all cases. He adds that, in general surveillance, it is very important to communicate with other entities concerned, especially with producers, producers' organizations, non-NPPO foundations or associations, which have information that is generated outside of the NPPO, but that the NPPO needs to validate in some way. He notes that this information was provided in the additional report submitted by Costa Rica, but partially, as he had found references to only one meeting with producers. Mr Cortese concludes that the information needs to be presented in a slightly more orderly fashion and that, for him, there is still insufficient information.¹¹⁵⁴

7.473. Regarding the bibliographical sources referred to in Reports ARP-002-2017 and ARP-006-2016, these specifically mention "Hadidi *et al.* (2003)" and "CABI (2017)" when referring to the absence of ASBVd in Costa Rica; not to rely on the content of the publication and the database, but rather to contradict the information contained in the sources on the presence of ASBVd in Costa Rica.

7.474. Report ARP-002-2017 also contains a table 1, entitled "List of potential quarantine pests associated with fresh avocados from Mexico", which includes ASBVd, and indicates whether it follows the pathway, whether it is a regulated pest, and whether it is present in Costa Rica. The sources De la Torre *et al.* (2009), SINAVEF (2010), CABI (2015), and SFE (2015) are given in the comments column.¹¹⁵⁵ It is not clear whether any of these sources have been revised with respect to the status of ASBVd in Costa Rica, but the Panel notes that Report ARP-002-2017 refers to SINAVEF (2010), CABI (2014) and De la Torre *et al.* (2009) to support the presence of ASBVd in Mexico¹¹⁵⁶, and SFE (2015) does not mention Costa Rica's phytosanitary status.¹¹⁵⁷

7.475. As has been noted, in its response to the Panel's information request of 3 August 2020, Costa Rica submits that the sources of information emanating from the general surveillance were revised on three separate occasions, in order to keep information on the status of ASBVd up to date. It also points out that Exhibits MEX-131 and MEX-123 contain Reports ARP-002-2017 and ARP-006-2016, the bibliographies to which list the relevant publications revised by the SFE with regard to the status of ASBVd in Costa Rica.¹¹⁵⁸

7.476. Furthermore, Costa Rica's response to the Panel's information request contains a general surveillance report from August 2020, which notes that the bibliographical references that have been consulted by the SFE for ASBVd are given in the reports submitted to the Panel as Exhibits MEX-131 and MEX-123 (Reports ARP-002-2017 and ARP-006-2016), and that, to the SFE's knowledge, no document contains a reliable report on the presence of ASBVd in Costa Rica.¹¹⁵⁹

7.477. The Panel notes that Costa Rica does not specify in its response which of the bibliographical references in the reports were consulted in relation to the status of ASBVd in Costa Rica.

7.478. Costa Rica's general surveillance report of August 2020 contains an explanatory note by the UARP of the SFE dated 3 March 2014, which indicates that CABI (2014) cites Eppo (2014) as a source of information to indicate that ASBVd is present in Costa Rica, that Eppo (2014) in turn cites Semancik (2003), and that Semancik, in the publication *Viroids*, cites Vargas *et al.* (1991) when referring to Costa Rica, but Vargas at no time mentions Costa Rica.¹¹⁶⁰ That explanatory note also contains the communication from the UARP of the SFE to Dr Semancik, asking him about the statement made in his paper in Hadidi *et al.* (2003) that ASBVd is present in Costa Rica.¹¹⁶¹

¹¹⁵⁴ Pablo Cortese, transcript of the Panel's meeting with the parties and the experts, day 3, pp. 47-48.

¹¹⁵⁵ ARP-002-2017, (Exhibit MEX-84), pp. 10-11.

¹¹⁵⁶ ARP-002-2017, (Exhibit MEX-84), p. 34.

¹¹⁵⁷ Technical report 025-2015-ARP-SFE (2015), (Exhibit MEX-138).

¹¹⁵⁸ Costa Rica's response to the Panel's information request of 3 August 2020, p. 12.

¹¹⁵⁹ Costa Rica's response to the Panel's information request of 3 August 2020, p. 12 and Annex 5, p. 6.

¹¹⁶⁰ Costa Rica's response to the Panel's information request of 3 August 2020, Annex 5, pp 8-9.

¹¹⁶¹ Costa Rica's response to the Panel's information request of 3 August 2020, p. 12 and Annex 5, pp 9-14.

7.479. As mentioned, the general surveillance report of August 2020 also contains a bibliographical reference section, which indicates that the EPPO publication confirms that ASBVd is absent in Costa Rica, and that the CABI publication verifies the absence of ASBVd.¹¹⁶²

7.480. The information in that report is identical to the information Costa Rica submitted in its "Report on the surveillance to determine the absence of ASBVd in avocado plantations in Costa Rica", of September 2019, contained in Exhibit CRI-17.¹¹⁶³ The section on general surveillance in that report also mentions that the EPPO publication confirms that ASBVd is absent in Costa Rica, and that the CABI publication verifies the absence of ASBVd.¹¹⁶⁴

7.481. In light of the foregoing, although Costa Rica does not refer to the specific publications that it considers "relevant" for the status of ASBVd in Costa Rica that it mentions are in the bibliographies of Reports ARP-002-2017 and ARP-006-2016, the Panel can suppose that Costa Rica revised the scientific literature it used to prepare said reports, and found no information on the presence of ASBVd in Costa Rica, except for the information contained in the CABI database in 2017 and in Semancik's paper in Hadidi et al. (2003), which Costa Rica considered contained incorrect information.

7.482. Subsequently, Costa Rica has consulted the EPPO and CABI databases to confirm the absence of ASBVd in Costa Rica. Although both databases do indicate that ASBVd has been absent in Costa Rica since 2019, both cited Costa Rica's own NPPO as a source. In fact, CABI's information cites the EPPO and the NPPO of Costa Rica as sources, and the EPPO's information cites Costa Rica's NPPO as a source, via correspondence with CABI dated June 2019, and indicates that the record of ASBVd is unreliable.¹¹⁶⁵ In view of the foregoing, under the specific circumstances of this dispute, the Panel does not consider that the CABI and EPPO databases may be used to confirm the absence of ASBVd in Costa Rica, when those databases only reflect information provided by the NPPO itself. Costa Rica itself acknowledged, in its response to the Panel's questions following the Panel's second meeting with the parties, that the databases draw on bibliographical references and official information from the NPPO of each country.¹¹⁶⁶

7.483. In addition, although Costa Rica submits that the revision of the sources of information emanating from the general surveillance were revised on three separate occasions in order to keep information on the status of ASBVd up to date, the sources remain the same as those in the reports. The information provided in Annex 5 to Costa Rica's response to the Panel's information request, which comprises the 2020 general surveillance report, is essentially the same as the information provided in previous years. The Panel does not find in the record any attempt by Costa Rica to continually evaluate sources, i.e. there is a lack of information corroborating that Costa Rica continues to gather and explore bibliographical sources, such as scientific articles subsequent to Reports ARP-002-2017 and ARP-006-2016, in order to check whether any of them contain information relating to the presence of ASBVd in Costa Rica.

7.484. In its response to the Panel's information request of 3 August 2020, Costa Rica also notes that, in general, information provided by the public via telephone, email or physically is compiled at any of its eight Regional Operational Units by officials available to receive pest reports.¹¹⁶⁷ Costa Rica states that the following general surveillance activities are carried out: (i) coordination with the academic sector (via telephone or correspondence), as was the case with the UCR, with which sample analysis contracts have been concluded when requested; (ii) direct contact with farmers in the regions where avocado farming is established, through visits by SFE officials as part of their field inspection activities, in order to verify or rule out any suspected presence of ASBVd; (iii) training

¹¹⁶² Costa Rica's response to the Panel's information request of 3 August 2020, p. 12 and Annex 5, p. 17.

¹¹⁶³ Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, "Informe de vigilancia para la determinación de la ausencia del ASBVd en las plantaciones de aguacate en Costa Rica", Oficio DOR-RN-0001-2019, 23 de septiembre de 2019 (Summary 2014-2019 sampling surveys), (Exhibit CRI-17).

¹¹⁶⁴ Summary 2014-2019 sampling surveys, (Exhibit CRI-17), p. 5.

¹¹⁶⁵ CABI (2019), (Exhibit CRI-14); and EPPO Costa Rica (2019), (Exhibits CRI-41 and MEX-208).

¹¹⁶⁶ Costa Rica's response to Panel question No. 136, para. 93.

¹¹⁶⁷ Costa Rica's response to the Panel's information request of 3 August 2020, pp. 13-14.

sessions with groups of producers, particularly in the Los Santos region, the country's main Hass avocado-producing area.¹¹⁶⁸

7.485. With respect to all the general surveillance activities described in the previous paragraph, Costa Rica's response to the Panel's information request documents, in Annex 13, only one meeting held with avocado producers in the Los Santos zone in 2016, at which, according to the agenda, presentations were made on ASBVd, on the sampling survey and on the sampling results.¹¹⁶⁹

7.486. Costa Rica also states that, due to a report by an agronomist regarding the alleged presence of ASBVd, the SFE sent officials to the location indicated by that person. The officials went through the whole plantation and took samples for molecular diagnostic test from the allegedly infected tree and 10 additional surrounding trees.¹¹⁷⁰ This information relates to the report by Dr Obregón discussed in section 7.3 above.

7.487. From all the information provided by Costa Rica, this Panel can see that Costa Rica carried out some general surveillance activities, both when preparing Reports ARP-002-2017 and ARP-006-2016 and subsequently, in order to determine the presence or absence of ASBVd in its territory.

7.488. However, the Panel does not consider that the information gathered by Costa Rica through bibliographical sources, including the databases, is sufficient for Costa Rica to substantiate the absence of ASBVd in its territory. Neither does the Panel consider that Costa Rica's statements in its response to the Panel's information request of 3 August 2020 on its other general surveillance activities are sufficient for Costa Rica to substantiate the absence of ASBVd in its territory.

7.489. The Panel therefore concludes that the general surveillance activities with respect to ASBVd carried out by Costa Rica are not sufficient to enable Costa Rica to substantiate the determination of absence of ASBVd in its territory.

7.4.5.1.2.3 Specific surveillance system as part of the basis for the determination of absence of ASBVd in Costa Rica

7.490. As indicated above, Reports ARP-002-2017 and ARP-006-2016 state that recent sampling surveys confirmed that the pest is absent in Costa Rica; and that those sampling surveys were conducted by the Regional Operations Department in the cantons of Grecia, Heredia, Naranjo, Cartago, Desamparados, Dota, El Guarco, León Cortés, Tarrazú, Abangares, Tilarán, Liberia, Esparza, Orotina and Coto Brus.¹¹⁷¹

7.491. According to the documentary information provided by the parties throughout the proceedings, Costa Rica has conducted four sampling surveys in the period between 2014 and 2019:

- a. The first sampling survey was conducted from September to October 2014¹¹⁷², with 264 samples requested at the national level.¹¹⁷³ The diagnostic tests were carried out in the Molecular Biology Laboratory of the UCR. During the sampling survey, some of the tests were positive and were sent to Macrogen Inc. (Korea) for sequencing, following which Costa Rica reports that these were identified as false positives.¹¹⁷⁴

¹¹⁶⁸ Costa Rica's response to the Panel's information request of 3 August 2020, p. 15.

¹¹⁶⁹ Costa Rica's response to the Panel's information request of 3 August 2020, Annex 13.

¹¹⁷⁰ Costa Rica's response to the Panel's information request of 3 August 2020, pp 14-15; and Summary 2014-2019 sampling surveys, (Exhibit CRI-17), p. 5.

¹¹⁷¹ ARP-002-2017, (Exhibit MEX-84), p. 13; ARP-006-2016, (Exhibit MEX-85), p. 9.

¹¹⁷² According to Exhibit MEX-115, the samples of the first sampling survey were collected between 1 September and 8 October 2014. (Memorandum CIBCM-PCDV-044-2014 (2014), (Exhibit MEX-115)).

¹¹⁷³ Sampling survey 2014, (Exhibit MEX-64).

¹¹⁷⁴ See Memorandum CIBCM-PCDV-044-2014 (2014), (Exhibit MEX-115); Memorandum CIBCM-PCDV-021-2015 (2015), (Exhibit MEX-134); Centro de Investigaciones en Biología Celular y Molecular de la Universidad de Costa Rica, Oficio CIBCM-167-2017, 17 de marzo de 2017 (Memorandum CIBCM-167-2017 (2017)), (Exhibit CRI-16); and Centro de Investigaciones en Biología Celular y Molecular de la Universidad de Costa Rica, Oficio CIBCM-501-2019, 9 de septiembre de 2019 (Memorandum CIBCM-501-2019 (2019)), (Exhibit CRI-15).

- b. The second sampling survey was conducted from November 2015 to January 2016.¹¹⁷⁵ In total, 322 samples were taken from the Central Eastern Region. The diagnostic tests were carried out in the Molecular Biology Laboratory of the UCR and in the Pest Diagnostic Laboratory of the SFE.^{1176, 1177}
- c. The third sampling survey was conducted from November 2017 to February 2018¹¹⁷⁸, with 306 samples taken from the Central Eastern Region and the Chorotega region. The diagnostic tests were carried out in the Pest Diagnostic Laboratory of the SFE.¹¹⁷⁹
- d. The fourth sampling survey was conducted from February to April 2019¹¹⁸⁰, with 439 samples taken from the Central Eastern, Chorotega, Central Western, Brunca and Central Pacific regions. The diagnostic tests were carried out in the Pest Diagnostic Laboratory of the SFE.¹¹⁸¹

7.492. **Mexico** submits that the sampling surveys conducted by Costa Rica are not based on statistics or scientific methodology, nor is there visual evidence of the inspection, selection and sample-taking process. Mexico adds that, despite flaws in the 2014 sampling survey, the results report states that positive samples were found. Therefore, in order to be able to continue declaring itself free of ASBVd, Costa Rica should have conducted further sampling surveys to confirm that assertion.¹¹⁸²

7.493. Mexico states that the PRAs do not refer to the protocol and methodology used by Costa Rica to inspect and take samples from the trees analysed in order to confirm the alleged absence of ASBVd in Costa Rica, and that it is evident from the documents Costa Rica shared with Mexico that these are not based on statistics or scientific methodology.¹¹⁸³

7.494. Mexico further submits that the sampling surveys and surveillance methods to confirm the absence of ASBVd and its disease should have been based on ISPM No. 6.¹¹⁸⁴ Mexico presents a table detailing, with regard to the 2014 and 2015 sampling surveys, the inconsistencies that it considers it found with respect to section 2 of ISPM No. 6. According to Mexico:

¹¹⁷⁵ According to Annexes 4 and 12 to Costa Rica's response to the Panel's information request, the samples of the second sampling survey were received by the laboratories between 25 November 2015 and 15 January 2016. (Costa Rica's response to the Panel's information request of 3 August 2020, Annexes 4 and 12).

¹¹⁷⁶ Sampling survey 2015-2016, (Exhibit MEX-65); Costa Rica's response to the Panel's information request of 3 August 2020, Annex 4, pp. 88-101, and Annex 12, pp. 157-163.

¹¹⁷⁷ The Panel notes that, as reported by Costa Rica, the Molecular Biology Laboratory of the SFE's Pest Diagnostic Laboratory has not yet been accredited. (Costa Rica's response to the Panel's information request of 3 August 2020, p. 22).

¹¹⁷⁸ According to Exhibits CRI-19 and CRI-20, the samples of the third sampling survey were received by the laboratory between 28 November and 1 December 2017, and on 7 and 13 February 2018. (Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, "Informe final sobre muestreo 2017-2018" (1), Oficio LDP-002-18, 15 de enero de 2018 (Final report (1) on 2017-2018 sampling survey), (Exhibit CRI-19); and Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, "Informe final sobre muestreo 2017-2018" (2), Oficio LDP-014-18, 22 de febrero de 2018 (Final report (2) on 2017-2018 sampling survey) (Exhibit CRI-20)).

¹¹⁷⁹ Final report (1) on 2017-2018 sampling survey, (Exhibit CRI-19); and Final report (2) on 2017-2018 sampling survey, (Exhibit CRI-20).

¹¹⁸⁰ According to Annex 20 to Costa Rica's response to the Panel's information request, the samples of the fourth sampling survey were received by the laboratory between 26 February 2019 and 10 April 2019. (Costa Rica's response to the Panel's information request of 3 August 2020, Annex 20). Exhibit CRI-83 states that the fourth sampling survey was planned for the period between 25 February 2019 and 12 April 2019. (Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, "Prospección del viroide SunBlotch (ASBVd) en el cultivo de aguacate" (2019) (ASBVd surveys in Costa Rica (2019)), (Exhibit CRI-83), p. 8).

¹¹⁸¹ Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, "Informe final sobre muestreo de 2019", Oficio LDP-RAM-0003-2019, 24 de junio de 2019 (Final report on 2019 sampling survey), (Exhibit CRI-21).

¹¹⁸² Mexico's first written submission, para. 449 (citing Memorandum CIBCM-PCDV-044-2014 (2014), (Exhibit MEX-115)).

¹¹⁸³ Mexico's first written submission, paras. 441-442.

¹¹⁸⁴ Mexico's first written submission, para. 451.

- a. Costa Rica failed to prove that the documents were approved by the head of the SFE;
- b. Costa Rica conducted two sampling surveys without first having prepared a survey plan and, therefore, without such a plan having been approved by the NPPO.
- c. Costa Rica has categorized ASBVd as a pest that is "absent: no pest records". However, the 2014 sampling survey produced positive results for ASBVd in 16 samples and suspicious results in five more. Costa Rica should therefore have taken these results into consideration in order to correctly determine the status of ASBVd in its territory. The sampling surveys did not cover the six economic regions. For the 2014 sampling survey, only 3.8% of the total surface area planted with avocado was tested, and in the 2015-2016 sampling survey, 11.6% was tested. The results obtained are therefore neither representative nor conclusive. Moreover, for Mexico, the information produced cannot be considered as complete, reliable, representative and sufficient to determine the absence of ASBVd, as no testing was carried out on asymptomatic trees.
- d. The inspection of each area was planned through statistical analysis and scheduled by omitting random sampling.¹¹⁸⁵

7.495. Mexico notes that sampling surveys are not conducted in accordance with the provisions of ISPM Nos. 6 and 8, as, pursuant to the ISPMs, determining the absence of ASBVd requires expert judgement, and those experts must use, *inter alia*, information from individual pest records, pest records from surveys, data on pest absence and findings of general surveillance. Mexico states that Costa Rica was responsible for developing surveillance protocols and conducting detection surveys in order to determine whether ASBVd was present in its territory.¹¹⁸⁶

7.496. Mexico states that the sampling surveys conducted by Costa Rica lack scientific and technical rigour, and that Costa Rica's phytosanitary status is questionable for the following reasons: (i) the lack of representativeness of and discrepancies in the samples obtained; (ii) the suitability of the detection methods applied; and (iii) the type of material collected during sample taking.¹¹⁸⁷

7.497. Mexico adds that the sampling surveys failed to follow any surveillance protocols; that Costa Rica merely stated *ex post*, and on two undated sheets, that the surveys complied with the ISPMs; and that the surveys never provided evidence of the surveillance protocols required by the ISPMs. In Mexico's view, given the lack of a specific surveillance programme in compliance with the ISPMs, any finding on the absence of ASBVd is unjustified and invalid.¹¹⁸⁸ Mexico also points out that, in 2019, Costa Rica issued an alleged surveillance protocol, with which it actually intends to justify *ex post* the absence of such a programme.¹¹⁸⁹

7.498. Mexico maintains that Costa Rica has submitted, throughout the dispute, information prepared *ex professo* and *ex post* to demonstrate the existence of a surveillance system, but that the flaws and errors in Costa Rica's surveillance systems were identified by Pablo Cortese and Robert Griffin, who highlighted the many inconsistencies that vitiate the surveillance system implemented by Costa Rica to try to justify its ASBVd-free status.¹¹⁹⁰

7.499. Mexico states that Costa Rica failed to demonstrate that the surveillance methodology used to declare its territory free of the pest was based on the relevant international standards, guidelines

¹¹⁸⁵ Mexico's first written submission, para. 451 and table 9.

¹¹⁸⁶ Mexico's opening statement at the Panel's first meeting, paras. 16-18.

¹¹⁸⁷ Mexico's second written submission, para. 22.

¹¹⁸⁸ Mexico's opening statement at the Panel's first meeting, para. 19 (citing Servicio Fitosanitario del Estado de Costa Rica (SFE), Departamento de Operaciones Regionales, "Aplicación de las NIMF 6 y 8 por parte del Servicio Fitosanitario del Estado" (SFE, Application of ISPM Nos. 6 and 8 by the SFE, (Exhibit MEX-114), p. 2).

¹¹⁸⁹ Mexico's second written submission, para. 178 (citing Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, "Procedimiento para el muestreo de aguacate fruta con el fin de verificar la ausencia o presencia de la plaga 'Avocado Sunblotch viroide' (Mancha de Sol)", CFI-PO-16, 6 de febrero 2018 (Document CFI-PO-16 (2018)), (Exhibit CRI-91)).

¹¹⁹⁰ Mexico's comments on Costa Rica's response to Panel question No. 137, para. 2.

and recommendations, which has a direct impact on the findings of its risk assessment. In Mexico's view, the surveillance system suffered from flaws, omissions and shortcomings from the outset.¹¹⁹¹

7.500. Mexico adds that, as a result of the analysis of Costa Rica's sampling methodology and its protocol for the detection of ASBVd, it can be concluded that Costa Rica did not consider relevant inspection, sampling and testing methods that would lead to achieving objective and reliable results.¹¹⁹²

7.501. In Mexico's view, while it is possible that a surveillance system might be improved over time, an update would not excuse the flaws and errors found in the system that led to the assumptions of absence on which the disputed measures were developed. Mexico submits that, in any event, all the experts agreed with Mexico that Costa Rica's determination of absence is questionable and, as a result, the PRA cannot be considered to be consistent with the obligations under Article 5.1 of the SPS Agreement, on the basis of an assumption that is at the very least uncertain and, therefore, not appropriate to the circumstances.¹¹⁹³

7.502. Mexico notes that it demonstrated the lack of scientific rigour in the methodology used by Costa Rica for the sampling surveys, given that: (i) no mention is made of the selection criteria for the farms to be sampled, or of the testing follow-up or frequency; (ii) the geographical selection of the sampling areas does not cover all areas where avocado trees are found, an issue that extended to backyards and wild areas; (iii) the statistical formula used has not been notified, and the activity of monitoring a pest's status is not clear; (iv) the level of training given to field and laboratory staff has not been reported; (v) no evidence was provided to demonstrate what additional general surveillance activities were carried out and promoted, for example surveillance at waste disposal sites such as tourist spots and cruise ship waste disposal areas; (vi) both the methodology and the results were presented in a disorderly manner; and (vii) the traceability of the reported samples cannot be ascertained.¹¹⁹⁴

7.503. **Costa Rica**, for its part, states that, after learning that ASBVd was having a serious impact on Mexican avocado production, and as Mexico was the main supplier of avocados to Costa Rica, it initiated the process of verifying its phytosanitary status in order to determine whether ASBVd was still absent in its territory.¹¹⁹⁵

7.504. Costa Rica notes that it stepped up surveillance with respect to ASBVd, in accordance with ISPM No. 6, and decided to carry out sampling surveys nationally to determine its phytosanitary status with respect to ASBVd, in accordance with ISPM No. 8. Costa Rica asserts that, given that all the samples tested negative for ASBVd, its phytosanitary status as free of ASBVd was confirmed.¹¹⁹⁶ Costa Rica also states that it did not simply declare the absence of the pest, in a capricious or arbitrary manner, but that it followed the general guidelines of ISPM Nos. 6 and 8 and the respective guides for the determination of absence, and made, and continues to make, every effort to provide proper general and specific surveillance.¹¹⁹⁷

7.505. Costa Rica submits that, in the first sampling survey of 2014, a total of 258 samples were analysed, which produced a negative result for the presence of ASBVd. Of those samples, 25 did initially produce false positives but, after they were sent by the Molecular Biology Laboratory of the UCR to Korea to be sequenced, they ultimately proved to be negative for ASBVd.¹¹⁹⁸

7.506. Costa Rica adds that a second sampling survey was conducted between 2015 and 2016 in which 322 samples were collected¹¹⁹⁹, 171 of which were tested by the Molecular Biology Laboratory of the UCR and 151 were tested by the Molecular Biology Section of the SFE's Pest Diagnostic

¹¹⁹¹ Mexico's comments on Costa Rica's response to Panel question No. 137, para. 3.

¹¹⁹² Mexico's second written submission, para. 198.

¹¹⁹³ Mexico's opening statement at the Panel's second meeting, para. 40.

¹¹⁹⁴ Mexico's comments on Costa Rica's response to Panel question No. 153, para. 4.

¹¹⁹⁵ Costa Rica's first written submission, para. 3.19.

¹¹⁹⁶ Costa Rica's first written submission, para. 3.20.

¹¹⁹⁷ Costa Rica's opening statement at the Panel's second meeting, para. 4.7.

¹¹⁹⁸ Costa Rica's first written submission, para. 3.21 (citing Memorandum CIBCM-PCDV-021-2015 (2015), (Exhibit MEX-134); Memorandum CIBCM-501-2019 (2019), (Exhibit CRI 15); Memorandum CIBCM-167-2017 (2017), (Exhibit CRI-16); and Summary 2014-2019 sampling surveys, (Exhibit CRI-17)).

¹¹⁹⁹ Costa Rica's first written submission, para. 3.22 (citing Sampling 2015-2016, (Exhibit MEX-65)).

Laboratory. Costa Rica states that all the samples subjected to laboratory analysis were negative for the presence of ASBVd.¹²⁰⁰

7.507. Costa Rica also submits that, in 2016, it received a report of a positive sample sent to a Mexican laboratory by Dr Miguel Obregón; and that, in response to that report, the SFE's Regional Operations Department located the producer concerned and sampled the same tree from which that original sample was taken, as well as 10 other surrounding trees, obtaining negative results for ASBVd for all the samples tested.¹²⁰¹

7.508. Costa Rica states that a third sampling survey was conducted between 2017 and 2018, in which 306 samples were collected and sent to be tested by the Molecular Biology Section of the SFE's Pest Diagnostic Laboratory using the real-time RT-PCR technique; and that all the samples tested confirmed the negative result for ASBVd.¹²⁰²

7.509. Costa Rica submits that it conducted a fourth sampling survey in 2019, during which 439 samples were collected; and that all the samples subjected to laboratory analysis also proved negative for ASBVd.¹²⁰³

7.510. Costa Rica points out that it has conducted four intensive sampling surveys on its avocado plantations, testing 1,325 samples to date, which, in all cases, have proved negative for ASBVd.¹²⁰⁴

7.511. Costa Rica adds that there is a national register of farms, that it explained how the geographical selection of sampling areas is made, ensuring the randomness and representativeness of the areas chosen, including backyards; and that, since 2009, its laboratories have had the capacity to use RT-PCR, the best diagnostic technique for ASBVd in terms of cost-effectiveness and time.¹²⁰⁵

7.512. The **Panel** would like to begin its analysis by noting that the determination of absence of a pest in the territory of a country is the responsibility of the NPPO of that country. Thus, the collection of information on a pest's status in that territory is also the responsibility of the NPPO of said country. Accordingly, the surveillance system is the responsibility of the NPPO of each country, and relevant information, in particular information on specific surveillance, may only be in the possession of the country concerned.

7.513. Costa Rica shared certain documents with Mexico on its sampling surveys, which Mexico submitted as Exhibits. Mexico indicates that the documents shared by Costa Rica were the following:

- a. An SFE document on the 2014 sampling survey¹²⁰⁶;
- b. A memorandum from the CIBCM of the UCR, dated 6 April 2015, described in section 7.3 above¹²⁰⁷; and
- c. An SFE document on the 2015-2016 sampling survey.¹²⁰⁸

7.514. Mexico submitted two Excel tables that Costa Rica had shared with the Government of Mexico as ASBVd surveillance records.¹²⁰⁹

¹²⁰⁰ Costa Rica's first written submission, para. 3.22 (citing Summary 2014-2019 sampling surveys, (Exhibit CRI-17)).

¹²⁰¹ Costa Rica's first written submission, para. 3.23 (citing Obregón rebuttal (2015), (Exhibit CRI-18); and Summary 2014-2019 sampling surveys, (Exhibit CRI-17)).

¹²⁰² Costa Rica's first written submission, para. 3.24 (citing Final report (1) on 2017-2018 sampling survey, (Exhibit CRI-19); and Final report (2) on 2017-2018 sampling survey, (Exhibit CRI-20)).

¹²⁰³ Costa Rica's first written submission, para. 3.25 (citing Final report on 2019 sampling survey, (Exhibit CRI-21)).

¹²⁰⁴ Costa Rica's first written submission, para. 3.27.

¹²⁰⁵ Costa Rica's second written submission, para. 3.85.

¹²⁰⁶ Sampling survey 2014, (Exhibit MEX-64). (Mexico's first written submission, para. 442).

¹²⁰⁷ Memorandum CIBCM-PCDV-021-2015 (2015), (Exhibit MEX-134). (Mexico's first written submission, para. 442).

¹²⁰⁸ Sampling survey 2015-2016, (Exhibit MEX-65). (Mexico's first written submission, para. 442).

¹²⁰⁹ Registro de vigilancia de aguacate que Costa Rica compartió al gobierno de México (seguimiento) (Avocado surveillance record), (Exhibit MEX-116); and Registro de vigilancia en viveros que Costa Rica

7.515. In addition, Mexico submitted an SFE document, undated, entitled "Application of ISPM Nos. 6 and 8 by the State Phytosanitary Service".¹²¹⁰

7.516. The parties provided additional documentary evidence on the matter throughout their submissions, responses and comments.

7.517. In its comments on the replies to the Panel's additional questions for the experts Ricardo Flores Pedauy  and Pablo Cortese, Costa Rica identified the following Exhibits that it considers to contain relevant information on Costa Rica's general and specific surveillance: CRI-12, CRI-15, CRI-16, CRI-17, CRI-18, CRI-19, CRI-20, CRI-21, CRI-69, CRI-70, CRI-71, CRI-72, CRI-73, CRI-82, CRI-83, CRI-84, CRI-85, CRI-86, CRI-87, CRI-88, CRI-89, CRI-90, CRI-91, CRI-92, CRI-93, CRI-95, and CRI-96, *inter alia*.^{1211, 1212}

7.518. In addition to the evidence Costa Rica shared with the Government of Mexico, the evidence that the Panel considered relevant is as follows:

- a. A document issued by the Pest Diagnostic Laboratory of the SFE, approved in March 2017, the stated objective of which is to describe activities for the molecular diagnosis of ASBVd.¹²¹³
- b. A memorandum from the CIBCM of the UCR, dated 9 September 2019, described in section 7.3 above.¹²¹⁴
- c. A memorandum from the CIBCM, dated 17 March 2017, described in section 7.3 above.¹²¹⁵
- d. A document issued by the Regional Operations Department of the SFE, dated September 2019, entitled "*Informe de vigilancia para la determinaci n de la ausencia del ASBVd en las plantaciones de aguacate en Costa Rica*" (Report on the surveillance to determine the absence of ASBVd in avocado plantations in Costa Rica).¹²¹⁶
- e. A letter from the SFE, dated 18 December 2015, described in section 7.3 above.¹²¹⁷
- f. A memorandum from the Central Pest Diagnostic Laboratory of the SFE, dated 15 January 2018, regarding laboratory results for the 2017-2018 sampling survey.¹²¹⁸
- g. A memorandum from the Central Pest Diagnostic Laboratory of the SFE, dated 22 January 2018, regarding laboratory results for the 2017-2018 sampling survey.¹²¹⁹

compart o al gobierno de M xico (seguimiento) (Nursery surveillance record), (Exhibit MEX-117). (Mexico's first written submission, fn 242).

¹²¹⁰ SFE, Application of ISPM Nos. 6 and 8 by the SFE, (Exhibit MEX-114).

¹²¹¹ Costa Rica's comments on Pablo Cortese's response to the Panel's additional question No. 3 for Pablo Cortese, page 10.

¹²¹² The Panel notes that Exhibits CRI-91 to CRI-96 relate to the sampling procedure at the border (CRI-91: Procedure for sampling avocados for the purpose of verifying the absence or presence of ASBVd, which applies to consignments of avocados imported from countries with ASBVd; CRI-92: Sampling record of unprocessed plant products at entry points; CRI-93: chain of custody record; CRI-95: Indicates the time it takes to transfer the fresh avocado fruit samples from the entry point to the laboratory, and the percentage of consignments subject to laboratory testing and which have proved positive for ASBVd; CRI-96: Instructions for sampling plant products at phytosanitary checkpoints for diagnostic purposes). The Panel therefore does not consider those exhibits to be germane to specific surveillance as the premise for determining absence of ASBVd in Costa Rica.

¹²¹³ Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganader a de Costa Rica, "Detecci n molecular del Avocado sunblotch viroid (ASBVd)", LAB-LDP-BM-PT-06, que rige a partir del 27 de marzo de 2017 (Document LAB-LDP-BM-PT-06 (2017)), (Exhibits CRI-12 and CRI-86).

¹²¹⁴ Memorandum CIBCM-501-2019 (2019), (Exhibit CRI-15).

¹²¹⁵ Memorandum CIBCM-167-2017 (2017), (Exhibit CRI-16).

¹²¹⁶ Summary 2014-2019 sampling surveys, (Exhibit CRI-17).

¹²¹⁷ Obreg n rebuttal (2015), (Exhibit CRI-18).

¹²¹⁸ Final report (1) on 2017-2018 sampling survey, (Exhibit CRI-19).

¹²¹⁹ Final report (2) on 2017-2018 sampling survey, (Exhibit CRI-20).

- h. A memorandum from the Central Pest Diagnostic Laboratory of the SFE, dated 24 June 2019, regarding laboratory results for the 2019 sampling survey.¹²²⁰
- i. A document from the Regional Operations Department of the SFE, entitled "*Procedimiento de toma de muestras de plagas en vegetales en el campo para diagnóstico*" (Procedure for taking pest samples from plants in the field for diagnostic purposes), approved in February 2018, the stated purpose of which is to establish the procedures to be followed when taking and preparing samples of plant products or arthropods in the field, to carry out phytosanitary analyses for diagnostic purposes.¹²²¹
- j. A document from the Regional Operations Department of the SFE, entitled "*Prospección del viroide Sun Blotch (ASBVd) en el cultivo de aguacate. Costa Rica. 2019*" (Surveying for avocado sunblotch viroid (ASBVd) in avocado crops. Costa Rica. 2019), the stated objective of which is to carry out a survey of avocado crops at the national level on the avocado sunblotch viroid (ASBVd).¹²²²
- k. An SFE map, entitled "*Fincas muestreadas para determinar la presencia o ausencia del ASBVd, 2014-2019*" (Farms sampled to determine the presence or absence of ASBVd, 2014-2019).¹²²³
- l. A memorandum from the SFE, dated 26 November 2019, regarding the SFE's pest surveillance system, entitled "*Sistema de Vigilancia Fitosanitaria (SIVIFI)*" (Phytosanitary surveillance system (SIVIFI)).¹²²⁴
- m. A memorandum from the SFE, dated 28 November 2019, which contains a list of avocado backyard farms sampled to date in Costa Rica, as well as a map entitled "*Mapa con la ubicación de muestreo de aguacate en traspatios, para determinar la presencia o ausencia del ASBVd, 2015-2019*" (Map showing the location of avocado trees sampled in backyards, to determine the presence or absence of ASBVd, 2015-2019).¹²²⁵
- n. A document issued by the Regional Operations Department of the SFE, entitled "*Procedimiento de Vigilancia y Control de Plagas Reglamentadas*" (Procedure for the surveillance and control of regulated pests), approved in October 2018, the stated purpose of which is to implement mechanisms to monitor and control regulated pests that may cause damage to domestic agricultural production.¹²²⁶
- o. A document issued by the Unit for Planning, Quality Control and Internal Checks of the SFE, entitled "*Instructivo sobre las responsabilidades y autoridades relacionadas con el Sistema de Gestión de la Calidad*" (Instructions on responsibilities and authorities related to the quality control system), approved in March 2019, the stated purpose of which is to

¹²²⁰ Final report on 2019 sampling survey, (Exhibit CRI-21).

¹²²¹ Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, "*Procedimiento de toma de muestras de plagas en vegetales en el campo para diagnóstico*", OR-RN-PO-03, 13 de febrero 2018 (Document OR-RN-PO-03 (2018)), (Exhibit CRI-82).

¹²²² ASBVd survey in Costa Rica (2019), (Exhibit CRI-83).

¹²²³ Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, Unidad de Biometría y Sistemas de Información Geográfica, "*Fincas muestreadas para determinar la presencia o ausencia del ASBVd, 2014-2019*" (Map sampling surveys 2014-2019), (Exhibit CRI-84).

¹²²⁴ Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, Departamento Operaciones Regionales, Unidad de Biometría y Sistemas de Información Geográfica, Borbón Martínez, OR-BSG-004/2019, 26 de noviembre 2019 (Memorandum OR-BSG-004/2019 (2019)), (Exhibit CRI-85).

¹²²⁵ Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, Unidad de Control de Residuos, Departamento de Operaciones Regionales, DOR-DOR-RN-081-2019; y Unidad de Biometría y Sistemas de Información Geográfica, "*Mapa con la ubicación de muestreo de aguacate en traspatios, para determinar la presencia o ausencia del ASBVd, 2015-2019*", 28 de noviembre de 2019 (Backyard sampling survey (2019)), (Exhibit CRI-87).

¹²²⁶ Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, "*Procedimiento de Vigilancia y Control de Plagas Reglamentadas*", OR-RN-PO-01, 12 de octubre 2018 (Document OR-RN-PO-01 (2018)), (Exhibit CRI-88).

establish the responsibilities and authorities of the main stakeholders in the SFE's quality control system.¹²²⁷

- p. A document issued by the Unit for Planning, Quality Control and Internal Checks of the SFE, entitled "*Procedimiento para el Control de Documentos y Registros*" (Procedure for the control of documents and records), approved in November 2018, the stated purpose of which is to establish the requirements for the systematic and standardized preparation of documents of the SFE's quality control system, as well as defining the steps to be taken to ensure the proper identification, storage, protection, recovery, retention and disposal of quality records.¹²²⁸

7.519. To have a better understanding of the robustness of Costa Rica's determination of absence of ASBVd in its territory and, therefore, its scientific legitimacy, the Panel sought the opinion of experts regarding the scientific and methodological rigour of the ASBVd surveillance system in Costa Rica on the basis of the information provided by the parties, and regarding whether this information could reasonably determine the status of ASBVd in Costa Rica.

7.520. As explained in section 1.3.3.4 above, after reviewing the experts' responses, the Panel considered that it was necessary to seek additional information from the parties on the surveillance system for ASBVd in Costa Rica, in order to make the necessary findings to resolve the dispute. In view of the foregoing, on 3 August 2020, the Panel sent the parties a request for additional information and supporting documentation on the surveillance system for ASBVd in Costa Rica already in their possession.

7.521. On 14 September 2020, Costa Rica sent its response to the Panel's request for information on the ASBVd surveillance system in Costa Rica.¹²²⁹ Mexico had indicated on 22 August 2020 that information on ASBVd surveillance in Costa Rica was exclusively in the hands of Costa Rica, and it would therefore not submit any additional information. On 28 September 2020, Mexico sent its comments on the information submitted by Costa Rica.

7.522. In addition, together with its responses to the Panel's questions following the Panel's second meeting with the parties, Costa Rica submitted the following exhibits, which the Panel considers to be relevant for its analysis:

- a. A document issued by the Pest Surveillance and Control Department of the SFE, entitled "*Vigilancia y control de plagas Cuarentenarias Reglamentadas (PCR)*" (Surveillance and control of regulated quarantine pests), approved in August 2011, the stated objective of which is to implement surveillance and phytosanitary measures in a timely and effective manner, in the event of the detection of regulated quarantine pests of potential economic importance to domestic agricultural production.¹²³⁰
- b. A blank production establishments or sites location form issued by the SFE.¹²³¹

¹²²⁷ Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, "Instructivo sobre las responsabilidades y autoridades relacionadas con el Sistema de Gestión de la Calidad", PCCI-GC-I-01, 15 de marzo 2019 (Document PCCI-GC-I-01 (2019)), (Exhibit CRI-89).

¹²²⁸ Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, "Procedimiento para el Control de Documentos y Registros", PCCI-GC-PO-01, 29 de noviembre 2018 (Document PCCI-GC-PO-01 (2018)), (Exhibit CRI-90).

¹²²⁹ Costa Rica gave the document in response to the Panel's request for additional information and supporting documentation of 3 August 2020 the title *Informe de Costa Rica en respuesta a la solicitud de información y documentación soporte adicional del Grupo Especial en el caso DS524 ante la OMC* (Report by Costa Rica in response to the Panel's request for additional information and supporting documentation in DS524 before the WTO). Throughout the dispute, Costa Rica referred to this document as "Costa Rica's additional surveillance report" or "Costa Rica's surveillance report".

¹²³⁰ Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, Departamento de Vigilancia y Control de Plagas, "*Vigilancia y control de plagas Cuarentenarias Reglamentadas (PCR)*", VCP-VI-PO-02, 9 de agosto 2011 (Document VCP-VI-PO-02 (2011)), (Exhibit CRI-146).

¹²³¹ Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, Boleta de ubicación de establecimientos o sitios de producción, OR-RN-F-03 (Form OR-RN-F-03), (Exhibit CRI-147).

- c. A blank form for pest monitoring in production establishments or sites issued by the SFE.¹²³²
- d. Completed production establishments or sites location forms and completed forms for pest monitoring in production establishments or sites.¹²³³
- e. Completed forms for the handling and transportation of samples for pest diagnostic tests and pesticide residue analysis.¹²³⁴
- f. A document issued by the Pest Diagnostic Laboratory of the SFE, entitled "*Aseguramiento de calidad de métodos de diagnóstico molecular*" (Quality assurance of molecular diagnostic methods), approved in December 2016, the stated objective of which is to describe quality assurance practices for monitoring the validity of the PCR assays of the Molecular Biology Laboratory.¹²³⁵
- g. A document issued by the Central Pest Diagnostic Laboratory of the SFE, entitled "*Prácticas generales de trabajo en el Laboratorio de Biología Molecular*" (General work practices in the Molecular Biology Laboratory), approved in August 2015, the stated objective of which is to describe key elements of organization of work and general rules to be followed in the Molecular Biology Laboratory to reduce the risks of contamination and work-related accidents, and to maintain a harmonious and disciplined environment.¹²³⁶
- h. A document issued by the Pest Diagnostic Laboratory of the SFE, entitled "*Resuspensión de imprimadores/sondas y control general de alícuotas*" (Resuspension of primers/probes and general control of aliquots), approved in February 2016, the stated objective of which is to describe the steps to be taken to resuspend (dissolve) and dilute primers and probes, as well as for the traceability of reagent working aliquots in general.¹²³⁷
- i. A draft SFE document, entitled "*Instructivo de lavado de cristalería y utensilios de laboratorio*" (Instructions for cleaning laboratory glassware and utensils), the stated objective of which is to establish the steps to follow to clean the different laboratory utensils and glassware properly.¹²³⁸

7.523. The Panel will analyse below the different aspects of the specific surveillance system for ASBVd in Costa Rica in order to determine whether the basis for the determination of absence of ASBVd in Costa Rica has the necessary scientific rigour for that determination to be considered legitimately scientific according to the standards of the scientific community concerned.

7.524. The Panel notes that Reports ARP-002-2017 and ARP-006-2016 refer to recent sampling surveys that confirmed that the pest is absent in Costa Rica. Reports ARP-002-2017 and

¹²³² Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, Boleta de seguimiento de plagas en establecimientos o sitios de producción, OR-RN-F-04 (Form OR-RN-F-04), (Exhibit CRI-148).

¹²³³ Boletas de ubicación de establecimientos o sitios de producción y boletas de seguimiento de plagas en establecimientos o sitios de producción rellenas (Completed forms OR-RN-F-03 and OR-RN-F-04), (Exhibit CRI-149).

¹²³⁴ Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, Formularios para el manejo y transporte de muestras para diagnósticos de plagas y análisis de residuos de plaguicidas, OR-RN-F-01, 2017-2018 (Completed forms OR-RN-F-01 (2017-2018)), (Exhibit CRI-150).

¹²³⁵ Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, Laboratorio de Diagnóstico de Plagas, "Aseguramiento de calidad de métodos de diagnóstico molecular", LAB-LDP-BM-PO-09, 22 de diciembre 2016 (Document LAB-LDP-BM-PO-09 (2016)), (Exhibit CRI-152).

¹²³⁶ Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, Laboratorio Central de Diagnóstico de Plagas, "Prácticas generales de trabajo en el laboratorio de Biología Molecular", LAB-LDP-BM-PO-02, 21 de agosto 2015 (Document LAB-LDP-BM-PO-02 (2015)), (Exhibit CRI-154).

¹²³⁷ Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, Laboratorio de Diagnóstico de Plagas, "Resuspensión de imprimadores/sondas y control general de alícuotas", LAB-LDP-BM-PO-07, 15 de febrero 2016 (Document LAB-LDP-BM-PO-07 (2016)), (Exhibit CRI-155).

¹²³⁸ Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, "Instructivo de lavado de cristalería y utensilios de laboratorio", borrador, LDP-BM-I-07 (Draft document LDP-BM-I-07), (Exhibit CRI-156).

ARP-006-2016, of July 2017, were preceded by the sampling surveys conducted in 2014 and 2015-2016, so therefore these appear to be the sampling surveys referred to in those reports.

7.525. The Panel recalls that the panel in *US – Animals* noted that the Appellate Body had clarified that Article 2.2 and Article 5.1 must constantly be read together, including the obligation that measures not be maintained without sufficient scientific evidence.¹²³⁹ That panel also referred to the panel report in *Japan – Apples*, according to which, if the scientific evidence evolves, this may be an indication that the risk assessment should be reviewed or a new assessment undertaken.¹²⁴⁰ Based on these observations, the panel in *US – Animals* stated that "[t]he obligation to 'maintain' a measure based on scientific evidence has a continuing dimension".¹²⁴¹

7.526. The Panel will therefore consider both the information on the ASBVd sampling surveys of 2014 and 2015-2016, and the information on the sampling surveys of 2017-2018 and 2019, and will make findings on the two groups of surveys.

Sampling design and monitoring

7.527. As mentioned above, among the inconsistencies that **Mexico** submits it found with regard to the 2014 and 2015 sampling surveys, with respect to section 2 of ISPM No. 6, Mexico asserts that Costa Rica conducted two sampling surveys without first having prepared a survey plan and, therefore, without such a plan having been approved by the NPPO.¹²⁴²

7.528. Mexico adds that the experts stated that an appropriate surveillance plan should be established in order to understand the variations and specific circumstances of ASBVd, that absence of evidence is not evidence of absence, that one must always make every effort to be certain that this pest is not present, and that Costa Rica had yet to comply with this aspect.¹²⁴³

7.529. In this respect, the expert Pablo Cortese explains that sampling surveys should be planned and designed in accordance with the objectives (i.e. to find or to try to detect whether this viroid or disease is present in a certain area).¹²⁴⁴ With regard to monitoring, Mr Cortese states that sampling should continue over time in order to ensure a well-designed monitoring plan with a reliable result, and that it is something that changes as time goes on.¹²⁴⁵

7.530. In view of the remarks of Mr Cortese, it is the opinion of the **Panel** that, for sampling results to be considered legitimately scientific, the sampling survey would have to be carefully designed and planned, bearing in mind the particular characteristics of the pest, the territory, the host, etc., and be accompanied by a maintenance plan to be implemented over time (i.e. a monitoring plan). Only with proper design and planning, prior to conducting a sampling survey, is it possible for sampling to yield results that provide reliable information on the pest status in an area.

7.531. With specific regard to the design of Costa Rica's sampling survey and monitoring plan for ASBVd, Mr Cortese initially stated that with the elements available he could not specify what the statistically valid design of the sampling survey was, or the number of samples to be taken as part of that survey.¹²⁴⁶

7.532. In his responses to the Panel's additional questions, Mr Cortese continued to take the view that information on the design of the adopted sampling practice was missing, and that while there was a description of how the surveillance was carried out, no information was provided, nor was it possible to infer relevant data, on the timing and design of the sampling surveys or the monitoring programme.¹²⁴⁷

¹²³⁹ Panel Report, *US – Animals*, para. 7.338 (citing Appellate Body Report, *EC – Hormones*, para. 180).

¹²⁴⁰ Panel Report, *US – Animals*, para. 7.338 (citing Panel Report, *Japan – Apples*, para. 7.12).

¹²⁴¹ Panel Report, *US – Animals*, para. 7.339.

¹²⁴² Mexico's first written submission, para. 451, table 9.

¹²⁴³ Mexico's opening statement at the second meeting of the Panel, para. 38 (citing Pablo Cortese, transcript of the Panel's meeting with the parties and the experts, day 4, pp. 60-61).

¹²⁴⁴ Pablo Cortese, transcript of the Panel's meeting with the parties and the experts, day 4, p. 20.

¹²⁴⁵ Pablo Cortese, transcript of the Panel's meeting with the parties and the experts, day 4, p. 20.

¹²⁴⁶ Pablo Cortese's response to Panel question No. 180 for the experts.

¹²⁴⁷ Pablo Cortese's responses to additional Panel questions Nos. 2 and 3 for Pablo Cortese.

7.533. The last time he participated in the dispute, at the Panel's meeting with the parties and the experts, and in light of the additional information provided by Costa Rica, Mr Cortese observes that sampling surveys were conducted at certain times, but that these surveys do not necessarily constitute monitoring, because they must be repeated or continued in some way.¹²⁴⁸

7.534. Bearing in mind the opinion of Mr Cortese, the Panel notes that the record of the dispute contains insufficient information on Costa Rica's sampling surveys design and monitoring plan for ASBVd, and that it is not clear from the documentation submitted by the parties how Costa Rica has designed these sampling surveys or how often it plans to repeat them.

7.535. As mentioned earlier, the sampling surveys that appear to have served as a basis for Costa Rica's determination that ASBVd was absent from its territory when drafting its Reports ARP-002-2017 and ARP-006-2016 are those of 2014 and 2015-2016. The two documents containing specific information on these sampling surveys are Exhibits MEX-64¹²⁴⁹ and MEX-65.¹²⁵⁰ These exhibits mention that the respective sampling surveys were scheduled¹²⁵¹, and contain information on how the surveys were conducted, including information on sample selection, in the form of an account in the past tense, but do not identify or refer to any document or specific information predating the sampling surveys that concerns the design of the sampling survey or the monitoring plan.

7.536. Nor does the Panel see in the record any documents or specific information concerning the design of the sampling survey or the monitoring plan in the documents pertaining to the 2017-2018 sampling survey.

7.537. Regarding the 2019 sampling survey, Costa Rica submitted a document from 2019 that predates the sampling survey for that year. The document in question, entitled "Surveying for avocado sunblotch viroid (ASBVd) in avocado crops. Costa Rica. 2019", is contained in Exhibit CRI-83. The document briefly describes ASBVd and provides information on the selection of farms for the sampling survey. It states that 130 producers were selected at the national level, for a total sampled area of 623.45 hectares, which accounted for 29.4% of the total area planted with avocado crops¹²⁵², which, according to the document, was 2,120 hectares in 2018.¹²⁵³ According to the document, a total of 394 samples were to be collected.¹²⁵⁴ The document indicates that there are some 580 avocado producers at the national level, and that 80% of farms are located in the Los Santos area in the Eastern Central Valley region.¹²⁵⁵ The document also contains the ASBVd survey schedule for 2019, indicating that sampling would take place between February and April 2019.¹²⁵⁶

7.538. The Panel notes that this is the only document providing information on the design of Costa Rica's sampling survey prior to the survey taking place, but it still does not indicate the presence of a monitoring plan.

7.539. In view of the foregoing, the Panel concludes that the lack of information and specific documentation on the design of the sampling survey and the monitoring plan, especially for the first two sampling surveys prior to Reports ARP-002-2017 and ARP-006-2016, is a problematic aspect of Costa Rica's specific surveillance system for ASBVd that affects the reliability of the determination of absence of ASBVd in Costa Rica, and therefore the scientific legitimacy of this determination.

Coverage of the sampling surveys and representativeness of the samples

7.540. **Mexico** asserts that the sampling surveys conducted by Costa Rica are not representative and that they lack the technical rigour required by ISPM No. 6, because, for instance, in a first

¹²⁴⁸ Pablo Cortese, transcript of the Panel's meeting with the parties and the experts, day 4, p. 20.

¹²⁴⁹ Sampling survey 2014, (Exhibit MEX-64).

¹²⁵⁰ Sampling survey 2015-2016, (Exhibit MEX-65).

¹²⁵¹ Sampling survey 2014, (Exhibit MEX-64), p. 3; Sampling survey 2015-2016, (Exhibit MEX-65), p. 3.

¹²⁵² ASBVd surveys in Costa Rica (2019), (Exhibit CRI-83), p. 3.

¹²⁵³ ASBVd surveys in Costa Rica (2019), (Exhibit CRI-83), p. 2.

¹²⁵⁴ ASBVd surveys in Costa Rica (2019), (Exhibit CRI-83), p. 5.

¹²⁵⁵ ASBVd surveys in Costa Rica (2019), (Exhibit CRI-83), p. 5.

¹²⁵⁶ ASBVd surveys in Costa Rica (2019), (Exhibit CRI-83), p. 8.

sampling exercise, Costa Rica took 258 samples, that is, 0.07% of a total of 366,502 trees¹²⁵⁷ that are planted on average.¹²⁵⁸ With regard to the 2015 and 2017 sampling surveys, Mexico notes that the same comments apply, as sampling accounted for 0.08% in 2015, and 0.05% in 2017.¹²⁵⁹ With respect to the 2019 sampling survey, Mexico submits that Costa Rica withdrew the invitation to Mexico's health authorities to observe the sample taking.¹²⁶⁰

7.541. Mexico further asserts that none of the sampling surveys conducted cover the area identified by the PRAs (the entire territory); that discrepancies can be found regarding the number of samples collected, those required by the laboratories and those that were eventually analysed; and that the number of samples taken in all of the years lack the statistical rigour required to be considered representative.¹²⁶¹

7.542. Turning to a specific sampling survey, Mexico submits that the document concerning the 2014 survey shows that: (i) Costa Rica did not inspect the entire area planted with avocado in the country, but instead, of the 2,095 hectares reported to correspond to the area planted with avocado crops for 2014, samples were taken in an area of 73 hectares, that is, 3.48% of Costa Rica's cultivated surface area; (ii) Costa Rica did not inspect all the economic regions, but only four regions, discontinuing its inspection of another two (Atlantic Huetar and Northern Huetar), and seven cantons, when Costa Rica has 82 cantons in total, and, nevertheless, states in its PRAs that the avocado tree is distributed throughout the country¹²⁶²; (iii) the sampling survey does not contain any information indicating that backyard gardens were inspected; and (iv) the inspection is limited to looking for symptomatic trees in order to collect leaves, and eliminates the possibility of detecting asymptomatic trees, which can have a reduced yield and a stunted appearance.¹²⁶³ Mexico adds that the initial estimate was for 198 samples to be collected, but that, without any justification, the UCR asked to analyse 264 samples. In Mexico's view, the report is incomplete because it does not include the results and does not describe the frequency of samples from trees with the aforementioned symptoms.¹²⁶⁴

7.543. Mexico submits that the document concerning the 2015-2016 sampling survey shows that: (i) Costa Rica inspected only one economic region (Eastern Central) and 11.64% of the 244 hectares planted in the country; (ii) Costa Rica inspected an area with a very low yield of avocados per hectare (0.35); (iii) there is no information indicating that backyard gardens were inspected; and (iv) the inspection is limited to looking for symptomatic trees in order to collect leaves, and eliminates the possibility of trying to detect asymptomatic trees.¹²⁶⁵

7.544. Mexico asserts that the above-mentioned document on the 2015-2016 sampling survey refers to a schedule for collecting 244 samples, but that in the end a total of 322 samples were collected, which were analysed, without any known justification, by two different laboratories: 151 by the PCR laboratory of the SFE Directorate, and the remaining 171 samples by the Molecular Biology Laboratory of the UCR. Mexico notes that both laboratories used different detection methods, one the hybridization method and the other the RT-PCR method without sequencing.¹²⁶⁶ Mexico adds that, without any justification, unlike the first sampling survey in which samples were

¹²⁵⁷ Mexico submits that, in Exhibit MEX-64 on the 2014 sampling survey, Costa Rica states that its crop area for avocados is 2,059 hectares, and that in each hectare Costa Rica plants an average of 178 trees, which amounts to 366,502 trees. (Mexico's comments on Costa Rica's response to Panel question No. 150, para. 2).

¹²⁵⁸ Mexico's opening statement at the first meeting of the Panel, para. 21 (citing Sampling survey 2014, (Exhibit MEX-64); and Los Santos Zone (2007), (Exhibit MEX-97)); second written submission, para. 178; comments on Costa Rica's response to Panel question No. 150, para. 1.

¹²⁵⁹ Mexico's opening statement at the first meeting of the Panel, para. 23 (citing Sampling survey 2015-2016, (Exhibit MEX-65); and Summary 2014-2019 sampling surveys, (Exhibit CRI-17)); second written submission, para. 178.

¹²⁶⁰ Mexico's opening statement at the first meeting of the Panel, para. 24.

¹²⁶¹ Mexico's second written submission, para. 23.

¹²⁶² Mexico's first written submission, paras. 443-444; second written submission, para. 24 (citing Sampling survey 2014, (Exhibit MEX-64)); comments on Costa Rica's response to Panel question No. 149, para. 2 (citing Mexico's first written submission, para. 444).

¹²⁶³ Mexico's first written submission, paras. 443-444; comments on Costa Rica's response to Panel question No. 149, para. 2 (citing Mexico's first written submission, para. 444).

¹²⁶⁴ Mexico's second written submission, para. 24 (citing Sampling survey 2014, (Exhibit MEX-64)).

¹²⁶⁵ Mexico's first written submission, paras. 446-447 (referring to Sampling survey 2014, (Exhibit MEX-64)).

¹²⁶⁶ Mexico's second written submission, para. 25 (citing Sampling survey 2015-2016, (Exhibit MEX-65)).

obtained from various regions of Costa Rica, the second sampling survey focused solely on the Eastern region, despite the declaration on the phytosanitary status in respect of ASBVd being made for the entire territory of Costa Rica; and that the sampling is concentrated in the farmed area, with no consideration given to trees growing in backyards or on uncultivated land or waste disposal sites.¹²⁶⁷

7.545. Regarding the 2017-2018 sampling survey, Mexico submits that samples were taken only in the Eastern Central region; that a total of 306 samples were collected, but only 245 samples were analysed (January 2018), and the results from 61 samples were obtained separately (February 2018). In both cases, the samples were analysed at the Pest Diagnostic Laboratory of the SFE's Molecular Biology Section, using the real-time RT-PCR technique.¹²⁶⁸

7.546. With regard to the 2019 sampling survey, Mexico asserts that, according to the report on the surveillance to determine the absence of ASBVd in avocado plantations in Costa Rica, the survey involved taking 439 samples from the following areas: the Eastern Central region, the Chorotega region, the Western Central region, the Brunca region and the Central Pacific region¹²⁶⁹; and that the samples were analysed by the Phytosanitary Diagnostic Laboratory¹²⁷⁰, but that the document "Surveying for avocado sunblotch viroid (ASBVd) in avocado crops" indicates a total of 396 samples to be collected from a planted area of 2,120 sown hectares.¹²⁷¹

7.547. Mexico submits that, while in Exhibit CRI-17 Costa Rica attempts to address the flaws in the sampling surveys, the procedures that it carried out show a lack of methodological and scientific rigour, which results in inconsistencies regarding the territory considered for the sample-taking exercise, as well as in the initial determination of the number of samples and those that were finally analysed.¹²⁷²

7.548. In Mexico's view, it is questionable whether Costa Rica can declare ASBVd as absent in its entire territory on the basis of the analysis of 1,325 samples, when its territory has an average of 366,502 planted trees. Mexico states that, assuming, *arguendo*, that each sample represents one tree, the four sampling surveys carried out by Costa Rica only covered 0.36% of the trees in its territory.¹²⁷³

7.549. Mexico submits that the Costa Rican surveillance system is insufficient to justify and identify the rationality of the conclusions of its PRAs on which its measures are actually based.¹²⁷⁴ Mexico asserts that the experts agreed that there is some inconsistency between the reasoning of Costa Rica's SFE and the measures adopted, since if Costa Rica's objective is to be sure that it does not have ASBVd, then its level of surveillance should meet that objective.¹²⁷⁵ Mexico adds that the expert Pablo Cortese did not find that Costa Rica adequately prioritized the risk throughout its surveillance system.¹²⁷⁶

7.550. In Mexico's view, the experts confirmed that even with the additional information, *ex post* the adoption of the measures, the surveillance system had significant flaws, such as the selection of higher-risk sites and the monitoring of risk areas. Mexico states that the experts also pointed out that an appropriate surveillance plan should be established to understand the variations and specific circumstances of ASBVd, that absence of evidence is not evidence of absence, and that one must

¹²⁶⁷ Mexico's second written submission, para. 26.

¹²⁶⁸ Mexico's second written submission, para. 27 (citing Summary 2014-2019 sampling surveys, (Exhibit CRI-17), p. 8).

¹²⁶⁹ Mexico's second written submission, para. 28 (citing Summary 2014-2019 sampling surveys, (Exhibit CRI-17), p. 9).

¹²⁷⁰ Mexico's second written submission, para. 28 (citing Final report on the 2019 sampling survey, (Exhibit CRI-21)).

¹²⁷¹ Mexico's second written submission, para. 28 (citing ASBVd surveys in Costa Rica (2019), (Exhibit CRI-83), p. 5); comments on Costa Rica's response to Panel question No. 149, para. 3.

¹²⁷² Mexico's second written submission, para. 29.

¹²⁷³ Mexico's second written submission, para. 30; comments on Costa Rica's response to Panel question No. 149, para. 4.

¹²⁷⁴ Mexico's opening statement at the second meeting of the Panel, para. 36.

¹²⁷⁵ Mexico's opening statement at the second meeting of the Panel, para. 37.

¹²⁷⁶ Mexico's opening statement at the second meeting of the Panel, para. 37 (citing Pablo Cortese, transcript of the Panel's meeting with the parties and the experts, day 2, p. 63).

always make every effort to be certain that this pest is not present, and Costa Rica had yet to comply with this aspect.¹²⁷⁷

7.551. Mexico also submits that the expert Fernando Pliego Alfaro stated that Costa Rica should have considered sampling in areas where Mexican and Guatemalan avocados are found, that is, colder areas, because this niche is where the disease can in fact appear. According to Mexico, the expert added that, in order to know which sites are most at risk, one needs to know exactly where Hass seed is being used, which is something Costa Rica should have documented, since it is the only thing that would allow for a proper risk assessment.¹²⁷⁸

7.552. **Costa Rica**, for its part, notes that the zones subject to surveillance were selected according to the concentration of avocado production areas in the country, meaning that sampling took place in: the Eastern Central region (comprising the cantons of San Marcos, Dota, Tarrazú, Frailes de Desamparados and Corralillo); the Western Central region (comprising the cantons of Heredia, Alajuela, Grecia, Naranjo, Atenas, Palmares and San Ramón); the Central Pacific region (comprising the cantons of Orotina, San Mateo and Esparza); the Chorotega region (comprising the cantons of Abangares, Cañas, Bagaces, Liberia, Hojancha and Nandayure); and the Brunca region (comprising the cantons of Pérez Zeledón and Coto Brus).¹²⁷⁹

7.553. Costa Rica asserts that it designed a sampling survey that would allow it to cover the largest number of avocado crops in its territory, which is why avocado production areas were selected in the different regions of the country, with special emphasis on the Los Santos region, where around 80% of avocado production is concentrated.¹²⁸⁰

7.554. Costa Rica submits that its surveillance covers all the areas where avocados grow, but prioritizes production zones, as in these zones there is a greater risk of introduction, establishment and spread of ASBVd in view of the diversion from intended use, and the practice of grafting Hass on Hass, among other factors.¹²⁸¹ Costa Rica adds that the production zones include homogeneous plantations, as well as scattered crops, that the homogeneous plantations are usually linked to highland avocado production, particularly in the Los Santos zone, which includes the cantons of San Marcos, Dota and León Cortés, and that scattered crops are more common in zones dedicated to the production of West Indian lowland avocados.¹²⁸² Costa Rica adds that it also takes samples from backyard trees, as well as from trees at the sides of highways and roads in the country's urban and rural areas.¹²⁸³

7.555. Costa Rica states that, without knowledge of the producers and the area planted with avocados, it would not have been possible to conduct the relevant sampling surveys, and that it has a register of avocado producers, known as the SIVIFI, as well as estimates of the area planted with avocados.¹²⁸⁴

7.556. Costa Rica notes that an example of the information contained in the SIVIFI, which is collected by means of location forms (*boletas de ubicación*), is that set forth in Exhibits MEX-116 and MEX-117, which include the name of the establishment, the type of establishment and the geographical location of the avocado producers (region, province, canton, district, latitude, longitude, etc.). Costa Rica adds that the information collated in the SIVIFI concerns avocado production areas, and that, in line with the good practices described by Pablo Cortese, Costa Rica prioritizes avocado production areas in its sampling surveys and also carries out targeted sampling for backyard and wild trees.¹²⁸⁵

¹²⁷⁷ Mexico's opening statement at the second meeting of the Panel, para. 38 (citing Pablo Cortese, transcript of the Panel's meeting with the parties and the experts, day 4, pp. 60-61).

¹²⁷⁸ Mexico's opening statement at the second meeting of the Panel, para. 39 (citing Fernando Pliego Alfaro, transcript of the Panel's meeting with the parties and the experts, day 2, p. 40).

¹²⁷⁹ Costa Rica's response to Panel question No. 27, para. 1.

¹²⁸⁰ Costa Rica's response to the Panel's information request of 3 August 2020, p. 16.

¹²⁸¹ Costa Rica's response to Panel question No. 143, para. 119.

¹²⁸² Costa Rica's response to Panel question No. 143, para. 120.

¹²⁸³ Costa Rica's response to Panel question No. 143, para. 121.

¹²⁸⁴ Costa Rica's response to Panel question No. 150, para. 139 (citing INEC, Crops (2015), (Exhibit CRI-63); and Memorandum OR-BSG-004/2019 (2019), (Exhibit CRI-85)).

¹²⁸⁵ Costa Rica's response to Panel question No. 150, para. 140.

7.557. The **Panel** notes that Costa Rica states that the zones subject to surveillance for ASBVd were selected according to the concentration of avocado production areas in the country¹²⁸⁶, and goes on to assert that in the 2014 sampling survey, sampling focused on the producing area because of the risk of the pest being introduced into Los Santos, and that subsequently, the coverage of each sampling survey was extended.¹²⁸⁷ Costa Rica acknowledges that the second sampling survey, like the first, was focused on the Los Santos region and its surrounding area.¹²⁸⁸

7.558. While Costa Rica asserts that the third sampling survey took place in the Eastern Central region, the Chorotega region, the Central Pacific region, the Eastern Central Valley region and the Brunca region¹²⁸⁹, the exhibits on the record contain samples only from the Eastern Central and Chorotega regions.¹²⁹⁰ This is confirmed by the maps showing the sampling points submitted by Costa Rica in response to the Panel's information request.¹²⁹¹

7.559. Therefore, the scope of the first three sampling surveys was limited to the zone with the highest level of production. The aforementioned maps show that the 2019 sampling survey includes samples from more regions and therefore has a wider scope.¹²⁹²

7.560. With respect to Costa Rica's assertion that, in the 2014 sampling survey, sampling focused on the producing area because of the risk of ASBVd being introduced into Los Santos, the Panel notes that Costa Rica itself recognizes that its concern is not limited to production sites. From its first written submission, Costa Rica has asserted that diversion from intended use is a practice common to both private individuals, who plant seeds in their yards, and farmers who do the same with the seeds of consumed or discarded fruits.¹²⁹³ Furthermore, Costa Rica notes that, while diversion from intended use is one of the risk factors for the introduction of ASBVd into Costa Rica, it is not the only one, and mentions the risk arising from seeds discarded as waste.¹²⁹⁴

7.561. In this respect, Reports ARP-002-2017 and ARP-006-2016 mention that the use of plants derived from stock-scion combinations is a practice recognized by the fruit industry¹²⁹⁵; and that, in the case of Costa Rica, one of the cultivars used successfully as a rootstock in the main avocado-producing area is the Hass.¹²⁹⁶ Reports ARP-002-2017 and ARP-006-2016 add that the practice of using Hass rootstock increases the likelihood of using seeds from avocado imported for consumption.¹²⁹⁷ The Panel notes that Reports ARP-002-2017 and ARP-006-2016 refer to avocado producers when describing, in their introductory remarks, the risk arising from seeds of avocado fruit imported for consumption, which would be consistent with the sampling surveys' focus on producing areas.

7.562. However, Reports ARP-002-2017 and ARP-006-2016 also note that people who consume good-quality avocados and have space to cultivate this fruit are likely to plant the seed¹²⁹⁸; and that not all the population has the purchasing power to buy Hass avocados, which are more expensive.¹²⁹⁹ In light of the foregoing, when describing, in their introductory remarks, the risk arising from seeds of avocado fruit imported for consumption, Reports ARP-002-2017 and ARP-006-2016 also refer to consumers of avocado, who are not necessarily producers, and who plant avocado in their backyards.

¹²⁸⁶ Costa Rica's response to Panel question No. 27, para. 1.

¹²⁸⁷ Costa Rica, transcript of the Panel's meeting with the parties and the experts, day 4, p. 42.

¹²⁸⁸ Costa Rica's response to the Panel's information request of 3 August 2020, p. 20.

¹²⁸⁹ Costa Rica's response to the Panel's information request of 3 August 2020, p. 21.

¹²⁹⁰ Final report (1) on 2017-2018 sampling survey, (Exhibit CRI-19); and Final report (2) on 2017-2018 sampling survey, (Exhibit CRI-20).

¹²⁹¹ Costa Rica's response to the Panel's information request of 3 August 2020, pp. 27-28.

¹²⁹² Costa Rica's response to the Panel's information request of 3 August 2020, p. 29.

¹²⁹³ Costa Rica's first written submission, para. 5.129.

¹²⁹⁴ Costa Rica's response to Panel question No. 90, para. 8.

¹²⁹⁵ ARP-002-2017, (Exhibit MEX-84), p. 6; ARP-006-2016, (Exhibit MEX-85), p. 6.

¹²⁹⁶ ARP-002-2017, (Exhibit MEX-84), p. 6 (citing CONSULSANTOS (2010), (Exhibit MEX-119); and Garbanzo Solís (2010), (Exhibit MEX-125)); ARP-006-2016, (Exhibit MEX-85), p. 6 (citing CONSULSANTOS (2010), (Exhibit MEX-119); and Garbanzo Solís (2010), (Exhibit MEX-125)).

¹²⁹⁷ ARP-002-2017, (Exhibit MEX-84), p. 6; ARP-006-2016, (Exhibit MEX-85), p. 6.

¹²⁹⁸ ARP-002-2017, (Exhibit MEX-84), p. 7 (citing CONSULSANTOS (2017), (Exhibit MEX-118)); ARP-006-2016, (Exhibit MEX-85), p. 7, (citing CONSULSANTOS (2017), (Exhibit MEX-118)).

¹²⁹⁹ ARP-002-2017, (Exhibit MEX-84), p. 7; ARP-006-2016, (Exhibit MEX-85), p. 7.

7.563. Reports ARP-002-2017 and ARP-006-2016 also mention that there are endemic avocado varieties in Costa Rica¹³⁰⁰, which are both wild and cultivated; that, unlike in other parts of the world, a series of optimal climatic conditions for the germination of avocado seeds exist in Costa Rica; that in Costa Rica these seeds do not need any special treatment or care to ensure their germination; and that the seeds germinate without human assistance when they fall naturally or are discarded in gardens, in the countryside or in fields where avocado is cultivated.¹³⁰¹ Reports ARP-002-2017 and ARP-006-2016 add that the introduction of a viroid such as ASBVd reduces the possibility of using native varieties of avocado in genetic improvement programmes, leading to negative consequences for the avocado industry and biodiversity, as well as imposing constraints on and increasing production costs for the export of avocado plants.¹³⁰² From the foregoing it follows that Reports ARP-002-2017 and ARP-006-2016 also refer to the spontaneous germination of seeds, by describing the risk arising from the introduction of ASBVd by seeds of avocado fruit imported for consumption.

7.564. Furthermore, with regard to the probability of entry, and more specifically the probability of transfer to a suitable host, when considering probability related to the proximity of entry, transit and destination points to suitable host species, Reports ARP-002-2017 and ARP-006-2016 determined that the host species (*Persea americana* Mill.) is found throughout the country, close to entry, transit and final destination points¹³⁰³; that the West Indian races tend to grow naturally on the Pacific lowlands, from Guatemala to Costa Rica¹³⁰⁴; that the avocado is native¹³⁰⁵ to Costa Rica; and that avocado, both wild and cultivated, is present in all regions of the country.¹³⁰⁶

7.565. Both Costa Rica's arguments and Reports ARP-002-2017 and ARP-006-2016 themselves show that Costa Rica's concern regarding the introduction of ASBVd is not limited to production sites, but also extends to places where diversion from intended use by private individuals exists and places where spontaneous germination occurs, which includes places where wild and backyard trees grow in Costa Rican territory, and Costa Rica itself suggests that there is a risk of ASBVd being introduced in all regions of the country, by pointing out the presence of avocado trees across the whole of the country.

7.566. The surveillance expert Pablo Cortese believes that it is not always necessary to sample the entire territory or cultivated area, since if the sampling survey and monitoring plan are well designed, they should be sufficiently representative.¹³⁰⁷ Mr Cortese states that it is not necessary for a sampling survey to cover the entire population, nor is it necessary to monitor all cultivated areas or all areas, but instead priority should be given to areas where there is more likelihood of the disease being detected.¹³⁰⁸

7.567. Mr Cortese notes that, as part of the implementation of a surveillance system for a pest where diversion from intended use may be a possible or routine practice, the focus or design of both specific surveillance (aimed at detecting the pest) and general surveillance (information from other sources) should take this fact into account, so as to obtain information and gain as great an understanding as possible of the situation, which will make it possible to adjust the implementation of the surveillance.¹³⁰⁹ Mr Cortese explains that the surveillance programme is risk-based, and if the risk is diversion from intended use, sites where diversion from intended use is most likely to occur should be selected.¹³¹⁰

¹³⁰⁰ ARP-002-2017, (Exhibit MEX-84), p. 7 (citing Galindo Tovar *et al.* (2008), (Exhibit MEX-22)); ARP-006-2016, (Exhibit MEX-85), p. 7 (citing Galindo Tovar *et al.* (2008), (Exhibit MEX-22)).

¹³⁰¹ ARP-002-2017, (Exhibit MEX-84), p. 7 (citing CONSULSANTOS (2010), (Exhibit MEX-119)); ARP-006-2016, (Exhibit MEX-85), p. 7 (citing CONSULSANTOS (2010), (Exhibit MEX-119)).

¹³⁰² ARP-002-2017, (Exhibit MEX-84), p. 7; ARP-006-2016, (Exhibit MEX-85), pp. 7-8.

¹³⁰³ ARP-002-2017, (Exhibit MEX-84), p. 37 (citing Garbanzo Solís (2011), (Exhibit MEX-125)); ARP-006-2016, (Exhibit MEX-85), p. 18 (citing Garbanzo Solís (2011), (Exhibit MEX-125)).

¹³⁰⁴ ARP-002-2017, (Exhibit MEX-84), p. 37 (citing Storey *et al.* (1986), (Exhibit CRI-135)).

¹³⁰⁵ ARP-002-2017, (Exhibit MEX-84), p. 37 (citing Galindo Tovar *et al.* (2008), (Exhibit MEX-22)); ARP-006-2016, (Exhibit MEX-85), p. 18 (citing Galindo Tovar *et al.* (2008), (Exhibit MEX-22)).

¹³⁰⁶ ARP-002-2017, (Exhibit MEX-84), p. 37; ARP-006-2016, (Exhibit MEX-85), p. 18.

¹³⁰⁷ See Pablo Cortese's response to Panel question No. 81(a) for the experts.

¹³⁰⁸ Pablo Cortese, transcript of the Panel's meeting with the parties and the experts, day 2, pp. 37 and 39, and day 4, pp. 20 and 27.

¹³⁰⁹ Pablo Cortese's response to Panel question No. 172 for the experts.

¹³¹⁰ Pablo Cortese, transcript of the Panel's meeting with the parties and the experts, day 2, p. 39.

7.568. For his part, the expert Fernando Pliego Alfaro is of the view that sampling should be carried out in all edaphoclimatic zones where native or cultivated avocado is present.¹³¹¹ Mr Pliego Alfaro states that Costa Rica should know whether Hass seed is also used in the plains or lowest-lying areas where Costa Rican indigenous varieties are grown. He adds that, according to the PRA, it appears that Hass is grown at a certain altitude, and therefore if diversion from intended use occurs in respect of Hass on Hass, Costa Rica should ensure that this entire zone is very well sampled because, according to the expert, it is the niche where the disease can actually appear. Mr Pliego Alfaro asserts that in order to know which sites pose the greatest hazard, one needs to know exactly where Hass seed is being used, and that this should be well documented by Costa Rica, because it is the only thing that allows for a proper assessment of the hazard.¹³¹²

7.569. In light of the experts' opinions, the Panel considers that in order to make a reliable and legitimately scientific determination of the phytosanitary status in respect of a pest in a territory, sampling surveys should be risk-based, prioritizing places where the disease is most likely to be detected.

7.570. The expert Pablo Cortese notes that, according to the information provided, all existing risk sites were not taken into account.¹³¹³ He considers that the main consequence of this is that there could be an incipient outbreak of this disease that would not be found.¹³¹⁴ Mr Cortese notes that only a few samples were examined in a few days, and those places were not selected, or it is not clear what the criteria were for selecting those places, and, for him, some uncertainties remain.¹³¹⁵

7.571. Pablo Cortese explains that one must always make every effort to find evidence and be certain that this pest is not present.¹³¹⁶ Furthermore, Mr Cortese points out that reference is made to the entire production area, but when he sees the maps and reports, the same area is not covered every year, despite the fact that the maps are not very detailed. The expert adds that it is impossible to see what is covered – whether it is the entire area in all years, or certain parts. It is also unclear to him whether sites are covered, and whether in that selection of sites the ones with the highest likelihood of occurrence or outbreak of the disease were prioritized, because of the issue of diversion from intended use.¹³¹⁷

7.572. Considering the comments made by the expert, in the Panel's view, in addition to the fact that there is no plan or other evidence supporting Costa Rica's explanation that because of the risk of introduction it focused on the production zone, this explanation is not demonstrated to be scientifically sound. The Panel does not consider that focusing on the production zone was sufficient to design a sampling survey that would ensure a representative sample that would be able to reliably determine the status of ASBVd in Costa Rica in 2014. This is because of Costa Rica's concerns regarding diversion from intended use and spontaneous germination throughout its territory.

7.573. The Panel also recalls that, with respect to the probability of establishment and of spread after establishment, Reports ARP-002-2017 and ARP-006-2016 themselves considered avocado to be a plant native to Mesoamerica¹³¹⁸; that the environment in the PRA area is favourable for ASBVd¹³¹⁹; and that host plants are found across the PRA area.¹³²⁰

7.574. If Costa Rica considered in its Reports ARP-002-2017 and ARP-006-2016 that the risk of introduction and spread of ASBVd covered the entire PRA area, and referred in particular to diversion

¹³¹¹ Fernando Pliego Alfaro's response to Panel question No. 83 for the experts.

¹³¹² Fernando Pliego Alfaro, transcript of the Panel's meeting with the parties and the experts, day 2, pp. 39-40.

¹³¹³ Pablo Cortese's response to Panel question No. 81(b) for the experts.

¹³¹⁴ Pablo Cortese, transcript of the Panel's meeting with the parties and the experts, day 3, p. 52.

¹³¹⁵ Pablo Cortese, transcript of the Panel's meeting with the parties and the experts, day 2, p. 39.

¹³¹⁶ Pablo Cortese, transcript of the Panel's meeting with the parties and the experts, day 3, p. 60.

¹³¹⁷ Pablo Cortese, transcript of the Panel's meeting with the parties and the experts, day 3, p. 36.

¹³¹⁸ ARP-002-2017, (Exhibit MEX-84), pp. 38-39 (citing Galindo Tovar *et al.* (2008), (Exhibit MEX-22)); ARP-006-2016, (Exhibit MEX-85), p. 19.

¹³¹⁹ ARP-002-2017, (Exhibit MEX-84), pp. 38-39 (citing Holdridge (1982), (Exhibit CRI-122)). Report ARP-002-2017 refers to Holdridge (1987), but the corresponding exhibit, submitted by Costa Rica, is dated 1982; ARP-006-2016, (Exhibit MEX-85), p. 19.

¹³²⁰ ARP-002-2017, (Exhibit MEX-84), p. 39 (citing INEC, Crops (2015), (Exhibit CRI-63); and INEC, Agricultural statistical atlas (2015), (Exhibit CRI-64)); ARP-006-2016, (Exhibit MEX-85), p. 20 (citing INEC, Crops (2015), (Exhibit CRI-63); and INEC, Agricultural statistical atlas (2015), (Exhibit CRI-64)).

from intended use and spontaneous germination, which poses a risk in backyards and waste disposal sites, it is deficient that its surveillance to determine the status of ASBVd in its territory was focused only on the avocado production zone.

7.575. The Panel is of the view that, to ensure the representativeness of the samples, Costa Rica should, since 2014, have considered the characteristics of its avocado populations (i.e. wild, backyard, farmed avocado trees) and prioritized areas where the risk of the emergence of ASBVd was highest. In response to the concern expressed by Costa Rica throughout this dispute and in its Reports ARP-002-2017 and ARP-006-2016 regarding diversion from intended use and spontaneous germination, this Panel takes the view that Costa Rica should have considered these aspects in its sampling surveys. Costa Rica should have estimated the prevalence of these events in its territory and located the places where they occur, such as waste disposal sites, backyards, and other places where diversion from intended use is most likely to occur, in particular, areas where Hass seed grows and is used.

7.576. The Panel notes that it is not apparent from the evidence submitted throughout the proceedings that Costa Rica has considered and prioritized the areas where the risk of the emergence of ASBVd is highest, and it is not clear that there is any criterion for selecting ASBVd sampling sites that takes into account sites at particular risk. However, it is apparent from the exhibits concerning Costa Rica's sampling surveys that Costa Rica's intention was to conduct its sampling solely at production sites, and primarily in the largest production zone.

7.577. The Panel finds no support in the record for Costa Rica's response following the Panel's second meeting with the parties, according to which its surveillance covers all areas where avocado is present, but prioritizes production zones, as it is in these zones that there is a greater risk of the introduction, establishment and spread of ASBVd because of diversion from intended use, and the practice of Hass-on-Hass grafting, among other factors.¹³²¹

7.578. The Panel finds no evidence that Costa Rica had, in its first two sampling surveys conducted prior to the drafting of Reports ARP-002-2017 and ARP-006-2016, adequately considered the characteristics of the avocado population in its territory and the relevant cultivation practices, and that it had prioritized the areas most at risk.

7.579. Moreover, the Panel considers that, by the time of its last sampling survey in 2019, Costa Rica had still not designed a sampling survey taking into account these characteristics and practices, despite its assertion that samples were taken from backyard trees in the period 2015-2019¹³²², and that, throughout the surveillance exercise, sampling is conducted in backyards, in urban gardens and even on roadsides.¹³²³ The Panel will address the taking of samples from backyards and wild trees later in its analysis.

7.580. Furthermore, as mentioned above, the Panel considers ISPM No. 6 to be an illustrative tool for risk assessment inputs relating to the determination of the status of a pest in a territory. The Panel notes that ISPM No. 6 mentions the selection of suitable survey sites, and that such sites may be determined by the: (i) previously reported presence and distribution of the pest; (ii) biology of the pest; (iii) distribution of host plants of the pest and especially of their areas of commercial production; and (iv) climatic suitability of sites for the pest.¹³²⁴ According to the ISPM, for pests which are only likely to be present as a result of recent introduction, the selection of suitable survey sites may in addition relate, for example, to possible entry points, possible pathways of spread, sites where imported commodities are marketed, and sites where imported commodities are used as planting material.¹³²⁵

7.581. For all of the above reasons, the Panel concludes that the sampling surveys' coverage centred on the main areas of production fails to properly assess the risk of other areas where there is a probability of the disease being detected. That is to say, Costa Rica's sampling surveys, which underpin the determination that its entire territory is free of ASBVd, are not sufficiently

¹³²¹ Costa Rica's response to Panel question No. 143, para. 119.

¹³²² Costa Rica's response to Panel question No. 28, para. 1; Costa Rica's response to the Panel's information request of 3 August 2020, p. 22.

¹³²³ Costa Rica, transcript of the Panel's meeting with the parties and the experts, day 2, p. 42.

¹³²⁴ ISPM No. 6, (Exhibit MEX-75), p. 6.

¹³²⁵ ISPM No. 6, (Exhibit MEX-75), p. 6.

representative considering the risk, which affects the reliability of the determination of absence of ASBVd in Costa Rica, and therefore the scientific legitimacy of this determination.

7.582. With respect to Mexico's questioning the number of samples taken during the four surveys, and, in particular, its assertion that it is questionable whether Costa Rica can declare its entire territory as free of ASBVd having analysed 1,325 samples or only 0.36% of the trees present in its territory¹³²⁶, the Panel considers that the validity of these numbers will depend to a large extent on the statistical formula used by Costa Rica. The Panel will now address the statistical formula used by Costa Rica to determine the size of the samples for each sampling survey.

The statistical formula

7.583. With regard to the randomness of the sampling and the representativeness of the sampling areas, **Costa Rica** states that, as a first step, and before defining the sites where the specific surveys will take place, a statistical formula is used that gives the required sample size. According to Costa Rica, the chosen formula is highly reliable as it yields a confidence level of 95%.¹³²⁷

7.584. Costa Rica provides additional explanations regarding its statistical formula in response to the Panel's request for information. Costa Rica asserts that its statistical model has two basic premises: every member of the population is equally likely to be chosen, and every sample of the same size is equally likely. Costa Rica states that this model is used when the size of the population under consideration is known in advance.¹³²⁸ Costa Rica presents the following formula that it says that it uses to determine the number of samples to be taken by area and by farm to ensure the representativeness of the sampling exercise¹³²⁹:

- a. Theoretical sample

$$n_0 = [Z/\epsilon]^2 * p * q$$

- b. Real sample

$$n = \frac{n_0}{1 + n_0/N}$$

7.585. Costa Rica submits that in this formula: N = population size, Z = level of confidence, p = probability of success or expected proportion, and q = probability of failure; taking into account (i) standardized value of 1.96 (95% confidence); (ii) an assumed sample error of 5%; (iii) total number of elements (depends on the area of the farm); (iv) a 95% probability that the population has the characteristics; and (v) a 5% probability that the population does not have the characteristics.¹³³⁰

7.586. Costa Rica notes that the bibliography annexed to its response to the Panel's information request of 3 August 2020 is the literature on which its formula is based.¹³³¹

7.587. At the Panel's second meeting with the parties, Costa Rica gave a presentation, which is included in the record, that provides further explanations regarding its statistical formula.¹³³² In that

¹³²⁶ Mexico's second written submission, para. 30; comments on Costa Rica's response to Panel question No. 149, para. 4.

¹³²⁷ Costa Rica's response to Panel question No. 27, para. 1(ii)(a).

¹³²⁸ Costa Rica's response to the Panel's information request of 3 August 2020, pp. 16-17.

¹³²⁹ Costa Rica's response to the Panel's information request of 3 August 2020, p. 17.

¹³³⁰ Costa Rica's response to the Panel's information request of 3 August 2020, p. 17.

¹³³¹ Costa Rica's response to the Panel's information request of 3 August 2020, Annex 17.

¹³³² Servicio Fitosanitario del Estado de Costa Rica (SFE), Unidad de biometría y sistemas de información, Cálculo de muestras (2021) (SFE, Calculation of samples (2021)), (Exhibit CRI-151).

presentation, Costa Rica includes a photograph of the formula identified above¹³³³ and notes that the finite population formula is as follows¹³³⁴:

$$n = \frac{(Z)^2 \times p \times q \times N}{e^2 \times (N - 1) + Z^2 \times p \times q}$$

7.588. Costa Rica notes that "n" is the size of the sample; "N" the population or universe, "Z" the level of confidence, "p" the probability for, "q" the probability against, and "e" the sampling error. Costa Rica adds that there are two constants in the formula: the number of individuals that share the variable sought (p), and the number of individuals that do not share this common variable (q), where p = 95; q = 5.¹³³⁵

7.589. Costa Rica also notes that the formula used for sampling is commonly used to establish the size of samples that are representative in diverse populations.¹³³⁶ Costa Rica asserts that its use meets the objective of ensuring the establishment of samples of representative sizes on the basis of certain premises given by the analyst, and that, in this case, it is used for the purpose of establishing the size of the samples for two different populations: the population of producers and the population of avocado trees.¹³³⁷

7.590. For Costa Rica, the scientific soundness of the formula lies in the fact that it takes into account the universe of the population of producers and the number of trees present on each of the farms. Costa Rica adds that more samples will always be collected on farms with a larger area and quantity of trees, in accordance with the equitable distribution of each of the samples and farms which should be distributed by avocado production zone.¹³³⁸

7.591. With regard to the selected farms, Costa Rica notes that the randomness of the samples is guaranteed through computational tools of easily verifiable reliability, in this case the Excel application, which is widely used. Costa Rica refers to the methodological steps that it asserts are observed in order to guarantee this randomness: (i) the creation of a list of the total population (column A); (ii) the generation of random numbers for each of the elements (column B); (iii) the sorting of the randomly listed elements; and (iv) the selection of producers for the sample based on the appropriate size of the sample resulting from the application of the formula, and the sorting of producers based on the randomized second column.¹³³⁹

7.592. Costa Rica submits that the formula invariably gives constant results because the same coefficient is always applied to the trees for sampling¹³⁴⁰, and that it does not seem correct to assert that in places where there are more trees, fewer samples are taken.¹³⁴¹ According to Costa Rica, the samples actually taken by production site reflect the number of samples resulting from the application of the respective coefficient on the number of total trees rounded up or down, depending on the decimal value obtained.¹³⁴²

7.593. Costa Rica notes that its formula is commonly used to calculate samples in the agronomic, social, economic, and political spheres, and that it is a formula that allows the number of samples from a population to be calculated very accurately.¹³⁴³

7.594. Costa Rica submits that the formula has been applied since 2014 and that the same one has been used in all the sampling surveys conducted to detect ASBVd.¹³⁴⁴ Costa Rica asserts that the formula presented by Mexico is exactly the same as that presented by Costa Rica; that the difference is that Costa Rica presents a summary of its variables in mathematical terms, but that all the

¹³³³ SFE, Calculation of samples (2021), (Exhibit CRI-151), p. 7 (citing *Calcular la Muestra Correcta*, Feedback Networks, Navarra, Spain (2017)).

¹³³⁴ SFE, Calculation of samples (2021), (Exhibit CRI-151), p. 8.

¹³³⁵ SFE, Calculation of samples (2021), (Exhibit CRI-151), pp. 8-9.

¹³³⁶ Costa Rica's response to Panel question No. 140, para. 108.

¹³³⁷ Costa Rica's response to Panel question No. 140, para. 109.

¹³³⁸ Costa Rica's response to Panel question No. 140, para. 112.

¹³³⁹ Costa Rica's response to Panel question No. 140, para. 113.

¹³⁴⁰ Costa Rica's response to Panel question No. 141, para. 115.

¹³⁴¹ Costa Rica's response to Panel question No. 141, para. 116.

¹³⁴² Costa Rica's response to Panel question No. 141, para. 117.

¹³⁴³ Costa Rica's comments on Mexico's response to Panel question No. 145, para. 57.

¹³⁴⁴ Costa Rica's response to Panel question No. 142, para. 118.

variables considered in Mexico's formula are the same; and that it is just a matter of the presentation or characterization of the formula in its presentation.¹³⁴⁵

7.595. Costa Rica asserts that the area used has always been 2,095 sown hectares of avocado, according to information from the Executive Secretariat for Sectoral Agricultural Planning (SEPSA) of the MAG.¹³⁴⁶

7.596. Costa Rica also mentions that in the formula for the years 2014, 2015 and 2016, 5% was used as an index for disparate individuals in the population, but that, as differences between the avocado trees became apparent in terms of age, size or pruning or through the identification of undeveloped trees, the "q" coefficient was adjusted to a level of 50%, the same as the "p" coefficient (50%). Costa Rica notes that this means that 50% of the sampled individuals were considered to resemble the population, while the other 50% did not, on the basis of the aforementioned characteristics and verified during the field inspection.¹³⁴⁷

7.597. **Mexico** submits that, from a review of the literature cited by Costa Rica, it was not possible to identify that the formula cited by Costa Rica is used to calculate the sample size when the size of the population is known, and that this error may result in erroneous estimates of the sample size.¹³⁴⁸

7.598. Mexico states that the statistical formula presented by Costa Rica is erroneous¹³⁴⁹, and that, according to the literature consulted, in order to calculate the size of the sample when the number of individuals in a population (in this case, avocado trees) is known, the following formula should be applied:

$$n = \frac{N \times Z_a^2 \times p \times q}{d^2 \times (N - 1) + Z_a^2 \times p \times q}$$

7.599. Mexico states that in this formula: Z = level of confidence (1.96 if confidence is 95%), p = probability of success (in this case, 5% = 0.05), q = probability of failure (in this case, 0.95), d = precision, maximum permissible error in proportion (in this case, 5%).^{1350, 1351}

7.600. Mexico asserts that it is not clear how the number of samples that should be analysed in the laboratory is determined using the formula referred to by Costa Rica, because one does not know the origin of the statistical formula used by Costa Rica in 2013 to calculate the sample size when the size of a population (number of avocado trees) throughout its territory is known¹³⁵², and because its sampling manuals mention that this statistical formula was used to obtain the number of hectares to be sampled on each farm, without providing the number of trees per hectare.¹³⁵³

7.601. Mexico also notes that, according to the 2021 FAOSTAT database, 3,180 hectares of avocados were harvested in Costa Rica in 2019, but that Costa Rica states that the area to be sampled, by canton, of the total area planted with avocado at the national level in 2019 is 2,095 hectares, which means its sampling data no longer correspond to the surface area recorded in the year in question. Mexico adds that 1,085 hectares were left unsampled, which creates a bias in the results and therefore casts doubt on the true representativeness of the sampling scheme.¹³⁵⁴

¹³⁴⁵ Costa Rica's comments on Mexico's response to Panel question No. 145, para. 58.

¹³⁴⁶ Costa Rica's comments on Mexico's response to Panel question No. 145, para. 59.

¹³⁴⁷ Costa Rica's comments on Mexico's response to Panel question No. 145, para. 60.

¹³⁴⁸ Mexico's comments on Costa Rica's response to the Panel's information request of 3 August 2020, para. 33.

¹³⁴⁹ Mexico's comments on Costa Rica's response to the Panel's information request of 3 August 2020, para. 33.

¹³⁵⁰ Mexico's response to Panel question No. 145, paras. 88 and 92; comments on Costa Rica's response to the Panel's information request of 3 August 2020, para. 33.

¹³⁵¹ For its formula, Mexico refers to the article in Exhibit MEX-294. (Mexico's comments on Costa Rica's response to the Panel's information request of 3 August 2020, para. 33 (citing S. Aguilar-Barojas "Fórmulas para el cálculo de la muestra en investigaciones de salud", *Salud en Tabasco*, Vol. 11, No. 1-2 (2005), (Exhibit MEX-294))).

¹³⁵² Mexico's response to Panel question No. 145, para. 87.

¹³⁵³ Mexico's response to Panel question No. 145, para. 89.

¹³⁵⁴ Mexico's response to Panel question No. 145, para. 90.

According to Mexico, Costa Rica refers to the same surface area of 2,095 hectares for the sampling surveys conducted in 2014 and 2015-2016, which raises again the question of the representativeness of the sampling, given that, according to data obtained from FAOSTAT, there has been a logical and gradual increase in the surface area planted with avocado since 2014.¹³⁵⁵

7.602. Mexico further asserts that, in the ASBVd sampling manuals used in 2014, 2015 and 2016, the probability established for the population with the characteristics of a tree infected with ASBVd (designated as success and represented in the formula by the letter "p") had an assigned value of 95%, while the probability of the population that does not have these characteristics, i.e. trees not infected with ASBVd (known as failure and represented by the letter "q") had an assigned value of 5%. Mexico notes that these values do not coincide with those reported in the 2020 surveillance report, in which the values of success and failure for these parameters are 50%, respectively. According to Mexico, Costa Rica adjusted its statistical values in its report sent in 2020, without making the relevant clarification, meaning that the reliability and accuracy of its procedures are not well founded, but more importantly its surveillance system is not either.¹³⁵⁶

7.603. Mexico considers that Costa Rica should have presented the calculations as they were used for each of the sampling surveys conducted, and not random examples applying the formula, because otherwise it cannot be demonstrated that the application of this formula is documented and validated by the SFE¹³⁵⁷, and because it is not clear whether its calculations were based on the average number of trees per hectare or on the census conducted by Costa Rica.¹³⁵⁸ Mexico notes that, for example, according to the penultimate slide of Costa Rica's presentation, an average of 250 trees per hectare continues to be used, but that increasing it may result in more trees than were recorded.¹³⁵⁹

7.604. Mexico adds that in Exhibit CRI-149, according to the records, there are farms where two samples were taken for eight hectares, others where a similar number of samples were taken for a larger number of hectares, but others where 20 samples were taken for one hectare. In Mexico's view, this does not tally with the assertion that more samples were taken where there was a larger area.¹³⁶⁰

7.605. Mexico is of the opinion that Costa Rica's assertion that it always uses the same coefficient (0.0008 in slide 16 or 0.167 in slide 19) is questionable when in its 2014 surveillance record (Exhibit MEX-64) it appears that the coefficient 0.0346 was used.¹³⁶¹

7.606. Mexico further considers that Costa Rica should have presented the information it used to estimate its sample sizes per year, and not the platform that helps it to register its producers.¹³⁶²

7.607. The **Panel** notes that the formula identified by Costa Rica is included in its 2014 and 2015-2016 sampling survey documents, as well as in the 2019 ASBVd survey document for avocado crops at national level.¹³⁶³

7.608. The surveillance expert Pablo Cortese points out that he is not an expert statistician, and that the information submitted by Costa Rica to support the formula appears to him to be correct. Mr Cortese is, however, of the view that there are some aspects of the formula presented by Costa Rica that are not clear as regards the formulas normally used, and he believes that Mexico's response goes in the same direction.¹³⁶⁴

7.609. The Panel notes that the formula described by Costa Rica in its presentation at the Panel's second meeting with the parties and the formula suggested by Mexico are essentially the same. The

¹³⁵⁵ Mexico's response to Panel question No. 145, para. 91.

¹³⁵⁶ Mexico's response to Panel question No. 145, para. 93.

¹³⁵⁷ Mexico's comments on Costa Rica's response to Panel question No. 140, para. 2.

¹³⁵⁸ Mexico's comments on Costa Rica's response to Panel question No. 141, para. 1.

¹³⁵⁹ Mexico's comments on Costa Rica's response to Panel question No. 141, para. 1.

¹³⁶⁰ Mexico's comments on Costa Rica's response to Panel question No. 141, para. 2.

¹³⁶¹ Mexico's comments on Costa Rica's response to Panel question No. 141, para. 4.

¹³⁶² Mexico's comments on Costa Rica's response to Panel question No. 150, para. 3.

¹³⁶³ Sampling survey 2014, (Exhibit MEX-64); Sampling survey 2015-2016, (Exhibit MEX-65); and ASBVd surveys in Costa Rica (2019), (Exhibit CRI-83).

¹³⁶⁴ Pablo Cortese, transcript of the Panel's meeting with the parties and the experts, day 4, p. 12.

only difference is the terminology, since the "d" used by Mexico is equivalent to the "e" used by Costa Rica. The two expressions concerned are the following:

$$n = \frac{(Z)^2 \times p \times q \times N}{e^2 \times (N - 1) + Z^2 \times p \times q}$$

$$n = \frac{N \times Z_a^2 \times p \times q}{d^2 \times (N - 1) + Z_a^2 \times p \times q}$$

7.610. This formula is found in sources in the bibliography submitted by Costa Rica in its response to the Panel's request for additional information in the form of the real sample formula identified by Costa Rica (i.e. $n = n_0 / (1 + n_0/N)$)¹³⁶⁵, or in the following form^{1366, 1367}:

$$n = \frac{N \cdot Z^2 \cdot p \cdot (1 - p)}{(N - 1) \cdot e^2 + Z^2 \cdot p \cdot (1 - p)}$$

7.611. With regard to the value of "p", the sources in Costa Rica's bibliography also show that where the value of the estimate "p" is not obtained from previous studies, the condition is considered to be met by 50% and therefore not met by the other 50% (1 - p), which ensures the largest sample size.¹³⁶⁸ Costa Rica states that, as differences between the avocado trees became apparent in terms of age, size or pruning, or through the identification of undeveloped trees, the "q" coefficient was adjusted to a level of 50%, the same as the "p" coefficient (50%).¹³⁶⁹ Costa Rica refers to this as sample heterogeneity.¹³⁷⁰ It is not clear why the exhibits concerning the first sampling surveys of 2014 and 2015-2016 indicate that "p" is 95%, but the Panel notes that the change to 50% does not seem problematic *per se*, as it results in a larger sample size.

7.612. The Panel also notes that the formula presented by Costa Rica during the meeting is an expanded version of its previously submitted real sample formula in which n_0 is replaced by $[Z/e]^2 \times p \times q$. The development of the formula would be as follows:

$$n = \frac{n_0}{1 + n_0/N} = \frac{[Z/e]^2 \times p \times q}{1 + [Z/e]^2 \times p \times q/N} = \frac{N \times Z^2 \times p \times q}{e^2(N + [Z/e]^2 \times p \times q)} = \frac{N \times Z^2 \times p \times q}{e^2N + e^2 [Z/e]^2 \times p \times q} = \frac{N \times Z^2 \times p \times q}{e^2N + Z^2 \times p \times q}$$

7.613. There is a difference between the version of Costa Rica's formula in the previous paragraph presented in the exhibits prior to the Panel's second meeting with the parties and the version of the formula described in the presentation given at that meeting. This difference involves, in particular, the replacement of N with $N - 1$ in the formula's divisor, as follows:

$$n = \frac{Z^2 \times p \times q \times N}{e^2N + Z^2 \times p \times q}$$

¹³⁶⁵ Miguel Gómez Barrantes, "La inferencia estadística", p. 512, accessed 30 November 2021, <http://www.geocities.ws/estadistica/archivos/miguel12.pdf>.

¹³⁶⁶ Universo formulas, Muestra estadística, accessed 30 November 2021, <https://www.universoformulas.com/estadistica/descriptiva/muestra-estadistica>.

¹³⁶⁷ The Panel notes that (1-p) is equivalent to "q" and that the formula is therefore the same as the one indicated above.

¹³⁶⁸ Universo formulas, Muestra estadística, accessed 30 November 2021, <https://www.universoformulas.com/estadistica/descriptiva/muestra-estadistica>; José Antonio García-García, Arturo Reding-Bernal, Juan Carlos López-Alvarenga, "Cálculo del tamaño de la muestra en investigación en educación médica", *Investigación en Educación Médica*, Vol. 2, No. 8 (2013), p. 222; and Carlos Eduardo Valdivieso Taborga y Oscar Valdivieso, "Determinación del tamaño muestral mediante el uso de árboles de decisión", *Investigación y Desarrollo*, Vol. 1, No. 11 (2011), p. 63. (See Costa Rica's response to the Panel's information request of 3 August 2020, Annex 17).

¹³⁶⁹ Costa Rica's comments on Mexico's response to Panel question No. 145, para. 60.

¹³⁷⁰ Costa Rica's response to the Panel's information request of 3 August 2020, pp. 17-18.

$$n = \frac{(Z)^2 \times p \times q \times N}{e^2 \times (N - 1) + Z^2 \times p \times q}$$

7.614. The Panel notes that Mexico did not question this specific point, and, in any case, it does not appear to the Panel that the replacement of \sqrt{N} with $\sqrt{N-1}$ affects the size of the sample in any significant way, given the large size of the producer population and avocado population in Costa Rica. As stated in one of the sources cited in the bibliography for Costa Rica's statistical formula, when the population is infinite or large, the correction factor $N - 1$ is very close to 1 and can be ignored.¹³⁷¹

7.615. It follows from the foregoing that the formula suggested by Mexico is essentially the same as that used by Costa Rica, and that the literature consulted identifies that formula as statistically valid for calculating the size of the sample.

7.616. Nevertheless, the Panel finds the data concerning the planted area that Costa Rica uses in its calculations for the value of the size of the population to be problematic, as is outlined below.

7.617. Costa Rica has asserted that the area used has always been 2,095 sown hectares of avocado, according to information provided by SEPSA of the MAG.¹³⁷²

7.618. According to the exhibits concerning the sampling surveys, in 2014, the area of 2,095 hectares was used on the basis of the area in 2010, 2012 and 2013¹³⁷³; in the years 2015-2016, the area of 2,095 hectares was also used on the basis of the area in 2010, 2012 and 2013¹³⁷⁴; and in 2019, the area of 2,120 hectares was used on the basis of the area in 2018.¹³⁷⁵ The exhibits do not include data on the estimates for the 2017-2018 sampling survey. In its response to the Panel's information request, Costa Rica identifies the area of 2,095 hectares as the total area planted in 2019.¹³⁷⁶

7.619. The 2019 sampling survey, which identifies the area of 2,120 hectares as the sown area in 2018, refers to SEPSA Agricultural Statistical Bulletin (*Boletín Estadístico Agropecuario*) No. 27.¹³⁷⁷

7.620. Agricultural Statistical Bulletin No. 27 of the chronological series 2013-2016, available on the web page of the Costa Rican Agricultural Sector Information System, contains a table with information on the sown area for the main agricultural activities for these years. The table shows that 1,861 hectares were planted with avocado crops in 2013, 1,888 hectares in 2014, 3,004 hectares in 2015, and 3,004 hectares in 2016, according to preliminary data.¹³⁷⁸ SEPSA is identified as the source of the information in the table.

7.621. SEPSA Agricultural Statistical Bulletin No. 29 of the chronological series of 2015-2018 reports that 3,004 hectares were planted with avocado in 2015; 3,092 hectares in 2016; 3,092 hectares in 2017; and 3,000 hectares in 2018, according to preliminary data.¹³⁷⁹

7.622. The Panel notes that these data correspond to the data reported by FAOSTAT on the harvested area for avocado in Costa Rica for the period 2014-2018, to which Mexico refers when asserting that there is a discrepancy between the planted area used by Costa Rica in its formulas and the area reported for the respective year.¹³⁸⁰ FAOSTAT reports the following harvested areas

¹³⁷¹ Miguel Gómez Barrantes, "La inferencia estadística", p. 514, accessed 30 November 2021, <http://www.geocities.ws/estadistica/archivos/miguel12.pdf>.

¹³⁷² Costa Rica's comments on Mexico's response to Panel question No. 145, para. 59.

¹³⁷³ Sampling survey 2014, (Exhibit MEX-64), p. 5.

¹³⁷⁴ Sampling survey 2015-2016, (Exhibit MEX-65), p. 5.

¹³⁷⁵ ASBVd surveys in Costa Rica (2019), (Exhibit CRI-83), pp. 2 and 4.

¹³⁷⁶ Costa Rica's response to the Panel's information request of 3 August 2020, pp. 19-20.

¹³⁷⁷ ASBVd surveys in Costa Rica (2019), (Exhibit CRI-83), p. 2.

¹³⁷⁸ Sistema de Información del Sector Agropecuario Costarricense, Boletín Estadístico Agropecuario No. 27, Serie Cronológica 2013-2016, Table 1, accessed 30 November 2021, <http://www.infoagro.go.cr/BEA/BEA27>.

¹³⁷⁹ Sistema de Información del Sector Agropecuario Costarricense, Boletín Estadístico Agropecuario No. 29, Serie Cronológica 2015-2018, p. 21, Table 1, accessed 30 November 2021, <http://www.infoagro.go.cr/BEA/BEA29>.

¹³⁸⁰ Mexico's response to Panel question No. 145; México, Análisis cronológico del desarrollo tecnológico del sistema de producción de aguacate y algunos cultivos como café en Costa Rica, 20 de mayo de 2020 (Mexico, Avocado and coffee production in Costa Rica (2020)), (Exhibit MEX-286).

for avocado in Costa Rica for the years 2013-2019: 1,861 hectares (2013), 1,888 hectares (2014), 3,004 hectares (2015), 3,092 hectares (2016), 3,092 hectares (2017), 3,000 hectares (2018) and 3,180 hectares (2019).¹³⁸¹ According to FAOSTAT, this information comes from official data for the years 2014-2018, and from information based on imputation methodology for 2019.¹³⁸²

7.623. While Costa Rica submits that it uses data from SEPSA, the Panel notes that SEPSA itself reports data that differ from those used by Costa Rica in its sampling surveys according to the exhibits included in the record of the dispute. The Panel considers that using data on the planted area that differ from reported official figures affects the result of the calculation and therefore the size or number of samples that should be taken according to that result in the sampling surveys.

7.624. For the 2014 sampling survey, according to Costa Rica, the area of 2,095 hectares was used on the basis of the area in 2010, 2012 and 2013, when the planted area in 2013, according to official data, was 1,861 hectares. For the 2015-2016 sampling survey, it is indicated that 2,059 hectares were used for the calculation on the basis of the planted area in 2010, 2012 and 2013, although the planted area in 2013, according to official data, was 1,861 hectares, and 1,888 hectares in 2014. In these two sampling surveys, through which Costa Rica was initially determined to be free of ASBVd, and which formed the basis for the risk assessment in Reports ARP-002-2017 and ARP-006-2016, the planted area used for the calculations was larger than that given by official figures, and results in a larger number of samples.

7.625. Nevertheless, as regards the sampling surveys subsequent to the first two, the exhibits do not contain data on the estimates for the 2017-2018 sampling survey, but Costa Rica has asserted that the area used has always been 2,095 sown hectares of avocado, when, according to official data, the planted area in 2016 and 2017 was 3,092 hectares. With regard to the 2019 sampling survey, the planted area in 2018, according to official data, was 3,000 hectares, yet the figure of 2,120 hectares was used for the calculation. These figures amount, respectively, to around 68% and 71% of the planted area according to official data, which means that approximately 30% of the planted area was not considered when determining the number of samples to be taken in 2017-2018 and 2019.

7.626. This Panel takes the view that, by using figures for the planted area that are lower than the official figures for that area, Costa Rica used a lower number of samples than should have been taken in the sampling surveys subsequent to those of 2014 and 2015-2016, which affects the reliability of the sampling results for those years.

7.627. For all of the above reasons, the Panel concludes that, although Costa Rica's formula is scientifically valid, Costa Rica uses data concerning the planted area that differ from those officially reported. As a result, in the sampling surveys subsequent to Reports ARP-002-2017 and ARP-006-2016, the planted area used for the calculations resulted in a lower number of samples, which affects the reliability of the determination of absence of ASBVd in Costa Rica in 2017-2018 and 2019, and therefore its scientific legitimacy.

Surveillance protocols and sampling methodology

7.628. **Mexico** asserts that neither of the PRAs refers to the protocol and the methodology used by Costa Rica to inspect and take samples of the trees analysed in order to confirm the absence of ASBVd in Costa Rica.¹³⁸³

7.629. Mexico submits that the sampling was carried out on a small number of leaf samples, without taking into consideration that ASBVd is distributed unevenly among the branches of the same tree, which means that, if only one flower panicle or some leaves from a single branch of a tree are taken, it is possible that ASBVd was not present in the tissue sampled.¹³⁸⁴

7.630. According to Mexico, Costa Rica's sampling surveys not only lack scientific rigour and representativeness, but were also not designed to confirm the absence of ASBVd, as its criteria are

¹³⁸¹ FAOSTAT, accessed 30 November 2021, <http://www.fao.org/faostat>.

¹³⁸² FAOSTAT, accessed 30 November 2021, <http://www.fao.org/faostat>.

¹³⁸³ Mexico's first written submission, para. 441.

¹³⁸⁴ Mexico's first written submission, para. 448.

incomplete in light of the lack of analysis of avocado trees or plant material that may appear healthy, but that are potential carriers of ASBVd in its asymptomatic variant.¹³⁸⁵

7.631. Mexico asserts that the methodology used in the sampling surveys was based solely on the analysis of symptomatic tissue characteristic of or similar to that associated with ASBVd.¹³⁸⁶ Mexico notes that a tree infected with ASBVd can remain symptomless for an indefinite number of years¹³⁸⁷, and that a correct methodology to assess the absence of ASBVd should have included the sampling of plant tissue not only from trees, fruits or leaves showing possible ASBVd-associated characteristics, but also from other tissues that appeared healthy, considering that the ASBVd concentrations in symptomatic tissues are highly variable compared with tissues of asymptomatic trees.¹³⁸⁸

7.632. For Mexico, the sampling surveys carried out in 2014, 2015, and 2016 lack a scientific methodology and statistical basis¹³⁸⁹, and there is no specific document referring to the precise methodology used for the 2017-2018 sampling survey.¹³⁹⁰

7.633. At the Panel's first meeting with the parties, Mexico pointed out that Costa Rica never designed, let alone established, a specific surveillance protocol to detect the absence of ASBVd in its territory, and that, in 2019, Costa Rica issued an alleged surveillance protocol, with which it actually intends to justify *ex post* the non-existence of such a programme.¹³⁹¹

7.634. In its responses following the Panel's second meeting with the parties, Mexico asserts that its statement at the first meeting referred to the fact that Costa Rica did not have specific protocols that would provide certainty with respect to the determination of freedom from ASBVd in its territory, and that it only had the protocols distributed when the sampling exercise was to be undertaken, as set out in Exhibits MEX-64 and MEX-65, which lack methodological rigour. According to Mexico, this assertion is clearer in the Report on the surveillance to determine the absence of ASBVd in avocado plantations in Costa Rica (Exhibit CRI-17). Mexico asserts that this document was provided for the purpose of this dispute and Mexico was unaware of it; that in 2014 there was only one procedure for the implementation of the detection surveys, but without it being apparent that this procedure takes into account ISPM No. 8; that it cannot be verified that the personnel who took the samples had the necessary and sufficient skills to perform this activity; and that the methodology that was followed regarding the traceability of samples or the farm selection criteria cannot be clearly identified.¹³⁹²

7.635. With respect to the procedure for the surveillance and control of regulated pests of 2011, Mexico points out that: it is a procedure for pests in general, not for ASBVd; its submission with Costa Rica's responses to the Panel's questions following the Panel's second meeting with the parties contradicts Costa Rica's own statement in its surveillance report, where it notes that the specific procedures for ASBVd surveillance that were distributed to the officials responsible for that surveillance are set out in Exhibits MEX-64 and MEX-65; and it does not contain details of the official who prepared that document or specific data that would make it possible to identify that it had effectively been prepared and implemented since August 2011. Mexico submits that Costa Rica was either unaware of the existence of this document when submitting its additional surveillance report, or it is evidence that cannot be identified as having been produced in August 2011.¹³⁹³

7.636. **Costa Rica** notes that the sample collection methodology it has followed in its ASBVd sampling surveys is established in the procedure for taking pest samples from plants in the field for

¹³⁸⁵ Mexico's second written submission, para. 41.

¹³⁸⁶ Mexico's second written submission, para. 37 (citing Sampling survey 2014, (Exhibit MEX-64), p. 7; Sampling survey 2015-2016, (Exhibit MEX-65), p. 5; and Summary 2014-2019 sampling surveys, (Exhibit CRI-17), p. 5).

¹³⁸⁷ Mexico's second written submission, para. 37 (citing Ploetz *et al.* (2011), (Exhibit MEX-56)).

¹³⁸⁸ Mexico's second written submission, para. 37-38 (citing Declaración Jurada de Salvador Ochoa Ascencio, 23 de enero de 2020 (Affidavit of Salvador Ochoa Ascencio (2020)), (Exhibit MEX-222)).

¹³⁸⁹ Mexico's comments on Costa Rica's response to Panel question No. 149, para. 1.

¹³⁹⁰ Mexico's second written submission, para. 27 (citing Summary 2014-2019 sampling surveys, (Exhibit CRI-17), p. 8).

¹³⁹¹ Mexico's opening statement at the first meeting of the Panel, paras. 21 and 23.

¹³⁹² Mexico's comments on Costa Rica's response to Panel question No. 137, para. 1.

¹³⁹³ Mexico's comments on Costa Rica's response to Panel question No. 137, para. 5.

diagnostic purposes¹³⁹⁴, and that to implement the surveillance procedures it has the procedure for the surveillance and control of regulated pests.¹³⁹⁵ Costa Rica asserts that all officials responsible for the ASBVd sampling surveys received copies of these two documents.¹³⁹⁶

7.637. Costa Rica also notes that the document setting out the procedure for taking pest samples from plants in the field for diagnostic purposes was supplemented by the document "*Prospección del Viroide Sun Blotch (ASBVd) en el cultivo de aguacate. Costa Rica. 2019*" (Surveying for avocado sunblotch viroid (ASBVd) in avocado crops. Costa Rica. 2019).¹³⁹⁷

7.638. In its response to the Panel's request for additional information and supporting documentation, Costa Rica asserts that the specific procedures for ASBVd surveillance that were distributed to the officials responsible for that surveillance are set out in Exhibits MEX-64 and MEX-65.¹³⁹⁸ Costa Rica adds that these exhibits show the specific procedure used for the selection both of the sites to be sampled and the number of samples to be collected, and serves the purpose of instructing the officials responsible for sampling on the actions to be conducted in the field.¹³⁹⁹

7.639. Costa Rica submits that the farm sampling methodology has always been the same, based on science and statistical technique, and, since these disciplines have remained constant, the methodology has also remained constant, consequently Costa Rica applies the same statistical formula to all sampling surveys.¹⁴⁰⁰

7.640. Costa Rica further notes that sample collection practices must be adapted to the circumstances, and that in the present case they require special care. Costa Rica indicates that, as a starting point, the selected farms are sampled in their entirety; that each row of avocado trees is sampled, with observation of all trees, from start to finish, and with special attention paid to those trees that could present ASBVd-like symptoms; that the procedures for carrying out pest surveillance are published on the SFE website, which is accessible to the public; that the process has been refined to mitigate risks that may suddenly arise at the time of sampling, and additional sampling is therefore carried out, where appropriate, in the interest of caution. Costa Rica notes that in the 2019 sampling survey, the statistical formula determined that 396 samples should be collected, although the SFE went a step further and collected 439 samples; and that additional samples are also taken from wild and backyard trees, as can be observed in Exhibit CRI-87.¹⁴⁰¹

7.641. Costa Rica adds that neither the SPS Agreement nor the ISPMs require WTO Members to introduce pest-specific surveillance protocols, and that, currently and since 2018, Costa Rica has carried out its surveillance work on the basis of the procedure for the surveillance and control of regulated pests, submitted as Exhibit CRI-88 and Annex 7 of Costa Rica's additional surveillance report. Costa Rica asserts that, prior to 2018, it carried out its surveillance work on the basis of the procedure for the surveillance and control of regulated pests of 2011, submitted as Exhibit CRI-146.¹⁴⁰²

7.642. The **Panel** considers that in order to carry out pest detection surveys in a reliable manner, protocols describing the sampling methodology, including procedures on taking, handling and testing samples should be available.

7.643. The Panel points to ISPM No. 6, indicating that the survey plan should include, *inter alia*, a description of survey methodology and quality management, including an explanation of: (i) sampling procedures (e.g. attractant trapping, whole plant sampling, visual inspection, sample

¹³⁹⁴ Costa Rica's response to Panel question No. 27, para. 1 (citing Document OR-RN-PO-03 (2018), (Exhibit CRI-82)).

¹³⁹⁵ Costa Rica's response to Panel question No. 30 (citing Document OR-RN-PO-01 (2018), (Exhibit CRI-88)).

¹³⁹⁶ Costa Rica's response to the Panel's information request of 3 August 2020, pp. 15-16.

¹³⁹⁷ Costa Rica's response to Panel question No. 27 (citing ASBVd survey in Costa Rica (2019), (Exhibit CRI-83)).

¹³⁹⁸ Costa Rica's response to the Panel's information request of 3 August 2020, p. 11.

¹³⁹⁹ Costa Rica's response to the Panel's information request of 3 August 2020, p. 15.

¹⁴⁰⁰ Costa Rica's response to Panel question No. 149, para. 135.

¹⁴⁰¹ Costa Rica's response to Panel question No. 149, para. 137.

¹⁴⁰² Costa Rica's response to Panel question No. 137, para. 97.

collection and laboratory analysis); the procedure would be determined by the biology of pest and/or purpose of survey; (ii) diagnostic procedures; (iii) reporting procedures.^{1403,1404,}

7.644. 7.641. As regards the specific surveillance protocols and the methodology contained therein, the parties refer to Exhibits MEX-64, MEX-65, CRI-17, CRI-82, CRI-88, and CRI-146. The Panel also considers Exhibit CRI-83 to be relevant.¹⁴⁰⁵ The Panel will address these exhibits below.

7.645. With regard to the first two sampling surveys, the Panel notes that Exhibits Sampling survey 2014 (MEX-64), Sampling survey 2015-2016 (MEX-65) and "Surveillance and control of regulated quarantine pests" (CRI-146) are the only evidence submitted by Costa Rica on the methodology for the first two sampling surveys by means of which Costa Rica was initially determined to be free of ASBVd.

7.646. Exhibit MEX-64 is a document entitled "*Muestreo del viroide manchado solar (ASBVd) (Sunblotch) en el cultivo de aguacate (Persea americana), a nivel nacional. 2014*" (Sampling survey of the sunblotch viroid (ASBVd) in the avocado (*Persea americana*) crop, at the national level. 2014), which contains information regarding Costa Rica's first sampling survey of 2014. The document states that an ASBVd sampling survey was conducted, and contains brief information on its epidemiology.¹⁴⁰⁶ The document further points out that the Regional Operations Department and the SFE Directorate scheduled a sampling survey in the various avocado production zones in September and November 2014, and contains a section on the selection of farms for the sampling survey.¹⁴⁰⁷ The document indicates that the farms selected by region were visited, and those trees in the plantation that presented symptoms similar to those reported in the literature were selected.¹⁴⁰⁸ On the last two pages, nine steps are included on the collection of and handling processes for sunblotch (viroid) samples in avocado (*Persea americana*).¹⁴⁰⁹

¹⁴⁰³ ISPM No. 6, (Exhibit MEX-75), p. 6.

¹⁴⁰⁴ The Panel notes that the version of ISPM No. 6 adopted in 2018, not included by the parties in the record, includes more information on surveillance protocols, in particular in section 2 on designing surveillance programmes. This section mentions, *inter alia*, that the methodology of surveillance should be described in surveillance protocols, and that surveillance protocols should provide clear instructions for carrying out a surveillance activity in a consistent manner that can be used by various operational personnel at different locations. (Secretaría de la CIPF, *Vigilancia*, NIMF No. 6 (Roma, FAO en nombre de la Secretaría de la CIPF, adoptada en 2018, publicada en 2019), accessed 30 November 2021, <http://www.fao.org/3/w7991s/w7991s.pdf>).

¹⁴⁰⁵ The Panel will analyse the Exhibits containing the protocols relating to diagnostic tests (Exhibits CRI-12, CRI-90, CRI-152, CRI-154, and CRI-155) later in its analysis.

¹⁴⁰⁶ Sampling survey 2014, (Exhibit MEX-64), pp. 2-3.

¹⁴⁰⁷ Sampling survey 2014, (Exhibit MEX-64), p. 3.

¹⁴⁰⁸ Sampling survey 2014, (Exhibit MEX-64), p. 7.

¹⁴⁰⁹ Sampling survey 2014, (Exhibit MEX-64), pp. 8-9. The nine steps are as follows:

1. As far as possible collect symptomatic tissue characteristic of or similar to that associated with avocado sunblotch viroid.
Collect eight leaves per tree sampled. Two leaves per shoot can be collected at each of the four cardinal points.
From this point onwards, the sample should be kept as fresh as possible, and should be prevented from dehydrating and oxidizing.
2. Wrap the tissue in a slightly damp paper towel, ensuring that no additional water remains in the bag. Important: Do not wash or wet the sample.
3. Package the material in a clean plastic bag, ideally with an airtight seal (e.g. Ziploc bags).
4. Ensure that all air is removed from the airtight bag.
5. Specify the identification of the sample on the bag using a permanent marker and on a slip of paper written in pencil inserted into the bag, and the respective seal, so that there is sample traceability.
6. To keep the sample fresh. In a cool box, place pre-frozen refrigerant gels or ice, then place a layer of newspaper so that the ice or frozen gels are not in direct contact with the avocado samples. This is because freezing cold induces rapid oxidation in young avocado leaf tissue. Follow these recommendations when moving the sample from one location to another, for example, from the field to your workstation or to the laboratory.
7. Disinfect the tools used for sampling by soaking them in commercial bleach for at least one minute and then washing them with clean water before reuse. Note that chlorine is volatile and should not be exposed to the sun, as it degrades.
8. Collect relevant sample data: code, date, location, crop or variety, person taking the samples.

7.647. Exhibit MEX-65 is a document entitled "*Muestreo del viroide manchado solar (ASBVd) (Sunblotch) en el cultivo de aguacate (Persea americana), Región Central Oriental, diciembre 2015 y enero 2016*" (Sampling survey of the sunblotch viroid (ASBVd) in the avocado (*Persea americana*) crop, Central Eastern Region, December 2015 and January 2016), which contains information relating to Costa Rica's second sampling survey of 2015-2016. This document also states that a sampling survey was conducted on ASBVd, and contains brief information on its epidemiology.¹⁴¹⁰ The document further notes that the Regional Operations Department and the SFE Directorate scheduled a sampling survey in the avocado production zone of the Central Eastern Region in December 2015 and January 2016, and contains a section on the selection of farms for the survey.¹⁴¹¹ The document indicates that all farms in the Eastern Region were sampled, a total of 358 farms, and that 322 samples were collected.¹⁴¹² On the last two pages, the same nine steps are included on the collection and handling processes of sunblotch (viroid) samples in avocado (*Persea americana*) that are contained in the document, Sampling survey 2014.¹⁴¹³

7.648. The Panel notes that the nine steps for the collection of and handling processes for ASBVd samples provide some guidance on the procedure to apply in the ASBVd sampling surveys. Mexico itself acknowledges that Costa Rica has a methodology that is described in Exhibits MEX-64 (Sampling survey 2014) and MEX-65 (Sampling survey 2015-2016).¹⁴¹⁴ However, these steps do not constitute a complete methodology, nor are they reflected in any document in the record that predates the sampling surveys of 2014 and 2015-2016. These steps do not indicate, for example, which ASBVd symptoms should be looked for, or what officials should do if such symptoms are not observed. In the Panel's view, the documents in Exhibits MEX-64 and MEX-65, which constitute the final reports of the 2014 and 2015-2016 sampling surveys, cover some matters that should have been included in an ASBVd surveillance protocol. However, there is in the record no document from prior to the 2014 and 2015-2016 sampling surveys that constitutes the protocol establishing the methodology to be applied to those sampling surveys.

7.649. Mexico questions the scientific rigour of Costa Rica's nine steps on the collection of and handling processes for ASBVd samples, but the only concrete argument it makes in this regard is that the methodology used in the sampling surveys was based solely on the analysis of symptomatic tissue characteristic of or similar to that associated with the viroid.¹⁴¹⁵ The Panel will address the sampling of asymptomatic trees later in its analysis.

7.650. Exhibit CRI-146 contains a document entitled "*Vigilancia y control de plagas Cuarentenarias Reglamentadas (PCR)*" (Surveillance and control of regulated quarantine pests), which is the document that Costa Rica claims to have used when carrying out its surveillance work prior to 2018.¹⁴¹⁶ This document, approved on 9 August 2011, has been in force since that date and, as mentioned above, states that the objective of the procedure is to "[i]mplement surveillance and phytosanitary measures in a timely and effective manner, in the event of the detection of regulated quarantine pests of potential economic importance to domestic agricultural production".¹⁴¹⁷ According to its scope, this process describes the activities, as well as the actors involved therein, from the beginning with the inspection or detection of a regulated quarantine pest, until the final report is produced.¹⁴¹⁸

7.651. The Panel notes that this document describes the procedure for a sampling survey in 10 steps from conducting an inspection or sampling survey of the growing area to the issuance of an emergency measure. The Panel observes that this document is of a general nature with little detail, that it was submitted for the first time in Costa Rica's responses to the Panel questions

9. Send the fresh sample to the laboratory on the same day it was taken or, failing this, the following day (the sample must be received by the laboratory no later than 48 hours after being taken). In the meantime, keep the sample refrigerated at 4-8°C, but do not freeze.

¹⁴¹⁰ Sampling survey 2015-2016, (Exhibit MEX-65), pp. 2-3.

¹⁴¹¹ Sampling survey 2015-2016, (Exhibit MEX-65), p. 3.

¹⁴¹² Sampling survey 2015-2016, (Exhibit MEX-65), p. 5.

¹⁴¹³ Sampling survey 2015-2016, (Exhibit MEX-65), pp. 6-7.

¹⁴¹⁴ Mexico's first written submission, para. 198 and fn 239.

¹⁴¹⁵ Mexico's second written submission, para. 37 (citing Sampling survey 2014, (Exhibit MEX-64), p. 7; Sampling 2015-2016, (Exhibit MEX-65), p. 5; and Summary 2014-2019 sampling surveys, (Exhibit CRI-17), p. 5).

¹⁴¹⁶ Costa Rica's response to Panel question No. 137, para. 97.

¹⁴¹⁷ Document VCP-VI-PO-02 (2011), (Exhibit CRI-146).

¹⁴¹⁸ Document VCP-VI-PO-02 (2011), (Exhibit CRI-146), p. 1.

following the Panel's second meeting with the parties, and that no reference is made to it in the documents on the first three sampling surveys (including Exhibits MEX-64 and MEX-65), nor is there any indication in other documents in the record to confirm its use.

7.652. With regard to the sampling surveys following the first two, referring to the procedures contained in Exhibits MEX-64 and MEX-65, Costa Rica asserts that officials responsible for the ASBVD sampling surveys received copies of these documents.¹⁴¹⁹ However, the nine steps on the collection of and handling processes for sunblotch (viroid) samples in avocado (*Persea americana*) contained in these documents do not appear in any document in the record relating to the 2017-2018 and 2019 sampling surveys, nor is reference made to them.

7.653. Costa Rica also asserts that SFE officials have the procedure for the surveillance and control of regulated pests and the procedure for taking pest samples from plants in the field for diagnostic purposes.¹⁴²⁰

7.654. Exhibit CRI-82 contains the procedure for taking pest samples from plants in the field for diagnostic purposes, approved in February 2018, that is in force since its approval, and the stated purpose of which is "[t]o establish the procedures to be followed when taking and preparing samples of plant products or arthropods in the field, to carry out phytosanitary analyses for diagnostic purposes".¹⁴²¹

7.655. According to its scope, this procedure is applicable to all sampling activities for diagnostic and phytosanitary analysis purposes carried out by the Regional Operations Department on Costa Rican plant products taken in the field.¹⁴²² The document includes information on definitions, related documents, responsibility and authority, description of activities, points when checks are carried out, and record management. In the description of activities section, the document addresses survey planning, sampling survey implementation, materials and equipment, description of sampling activities, sampling steps to be followed, sample identification, sampling record, sample transport, sample storage and personal protective equipment to be used when the conditions warrant it.¹⁴²³

7.656. The expert Pablo Cortese notes that this exhibit contains general procedures, not specific to ASBVD, and that it appears to have been produced with an emphasis on coffee pests.¹⁴²⁴

7.657. In light of Mr Cortese's remarks, the Panel notes that this document refers to the sampling of plant products or arthropods¹⁴²⁵, and only specifically mentions coffee under the point on sampling survey implementation in the description of activities section, but does not make any specific mention of avocado.¹⁴²⁶

7.658. Exhibit CRI-88 contains the procedure for the surveillance and control of regulated pests, approved in October 2018, which has been in force since November 2018, and states as its purpose "[t]o implement mechanisms to monitor and control regulated pests that may cause damage to domestic agricultural production".

7.659. According to its scope, this procedure is to be applied by phytosanitary inspectors of the Regional Operations Department to domestic agricultural producers in the monitoring and control of regulated quarantine and regulated non-quarantine pests.¹⁴²⁷ The document contains the same sections as the document in Exhibit CRI-82, i.e. definitions, related documents, responsibility and authority, description of activities, points when checks are carried out and record management, as well as a section on track changes.

¹⁴¹⁹ Costa Rica's response to the Panel's information request of 3 August 2020, p. 15.

¹⁴²⁰ Costa Rica's response to the Panel's information request of 3 August 2020, p. 16 (referring to Annexes 7 and 8 of that response).

¹⁴²¹ Document OR-RN-PO-03 (2018), (Exhibit CRI-82), p. 1.

¹⁴²² Document OR-RN-PO-03 (2018), (Exhibit CRI-82), p. 1.

¹⁴²³ Document OR-RN-PO-03 (2018), (Exhibit CRI-82), pp. 3-7.

¹⁴²⁴ See Pablo Cortese's response to Panel question No. 79 for the experts.

¹⁴²⁵ See, for example, Document OR-RN-PO-03 (2018), (Exhibit CRI-82), p. 4.

¹⁴²⁶ Document OR-RN-PO-03 (2018), (Exhibit CRI-82), pp. 3-4.

¹⁴²⁷ Document OR-RN-PO-01 (2018), (Exhibit CRI-88), p. 1.

7.660. The expert Pablo Cortese notes that this procedure concerns general operational matters, and not those specific to ASBVd.¹⁴²⁸

7.661. The Panel notes that this document is also of general application for regulated pests, and is not specific to ASBVd. This document does not mention the avocado, and the only crop specifically addressed is pineapple under the point on the integrated pineapple crop protection programme, in the description of activities section.¹⁴²⁹

7.662. As with the procedure for the surveillance and control of regulated quarantine pests¹⁴³⁰ that Costa Rica asserts was applied prior to 2018, the procedures covering the various steps of a sampling survey subsequent to 2018, i.e. the procedure for taking pest samples from plants in the field for diagnostic purposes (Exhibit CRI-82) and the procedure for the surveillance and control of regulated pests (Exhibit CRI-88), are not specific to ASBVd.

7.663. The Panel considers that the procedure for taking pest samples from plants in the field for diagnostic purposes and the procedure for the surveillance and control of regulated pests could be suitable as a basis for establishing the methodology to be followed in a sampling survey. However, in this Panel's view, in the case of ASBVd a more specific procedure would also be required, since the particular characteristics of the pest to be detected (ASBVd, in this case) and those of the pathway (crop) of concern (avocado, in this case) must be considered. The Panel is of the view that this would allow the ASBVd surveillance to be focused, and ensure that the method is adjusted to the conditions and circumstances and provides a reliable result. The Panel also notes that these documents date from February and October 2018, respectively, so they post-date the first three sampling surveys, including that of 2017-2018, as that survey was concluded in February 2018.

7.664. It is worth mentioning that, with respect to the description of the survey methodology and the sampling procedure in particular, ISPM No. 6¹⁴³¹ provides guidance, stating that the procedure would be determined by the biology of pest or purpose of survey. As regards pest surveys, said ISPM states that the selection of survey procedures may be determined by the type of sign or symptom by which the pest can be recognized, and by the accuracy or sensitivity of techniques used to test for the pest.^{1432, 1433}

7.665. Although Costa Rica points out that neither the SPS Agreement nor the ISPMs require WTO Members to introduce pest-specific surveillance protocols¹⁴³⁴, the Panel considers that the lack of specific protocols for ASBVd reduces the scientific rigour of the sampling surveys by failing to take into account the particular requirements of ASBVd detection surveys.

7.666. Exhibit CRI-83 contains the document, "Surveying for avocado sunblotch viroid (ASBVd) in avocado crops. Costa Rica. 2019", which is a survey document from 2019, prepared prior to Costa Rica's last ASBVd sampling survey in 2019. This document, described above, provides specific information on the epidemiology of ASBVd and the selection of farms for the 2019 sampling survey.

7.667. The expert Pablo Cortese points out that the procedure set out in this exhibit is more complete and specific to ASBVd in particular and to different farms according to their surface area, but there is no mention of the criteria for selecting the farms to be sampled, whether this activity will be repeated, and how often. Mr Cortese notes that this document dates from 2019. It is therefore

¹⁴²⁸ See Pablo Cortese's response to additional Panel question No. 2 for Pablo Cortese.

¹⁴²⁹ Document OR-RN-PO-01 (2018), (Exhibit CRI-88), p. 6.

¹⁴³⁰ Document VCP-VI-PO-02 (2011), (Exhibit CRI-146).

¹⁴³¹ The Panel recalls that ISPM No. 6 is an illustrative tool for determining what would be considered to be legitimately scientific in a risk assessment according to the standards of the scientific community in relation to the inputs of a risk assessment related to the determination of pest status in a territory.

¹⁴³² ISPM No. 6, (Exhibit MEX-75), p. 6.

¹⁴³³ Revised ISPM No. 6 states that surveillance protocols should provide clear instructions for carrying out a surveillance activity in a consistent manner, and that surveillance managers and officers should be aware of current methodologies associated with specific groups of pests and should ensure that the methods are used appropriately to deliver reliable surveillance outcomes. (Secretaría de la CIPF, *Vigilancia*, NIMF No. 6 (Roma, FAO en nombre de la Secretaría de la CIPF, adoptada en 2018, publicada en 2019), accessed 8 January 2021, <http://www.fao.org/3/w7991s/w7991s.pdf>, p. 7).

¹⁴³⁴ Costa Rica's response to Panel question No. 137, para. 97.

not known, at least from the documentation that was available, what procedures were carried out in previous sampling surveys.¹⁴³⁵

7.668. In the Panel's view, the document contained in Exhibit CRI-83 appears to represent an improvement in the planning of the sampling surveys, as it is specific to ASBVd surveillance, and to contain the procedures for determining the area to be sampled and the samples to be taken for the 2019 survey, based on the indicated statistical formula, prior to carrying out the survey in that year. Similar information is included in Exhibits MEX-64 and MEX-65 for the 2014 and 2015-2016 sampling surveys, but retrospectively. However, the document does not comprise by itself nor does it refer to the procedures for conducting the survey, including the collection and handling of samples, and procedures for their laboratory analysis. The Panel therefore considers that the procedures for ASBVd-specific surveillance in Costa Rica contained in Exhibit CRI-83 are not complete.

7.669. Exhibit CRI-17, referred to by Mexico, contains a document entitled, "*Informe de vigilancia para la determinación de la ausencia del ASBVd en las plantaciones de aguacate en Costa Rica*" (Report on the surveillance to determine the absence of ASBVd in avocado plantations in Costa Rica), dated September 2019. This exhibit does not contain information on any surveillance protocol or methodology to be applied in a sampling survey.

7.670. In light of all the foregoing, the Panel finds that there are documents in the record that contain some procedures relating to the methodology to be applied in the sampling surveys, but these do not constitute a complete methodology for ASBVd surveillance in Costa Rica: (i) Exhibits MEX-64 and MEX-65, which constitute the final reports of the 2014 and 2015-2016 sampling surveys, cover some points that should have been included in an ASBVd surveillance protocol, but there is in the record no document from prior to the sampling surveys that constitutes the protocol establishing the methodology to be applied to those sampling surveys; (ii) in the record there is no procedure to be followed for the 2017-2018 sampling survey; (iii) there are some procedures to determine the area to be sampled and the samples to be taken in Exhibit CRI-83, which predates the 2019 sampling survey, but the record contains no other procedures to be followed for the 2019 survey, including with respect to the collection and handling of samples; and, (iv) lastly, there are procedures covering the different steps of a sampling survey, but these are not specific to ASBVd or to avocado trees.

7.671. The Panel therefore concludes that there is no evidence that a protocol existed with a complete and specific methodology for ASBVd sampling surveys that was followed in all the surveys carried out to determine Costa Rica's ASBVd status. In the Panel's view, the lack of protocols containing a complete and specific methodology for ASBVd sampling surveys affects the reliability of the determination of freedom from ASBVd in Costa Rica, and therefore its scientific legitimacy.

Sampling of asymptomatic trees

7.672. **Mexico** submits that, considering that there are asymptomatic trees, Costa Rica should also have contemplated sampling plant tissues that appeared healthy.¹⁴³⁶ Mexico asserts that Costa Rica's sampling surveys were not designed to confirm the absence of ASBVd in its territory.¹⁴³⁷

7.673. According to Mexico, inspection during Costa Rica's sampling surveys is limited to looking for symptomatic trees in order to collect leaves for analysis, eliminating the possibility of detecting symptomless trees, which can have a reduced yield and a stunted appearance.¹⁴³⁸

7.674. Mexico submits that when collecting samples, Costa Rica focused on symptomatic tissue characteristic of or similar to that associated with ASBVd, which has a lower proportion of ASBVd. Mexico points out that Costa Rica failed to take samples from symptomless trees, despite the fact that the most stable and uniform titers of ASBVd can be recovered from virtually every sample taken from symptomless carrier trees. For Mexico, this situation demonstrates a clear lack of technical and

¹⁴³⁵ Pablo Cortese's response to Panel question No. 79 for the experts.

¹⁴³⁶ Mexico's second written submission, para. 37.

¹⁴³⁷ Mexico's second written submission, para. 41. See also Mexico's specific comments on the experts' responses to Panel question No. 96(d) for the experts.

¹⁴³⁸ Mexico's first written submission, paras. 444 and 447.

scientific rigour in carrying out the sampling surveys that led Costa Rica to declare its territory as free of ASBVd without a sound scientific basis.¹⁴³⁹

7.675. Mexico adds that it is struck by the fact that Costa Rica has only analysed symptomatic tissue to consider its territory as free of ASBVd, but to import fresh avocados it requires proof that produce that appears symptomless is free of ASBVd. In Mexico's view, in order for Costa Rica to confirm the absence of ASBVd in its territory, and as a result of its concern about the symptomless variant of ASBVd, it should have ensured that this variant was not present in its territory.¹⁴⁴⁰

7.676. Mexico asserts that Costa Rica failed to provide evidence demonstrating that it took samples of asymptomatic plant material, as well as their results.¹⁴⁴¹

7.677. Mexico notes that the evidence provided by Costa Rica does not indicate whether the samples were taken at random or focused on those trees where possible symptoms, such as deformed fruit with yellow and sunken areas, were physically observed.¹⁴⁴² Mexico adds that, for this reason, it insists that a further methodological error by Costa Rica was the failure to take follow-up samples from previously tested trees and areas.¹⁴⁴³

7.678. **Costa Rica** refers to what it submits as its sample collection methodology, contained in Exhibits MEX-64 and MEX-65, which states: "[a]s far as possible, collect symptomatic tissue characteristic of or similar to that associated with avocado sunblotch viroid".¹⁴⁴⁴

7.679. Costa Rica submits that, during the sampling surveys, SFE officials took samples of asymptomatic trees, and ensured that if a tree with typical ASBVd symptoms was present in the random sampling area that tree would not be left unsampled. Costa Rica notes that the sampling survey methodology guidelines do not exclude symptomless trees, but emphasizes, in addition to symptomless trees, the inclusion of symptomatic trees, which are more likely to test positive for ASBVd in a country where the pest is found.¹⁴⁴⁵

7.680. Costa Rica also notes that, given the asymptomatic nature of ASBVd, the SFE considers that visual inspection is not an appropriate method for determining the presence or absence of ASBVd in its territory.¹⁴⁴⁶

7.681. Costa Rica asserts that it takes samples according to a random system, and that, being a random system, different areas are covered; and that when surveillance officials arrive in these areas, they are instructed that, if they see a spot that might look like sunblotch, they clearly go to those trees. Costa Rica adds that, if not, samples are simply taken from trees at the specific sites that the statistical formula has yielded, and that it is not factually correct to say that Costa Rica does not sample trees that could be symptomless.¹⁴⁴⁷

7.682. **The Panel** notes that the parties agree on the importance of sampling symptomless trees to determine the ASBVd status in a territory, which was also confirmed by the individual experts.¹⁴⁴⁸

7.683. Costa Rica has repeatedly stated throughout its submissions that it takes samples from symptomless trees. Furthermore, an undated document, prepared by the SFE of Costa Rica, states that the sampling surveys consisted of a general tour of the avocado plantations, taking samples of

¹⁴³⁹ Mexico's opening statement at the first Panel meeting, para. 22 (citing Sampling survey 2014, (Exhibit MEX-64); Cambrón Crisantos (2011), (Exhibit CRI-10); and Singh *et al.* (2003), (Exhibit MEX-50)).

¹⁴⁴⁰ Mexico's second written submission, para. 40.

¹⁴⁴¹ Mexico's comments on Costa Rica's response to the Panel's information request of 3 August 2020, para. 34.

¹⁴⁴² Mexico's comments on Costa Rica's response to Panel question No. 138, para. 3.

¹⁴⁴³ Mexico's comments on Costa Rica's response to Panel question No. 138, para. 4.

¹⁴⁴⁴ Costa Rica's specific comments on the experts' responses to Panel questions Nos. 41 and 96 for the experts (citing Sampling survey 2014, (Exhibit MEX-64); and Sampling survey 2015-2016, (Exhibit MEX-65)).

¹⁴⁴⁵ Costa Rica's specific comments on the experts' responses to Panel questions Nos. 41 and 96 for the experts.

¹⁴⁴⁶ Costa Rica's response to the Panel's information request of 3 August 2020, p. 21.

¹⁴⁴⁷ Costa Rica, transcript of the Panel's meeting with the parties and the experts, day 4, p. 17.

¹⁴⁴⁸ Responses of Pablo Cortese, Ricardo Flores Pedayú and Fernando Pliego Alfaro to Panel question No. 41(b) for the experts.

trees that could present symptoms similar to sunblotch, as well as of randomly selected symptomless trees.¹⁴⁴⁹

7.684. The Panel considers relevant expert Pablo Cortese's observation that a sampling survey design is established to arrive at the number of plants that the sample represents (for example, random sampling, stratified design), and that there must be both symptomatic and symptomless plants in that number.¹⁴⁵⁰ The expert Fernando Pliego Alfaro also comments that if sunblotch is effectively not present, a totally random sampling survey is carried out.¹⁴⁵¹

7.685. The Panel cannot confirm whether samples of asymptomatic trees were taken based on Costa Rica's assertions in this regard. However, considering the remarks of the experts, in the Panel's view, the sampling of symptomless trees ultimately depends on the statistical formula, which should ensure the random and representative nature of the sample. Thus, if Costa Rica's statistical formula is reliable, Costa Rica could have taken asymptomatic samples, even if the taking of asymptomatic samples is not explicitly included in its procedures. The Panel also notes that in one of the completed monitoring forms submitted by Costa Rica as having been used in the 2019 sampling survey, it is noted that samples were taken where no ASBVd symptoms were observed.¹⁴⁵²

7.686. Meanwhile, the expert Fernando Pliego Alfaro notes that, as Mexico has pointed out, it would be very interesting, when surveying farmers, to monitor those trees that attract attention because their yield is low, but have no symptoms, because this has been done in other places and is reflected in the bibliography. Mr Pliego Alfaro adds that it is important to sample such trees if they are detected, that it is a good practice for farmers, and that it should be taken into account in monitoring systems.¹⁴⁵³

7.687. In light of Mr Pliego Alfaro's remarks, the Panel recalls that a reduced yield is a characteristic of symptomless infected trees. Costa Rica could therefore have made an effort to look for trees with decreased yield, which could be sampled to check whether they were asymptomatic carriers of ASBVd. The Panel does not have evidence that Costa Rica made such an effort, although this would not be particularly problematic to resolve the issue of sampling symptomless trees.

7.688. In conclusion, this matter ultimately depends on the statistical formula, and given that the Panel found above that Costa Rica's statistical formula is scientifically valid, the Panel considers that Costa Rica could have taken samples from symptomless trees when applying that formula.

Sampling in backyards and of wild trees

7.689. In its responses to the Panel's questions following the Panel's first meeting with the parties, **Costa Rica** indicated that no wild trees had been sampled¹⁴⁵⁴, and maintained that in addition to commercial plantations, backyard trees had been sampled in the years 2015-2019.¹⁴⁵⁵

7.690. In its response to the Panel's request for additional information and supporting documentation, Costa Rica added that wild trees would not be surveyed until 2020¹⁴⁵⁶, and reiterated that backyard trees had been sampled.¹⁴⁵⁷

7.691. Costa Rica asserts that, as indicated in Exhibits CRI-69 to CRI-73, it took samples from waste disposal sites and backyards.¹⁴⁵⁸ At the Panel's meeting with the parties and the experts, Costa Rica

¹⁴⁴⁹ SFE, Application of ISPM Nos. 6 and 8 by the SFE, (Exhibit MEX-114), p. 2.

¹⁴⁵⁰ Pablo Cortese, transcript of the Panel's meeting with the parties and the experts, day 4, p. 46.

¹⁴⁵¹ Fernando Pliego Alfaro, transcript of the Panel's meeting with the parties and the experts, day 4, p. 46.

¹⁴⁵² Completed forms, OR-RN-F-03 and OR-RN-F-04, (Exhibit CRI-149), p. 6.

¹⁴⁵³ Fernando Pliego Alfaro, transcript of the Panel's meeting with the parties and the experts, day 4, p. 46.

¹⁴⁵⁴ Costa Rica's response to Panel question No. 28, para. 2.

¹⁴⁵⁵ Costa Rica's response to Panel question No. 28, para. 1.

¹⁴⁵⁶ Costa Rica's response to the Panel's information request of 3 August 2020, p. 16.

¹⁴⁵⁷ Costa Rica's response to the Panel's information request of 3 August 2020, p. 22.

¹⁴⁵⁸ Costa Rica's response to the Panel's information request of 3 August 2020, p. 22.

noted that, throughout its surveillance work, it carries out sampling surveys in backyards, in urban gardens, and even along roadsides.¹⁴⁵⁹

7.692. In its responses to the Panel's questions following the Panel's second meeting with the parties, Costa Rica submits that additional samples are taken from wild and backyard trees as attested by Exhibit CRI-87.¹⁴⁶⁰

7.693. Costa Rica notes that the ISPMs do not contain a definition of wild trees, and that the additional surveillance report stated that sampling surveys of wild trees had not been carried out on the understanding that such a term refers to trees found in national parks and nature reserves, but that if the term "wild trees" is understood as "plants that are not in backyards and that are not planted", that is to say, trees that germinate without human assistance, for example, alongside roads, the SFE has carried out and continues to carry out targeted sampling surveys of such trees.¹⁴⁶¹

7.694. Costa Rica asserts that it has estimates of the area planted with avocado, and that it has made additional efforts to expand its knowledge of the existence of wild and backyard trees. According to Costa Rica, backyard and wild populations are very difficult to estimate because of how scattered they are, and therefore Costa Rica conducts targeted sampling surveys for backyard and wild trees once avocado trees have been identified.¹⁴⁶²

7.695. **Mexico** questions whether Costa Rica sampled backyard trees in the period 2015-2019, noting that Costa Rica fails to provide evidence of this or that the methodology used to take such samples is based on science and technically correct.¹⁴⁶³

7.696. Mexico argues that it appears from the information submitted that samples were only taken from commercial production sites, and that it does not appear that non-commercial sites, such as backyards and wild areas, were considered.¹⁴⁶⁴ Mexico points out that this aspect should have been crucial from the first sampling survey, since Costa Rica places a high risk on the deviation of use due to cultural practices and the spontaneous germination of avocado pits, situations that can occur particularly in urban areas and on uncultivated land.¹⁴⁶⁵

7.697. Mexico asserts that Costa Rica failed to demonstrate with reliable evidence that it carried out sampling surveys in wild areas, backyards and waste disposal sites, a situation that affects the results of the sampling surveys, and is therefore part of the inconsistencies in Costa Rica's surveillance system.¹⁴⁶⁶

¹⁴⁵⁹ Costa Rica, transcript of the Panel's meeting with the parties and the experts, day 2, p. 42.

¹⁴⁶⁰ Costa Rica's response to Panel question No. 149, para. 137.

¹⁴⁶¹ Costa Rica's response to Panel question No. 144, paras. 122-123 (referring to Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, Departamento de Operaciones Regionales, Unidad Operativa Regional Huetar Norte, OR-HN-049-2019, 20 de noviembre de 2019 (OR-HN-049-2019 (2019)), (Exhibit CRI-69); Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, Departamento de Operaciones Regionales, Unidad Regional Brunca, OR-BR-FUN-0014-2019, 20 de noviembre de 2019 (OR-BR-FUN-0014-2019 (2019)), (Exhibit CRI-70); Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, Departamento de Operaciones Regionales, Región Central Sur, OR-CS-0003-2019, 21 de noviembre de 2019 (OR-CS-0003-2019 (2019)), (Exhibit CRI-71); Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, Departamento de Operaciones Regionales, Operaciones Regionales Pacífico Central, OR-PC-034-2019, 20 de noviembre de 2019 (OR-PC-034-2019 (2019)), (Exhibit CRI-72); Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, Departamento de Operaciones Regionales, Unidad Operativa Central Oriental, URCOR-CO-154/2019, 20 de noviembre de 2019 (URCOR-CO-154/2019 (2019)), (Exhibit CRI-73); and Backyard sampling survey (2019), (Exhibit CRI-87)); response to Panel question No. 149, para. 138.

¹⁴⁶² Costa Rica's response to Panel question No. 151, para. 141.

¹⁴⁶³ Mexico's comments on the experts' responses to Panel question No. 105 for the experts; comments on Costa Rica's response to the Panel's information request of 3 August 2020, para. 33.

¹⁴⁶⁴ Mexico, Analysis surveillance records (2020), (Exhibit MEX-289), p. 3.

¹⁴⁶⁵ Mexico's comments on Costa Rica's response to the Panel's information request of 3 August 2020, para. 6.

¹⁴⁶⁶ Mexico's comments on Costa Rica's response to Panel question No. 141, para. 3.

7.698. Mexico points out that Costa Rica has failed to demonstrate that it took samples in a representative quantity and manner from avocado plants growing naturally in forests where there is little or no human activity.¹⁴⁶⁷

7.699. Mexico asserts that, while Costa Rica states that a sampling survey of roads and tracks in urban areas was carried out, from the information provided it is not certain whether the sampling surveys took wild plants into account, where wild is understood to mean plants that are not extensively cultivated, but collected in a traditional manner in jungles or forests.¹⁴⁶⁸ According to Mexico, this means that trees growing in non-commercial areas, alongside roads or in urban and rural areas were not considered.¹⁴⁶⁹

7.700. Mexico submits that Costa Rica failed to demonstrate that sampling surveys were conducted outside the production areas, to which the SFE should have added, for example, forests or uncultivated land where there were not only Hass avocado trees, but also criollo avocado trees native to Costa Rica.¹⁴⁷⁰

7.701. Mexico asserts that Costa Rica explicitly stated, in its responses to the Panel's questions following the Panel's first meeting with the parties, that the geographical selection of the sampling survey areas was carried out according to the concentration of avocado production areas, and that, to determine the randomness of the sampling and the representativeness of sampling areas, a statistical formula is used, considering that the purpose of detection surveys is to search for ASBVd symptomatology at production sites and in backyards. For Mexico, this means that at no point does it refer to roads and tracks in urban areas, and that only production sites were considered, as they failed to demonstrate such sampling of backyard areas.¹⁴⁷¹

7.702. Mexico points out that, although the ISPMs do not exactly specify or define the concept of wild trees, consideration of these populations in the determination of a country's phytosanitary status requires that all the regions containing host species of the pest of concern, including wild and backyard trees, must be identified within an area.¹⁴⁷²

7.703. Mexico further asserts that, as one of the aims of the IPPC is to protect cultivated and wild plants by preventing the introduction and spread of pests, ISPM No. 6 states that specific surveillance should cover populations of individual host plants in an unmanaged or uncultivated area. Mexico notes that it does not appear from the information provided by Costa Rica that the sampling of wild trees, if indeed there was any, was representative of the number of trees in the territory of Costa Rica; and that Exhibit CRI-87 does not pinpoint the moment at which the sample was taken, or provide certainty that the samples are indeed from wild trees. Mexico adds that Costa Rica has intentionally submitted information that does not provide certainty as to the traceability of the samples, and thus certainty as to the origin of the samples and their treatment.¹⁴⁷³

7.704. In Mexico's view, nor are Exhibits CRI-69 to CRI-73 a clear indication that Costa Rica took samples of wild trees throughout its territory. Mexico notes that those Exhibits are dated after the PRAs were prepared; and that they only refer to instances where organic waste was present on farms, at waste disposal sites, in backyards or on roadsides, albeit in a non-proportional manner.¹⁴⁷⁴

7.705. The **Panel** sought the experts' views with regard to the sampling of backyard and wild trees.

7.706. In this connection, the expert Pablo Cortese is of the view that the surveillance system should cover all those areas where avocado is present (farmed, ornamental, in backyards or wild), as they are areas of even higher risk, given the greater possibility of informal introduction of material or

¹⁴⁶⁷ Mexico's comments on Costa Rica's response to Panel question No. 149, para. 1.

¹⁴⁶⁸ Mexico's comments on Costa Rica's response to Panel question No. 143, para. 1 (citing Maite Lascurain, Sergio Avendaño, Silvia del Amo y Aníbal Niembro, *Guía de frutos silvestres comestibles en Veracruz* (Fondo Sectorial para la Investigación, el Desarrollo y la Innovación Tecnológica Forestal, Conafor-Conacyt, México, 2010) (Lascurain et al. (2010)), (Exhibit MEX-298)).

¹⁴⁶⁹ Mexico's comments on Costa Rica's response to Panel question No. 143, para. 1.

¹⁴⁷⁰ Mexico's comments on Costa Rica's response to Panel question No. 143, para. 2.

¹⁴⁷¹ Mexico's comments on Costa Rica's response to Panel question No. 143, para. 3.

¹⁴⁷² Mexico's comments on Costa Rica's response to Panel question No. 144, para. 1.

¹⁴⁷³ Mexico's comments on Costa Rica's response to Panel question No. 144, para. 2.

¹⁴⁷⁴ Mexico's comments on Costa Rica's response to Panel question No. 144, para. 3.

eventual spontaneous germination of pit/seed of discarded or used fruit for consumption.¹⁴⁷⁵ Mr Cortese states that all areas where avocado is present in Costa Rica should be sampled, including wild trees, and that including wild trees in the sampling survey is important, considering the likelihood of spontaneous germination that Costa Rica indicates as possible.¹⁴⁷⁶

7.707. The expert Robert Griffin notes that, understandably, detection of the pathogen in commercial production areas is the highest priority, but, given the controls and monitoring of planting stock, the surveillance of backyard and wild hosts would seem to have increased importance.¹⁴⁷⁷ Mr Griffin adds that the main flaw he sees in Costa Rica's survey design is the failure to take into account wild and backyard trees.¹⁴⁷⁸

7.708. The expert Fernando Pliego Alfaro is of the view that it seems more logical to sample backyard trees in a first phase, as some might come from imported fruits, but that wild trees should also be sampled in the future, especially in areas close to commercial plantation sites.¹⁴⁷⁹

7.709. For his part, the expert Ricardo Flores Pedauy  considers that wild trees should have been sampled; that ASBVd has been detected in nearly all countries where avocado is grown; and that, even though Costa Rica could be effectively free due to its small size, a nearby country of similar size (Guatemala) is not.¹⁴⁸⁰

7.710. The experts confirm the importance of Costa Rica sampling wild and backyard trees, a matter that was also addressed in paragraphs 7.557 to 7.582 above. In light of the experts' remarks, the Panel further considers that, in order to carry out sampling surveys of wild and backyard trees, a specific methodology for such sampling surveys should be in place. This is because these trees have different characteristics to crop trees, and in consideration of the concerns expressed by Costa Rica regarding deviation of use and spontaneous germination.

7.711. The Panel will address below whether Costa Rica sampled wild and backyard trees.

7.712. Regarding the sampling of wild trees, the Panel notes that Costa Rica had first stated that it does not sample wild trees, and subsequently clarified that it had stated that sampling of wild trees had not been carried out on the understanding that such a term refers to trees found in national parks and nature reserves, but that if the term "wild trees" is understood as "plants that are not in backyards and that are not planted", in other words, trees that germinate without human assistance, for example, alongside roads, the SFE has carried out and continues to carry out targeted sampling surveys of such trees.¹⁴⁸¹

7.713. In the Panel's view, despite Costa Rica's above-mentioned clarifications, and its statements at the Panel's second meeting with the parties that it has been cautious and has taken samples of wild trees, there is no evidence in the record demonstrating that samples of wild trees have been taken, whether understood as those in national parks and nature reserves, or if they are understood as plants that are not in backyards and that are not planted. In addition, no document in the record demonstrates that there is a methodology to apply for sampling wild trees with respect to ASBVd.

7.714. With regard to backyard trees, the Panel notes Costa Rica's assertion that it sampled backyard trees in the period 2015-2019, and submits as evidence in support of this assertion Exhibits CRI-69 to CRI-73 and CRI-87.

7.715. Exhibits CRI-69 to CRI-73, which Costa Rica provides as evidence that it took samples from waste disposal sites and backyards and alongside roads, are the following reports:

¹⁴⁷⁵ Pablo Cortese's response to Panel question No. 79 for the experts.

¹⁴⁷⁶ Pablo Cortese's response to Panel question No. 105 for the experts.

¹⁴⁷⁷ Robert Griffin's response to Panel question No. 105 for the experts.

¹⁴⁷⁸ Robert Griffin's response to Panel question No. 180 for the experts.

¹⁴⁷⁹ Fernando Pliego Alfaro's response to Panel question No. 105 for the experts.

¹⁴⁸⁰ Ricardo Flores Pedauy 's response to Panel question No. 105 for the experts.

¹⁴⁸¹ Costa Rica's response to Panel question No. 144, paras. 122-123 (referring to OR-HN-049-2019 (2019), (Exhibit CRI-69); OR-BR-FUN-0014-2019 (2019), (Exhibit CRI-70); OR-CS-0003-2019 (2019), (Exhibit CRI-71); OR-PC-034-2019 (2019), (Exhibit CRI-72); URCOR-CO-154/2019 (2019), (Exhibit CRI-73); and Backyard sampling survey (2019), (Exhibit CRI-87)); response to Panel question No. 149, para. 138.

- a. Report by the Northern Huetar Regional Operational Unit, which contains information on a landfill site, and photographs allegedly relating to the spontaneous germination of waste avocado seeds alongside roads and waste used as compost in the Northern Huetar region.¹⁴⁸²
- b. Report by the Brunca Regional Unit, which contains information on waste disposal sites, and photographs allegedly relating to the spontaneous germination of avocado seeds alongside roads and in backyards in the Brunca region.¹⁴⁸³
- c. Report by the Central Southern Regional Operations Unit, which contains information on rubbish dumps, and photographs allegedly relating to the spontaneous germination of avocado seeds alongside roads and in backyards in the Central Southern region.¹⁴⁸⁴
- d. Report by the Regional Operations Department of the Central Pacific Region, which contains information on a waste disposal site, and photographs allegedly relating to the spontaneous germination of avocado seeds alongside roads and in backyards in the Central Pacific region.¹⁴⁸⁵
- e. Report by the Central Eastern Regional Unit, which contains information on waste disposal sites, and photographs allegedly relating to the spontaneous germination of avocado seeds in backyards in the Central Oriental region.¹⁴⁸⁶

7.716. These reports contain images, testimonies and explanations relating to landfill sites, roadsides, waste disposal sites, rubbish dumps and backyards in the different regions of Costa Rica, but do not contain any evidence of sampling backyard trees.

7.717. The Panel notes that Costa Rica uses these Exhibits to support its assertion that if the waste matter is discarded on wasteland and the necessary conditions of humidity and temperature exist, the seed can certainly germinate.¹⁴⁸⁷ Therefore, such evidence would be relevant to Costa Rica's argument regarding the spontaneous germination of avocados in its territory, which the Panel will address later in its analysis, but fails to establish that samples were taken in backyards.

7.718. In view of the foregoing, the Panel does not consider that these Exhibits demonstrate that Costa Rica took samples in backyards between 2015 and 2019.

7.719. It should be mentioned that these Exhibits do not constitute evidence of sampling from roadsides or waste disposal sites.

7.720. Costa Rica also provides a map in an effort to prove that it sampled backyard trees.¹⁴⁸⁸ The exhibit containing this map is Exhibit CRI-87, dated 28 November 2019.¹⁴⁸⁹ The exhibit also contains a list that, according to the document, corresponds to the list of backyard avocado trees sampled up to that date.¹⁴⁹⁰ The map is reproduced below:

¹⁴⁸² OR-HN-049-2019 (2019), (Exhibit CRI-69).

¹⁴⁸³ OR-BR-FUN-0014-2019 (2019), (Exhibit CRI-70).

¹⁴⁸⁴ OR-CS-0003-2019 (2019), (Exhibit CRI-71).

¹⁴⁸⁵ OR-PC-034-2019 (2019), (Exhibit CRI-72).

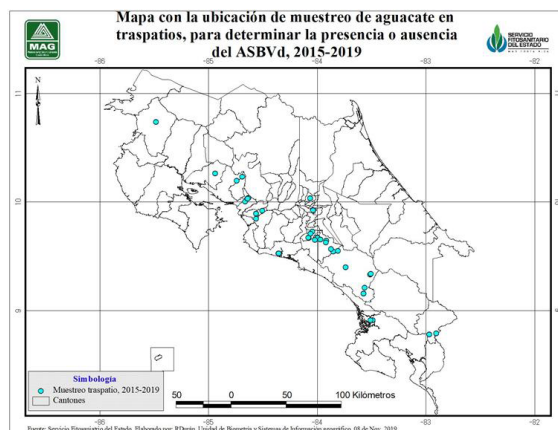
¹⁴⁸⁶ URCOR-CO-154/2019 (2019), (Exhibit CRI-73).

¹⁴⁸⁷ Costa Rica's response to Panel question No. 20, para. 3; second written submission, para. 3.38.

¹⁴⁸⁸ Costa Rica's response to Panel question No. 28, para. 1.

¹⁴⁸⁹ Backyard sampling survey (2019), (Exhibit CRI-87), p. 5.

¹⁴⁹⁰ Backyard sampling survey (2019), (Exhibit CRI-87), pp. 3-4.



7.721. This document was produced after the four sampling surveys, including the last one in April 2019. The list only contains 63 entries, some of which refer to the same establishments, and no information exists on the criterion for selecting the backyards to be sampled or on the number of samples to be taken from each backyard and in total. The document does not contain the laboratory results, and lacks information on how the traceability of samples was ensured.

7.722. Likewise, in analysing the information contained in Annex 9 of Costa Rica's response to the Panel's additional information request of 3 August 2020, which, according to Costa Rica, contains the report on the results of its specific surveys from 2014 to 2019, it is noted that there are establishments in Exhibit CRI-87, the SFE code¹⁴⁹¹ of which is not found in Annex 9.¹⁴⁹² There are also inconsistencies between the number of samples in Annex 9 and those listed in Exhibit CRI-87, as some SFE codes are given more than once in Exhibit CRI-87, and only once in Annex 9.¹⁴⁹³ Among the SFE codes that are in Annex 9, there are some that correspond to samples from 2014¹⁴⁹⁴, when it is stated that Exhibit CRI-87 provides the backyard avocado sampling sites for the years 2015-2019. Lastly, some of the missing codes were found in Exhibit MEX-116, entitled "*Registro de vigilancia de aguacate*" (Avocado surveillance record), which contains an Excel table of sample data from the avocado-specific surveillance of 2010 to 2016, but it does not mention ASBVd and does not contain any results.

7.723. In light of the review of the evidence submitted by Costa Rica, in the Panel's view, there is no evidence in the record demonstrating that samples have been taken from backyard trees. In addition, no document in the record demonstrates that there is a methodology to apply for the sampling of backyard trees.

7.724. In view of the foregoing, the Panel finds that Costa Rica has failed to demonstrate that it has carried out the sampling of wild and backyard trees that it claims to have carried out, and that Costa Rica does not have a methodology to be applied for the sampling of wild and backyard trees. This is particularly relevant given the concerns expressed by Costa Rica about the deviation of use and spontaneous germination. The Panel considers that this failure to include and systematize the sampling of wild and backyard trees within the ASBVd surveillance system in Costa Rica constitutes a sampling error by Costa Rica that affects the representativeness of the samples, which in turn affects the reliability of the determination of freedom from ASBVd in Costa Rica, and therefore its scientific legitimacy.

¹⁴⁹¹ In relation to Exhibit CRI-87, the Panel has referred to the SFE code, as the exhibit does not include sample identifying information, such as the seal number.

¹⁴⁹² See codes 14026, 14098, 14370, 4586, 14911, 14917, 13560, 4585, 14858, 3959, 15674, 10486, 12363, 16432, 15674, 16872, 18021, 18022, 17043, 15674, 8421, 15527, 10503, 7778, 18430, 15675, 15678, 15527. The Panel notes that some of these codes appear more than once in the list. (Backyard sampling survey (2019), (Exhibit CRI-87)).

¹⁴⁹³ See codes 11666, 15527. (Backyard sampling survey (2019), (Exhibit CRI-87)).

¹⁴⁹⁴ See codes 11495, 11666, which appear more than once in the list. (Backyard sampling survey (2019), (Exhibit CRI-87)).

ASBVd surveillance in nurseries

7.725. **Costa Rica** points out that it has the national propagative plant material programme, which falls under the purview of the SFE's Regional Operations Department and was established by Decree No. 33927-MAG.¹⁴⁹⁵ Costa Rica states that, under the programme, any nursery engaging in the production and marketing of propagation material for both avocados and other crops must be registered.¹⁴⁹⁶ Costa Rica also states that, as part of the already established procedure, all nurseries are subject to regular monitoring and surveillance, in order to verify the phytosanitary status of the propagative plant material that leaves the nursery, and that these checks are carried out by the SFE's regional officials every two months.¹⁴⁹⁷

7.726. Costa Rica points out that, pursuant to Article 22 of the Law on Phytosanitary Protection No. 7664 and its Regulation No. 26921, prior to the establishment of a nursery, a sampling survey is carried out of the trees from which the buds for grafting are to be obtained, in order to verify the phytosanitary status of that material and mitigate the risk of the presence of pests that could endanger the country's plant patrimony.¹⁴⁹⁸

7.727. **Mexico**, on the other hand, argues that, despite the brief explanation advanced by Costa Rica regarding the manner in which it conducts ASBVd surveillance in its nurseries, Costa Rica failed to provide any evidence substantiating the records of all the nurseries in Costa Rica, the checks carried out in each of the nurseries, the results of the checks, and the results of the phytosanitary status check of each tree from which it is planned to obtain buds for grafting.¹⁴⁹⁹ Mexico adds that, despite the foregoing, it wishes to recall that the pathway covered by the PRAs is the importation of fresh avocado fruit for human consumption from Mexico, without prejudice to the fact that the deviation of use of avocado pits is supposedly Costa Rica's main concern. Mexico asserts that, in any event, there is no evidence as to how Costa Rica prevents this situation in nurseries prior to grafting from a pit from fresh avocado fruit for human consumption from Mexico.¹⁵⁰⁰

7.728. The **Panel** notes the comment by the expert Fernando Pliego Alfaro that Costa Rica should carry out annual monitoring sampling surveys essentially covering the Hass avocado production area, that it should focus on more intensive sampling in young plantations where Hass seed is more likely to have been used as rootstock and, above all, in nurseries that produce plants for new plantations.¹⁵⁰¹ The Panel will address below the matter of whether evidence has been submitted regarding ASBVd surveillance in nurseries in Costa Rica.

7.729. Costa Rica states that, as part of the established procedure, all nurseries are subject to regular monitoring and surveillance, in order to verify the phytosanitary status of the propagative plant material that leaves the nursery.

7.730. The Panel notes that Costa Rica shared Exhibit MEX-117 with Mexico, referred to as the nursery surveillance record.¹⁵⁰² However, this document is an Excel table containing information on eight nurseries, from surveys from 2011 to 2015, and does not mention that it refers to ASBVd surveillance.

7.731. The Panel also finds the word "nursery" in the establishment name in some of the entries in Annex 9 provided by Costa Rica together with the response to the Panel's additional information request, which, according to Costa Rica, contains the report on the results of its specific surveys from 2014 to 2019. However, the Panel does not consider such information from the specific surveys as sufficient to support Costa Rica's assertion regarding regular monitoring and surveillance in nurseries.

¹⁴⁹⁵ Costa Rica's response to Panel question No. 152, para. 142 (referring to Nursery Regulations (2007), (Exhibit CRI-30)).

¹⁴⁹⁶ Costa Rica's response to Panel question No. 152, para. 142.

¹⁴⁹⁷ Costa Rica's response to Panel question No. 152, para. 143.

¹⁴⁹⁸ Costa Rica's response to Panel question No. 152, para. 144.

¹⁴⁹⁹ Mexico's comments on Costa Rica's response to Panel question No. 152, para. 1.

¹⁵⁰⁰ Mexico's comments on Costa Rica's response to Panel question No. 152, para. 2.

¹⁵⁰¹ Fernando Pliego Alfaro's response to Panel question No. 180 for the experts.

¹⁵⁰² Nursery surveillance records, (Exhibit MEX-117).

7.732. The Panel cannot confirm from the information in the record that, with regard to ASBVd, Costa Rica carries out the regular surveillance in nurseries that it claims to carry out. In this Panel's view, the lack of surveillance in nurseries would be another sampling error by Costa Rica that affects the representativeness of the samples, which in turn affects the reliability of the determination of freedom from ASBVd in Costa Rica, and therefore its scientific legitimacy.

Surveillance of ASBVd at waste disposal sites

7.733. With regard to whether Costa Rica has a method for carrying out ASBVd surveillance at waste disposal sites, including major tourist spots and cruise ship waste disposal areas, **Costa Rica** points out that, pursuant to Decree No. 26921-MAG¹⁵⁰³, the SFE, through the Phytosanitary Control Department, has all the technical and legal support to manage everything related to the management of waste products from tourism, including cruise ships.¹⁵⁰⁴

7.734. For its part, **Mexico** asserts that Costa Rica has failed to submit any evidence demonstrating the use of a method for carrying out ASBVd surveillance at waste disposal sites, or the manner in which Decree No. 26921-MAG¹⁵⁰⁵ is applied, which, according to Mexico, does not detail or describe the method for carrying out surveillance at such sites.¹⁵⁰⁶ Mexico also asserts that, in its response to the Panel's request for additional information and supporting documentation, Costa Rica never referred to the methodology used for waste disposal sites, including tourist spots and cruise ship waste disposal areas, nor did it demonstrate or give examples of the manner in which such surveillance was carried out.¹⁵⁰⁷

7.735. Mexico submits that the foregoing clearly shows that, despite the fact that Costa Rica refers to having a surveillance mechanism for waste disposal sites, this is not implemented, as it has not demonstrated with evidence the results of such surveillance, a situation which again demonstrates the inadequacy of its surveillance system and, therefore, again casts doubt on its alleged ASBVd-free status.¹⁵⁰⁸

7.736. The **Panel** notes that, with respect to whether Costa Rica has a method for carrying out ASBVd surveillance at waste disposal sites, including major tourist spots and cruise ship waste disposal areas, Costa Rica refers to its Decree No. 26921-MAG.¹⁵⁰⁹

7.737. This Decree establishes, *inter alia*, that all passengers arriving in the country, from any origin, must state on the customs declaration form the agricultural products they intend to bring into the country; that agricultural products detected in luggage and personal effects will be withheld and subjected to the application of phytosanitary measures according to the risk they represent; and that agricultural product residues, surplus or waste intended to be unloaded from means of transport arriving in the country shall be treated or destroyed.¹⁵¹⁰ However, this Decree does not constitute evidence of ASBVd surveillance in waste disposal sites.

7.738. The Panel cannot confirm with the information in the record that, with respect to ASBVd, Costa Rica carries out surveillance at waste disposal sites. In the Panel's view, considering

¹⁵⁰³ Presidente de la República y Ministro de Agricultura y Ganadería de Costa Rica, Reglamento a la Ley de Protección Fitosanitaria, No. 26921-MAG (Regulation No. 26921-MAG), (Exhibit CRI-153).

¹⁵⁰⁴ Costa Rica's response to Panel question No. 153, para. 145. Costa Rica points to, *inter alia*, the following provisions:

Article 179. The obligation of all passengers arriving in the country. All passengers arriving in the country, from any origin, must state on the customs declaration form the agricultural products they intend to bring into the country, and the phytosanitary authorities must ask for this declaration when passengers' luggage is inspected.

Article 181. The detection of products in luggage. Agricultural products detected in luggage and personal effects shall be withheld and subjected to the application of phytosanitary measures according to the risk they represent.

Article 182. Waste in means of transport. Any agricultural product residues, surplus or waste intended to be unloaded from means of transport arriving in the country shall be treated or destroyed by methods or processes approved by the Directorate.

¹⁵⁰⁵ Mexico's comments on Costa Rica's response to Panel question No. 153, para. 1.

¹⁵⁰⁶ Mexico's comments on Costa Rica's response to Panel question No. 153, para. 2.

¹⁵⁰⁷ Mexico's comments on Costa Rica's response to Panel question No. 153, para. 3.

¹⁵⁰⁸ Mexico's comments on Costa Rica's response to Panel question No. 153, para. 5.

¹⁵⁰⁹ Regulation No. 26921-MAG, (Exhibit CRI-153).

¹⁵¹⁰ Regulation No. 26921-MAG, (Exhibit CRI-153), pp. 48-50.

Costa Rica's concerns regarding spontaneous germination, the lack of surveillance at waste disposal sites would be another sampling error by Costa Rica that affects the representativeness of the samples, which in turn affects the reliability of the determination of freedom from ASBVd in Costa Rica, and therefore its scientific legitimacy.

Results and traceability of the samples

7.739. **Costa Rica** states that it has a phytosanitary surveillance database which contains all records of surveillance actions, such as the farm's location code, geographical coordinates, crop, pest under surveillance, and area, as well as the regular follow-ups carried out as a result of surveillance actions.¹⁵¹¹

7.740. In response to the Panel's request for additional information and supporting documentation, Costa Rica submits some Excel tables in Annex 9 entitled "*Reporte resultados encuestas específicas 2014, 2015-2016, 2017-2018 y 2019*" (Results reports for specific surveys 2014, 2015-2016, 2017-2018, and 2019). Costa Rica indicates that the reports contain information with respect to the year of the specific survey, the sample number, the place from which the sample was taken (including latitude and longitude), the laboratory result, as well as field observations.¹⁵¹² According to Costa Rica, Annex 9 was compiled based on information held in the Phytosanitary Surveillance System (SIVIFI), the SFE official database since 2017, and the Surveillance and Pest Control System (SIF-VCP), the SFE official database prior to 2017. Costa Rica adds that all the backups of these databases are on the server that the Information Technology Unit of the SFE has in its possession for this purpose.¹⁵¹³

7.741. Costa Rica asserts that Annex 9 contains the results of the four sample surveys¹⁵¹⁴, and that, based on the data presented in that Annex, maps are submitted that reflect the results of the surveys to detect ASBVd in 2014, 2015-2016, 2017-2018, and 2019.¹⁵¹⁵

7.742. According to Costa Rica, Annex 9 gives the samples location (geolocation and producers' information), the number of samples, and the results of the laboratory tests for ASBVd for each sample.¹⁵¹⁶ Costa Rica states that Annex 9 was compiled using data captured from three types of documents: location and follow-up forms, forms for the handling and transportation of the samples for pest diagnostics, and the samples' laboratory results¹⁵¹⁷, and that:

- a. The location forms contain general information on the producers, which includes, for example, the name of the establishment or production site, location data, primary crops and intercrops; and the SFE registers the producers in the SIVIFI database in light of the information on this form, and the system assigns a code to the producer or farm or establishment.¹⁵¹⁸
- b. Once registered in the SIVIFI, when the SFE visits producers to carry out surveillance activities, such as sample surveys to identify or control pests, the SFE incorporates the relevant information into the follow-up form; that form includes information on crops, the sampled area, the pests' common name, comments, as well as the delivery of the samples to the laboratory; and this form is completed every time a producer or establishment is visited and added to the database, which allows a record to be kept of the follow-up visits to a producer.¹⁵¹⁹
- c. In turn, the form for the handling and transportation of samples for pest diagnostics provides more detailed information on the delivery of samples to the laboratory; in particular, it specifies the sampling record number, the time at which the sampling began and ended, and the samples' chain-of-custody record; and this form is completed each

¹⁵¹¹ Costa Rica's response to Panel question No. 81, para. 3.

¹⁵¹² Costa Rica's response to the Panel's information request of 3 August 2020, p. 21.

¹⁵¹³ Costa Rica's response to the Panel's information request of 3 August 2020, p. 27.

¹⁵¹⁴ Costa Rica, transcript of the Panel's meeting with the parties and the experts, day 4, p. 42.

¹⁵¹⁵ Costa Rica's response to the Panel's information request of 3 August 2020, pp. 27-29.

¹⁵¹⁶ Costa Rica's response to Panel question No. 138, para. 98.

¹⁵¹⁷ Costa Rica's response to Panel question No. 138, para. 99.

¹⁵¹⁸ Costa Rica's response to Panel question No. 138, para. 100.

¹⁵¹⁹ Costa Rica's response to Panel question No. 138, para. 101.

time sampling is carried out and allows the sample to be traced from the moment it is taken on the farm until it reaches the laboratory where the respective analysis is performed.¹⁵²⁰

- d. Lastly, the laboratory results provide information on whether samples were positive, negative, false positives, whether the samples were sequenced, which method was used, etc.¹⁵²¹

7.743. Costa Rica indicates that the clean version of the production establishment or site location form, and the form for pest follow-up at production establishments or sites, are presented as Exhibits CRI-147 and CRI-148, respectively; and that the clean version of the form for the handling and transportation of samples for pest diagnostics and pesticide residue analysis is contained in the document in Annex 11 to the additional surveillance report of Costa Rica. Costa Rica adds that compiled examples of location and follow-up forms are submitted as Exhibit CRI-149, and compiled examples of forms for the handling and transportation of samples for pest diagnostics as Exhibit CRI-150.¹⁵²²

7.744. Costa Rica states that the laboratory results are in the record in Exhibits CRI-83 and Annex 20 to the additional surveillance report of Costa Rica (2019 sampling survey); CRI-19 and CRI-20 (2017-2018 sampling survey); Annexes 4 and 12 to the additional surveillance report of Costa Rica (2015-2016 sampling survey); and MEX-115, MEX-134, CRI-15, and CRI-16 (2014-2015 sampling survey).¹⁵²³

7.745. For further details on the sampling procedures, Costa Rica refers to the pest sampling procedure for plants in the field for diagnostic purposes (Exhibit CRI-82), in force since 2018, and the instructions for sampling plant products at phytosanitary checkpoints for diagnostic purposes (Exhibit CRI-96), prior to 2018.¹⁵²⁴

7.746. In its comments on Costa Rica's response to the Panel's information request of 3 August 2020, **Mexico** submits that Costa Rica failed to present, *inter alia*, the following information requested by the Panel: the reports of each survey's field observation results, georeferenced and in full, including negative and suspicious positive visual inspection results, and whether, in the case of the latter, samples were taken to be sent to a laboratory, as well as the results reports for each of the surveys where the sampling site can be connected to the laboratory analysis result, including maps with georeferenced data.¹⁵²⁵

7.747. Mexico states that Costa Rica has failed to present evidence that demonstrates that proper sample handling controls were in place. Mexico asserts that the evidence Costa Rica submitted (Exhibits CRI-147 and CRI-148) is not sufficient to confirm that sampling controls were carried out, particularly with respect to the handling, safeguarding and transportation of the samples, that the exhibits do not indicate the supervisor who approved them, that their implementation date is unclear, and that no information is available to confirm categorically that Costa Rica has used the procedure it refers to since 2014.¹⁵²⁶

7.748. Mexico adds that Exhibit CRI-150 does not clearly show what the sampled product was; that it contains completed forms but Costa Rica does not provide a breakdown of or criteria for understanding the information provided; and that these forms are dated 2017 and 2018, so they should not be considered as part of the Panel's assessment, as they do not indicate that in 2014 and 2015 the samples were handled and safeguarded correctly.¹⁵²⁷ In Mexico's opinion, the forms in the record, which are reproduced in Exhibit CRI-150, appear disorganized and are therefore difficult to

¹⁵²⁰ Costa Rica's response to Panel question No. 138, para. 102.

¹⁵²¹ Costa Rica's response to Panel question No. 138, para. 103.

¹⁵²² Costa Rica's response to Panel question No. 138, paras. 104-105.

¹⁵²³ Costa Rica's response to Panel question No. 138, para. 104.

¹⁵²⁴ Costa Rica's response to Panel question No. 138, para. 106 (referring to Instructivo para el muestreo de productos vegetales en puestos de control Fitosanitario con fines de Diagnóstico, (Exhibit CRI-96)).

¹⁵²⁵ Mexico's comments on Costa Rica's response to the Panel's information request of 3 August 2020, para. 34.

¹⁵²⁶ Mexico's comments on Costa Rica's response to Panel question No. 138, para. 1.

¹⁵²⁷ Mexico's comments on Costa Rica's response to Panel question No. 138, para. 2.

understand and analyse, including for experts in the field. Mexico maintains that the traceability of the samples is therefore questionable.¹⁵²⁸

7.749. With respect to Annex 9, Mexico notes that there are some variations in the quantities of samples reported by Costa Rica in the file and the data provided by the SFE in its report and Costa Rica in its response.¹⁵²⁹

7.750. Mexico submits that: (i) a total of 580 samples were analysed between 2014 and 2016, but only 543 samples are registered in the database, in addition to which are 21 records (which were duplicates), so the overall total would be 564 and not 580 tests; (ii) no result is recorded for the following samples: 64641, 64660, 64841, 64847, 64848, 64854, 64840, 67659, 83268, taken on 2017-11-27, 2017-11-27, 2017-11-28, 2017-11-28, 2017-11-28, 2017-11-28, 2017-11-29, 2018-02-05, 2019-04-08, respectively, and they do not appear in the examples, so it is impossible to trace them¹⁵³⁰; (iii) in Exhibit MEX-64, the sampling calculations in 2014 corresponded to 198 samples, but the UCR requested 264 samples, without making it clear what the reason for this request was and why in the end only 258 tests were reported¹⁵³¹; (iv) the sample with code 12126 collected in 2014, with form No. 37110, indicates that the entomology laboratory analysed this sample, when, in the case of a virus, the correct thing to do would be to send it to a molecular biology laboratory; and (v) the results of the 2014-2016 sampling surveys do not indicate the result of the diagnostic test for ASBVd.¹⁵³²

7.751. Mexico asserts that it is therefore possible to conclude that Costa Rica's declaration of freedom from the pest was based on the results obtained from a surveillance procedure that from the beginning had flaws and errors, which meant that proper sample control and traceability (safeguarding and custody) was not possible. Mexico adds that the constant lack of information from Costa Rica and the inability to submit it properly before this Panel is striking.¹⁵³³

7.752. The **Panel** notes that the information on the presentation of sample results and on the traceability of samples has been furnished over the course of the proceedings.

7.753. Initially, Costa Rica shared with Mexico Exhibits MEX-116 and MEX-117, which contain the avocado surveillance records for the period from 2010 to 2016, and the nursery surveillance records from 2011 to 2015, respectively. These documents are Excel tables containing information on surveys relating to avocados, which do not refer specifically to ASBVd.

7.754. Regarding the results of the 2014 sampling survey, the document on this sampling survey (Exhibit MEX-64) indicates that a total of 264 samples were requested, but the results are not given.¹⁵³⁴ Costa Rica states that 258 samples were collected.¹⁵³⁵ Exhibit MEX-115 indicates that 260 samples were taken in the 2014 survey, and includes the results reported by the company Agdia Inc., to which the membranes for hybridization with the ASBVd-specific probe were sent. The results include 16 positive samples and five suspect samples.¹⁵³⁶ Exhibits CRI-15¹⁵³⁷, CRI-16¹⁵³⁸, MEX-115¹⁵³⁹ and MEX-134¹⁵⁴⁰, discussed in section 7.3 above, contain memorandums related to the samples that were considered to be false positives after their second diagnostic test by sequencing.

¹⁵²⁸ Mexico's comments on Costa Rica's response to Panel question No. 139, para. 1.

¹⁵²⁹ Mexico's comments on Costa Rica's response to the Panel's information request of 3 August 2020, fn 39 to para. 34; comments on Costa Rica's response to Panel question No. 138, para. 5 (citing Costa Rica's response to the Panel's information request of 3 August 2020, p. 20, subparagraphs 1-2 of section 5.2.3).

¹⁵³⁰ Mexico's comments on Costa Rica's response to Panel question No. 138, para. 5.

¹⁵³¹ Mexico's comments on Costa Rica's response to Panel question No. 138, para. 6.

¹⁵³² Mexico's comments on Costa Rica's response to Panel question No. 138, para. 7.

¹⁵³³ Mexico's comments on Costa Rica's response to Panel question No. 138, para. 8.

¹⁵³⁴ 2014 sampling survey, (Exhibit MEX-64).

¹⁵³⁵ Summary 2014-2019 sampling surveys, (Exhibit CRI-17), p. 6; Costa Rica's response to the Panel's information request of 3 August 2020, p. 20.

¹⁵³⁶ Memorandum CIBCM-PCDV-044-2014 (2014), (Exhibit MEX-115).

¹⁵³⁷ Memorandum CIBCM-501-2019 (2019), (Exhibit CRI-15).

¹⁵³⁸ Memorandum CIBCM-167-2017 (2017), (Exhibit CRI-16).

¹⁵³⁹ Memorandum CIBCM-PCDV-044-2014 (2014), (Exhibit MEX-115).

¹⁵⁴⁰ Memorandum CIBCM-PCDV-021-2015 (2015), (Exhibit MEX-134).

7.755. With respect to the results of the 2015-2016 sampling survey, they were not found in the record. The document on this sampling survey (Exhibit MEX-65) indicates that 322 samples were collected, but the results are not given.¹⁵⁴¹

7.756. Exhibit CRI-18 contains a letter dated 18 December 2015, which states that the SFE was entrusted with the task of verifying a report, and that consequently the sampling that was scheduled for January 2016 was brought forward. The document indicates that 284 samples were collected in that sampling exercise, and refers to the negative results for 150 samples received up to that date, including the farm and specifically the tree sampled by Dr Obregón, who had reported a positive result for ASBVd.¹⁵⁴² This exhibit also contains what is referred to as the sampling record of that tree.¹⁵⁴³

7.757. With regard the results of the 2017-2018 sampling survey, they are presented in Exhibits CRI-19 and CRI-20. Exhibit CRI-19 contains a memorandum from the Central Pest Diagnostic Laboratory of the SFE, dated 15 January 2018, which presents the results of the survey. The memorandum indicates that a total of 245 avocado leaf samples were received; that these were analysed using the real-time RT-PCR technique and following the LAB-LDP-BM-PT-06 Molecular detection of Avocado sunblotch viroid (ASBVd) V 02 procedure¹⁵⁴⁴; and that the presence of ASBVd was not detected in any of the samples analysed. The table of results contains the date of receipt of the sample, the requesting entity (Central Eastern Regional Unit and the Chorotega Regional Unit), the sample code, the analysis requested (ASBVd), the material analysed (leaves), and the result (negative for all 245 samples).¹⁵⁴⁵ This exhibit and Exhibit CRI-20¹⁵⁴⁶ contain a memorandum from the Central Pest Diagnostic Laboratory of the SFE dated 22 February 2018, which presents the results of the continuation of the 2017-2018 sampling survey. The memorandum indicates that 61 additional leaf samples were received for analysis using real-time RT-PCR, applying the LAB-LDP-BM-PT-06 Molecular detection of Avocado sunblotch viroid (ASBVd) V 02 procedure. The table of results contains the date of receipt of the sample, the requesting entity (Central Eastern Regional Unit), the sample code, the analysis requested (ASBVd), the material analysed (leaves), and the result (negative for all 61 samples).¹⁵⁴⁷

7.758. With respect to the results of the 2019 sampling survey, Exhibit CRI-21 contains a memorandum from the Central Pest Diagnostic Laboratory of the SFE dated 24 June 2019, which states that it corresponds to the final results report for the laboratory analysis carried out on Costa Rican avocado samples to detect ASBVd, and which recapitulates the partial results presented in memorandums LDP-013-2019 (of 20 March 2019), LDP-016-2019 (of 23 April 2019), LDP-RAM-0001-2019 (of 28 May 2019) and LDP-RAM-0002-2019 (of 24 June 2019).¹⁵⁴⁸ These memorandums are not part of the Panel's record. The document states that the Molecular Biology Section of the Central Pest Diagnostic Laboratory received 439 samples¹⁵⁴⁹; that the LAB-LDP-BM-PT-06 molecular detection procedure was applied¹⁵⁵⁰; and that the results for the samples were 100% negative for ASBVd.¹⁵⁵¹ The document refers to "table 1" which presents a summary of the codes of the analysed samples and their respective results, but it states that, owing to the large number of samples and amount of data generated, the details (raw and graphic data) are not appended.¹⁵⁵² Table 1 does not appear in Exhibit CRI-21.

7.759. Exhibit CRI-83, referred to by Costa Rica in relation to the results of the 2019 sampling survey, is the ASBVd survey plan for the 2019 avocado crop, so it does not contain the results of the sampling carried out subsequently.¹⁵⁵³

¹⁵⁴¹ Sampling survey 2015-2016, (Exhibit MEX-65).

¹⁵⁴² Obregón rebuttal (2015), (Exhibit CRI-18), p. 2.

¹⁵⁴³ Obregón rebuttal (2015), (Exhibit CRI-18), p. 3.

¹⁵⁴⁴ Document LAB-LDP-BM-PT-06 (2017), (Exhibits CRI-12 and CRI-86). See also Costa Rica's response to the Panel's information request of 3 August 2020, Annex 15.

¹⁵⁴⁵ Final report (1) on sampling survey 2017-2018, (Exhibit CRI-19), p. 3-10.

¹⁵⁴⁶ Final report (2) on sampling survey 2017-2018, (Exhibit CRI-20).

¹⁵⁴⁷ Final report (1) on sampling survey 2017-2018, (Exhibit CRI-19), p. 11-13.

¹⁵⁴⁸ Final report 2019 sampling survey, (Exhibit CRI-21), p. 3.

¹⁵⁴⁹ Final report 2019 sampling survey, (Exhibit CRI-21), p. 3.

¹⁵⁵⁰ Document LAB-LDP-BM-PT-06 (2017), (Exhibits CRI-12 and CRI-86).

¹⁵⁵¹ Final report 2019 sampling survey, (Exhibit CRI-21), p. 4.

¹⁵⁵² Final report 2019 sampling survey, (Exhibit CRI-21), p. 4.

¹⁵⁵³ ASBVd survey in Costa Rica (2019), (Exhibit CRI-83).

7.760. With regard to the four sampling surveys, Costa Rica also submitted Exhibit CRI-17 in September 2019, which contains a document entitled "Report on the surveillance to determine the absence of ASBVd in avocado plantations in Costa Rica".¹⁵⁵⁴ With respect to specific surveillance, the document contains a review of the circumstances of the four sampling surveys, including information on each sampling period, the number of samples taken, the zones in which the sampling was carried out, and the laboratory or laboratories involved.¹⁵⁵⁵ The report states that all of the 1,325 samples analysed between 2014 and 2019 were negative for ASBVd.¹⁵⁵⁶ However, this report is dated September 2019, and does not include information on the taking of samples and their traceability, or on the concrete results of their diagnostic tests.

7.761. Initially, in his response to the Panel's additional questions, the surveillance expert, Pablo Cortese, indicated that the information in the records provided was not properly organized or consolidated, as the same years and locations appeared on different worksheets, and there was no correlation, or the correlation was unclear, between those sampling surveys and the results obtained from the laboratory diagnostic test.¹⁵⁵⁷ Mr Cortese stated, in reference to Exhibits CRI-18 (2015), CRI-19 (2017 and 2018), CRI-20 (2018), and CRI-21 (2019), that it had not been possible to correlate those results with the data presented in MEX-116 and MEX-117, and noted that partial results were given in Exhibit CRI-18. According to Mr Cortese, it was impossible to establish the full traceability of the reported samples from all of that evidence.¹⁵⁵⁸ With respect to the exhibits containing information on the false positives indicated by Costa Rica¹⁵⁵⁹, Mr Cortese stated that, although it was asserted that the laboratory diagnostic test results were negative, the relationship between the reports and the traceability of samples was not clear.¹⁵⁶⁰

7.762. Mr Cortese also pointed out that Costa Rica should have the reports of the results of each of the surveys, from which the place the sample was taken could be linked to the result obtained from the laboratory analysis, including maps with georeferenced data.¹⁵⁶¹

7.763. From the preceding information, and in light of Mr Cortese's response, it can be seen that, prior to the Panel's request for additional information and supporting documentation of 3 August 2020, the results of Costa Rica's ASBVd sampling surveys of 2015-2016 and 2019 were missing, as was the information that would allow the sampling to be linked to the laboratory results for the 2014 and 2017-2018 surveys. Similarly, the map with the georeferences of the sampled farms that Costa Rica submitted¹⁵⁶² was not presented with the rest of the documents and was not mentioned in them.

7.764. As mentioned above, Costa Rica submitted additional information in its response to the Panel's request for additional information and supporting documentation dated 3 August 2020.

7.765. The Panel notes that the matter of the presentation of the results and the traceability of samples has been clarified over the course of the proceedings, and that some of the results and details that help to identify the samples were not initially found in the record, but that they were presented in Costa Rica's response to the Panel's request of 3 August 2020. In particular, the reports on the laboratory results of the sampling surveys of 2015-2016 (Annexes 4 and 12) and 2019 (Annex 20) were presented in an annex, and an Annex 9, entitled "Results reports for specific surveys 2014, 2015-2016, 2017-2018, and 2019", was also presented.

7.766. Annexes 4 and 12 contain the ASBVd detection results for 2016 from the SFE laboratory and the UCR laboratory, respectively. Annex 4 contains a memorandum dated 27 January 2016 from the Pest Diagnostic Laboratory of the SFE, which states that a total of 151 avocado leaf samples were received, and that appended thereto are the results of the molecular analysis to detect ASBVd using RT-PCR, agarose gel electrophoresis documentation, the results of the real-time PCR using

¹⁵⁵⁴ Summary 2014-2019 sampling surveys, (Exhibit CRI-17).

¹⁵⁵⁵ Summary 2014-2019 sampling surveys, (Exhibit CRI-17), pp. 5-9.

¹⁵⁵⁶ Summary 2014-2019 sampling surveys, (Exhibit CRI-17), p. 9.

¹⁵⁵⁷ Pablo Cortese's response to additional Panel question No. 2 for Pablo Cortese.

¹⁵⁵⁸ Pablo Cortese's response to additional Panel question No. 2 for Pablo Cortese.

¹⁵⁵⁹ Memorandum CIBCM-501-2019 (2019), (Exhibit CRI-15); Memorandum CIBCM-167-2017 (2017), (Exhibit CRI-16); Memorandum CIBCM-PCDV-044-2014 (2014), (Exhibit MEX-115); and Memorandum CIBCM-PCDV-021-2015 (2015), (Exhibit MEX-134).

¹⁵⁶⁰ See Pablo Cortese's responses to additional Panel questions Nos. 1 and 2 for Pablo Cortese.

¹⁵⁶¹ See Pablo Cortese's response to additional Panel question No. 3 for Pablo Cortese.

¹⁵⁶² Map sampling surveys 2014-2019, (Exhibit CRI-84).

the COX (internal control) gene, and the cited bibliographic references. The results of all the samples received between 25 November 2015 and 15 January 2016 are given as negative. Some of the laboratory codes are not identified; it is noted that they are "pending assignment".

7.767. Annex 12 contains a memorandum dated 27 January 2016 from the CIBCM of the UCR, appended to which are the results of 171 avocado leaf samples received at the end of November and December 2015 and evaluated using RT-PCR. It states that no amplification product was detected in 133 samples (they were negative for ASBVd), and that amplification products were obtained in 38 samples, which were sent to Macrogen Inc. (Korea) in order to be purified and sequenced directly. The results indicate that none of these 38 samples sent to Macrogen Inc. (Korea) was positive, and it is concluded that none of the 171 samples were positive for ASBVd. The Panel notes that the date of receipt of some of the samples, according to the table containing the records, is December 2016, which appears to be an error in the records.

7.768. Annex 20 comprises an undated document from the Central Pest Diagnostic Laboratory of the SFE, entitled "*Informe final – Análisis de ASBVd en aguacate nacional*" (Final report – ASBVd analysis of Costa Rican avocados), and contains a table with the results of the laboratory analysis to detect ASBVd using real-time RT-PCR in Costa Rican avocado samples. The results of 439 leaf and fruit samples, received from the Central Eastern, Chorotega, Central Western, Brunca, and Central Pacific Regional Units between 26 February 2019 and 10 April 2019, are presented. It states that all the results were negative for ASBVd, and it also draws attention to 67 samples, the results of which were verified by repeating the real-time RT-PCR, using traditional RT-PCR with the primers designed by Schnell *et al.*, or using sequencing, or for which the RNA extraction was repeated.¹⁵⁶³ It indicates that, for three of these 67 assays, the results were verified using both traditional RT-PCR with the primers designed by Schnell *et al.* and sequencing.¹⁵⁶⁴

7.769. As mentioned, Costa Rica submitted for the first time the results of the 2015-2016 sampling survey in Annexes 4 and 12 to its response to the Panel's request of 3 August 2020. The same is true for the results of the 2019 sampling survey in Annex 20.

7.770. Annex 9 contains two Excel spreadsheets, entitled "*boletas y seguimientos*" (forms and follow-up) SIF-VCP and SIVIFI. The SIF-VCP information covers the period 2014-2016, and provides the SFE code, name of the establishment, form number, date of the visit¹⁵⁶⁵, observations, crop, laboratory receipt observations, geographical coordinates, sample number and laboratories consulted. The SIVIFI information is for the period 2017-2019, and is organized as follows: laboratories consulted, SFE code, name of the establishment, crop, genus, follow-up number, date of visit (follow-up), common name of the pest, scientific name of the pest, year of visit, laboratory receipt number, official responsible, geographical coordinates, comments on the request for the laboratory, and result.

7.771. The Panel notes that Annex 9 contains 1,292 entries, while Costa Rica states that it has carried out four intensive sampling surveys of avocado plantations in Costa Rica, analysing 1,325 samples to date.¹⁵⁶⁶ Moreover, the SIF-VCP information for the 2014-2016 sampling surveys does not include the laboratory results for the samples, and in the SIVIFI information for 2017-2019 there are eight sample entries marked as "no result".

7.772. With respect to the traceability of samples, from the early stages of the proceedings, the Panel found in the record statements confirming that Costa Rican officials carried out the chain of custody of the sample at all times, which ensures the traceability of samples from the field until they

¹⁵⁶³ Costa Rica's response to the Panel's information request of 3 August 2020, pp. 292-305, Annex 20.

¹⁵⁶⁴ See tests Nos. 252, 264 and 265. (Costa Rica's response to the Panel's information request of 3 August 2020, pp. 292-305, Annex 20).

¹⁵⁶⁵ At the Panel's meeting with the parties and the experts, Costa Rica states that the date contained in the Excel table, which is Annex 9, is not the date of the sample as such, but rather the date on which the sample was entered into the digital system. (Costa Rica, transcript of the Panel's meeting with the parties and the experts, day 4, p. 42). The Panel observes that the title of the Excel table column in Annex 9 to which Costa Rica appears to refer is "dt_Visita" (dt_Visit) for years 2014-2016 and "Fecha_Visita_Seguimiento" (Follow-up_Visit_Date) for years 2017-2019. Furthermore, the completed monitoring forms contained in Exhibit CRI-149 include the visit dates, and those found in Annex 9 match the dates indicated in the "dt_Visit"/"Follow-up_Visit_Date" column. The Panel is therefore unable to corroborate Costa Rica's claim.

¹⁵⁶⁶ Costa Rica's first written submission, para. 3.27. See also Summary 2014-2019 sampling surveys, (Exhibit CRI-17), p. 9.

are delivered to the laboratory for processing and analysis.¹⁵⁶⁷ Furthermore, in Exhibit MEX-114, undated, the SFE states that the samples were sent in accordance with procedures established to ensure the traceability of samples from the moment they are taken until the result of the analysis (seal, code and completion of the custody form).¹⁵⁶⁸ In the same exhibit, the SFE refers to a database system for pest sampling and surveys at the national level.¹⁵⁶⁹ In the Panel's view, these statements by Costa Rica in various documents are not, by themselves, sufficient to confirm the sample traceability of the sampling surveys to detect ASBVd.

7.773. In the memorandum on the 2019 sampling survey, with respect to the laboratory analysis process, the Panel found the assertion that the traceability of the entire process was recorded for each sample in the form R-03-LAB-LDP-BM-PO-08_Traceability form for the preparation and extraction of samples and in the forms for the procedure LAB-LDP-BM-PT-06_Molecular detection of avocado sunblotch viroid (ASBVd), with the consecutive numbers 2019-18 through 2019-30, 2019-35, 2019-36 and 2016-38; as well as the assertion that these records and the data generated and stored on the equipment are available in the laboratory should they need to be consulted.¹⁵⁷⁰ The Panel did not find in the record the form R-03-LAB-LDP-BM-PO-08_Traceability form for the preparation and extraction of samples or the forms for the procedure LAB-LDP-BM-PT-06_Molecular detection of avocado sunblotch viroid (ASBVd) with the consecutive numbers 2019-18 through 2019-30, 2019-35, 2019-36 and 2016-38. Neither the form R-03-LAB-LDP-BM-PO-08_Traceability form for the preparation and extraction of samples nor the forms with the consecutive numbers 2019-18 through 2019-30, 2019-35, 2019-36 and 2016-38 became part of the record.

7.774. The record also contains a blank custody chain record form.¹⁵⁷¹ The document came into force on 11 July 2019, and contains the following points: sample destination, who took the sample, sampling date, sampling end time, record number, seal number, sample code, form number, product sampled, date possession of the sample was taken, start time, end time, name of the person responsible in the possession chain, signature of the person responsible. Costa Rica refers to this exhibit in its response to the Panel's question regarding the chain of custody of the samples taken on the border for laboratory analysis using real-time PCR from the moment the sample is taken at the entry point until the result is released.¹⁵⁷² It is not clear whether this form has been used and whether it is used for the chain of custody of samples obtained during specific surveys to determine the status of ASBVd in Costa Rica, or only for sampling at the border. No completed examples of this form have been provided either.

7.775. In its response to the Panel's information request of 3 August 2020, Costa Rica submits that, in order to maintain the traceability, integrity and security of the samples sent to the laboratory, they are placed under seal and are transferred to the laboratory by SFE staff.¹⁵⁷³

7.776. In the same response, Costa Rica states that the "Regulated Pest Surveillance and Control Procedure", in force since November 2018, describes in detail the placement of a seal or label and the transfer to the laboratory, and that the form used is OR-RN-F-01 Form for the handling and transportation of samples for pest diagnostics and pesticide residue analysis, appended thereto.¹⁵⁷⁴ Costa Rica submits that, in the first part of the form, each space corresponds to a sample where the record number, seal number and sample code with which it is deposited with the laboratory, are given, that the sample code is assigned by the phytosanitary surveillance system, and that the Diagnostic Laboratory does not accept any sample that arrives without its corresponding code.¹⁵⁷⁵ Costa Rica adds that, in the second part of the form, all the information requested must be provided for each of the samples collected, and that, each time the sample changes hands, the information about who has it in their possession must be added, until it reaches the laboratory where the analysis will be carried in and where the chain of custody ends.¹⁵⁷⁶

¹⁵⁶⁷ Obregón rebuttal (2015), (Exhibit CRI-18), p. 2.

¹⁵⁶⁸ SFE, Application of ISPM Nos. 6 and 8 by the SFE, (Exhibit MEX-114), p. 2.

¹⁵⁶⁹ SFE, Application of ISPM Nos. 6 and 8 by the SFE, (Exhibit MEX-114), p. 3.

¹⁵⁷⁰ Final report on 2019 sampling survey, (Exhibit CRI-21), p. 4.

¹⁵⁷¹ Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, "Registro de la cadena de custodia", CFI-PO-03_F-02, que rige a partir del 11 de julio de 2019, (Exhibit CRI-93).

¹⁵⁷² See Costa Rica's response to Panel question No. 37.

¹⁵⁷³ Costa Rica's response to the Panel's information request of 3 August 2020, p. 25.

¹⁵⁷⁴ Costa Rica's response to the Panel's information request of 3 August 2020, p. 25.

¹⁵⁷⁵ Costa Rica's response to the Panel's information request of 3 August 2020, p. 26.

¹⁵⁷⁶ Costa Rica's response to the Panel's information request of 3 August 2020, p. 26.

7.777. The "Regulated Pest Surveillance and Control Procedure", in force since November 2018¹⁵⁷⁷, states that the phytosanitary inspector must take a sample and send it to the official laboratory for diagnosis, with the respective OR-RN-F-01 Form for the handling and transportation of samples for pest diagnostics and pesticide residue analysis.¹⁵⁷⁸ In addition, the "Regulated Pest Surveillance and Control Procedure" requires the phytosanitary inspector to enter in the SIVIFI all the information gathered during production site visits.¹⁵⁷⁹ According to this procedure, the OR-RN-F-01 form is stored physically in the respective file for each case, in the archive of the Regional Operational Unit, and digitally in the SIVIFI.¹⁵⁸⁰

7.778. It should also be noted that the "Pest sampling procedure for plants in the field for diagnostic purposes", in force since February 2018¹⁵⁸¹, contains instructions on transporting the sample, closing and sealing the container so that it is impossible to open it or take off the label or seal without breaking it, and delivering the sample, together with the custody form, to the laboratory, preferably on the same day it was taken and no more than three days after that.¹⁵⁸²

7.779. A blank copy of a form, entitled "Form for the handling and transportation of samples for pest diagnostics and pesticide residue analysis", was submitted as an Annex to Costa Rica's response to the Panel's request of 3 August 2020.¹⁵⁸³ The form requests information on the region, who took the sample, sampling date, sampling start time, sampling end time, record number, seal number, sample code of the SFE laboratory, and sampled product. The form also includes a second part with the title "sample custody record", which contains the following points: date possession of the sample was taken, start time, end time, name of the person in the possession chain, signature of the person in the possession chain.

7.780. The name of the form referred to in the "Regulated Pest Surveillance and Control Procedure" coincides with the name of the blank form submitted by Costa Rica in response to the Panel's information request, but the blank form does not bear a code from the SFE system with which it can be identified. The Panel notes that it is not clear when this form came into force, and there is no evidence of its use, beyond Costa Rica's assertion that the form is used.¹⁵⁸⁴ This document was submitted in September 2020, blank, and without any completed examples of it.

7.781. Even with Costa Rica's response to the information request of 3 August 2020, the Panel has not found completed forms that confirm Costa Rica's assertions on ensuring the sample traceability of the four sampling surveys to detect ASBVd. The only thing in the record were two blank forms. The Panel requested additional information from Costa Rica, as described below.

7.782. The expert Pablo Cortese notes that the new annexes to Costa Rica's response to the Panel's request improve, to a certain extent, the presentation of Costa Rica's results.¹⁵⁸⁵ With regard to the reliability of the records used to determine the pest status of Costa Rica, Mr Cortese states that, upon reading the information received initially, he found the records a little incomplete, and that once more information arrived, they seemed a little more complete, but he cannot say that they were highly reliable, commenting that some seem more reliable than others.¹⁵⁸⁶

7.783. Regarding the traceability of Costa Rica's samples in light of the new annexes, Mr Cortese states that the elements that Costa Rica has presented are sufficient in his opinion, and that he has

¹⁵⁷⁷ Document OR-RN-PO-01 (2018), (Exhibit CRI-88); and Costa Rica's response to the Panel's information request of 3 August 2020, Annex 7.

¹⁵⁷⁸ Document OR-RN-PO-01 (2018), (Exhibit CRI-88), p. 4.

¹⁵⁷⁹ Document OR-RN-PO-01 (2018), (Exhibit CRI-88), p. 4. Costa Rica also points out that agricultural production establishments, at which pest monitoring is undertaken of the various crops at the national level, are registered in the system, follow-up visits are made to the establishments, and tables and charts of different activities, crops and pests, among other things, can be generated. (Memorandum OR-BSG-004/2019 (2019), (Exhibit CRI-85), p. 3).

¹⁵⁸⁰ Document OR-RN-PO-01 (2018), (Exhibit CRI-88), p. 6. See also Document OR-RN-PO-03 (2018), (Exhibit CRI-82), p. 8.

¹⁵⁸¹ Document OR-RN-PO-03 (2018), (Exhibit CRI-82); Costa Rica's response to the Panel's information request of 3 August 2020, Annex 8.

¹⁵⁸² Document OR-RN-PO-03 (2018), (Exhibit CRI-82), pp. 6-7.

¹⁵⁸³ Costa Rica's response to the Panel's information request of 3 August 2020, Annex 11.

¹⁵⁸⁴ Costa Rica's response to the Panel's information request of 3 August 2020, p. 25.

¹⁵⁸⁵ See Pablo Cortese, transcript of the Panel's meeting with the parties and the experts, day 4, p. 32.

¹⁵⁸⁶ Pablo Cortese, transcript of the Panel's meeting with the parties and the experts, day 3, p. 63.

made some checks against the worksheets and the laboratory worksheets, and the information matches, although information is missing for some years.¹⁵⁸⁷ With regard to the sampling survey results, Mr Cortese adds that at the beginning they were somewhat disorganized, and later they were presented in a little more organized fashion, but that results are missing, because he identified the results for two surveys only.¹⁵⁸⁸

7.784. With regard to the maps in Costa Rica's response to the Panel's request for additional information and supporting documentation, Mr Cortese states that they are not detailed enough to be able to carry out an in-depth analysis, although the expansion of the territory covered by monitoring is noted.¹⁵⁸⁹

7.785. The Panel is unable to verify whether Costa Rica had all the information included in Annex 9 when it carried out and obtained the results of each sampling survey. Despite this, and in light of the opinion of the surveillance expert Pablo Cortese, the Panel notes that Annex 9 improves the presentation of the results and clarifies to some extent the traceability of the samples, which was not possible before, by allowing the sample to be tracked better from the moment it is taken until diagnosis in a laboratory.

7.786. At its second meeting with the parties, the Panel asked Costa Rica about the documents whose information is captured in the SIF-VCP and in the SIVIFI, and is included in Annex 9 of Costa Rica's response to the Panel's request for additional information and supporting documentation.

7.787. In its responses to the Panel's questions following the Panel's second meeting with the parties, Costa Rica notes that data captured in three types of documents were used to prepare Annex 9: location and follow-up forms; forms for the handling and transportation of samples for pest diagnostics; and samples' laboratory results.¹⁵⁹⁰ Costa Rica confirms that it is submitting the clean version of the production establishment or site location form and the form for pest follow-up in production establishments or sites, and compiled examples of location and follow-up forms and compiled examples of forms for the handling and transportation of samples for pest diagnostics.¹⁵⁹¹

7.788. Exhibit CRI-149 contains 20 completed location and follow-up forms. Of these, six are location forms and 14 are follow-up forms. Two of the follow-up forms contain identical information¹⁵⁹², but Annex 9 also contains two identical entries that appear to correspond to these two forms. The Panel notes that, among the examples of follow-up forms, examples from the 2015-2016 sampling survey are missing, and only examples from 2014, 2017 and 2019 are provided. Moreover, seven of the 14 follow-up forms correspond to samples allegedly taken on dates outside the sampling survey period. The information on these forms cannot be traced through Annex 9, as Annex 9 does not include samples from those dates. In particular: five forms are dated 1 November 2017, which is prior to 2017-2018 sampling survey, and therefore they are not included in Annex 9¹⁵⁹³; one form is dated 30 January 2019, which is prior to the 2019 sampling survey and is not included in Annex 9^{1594, 1595}; another form is dated 29 August 2019, which is after the 2019 sampling survey period and is not in Annex 9.¹⁵⁹⁶ Similarly, the Panel notes that not all the information required has been entered on some of the follow-up forms, such as, for example, the sample number¹⁵⁹⁷ or the GPS location.¹⁵⁹⁸ This means that the Panel is unable to confirm that the traceability of the given ASBVd samples was reliable.

¹⁵⁸⁷ Pablo Cortese, transcript of the Panel's meeting with the parties and the experts, day 4, p. 11.

¹⁵⁸⁸ Pablo Cortese, transcript of the Panel's meeting with the parties and the experts, day 4, p. 32.

¹⁵⁸⁹ Pablo Cortese, transcript of the Panel's meeting with the parties and the experts, day 4, p. 11.

¹⁵⁹⁰ Costa Rica's response to Panel question No. 138, para. 99.

¹⁵⁹¹ Costa Rica's response to Panel question No. 138, paras. 105-106.

¹⁵⁹² Completed forms OR-RN-F-03 and OR-RN-F-04, (Exhibit CRI-149), pp. 4 and 22.

¹⁵⁹³ Completed forms OR-RN-F-03 and OR-RN-F-04, (Exhibit CRI-149), pp. 17-21.

¹⁵⁹⁴ Completed forms OR-RN-F-03 and OR-RN-F-04, (Exhibit CRI-149), p. 10.

¹⁵⁹⁵ The possible start date of the 2019 sampling survey was 25 February 2019. (ASBVd surveys in Costa Rica (2019), (Exhibit CRI-83), pp. 7-8). Costa Rica notes that sampling was carried out between February and April. (Costa Rica's first written submission, para. 3.26; Costa Rica's response to the Panel's information request of 3 August 2020, p. 21).

¹⁵⁹⁶ Completed forms OR-RN-F-03 and OR-RN-F-04, (Exhibit CRI-149), p. 16.

¹⁵⁹⁷ Completed forms OR-RN-F-03 and OR-RN-F-04, (Exhibit CRI-149), pp. 7 and 10.

¹⁵⁹⁸ Completed forms OR-RN-F-03 and OR-RN-F-04, (Exhibit CRI-149), p. 8.

7.789. Exhibit CRI-150 contains 15 forms for the handling and transportation of samples for pest diagnostics and pesticide residue analysis, including the second page of the form, which contains the custody records of the samples. All the forms date from 2017-2018. Although one of the examples refers to a sample that, according to Annex 9, was taken on the day prior to that recorded on the form¹⁵⁹⁹, the numbers of the seals are in Annex 9.

7.790. From the foregoing, the Panel notes that the presentation of results and the traceability of samples have been clarified over the course of the proceedings, due to the submission of Costa Rica's response to the Panel's request for additional information and supporting documentation of 3 August 2020. In particular, information was provided on the results of two of the four sampling surveys (of 2015-2016 and 2019), and an Excel table (Annex 9), which allowed for better tracking of the samples from the moment they were taken until diagnosis in a laboratory. However, the number of entries in Annex 9 does not correspond to the total number of samples indicated for the four sampling surveys, and the laboratory results for the samples from the 2014-2016 sampling survey are missing from this Annex, as are eight samples from subsequent sampling surveys. The Panel is of the view that this affects the traceability of the samples.

7.791. With regard to the forms used from when the sample is taken until its delivery to the laboratory, completed examples of these forms were submitted for the first time with Costa Rica's responses to the Panel's questions following the Panel's second meeting with the parties. The Panel found that some of the examples provided had not been completed accurately, and noted that some of the follow-up forms do not correspond to samples taken during the four sample surveys, so their traceability cannot be confirmed through Annex 9. Although the submission of completed forms clarified, in part, the information on the record of actions of Costa Rica's ASBVd sampling surveys, these forms' flaws also cast doubt on the traceability of taking samples.

7.792. In conclusion, although the presentation of results and the traceability of samples have been clarified over the course of the proceedings, complete traceability of the samples is lacking, which affects the reliability of the determination that ASBVd is absent in Costa Rica, and thus its scientific legitimacy.

Laboratory analysis

7.793. **Mexico** submits that the technical files of the PRAs refer to the reverse transcription polymerase chain reaction (RT-PCR) method, which was used to analyse the samples collected from symptomatic trees, but no explanation of the procedure used can be gleaned from these documents. According to Mexico, Costa Rica failed to indicate the importance or the relevance of the selected method and to use an additional method to corroborate the results.¹⁶⁰⁰

7.794. Mexico asserts that in the first and second sampling surveys there were samples of suspected ASBVd, and that, for one of them, which refers to the tree allegedly analysed by Dr Obregón, Costa Rica claims to have confirmed the negative results for ASBVd, but the testing was limited to the RT-PCR method, in contrast to the analysis performed by Dr Obregón, who also carried out sequencing.¹⁶⁰¹

7.795. Mexico considers that obtaining an objective and reliable ASBVd test result will depend on aspects such as the type of sample, verification of the quality and quantity of RNA, the RNA integrity verification method, as well as a laboratory's diagnostic techniques. Mexico points out that the ASBVd molecular detection protocol produced by Costa Rica's phytosanitary authority was compared to Mexico's ASBVd diagnostic protocol, and differences were found with respect to: (i) the proper standardization of the protocols; (ii) the specifications for the type of samples suggested; (iii) the annealing temperature; (iv) the standardization and approval of equipment for the routine diagnosis

¹⁵⁹⁹ Seal No. 8475. (Completed forms OR-RN-F-01 (2017-2018), (Exhibit CRI-150), p. 17).

¹⁶⁰⁰ Mexico's first written submission, para. 452.

¹⁶⁰¹ Mexico's second written submission, para. 31 (citing Laboratorio de Diagnóstico Integral Fitosanitario (LADIFIT), "Informe de resultados", prueba de laboratorio 15/125-Vr, del Dr Obregón Gómez, 14 de enero de 2016, (Exhibit MEX-240)).

of ASBVd and extraction of RNA; and (v) the use of controls.¹⁶⁰² Mexico indicates that it has set out the errors detected in Costa Rica's sampling protocol in Exhibit MEX-221.¹⁶⁰³

7.796. Mexico adds that, due to the rapid phenolic oxidation of avocado plant tissue, it is necessary to ensure that the extraction method is the right one, otherwise it may result in false positives because of the potential degradation of the RNA; and that the failure to properly purify the genetic material (RNA), by removing all phenolic compounds and polysaccharides, can make it difficult to extract RNA, thus hampering the recovery and proper processing of the sample under analysis.¹⁶⁰⁴

7.797. Mexico considers that, by using a proper diagnostic protocol, the likelihood of getting a false positive is very low, particularly if that protocol includes sequencing of the amplified fragment to confirm that it is the pathogen tested for; that the accuracy of an assay depends on both the measuring tool and the measuring process; and that it is not simply a question of following a particular protocol.¹⁶⁰⁵

7.798. Mexico asserts that a correct diagnostic protocol includes carrying out routine quality control assays, that it should include reviewing normal and abnormal samples, and that an internal quality plan should be followed.¹⁶⁰⁶

7.799. Mexico points out that, with the correct handling and preservation of collected plant material, false positives are not common; and that, independently of the number of samples analysed, the likelihood of finding false positives is low, provided that attention is paid to all aspects to ensure an appropriate diagnostic methodology, and includes a quality assurance system which allows the traceability of the samples analysed to be understood.¹⁶⁰⁷

7.800. Mexico adds that there is no chance of obtaining false positives or negatives when using end-point PCR (RT-PCR) and real-time PCR (RT-qPCR), because genetic sequencing is carried out on any suspect sample.¹⁶⁰⁸

7.801. For Mexico, while Costa Rica verifies its samples by traditional RT-PCR, ideally it should first verify them using another set of real time primers because Costa Rica is checking the samples through a less sensitive technique. Mexico points out that, consequently, in such instances it may be that the ASBVd titre is low in those samples, such that the agarose gel might not be able to produce defined bands for detecting ASBVd.¹⁶⁰⁹

7.802. Mexico submits that Costa Rica has still not submitted complete, organized information that allows for proper traceability with respect to the handling of samples. Mexico notes that Costa Rica failed to provide, for example, the electrophoresis gels of the first assays that produced false positives in 2014.¹⁶¹⁰ Mexico adds that Costa Rica also failed to provide specific information with regard to the nucleotide sequence and the sequence alignment and analysis to verify that the amplifications correspond to avocado tissue, which would allow the Panel to verify that it complies with the SFE's own pest surveillance and diagnosis procedures, as, otherwise, they remain simple unfounded assertions.¹⁶¹¹

7.803. Mexico considers the foregoing to be relevant because Costa Rica uses the real-time PCR, and, according to Mexico, it is odd that this technique produced non-specific amplifications, given that the literature mentions that the real-time PCR is 1,000 times more sensitive than the traditional

¹⁶⁰² Mexico's second written submission, para. 33 (citing Servicio Nacional de Sanidad, Inocuidad y Calidad Agroalimentaria (SENASICA), Dirección General de Sanidad Vegetal, "Opinión Técnica de los Protocolos de Diagnóstico Fitosanitario para la detección de ausencia o presencia del viroide Avocado sunblotch viroid (ASBVd)", enero de 2020 (SENASICA, Comparison of the ASBVd diagnostic protocols of Mexico and Costa Rica (2020)), (Exhibit MEX-221)).

¹⁶⁰³ Mexico's comments on Costa Rica's response to Panel question No. 146, para. 1.

¹⁶⁰⁴ Mexico's second written submission, para. 34 (citing SENASICA, Comparison of the ASBVd diagnostic protocols of Mexico and Costa Rica (2020), (Exhibit MEX-221)).

¹⁶⁰⁵ Mexico's response to Panel question No. 146, para. 95.

¹⁶⁰⁶ Mexico's response to Panel question No. 146, paras. 96-97.

¹⁶⁰⁷ Mexico's response to Panel question No. 146, paras. 99-100.

¹⁶⁰⁸ Mexico's response to Panel question No. 146, para. 102.

¹⁶⁰⁹ Mexico's comments on Costa Rica's response to Panel question No. 146, para. 1.

¹⁶¹⁰ Mexico's comments on Costa Rica's response to Panel question No. 146, para. 2.

¹⁶¹¹ Mexico's comments on Costa Rica's response to Panel question No. 146, para. 3.

PCR, similar to the reported results for dot-blot hybridization, where the real-time PCR is 1,000 times more sensitive.¹⁶¹²

7.804. Mexico asserts that Costa Rica has failed to duly demonstrate that the suspect or false positive samples were retested, how the retesting was carried out, whether it was partial or full, and whether new samples were requested in the event of full retesting. According to Mexico, there is no way to confirm that the material was still optimal for carrying out the analysis.¹⁶¹³

7.805. Mexico asserts that the SFE, despite having established specific protocols for, *inter alia*, the diagnosis of pests, specific surveillance, document and record checks, and the sampling of avocado trees, does not apply them to its daily procedures, or they, like the ASBVd detection protocol, are poorly designed.¹⁶¹⁴

7.806. Mexico submits that Exhibits CRI-12 and CRI-152 were prepared *ex post facto*, that is, after Costa Rica had taken samples in 2014 and 2015 in its territory and determined the absence of ASBVd, which makes this assertion questionable.¹⁶¹⁵ Mexico notes that it is unclear and that it has doubts about whether a proper sequence analysis was applied in 2014 and 2015, which allegedly produced false positives when using the Agdia test kit.¹⁶¹⁶ For Mexico, while Costa Rica provides the purported assurance of the quality of the diagnostic methods in Exhibit CRI-152, this document is only the result of the changes Costa Rica has made to processes in these proceedings, and does not reflect the elements that Costa Rica used to develop its PRAs and to design its surveillance systems from 2014 onwards.¹⁶¹⁷

7.807. Mexico is of the opinion that Costa Rica has failed to submit specific exhibits that allow samples to be traced in the case of non-specific amplifications, which is relevant considering that the presence of dimeric forms of ASBVd have been reported in the scientific literature.¹⁶¹⁸ For Mexico, the fact that Costa Rica itself refers to the failure to document the results with noise or anomalies in the final report indicates the lack of rigour of its surveillance system.¹⁶¹⁹

7.808. Mexico points out that it is impossible to know what Costa Rica considers to be inconclusive or non-specific results if these are not related to a false positive, and that preferably Costa Rica would have submitted the sequence analyses it obtained, indicating the quality of the sequences and the assays that were carried out when the sequences were analysed.¹⁶²⁰

7.809. Mexico argues that the surveillance report submitted on 14 September 2020 does not examine the traceability of the assays carried out, as they do not appear in the final report because they are reported as negative for ASBVd.¹⁶²¹ Mexico reiterates that the surveillance implemented by Costa Rica is not in accordance with the provisions of ISPM Nos. 6 and 8.¹⁶²²

7.810. Mexico asserts that Costa Rica continues to have problems with handling the kits or managing the protocols to determine the pest's presence or absence in the samples analysed, and that proof of this is that in Exhibit CRI-21 it mentions that, even in 2019, RT-PCR assays had to be repeated for 50 samples.¹⁶²³

7.811. Mexico notes that, in its experience, this is due solely to the fact that the plant material was already in poor condition or phenolized, which prevented the extraction of good quality RNA and in sufficient quantities for the RT-PCR, and/or that the person or persons who performed the assays do not have enough technical expertise to carry out that procedure. Mexico considers that, in both

¹⁶¹² Mexico's comments on Costa Rica's response to Panel question No. 146, para. 4.

¹⁶¹³ Mexico's comments on Costa Rica's response to Panel question No. 146, para. 5.

¹⁶¹⁴ Mexico's comments on Costa Rica's response to Panel question No. 146, para. 6.

¹⁶¹⁵ Mexico's comments on Costa Rica's response to Panel question No. 147, para. 1.

¹⁶¹⁶ Mexico's comments on Costa Rica's response to Panel question No. 147, para. 3.

¹⁶¹⁷ Mexico's comments on Costa Rica's response to Panel question No. 147, para. 4.

¹⁶¹⁸ Mexico's comments on Costa Rica's response to Panel question No. 148, para. 1.

¹⁶¹⁹ Mexico's comments on Costa Rica's response to Panel question No. 148, para. 1.

¹⁶²⁰ Mexico's comments on Costa Rica's response to Panel question No. 155, para. 1.

¹⁶²¹ Mexico's comments on Costa Rica's response to Panel question No. 155, para. 2.

¹⁶²² Mexico's comments on Costa Rica's response to Panel question No. 155, para. 3.

¹⁶²³ Mexico's comments on Costa Rica's response to Panel question No. 157, para. 1.

cases, they are errors that mean it cannot be confirmed definitively that the diagnostic test is sufficiently precise.¹⁶²⁴

7.812. Mexico maintains that it is unclear about the process for tracing samples from the field to the laboratory and the time taken to carry out the assays, that the conditions in which the plant tissue was transported and stored are not specified, and that, while Exhibits MEX-64 and MEX-65 indicate how the material should be treated, there is no evidence that the samples were actually treated that way.¹⁶²⁵

7.813. For Mexico, the problem is not the repeated testing of the sample, but rather that the material may have been in a poor condition, and the right thing to do would have been to take a new field sample from the same tree from which the original was taken.¹⁶²⁶

7.814. **Costa Rica** states that, if a specific, selective methodology is in place, which has been implemented correctly, and work is undertaken in accordance with good laboratory practices, it is not surprising that there are no false positives or that their frequency is low.¹⁶²⁷ Nevertheless, Costa Rica considers that the laboratory must be prepared in the event that these type of results are obtained, and must have the means to detect them and rule them out or confirm them, such as: using reliable positive and negative controls, repeat testing, another alternative RT-PCR method and sequencing.¹⁶²⁸

7.815. Costa Rica maintains that it routinely applies quality control tests, names the controls used at each analysis stage, and states that the LAB-LDP-BM-PO-09 procedure "Quality assurance of molecular diagnostic methods" sets out the application, preparation, frequency, evaluation and corrective actions to be taken in the event of non-conformity for each of the controls mentioned.¹⁶²⁹

7.816. Costa Rica asserts that false positives were obtained during the first sampling survey conducted at the national level in 2014, for which the nucleic acid hybridization technique with the Agdia kit was used (a technique that produces false positives more frequently), and that, in light of this, more sensitive techniques were used to confirm the results (traditional RT-PCR and subsequent sequencing by Macrogen, Korea), which revealed that they were false positives, as a region of the avocado tree genome was being detected instead of the ASBVd pathogen. Costa Rica adds that, from 2015 to 2017, the traditional RT-PCR technique was used to analyse samples, and that it used the real-time RT-PCR technique from 2017 onwards.¹⁶³⁰

7.817. With regard to significant variation in the appearance of false positives, according to Costa Rica, this is mainly due to the fact that the methods used in the first sampling survey were different to those adopted later for routine use. Costa Rica points out that, based on the experience of the first sampling survey, and considering that the most sensitive assays for ASBVd are based on RT-PCR, Costa Rica implemented methods in its laboratory that used the RT-PCR technique, as a result of which the false positives obtained with nucleic acid hybridization were no longer observed.¹⁶³¹

7.818. Costa Rica notes that it currently uses the one-step real-time RT-PCR technique in its routine analysis, and that only when a suspect or inconclusive result is produced is there a need to resort to the traditional RT-PCR technique and sequencing, which cannot be used independently of the traditional RT-PCR, as it is the product of this technique that is a sequencing input.¹⁶³² Costa Rica summarizes the sequential use of the techniques as follows: (i) one-step real-time RT-PCR (routine),

¹⁶²⁴ Mexico's comments on Costa Rica's response to Panel question No. 157, para. 2.

¹⁶²⁵ Mexico's comments on Costa Rica's response to Panel question No. 157, para. 3.

¹⁶²⁶ Mexico's comments on Costa Rica's response to Panel question No. 157, para. 4.

¹⁶²⁷ Costa Rica's response to Panel question No. 146, para. 124; comments on Mexico's response to Panel question No. 146, para. 62.

¹⁶²⁸ Costa Rica's response to Panel question No. 146, para. 124.

¹⁶²⁹ Costa Rica's response to Panel question No. 147, paras. 127-128 (referring to Document LAB-LDP-BM-PO-09 (2016), (Exhibit CRI-152)).

¹⁶³⁰ Costa Rica's response to Panel question No. 146, para. 125; response to Panel question No. 157, para. 157.

¹⁶³¹ Costa Rica's response to Panel question No. 148, paras. 129-132.

¹⁶³² Costa Rica's response to Panel question No. 157, para. 154.

(ii) traditional two-step RT-PCR (confirmation), and (iii) sequencing (confirmation)¹⁶³³, and adds that the use of each technique will depend on the result obtained with the previous technique.¹⁶³⁴

7.819. Costa Rica states that the false positives in the 2014 sampling survey were, to date, the only false positives strictly speaking (test with a positive result on a sample that does not have the viroid), but that inconclusive samples had emerged in other sampling surveys which had required confirmation using other diagnostic techniques.¹⁶³⁵ Costa Rica points out that anomalous results (non-specific amplifications) were obtained in the 2015 and 2019 sampling surveys, and that in both cases the results were subjected to sequencing, which confirmed that the samples were negative for ASBVd.¹⁶³⁶

7.820. Costa Rica asserts that in 2015, for example, the UCR laboratory obtained 38 inconclusive results that were subjected to sequencing to confirm that the samples were negative for ASBVd, and that these results can be found in Annex 12 to the surveillance report submitted by Costa Rica on 14 September 2020.¹⁶³⁷

7.821. Costa Rica notes that the instances of samples that produce "non-specific amplifications" are not false positives as such, but are results with noise or anomalies that require confirmation. Costa Rica asserts that the details of these instances are properly documented in the laboratory records, although they do not appear in the final report, as they are reported as negative for ASBVd, so the anomaly detected and resolved during the analysis is not reflected.¹⁶³⁸

7.822. Costa Rica indicates that in 2019 the Molecular Biology Laboratory of the SFE obtained some inconclusive non-specific results, so the analysis was repeated from the beginning, using an alternative method (traditional RT-PCR) and sequencing, and it was determined that the results were indeed negative for ASBVd. Costa Rica asserts that all the results may be found in Annex 20 to Costa Rica's surveillance report, which shows how some results were verified by repeating the real-time RT-PCR (e.g. samples 255, 327 or 337); others by traditional RT-PCR (e.g. samples 225, 232 or 235); and some were subsequently verified by sequencing (e.g. samples 252, 264 or 265).¹⁶³⁹

7.823. Costa Rica asserts that it is very important that laboratories have, in addition to good procedures and specific and sensitive diagnostic techniques, protocols to detect non-specific and inconclusive results and the means to confirm them, and that the Molecular Biology Laboratory of the SFE applies the following protocol to confirm inconclusive results: partial or full repetition of the assay and confirmation of the result with traditional RT-PCR with Schnell primers, and the result is then verified by sequencing.¹⁶⁴⁰

7.824. Costa Rica states that its laboratory has several procedures that describe measures that help to minimize the risk of false positive or false negative results occurring.¹⁶⁴¹

7.825. The **Panel** considers that, in order to determine the presence or absence of ASBVd in a territory, the NPPO must have scientifically sound procedures to perform laboratory diagnostic tests. This is supported by ISPM No. 6, which indicates that the survey plan must include a description of the survey methodology and quality management, including an explanation of the diagnostic procedures.¹⁶⁴² That ISPM further states that the NPPO should provide or ensure access to appropriate diagnostic services, whose characteristics include use of standard operating procedures, where appropriate and available.¹⁶⁴³

¹⁶³³ Costa Rica's response to Panel question No. 157, para. 155.

¹⁶³⁴ Costa Rica's response to Panel question No. 157, para. 156.

¹⁶³⁵ Costa Rica's response to Panel question No. 155, para. 147.

¹⁶³⁶ Costa Rica's response to Panel question No. 146, para. 126.

¹⁶³⁷ Costa Rica's response to Panel question No. 155, para. 148.

¹⁶³⁸ Costa Rica's response to Panel question No. 148, para. 133.

¹⁶³⁹ Costa Rica's response to Panel question No. 148, para. 134; response to Panel question No. 155, para. 149.

¹⁶⁴⁰ Costa Rica's response to Panel question No. 146, para. 126.

¹⁶⁴¹ Costa Rica's response to Panel question No. 156, para. 150.

¹⁶⁴² ISPM No. 6, (Exhibit MEX-75), p. 5-6.

¹⁶⁴³ ISPM No. 6, (Exhibit MEX-75), p. 7.

7.826. With respect to Costa Rica's diagnostic procedures for ASBVd, the parties refers to Exhibits CRI-12 and CRI-152.

7.827. Exhibit CRI-12 contains a document from the Pest Diagnostic Laboratory of the SFE entitled "Molecular detection of Avocado sunblotch viroid (ASBVd)" and approved in March 2017, that came into force on 27 March 2017, the stated objective of which is to describe the activities relating to the molecular diagnosis of ASBVd in avocado plant tissue using RT-PCR.¹⁶⁴⁴ According to its scope, this procedure applies to samples of avocado plant tissue, domestic and imported, in which the presence or absence of ASBVd must be detected, and the matrix corresponds to avocado leaves or fruit.¹⁶⁴⁵ This procedure describes the steps for using the real-time RT-PCR technique, and notes that an alternative confirmation method is the traditional two-step RT-PCR.¹⁶⁴⁶ The document contains information on materials and equipment, reagents, storage, risks and precautions. It states that the use of controls in this procedure is to be carried out in accordance with the provisions of LAB-LDP-BM-PO-09 "Quality assurance of molecular diagnostic methods".

7.828. Exhibit CRI-152 contains a document from the Pest Diagnostic Laboratory of the SFE entitled "Quality assurance of molecular diagnostic methods", approved on 22 December 2016.¹⁶⁴⁷ This document came into force on 2 January 2017, and its stated objective is to describe quality assurance practices to monitor the validity of the PCR assays of the Molecular Biology Laboratory. According to its scope, this document applies to all pest detection and/or identification methods carried out by the Molecular Biology Laboratory of the Pest Diagnostic Laboratory.¹⁶⁴⁸ That procedure includes information on the reference material, positive and negative controls, confirmatory tests, inter-laboratory tests, and data registration, storage and evaluation.

7.829. The Panel observes that both documents contained in Exhibits CRI-12 and CRI-152 came into force at the beginning of 2017. Therefore, the Pest Diagnostic Laboratory of the SFE has a diagnostic protocol that has been in force since 2017.

7.830. With respect to the diagnostic procedures for ASBVd in Costa Rica prior to 2017, the Panel analyses below Exhibits MEX-115 and MEX-134 and Annexes 4 and 12 of Costa Rica's response to the Panel's information request.

7.831. Exhibit MEX-115 contains a memorandum from the CIBCM of the UCR on the samples from the 2014 sampling survey, stating that the samples were prepared immediately and the RNA was spotted onto the membranes following the protocol and recommendations of Agdia Inc. (Indiana, United States). It is stated that the membranes were sent to Agdia Inc. for hybridization with the ASBVd-specific probe, using the diagnostic services of Agdia Inc.

7.832. Exhibit MEX-134 contains a memorandum from the CIBCM of the UCR regarding the samples that tested positive or inconclusive following the analysis carried out by Agdia Inc. The memorandum states that total RNA was extracted from the samples submitted by SFE officials using liquid nitrogen and the RNeasy Plant Mini Kit (QIAGEN) in accordance with the manufacturer's recommendations, and that the positive control RNA was obtained from ASBVd-infected avocado leaves kept in its freezer at -70°C. The memorandum also states that the reverse transcription (RT) and the polymerase chain reaction (PCR) were carried out using the protocols and the pair of viroid-specific ASBV1 and ASBV2 primers designed by Schnell et al. (Plant Dis. 81:1023-1026, 1997); and that the RT was carried out using the Sensiscript RT Kit (QIAGEN) and the ASBV1 primer. It adds that the RT-PCR product was analysed in agarose gel. It further states that all amplification products obtained were sent to Macrogen Korea to be purified and sequenced directly, and that the sequences obtained for each of the avocado samples were compared using the BLASTn algorithm with the sequences available in the GenBank.

7.833. Based on the information contained in Exhibits MEX-115 and MEX-134 relating to the evidence gathered in 2014, the Panel observes that the first sampling survey was conducted with the support of the CIBCM of the UCR, using the diagnostic services of Agdia Inc (Indiana, United States) and Macrogen Inc. (Korea). The record contains no further information regarding the

¹⁶⁴⁴ Document LAB-LDP-BM-PT-06 (2017), (Exhibits CRI-12 and CRI-86).

¹⁶⁴⁵ Document LAB-LDP-BM-PT-06 (2017), (Exhibits CRI-12 and CRI-86), p. 1.

¹⁶⁴⁶ Document LAB-LDP-BM-PT-06 (2017), (Exhibits CRI-12 and CRI-86), pp. 3 and 9-13.

¹⁶⁴⁷ Document LAB-LDP-BM-PO-09 (2016), (Exhibit CRI-152).

¹⁶⁴⁸ Document LAB-LDP-BM-PO-09 (2016), (Exhibit CRI-152), p. 1.

recommendations of Agdia Inc., or the diagnostic protocols of Agdia Inc. and Macrogen Inc., and the methodology applied by the CIBCM of the UCR is presented as a recount, together with the presentation of the results. Costa Rica's response to the Panel's information request of 3 August 2020 provides some explanation of the CIBCM's methods.¹⁶⁴⁹

7.834. Annex 4 to Costa Rica's response to the Panel's information request contains a memorandum from the Pest Diagnostic Laboratory of the SFE concerning 151 of the 244 samples from the 2015-2016 sampling survey. The memorandum states that the samples were analysed in the Molecular Biology Section of the Pest Diagnostic Laboratory of the SFE, and that the RT-PCR technique was used to determine the presence/absence of the viroid in the samples. It indicates that the methods available at the laboratory were used, and it describes the application of the methods to the samples in question.¹⁶⁵⁰

7.835. Annex 12 contains a CIBCM memorandum describing the diagnostic process for the other 177 samples from the 2015-2016 sampling survey. As in the CIBCM memorandum of 2014 (Exhibit MEX-134), this memorandum describes how total RNA was extracted from the samples, how the RT and PCR were carried out, and how the RT-PCR product was analysed. The description is similar to that of the diagnostic process for the 25 inconclusive samples from 2014 in Exhibit MEX-134, the only difference being that another kit was used for the RT.

7.836. Based on the information in Annexes 4 and 12 relating to the evidence gathered in 2015-2016, the Panel notes that the CIBCM of the UCR provided support for 177 of the samples, and that the remaining 151 were analysed by the Pest Diagnostic Laboratory of the SFE. Regarding the analysis by the CIBCM of the UCR, as in 2014, no protocol is presented, and the methodology applied by the CIBCM of the UCR is presented as a recount, together with the presentation of the results. With regard to the Pest Diagnostic Laboratory of the SFE, the methodology applied is also set out as a recount, together with the presentation of the results, but the record contains no diagnostic protocol for ASBVd applicable in 2015-2016 giving instructions on the methodology to follow when conducting the diagnostic test for ASBVd.

7.837. In light of the foregoing, the Panel cannot rule on the availability of the ASBVd diagnostic protocols of the laboratories of the CIBCM of the UCR, Agdia Inc. (Indiana, United States) and Macrogen Inc. (Korea), which tested the samples in 2014 and 2015-2016. With regard to the Pest Diagnostic Laboratory of the SFE, which carried out part of the diagnostic testing in 2015-2016, the Panel notes that the methodology applied is presented as a recount, together with the presentation of the results of the 2015-2016 sampling survey, but it cannot confirm the existence of a protocol like that contained in Exhibit CRI-12 which came into force as of 2017.

7.838. With regard to the scientific rigour of the techniques used, Costa Rica asserts that it now uses the one-step real-time RT-PCR technique for its routine analyses, with the possibility of resorting to a traditional RT-PCR and sequencing if the result is suspect or inconclusive and requires confirmation.

7.839. The document on molecular detection of the Avocado sunblotch viroid (ASBVd) provides support for Costa Rica's statement that real-time RT-PCR is used routinely and traditional RT-PCR for confirmation.¹⁶⁵¹ The results confirmation section mentions that this can be done by the full or partial repeat of the assay, a traditional RT-PCR, or sequencing of the PCR product obtained.¹⁶⁵²

¹⁶⁴⁹ Costa Rica's response to the Panel's information request of 3 August 2020, pp. 23-24.

¹⁶⁵⁰ It states: RNA was extracted using the Maxwell 16 MDx Instrument together with the Maxwell 16 LEV Plant RNA Kit (Promega AS1430). The "RNasin Plus RNase Inhibitor" (Promega, N2611) was added to the RNA extracts. The quantity and quality of the genomic RNA extracts obtained were verified using spectrophotometry. The reverse transcription was carried out using the "Maxima First Strand cDNA Synthesis Kit for RT-qPCR" (Thermo Scientific, K1642), and specific primers developed by Schnell et al., 1997 and Taq DNA recombinant (Thermo Scientific, EP0402) were used for the PCR. In addition, a real-time PCR was conducted on the cDNA from all the samples to amplify the plant cytochrome oxidase (COX), according to Li et al., 2006, which functions as an internal control. ... One positive control and one blank control (a no template control (NTC)) were included at each stage of the process (RNA extraction, RT and PCR) and for each batch. (Costa Rica's response to the Panel's information request of 3 August 2020, Annex 4, p. 2).

¹⁶⁵¹ Document LAB-LDP-BM-PT-06 (2017), (Exhibits CRI-12 and CRI-86), pp. 3 and 9-13.

¹⁶⁵² Document LAB-LDP-BM-PT-06 (2017), (Exhibits CRI-12 and CRI-86), pp. 15-16.

7.840. The Panel recalls that the 2014 sampling survey samples were sent to Macrogen Inc. (Korea) for sequencing. The Panel also notes that in the memorandum on the results of the 2015-2016 sampling survey, submitted together with Costa Rica's response to the Panel's request for information, reference is made to the shipment of samples to Macrogen Inc. (Korea) for sequencing.¹⁶⁵³ In addition, the information on the 2019 sampling survey refers to the use of sequencing for verification, and that the samples in question were sent for sequencing, although no mention is made of where that sequencing was carried out.¹⁶⁵⁴

7.841. The virology expert Ricardo Flores Pedauyé states that the criterion accepted today for identifying a pathogen is that two independent techniques (for example, molecular hybridization and RT-PCR, in the case of ASBVd) must be applied to the same samples, that the results of both techniques must coincide, and that the assays must include positive and negative controls.¹⁶⁵⁵ Mr Flores Pedauyé notes that the RT-PCR technique is undoubtedly the most sensitive, but also, because of its very nature, the most prone to generate false positives and false negatives.¹⁶⁵⁶

7.842. Schnell et al. (1997), which is in the record, states that RT-PCR is a sensitive detection method, and that using a simplified extraction procedure and ASBVd-specific RT-PCR assay results in a detection estimated to be accurate for 85% of the assays.¹⁶⁵⁷

7.843. In light of the comments by Mr Flores Pedauyé and of Schnell et al. (1997), the Panel notes that using RT-PCR is a reliable detection method, and that the practice generally accepted by the scientific community is to use two independent techniques.

7.844. The Panel notes that Mexico questions the scientific rigour of Costa Rica's diagnostic protocol and provides in Exhibit MEX-221 a technical opinion issued by the National Health, Food Safety and Agri-food Quality Service (SENASICA), which is a comparison between its ASBVd diagnostic protocol and that of Costa Rica. The Panel does not consider it appropriate to evaluate the scientific rigour of Costa Rica's diagnostic protocol on the basis of the comparison with Mexico's protocol. The Panel does not consider that Mexico has demonstrated, on the basis of scientific evidence, and not merely by comparison with its own protocol, that Costa Rica's diagnostic protocol is not legitimately scientific. In light of the foregoing, the Panel will not analyse in detail the work of Costa Rica's laboratories, addressing topics such as the use of other techniques, the handling of kits or protocols or the state of the samples subjected to analysis.

7.845. Consequently, neither does the Panel consider it necessary to analyse in detail the evidence contained in Exhibits CRI-90, CRI-154, and CRI-155, which consist of the following:

- a. Exhibit CRI-90 contains a document issued by the Unit for Planning, Quality Control and Internal Checks, entitled "Procedure for the control of documents and records", which was approved in November 2018 and came into force on 29 November 2018, and the stated objective of which is to set out the requirements for the systematic and standardized preparation of documents of the SFE's quality management system, as well as defining the steps to be taken to ensure the proper identification, storage, protection, retrieval, retention and disposal of quality records.¹⁶⁵⁸ According to its scope, this procedure applies to all documents, prepared by the SFE, of the quality management system based on the INTE/ISO 9001 standard.¹⁶⁵⁹
- b. Exhibit CRI-154 contains a document issued by the Central Pest Diagnostic Laboratory of the SFE, entitled "General work practices in the Molecular Biology Laboratory", which was approved in August 2015 and entered into force on 24 August 2015, and the stated objective of which is to describe key elements of organization of work and general rules to be followed in the Molecular Biology Laboratory to reduce the risks of contamination and work-related

¹⁶⁵³ Costa Rica's response to the Panel's information request of 3 August 2020, p. 157, Annex 12.

¹⁶⁵⁴ Final report on 2019 sampling survey, (Exhibit CRI-21), p. 5; Costa Rica's response to the Panel's information request of 3 August 2020, p. 305, Annex 20.

¹⁶⁵⁵ Ricardo Flores Pedauyé's response to Panel question No. 79 for the experts.

¹⁶⁵⁶ Ricardo Flores Pedauyé's responses to Panel questions Nos. 54 and 89 for the experts.

¹⁶⁵⁷ Schnell et al. (1997), (Exhibit MEX-68), p. 1026.

¹⁶⁵⁸ Document PCCI-GC-PO-01 (2018), (Exhibit CRI-90).

¹⁶⁵⁹ Document PCCI-GC-PO-01 (2018), (Exhibit CRI-90), p. 1.

accidents, and to maintain a harmonious and disciplined environment.¹⁶⁶⁰ According to its scope, this document applies to the day-to-day work of all staff working in the Molecular Biology Section of the Central Pest Diagnostic Laboratory.¹⁶⁶¹

- c. Exhibit CRI-155 contains a document issued by the Pest Diagnostic Laboratory of the SFE, entitled "Resuspension of primers/probes and general control of aliquots", which was approved in February 2016 and came into force on 1 March 2016, and the stated objective of which is to describe the steps to be taken to resuspend (dissolve) and dilute primers and probes, as well as for the traceability of reagent working aliquots in general.¹⁶⁶² According to its scope, this procedure applies to all primers and probes and the preparation of aliquots in general that are used in the Molecular Biology Section of the Pest Diagnostic Laboratory.¹⁶⁶³

7.846. With regard to the traceability of samples and the presentation of results, Mexico states that it is unclear about the process for tracing samples from the field to the laboratory and the time taken to carry out the assays, that the conditions in which the plant tissue was transported and stored are not specified, and that, while Exhibits MEX-64 and MEX-65 indicate how the material should be treated, there is no evidence that the samples were actually treated that way.¹⁶⁶⁴ Mexico is of the opinion that Costa Rica has failed to submit specific exhibits that allow samples to be traced in the case of non-specific amplifications, which is relevant considering that the presence of dimeric forms of ASBVd have been reported in the scientific literature.¹⁶⁶⁵ Costa Rica, for its part, asserts that the details of instances of non-specific amplifications are properly documented in the laboratory records, although they do not appear in the final report, as they are reported as negative for ASBVd, so the anomaly detected and resolved during the analysis is not reflected.¹⁶⁶⁶

7.847. The Panel analysed in detail the issue of the traceability of samples and the presentation of results in paragraphs 7.752 to 7.792 above.

7.848. With respect to the specific results of the diagnostic tests, the Panel recalls that 16 samples were reported as positive for ASBVd and five were suspect in the first sampling survey in 2014. Costa Rica states that, following a shipment from the Molecular Biology Laboratory of the UCR to Korea for the samples to be sequenced, those samples proved to be negative for ASBVd.¹⁶⁶⁷

7.849. The expert Pablo Cortese considers that, in these situations, extreme rigour must be exercised in the treatment of potentially positive samples and the most sensitive techniques must be used to determine whether they were indeed false positives, and that samples should be taken again from the trees and their neighbours, and the sites where those instances were detected should be monitored regularly.¹⁶⁶⁸ The expert Fernando Pliego Alfaro notes that if a positive result is obtained using RT-PCR, it should be confirmed via other molecular techniques such as hybridization or sequencing.¹⁶⁶⁹ The expert Ricardo Flores Pedauy  is of the view that it would have been useful to map the trees and to analyse them again regularly.¹⁶⁷⁰

7.850. In accordance with the statements of Pablo Cortese and Ricardo Flores Pedauy  on false positives, the Panel considers that samples should be taken again from the trees that provided samples with initially positive or suspect results and their neighbours, and that those trees should be analysed regularly. With the evidence in the record, it is not possible to confirm that samples were taken again from those trees, or if the trees were assayed regularly. These actions would increase the scientific soundness of a determination of absence of ASBVd.

¹⁶⁶⁰ Document LAB-LDP-BM-PO-02 (2015), (Exhibit CRI-154).

¹⁶⁶¹ Document LAB-LDP-BM-PO-02 (2015), (Exhibit CRI-154), p. 1.

¹⁶⁶² Document LAB-LDP-BM-PO-07 (2016), (Exhibit CRI-155).

¹⁶⁶³ Document LAB-LDP-BM-PO-07 (2016), (Exhibit CRI-155), p. 1.

¹⁶⁶⁴ Mexico's comments on Costa Rica's response to Panel question No. 157, para. 3.

¹⁶⁶⁵ Mexico's comments on Costa Rica's response to Panel question No. 148, para. 1.

¹⁶⁶⁶ Costa Rica's response to Panel question No. 148, para. 133.

¹⁶⁶⁷ Costa Rica's first written submission, paras. 3.21 and 5.208 (citing

Memorandum CIBCM-PCDV-021-2015 (2015), (Exhibit MEX-134)).

¹⁶⁶⁸ Pablo Cortese's response to Panel question No. 85 for the experts.

¹⁶⁶⁹ Fernando Pliego Alfaro's response to Panel question No. 85 for the experts.

¹⁶⁷⁰ Ricardo Flores Pedauy 's response to Panel question No. 86 for the experts.

7.851. As noted in section 7.3 above, the false positives arouse certain doubts. The Panel recalls that, on the basis of the documents pertaining to the false positives, Ricardo Flores Pedauy  states that there are marked discrepancies between the results of the two techniques used, which gave rise to doubts. Mr Flores Pedauy  said he was surprised by this marked discrepancy, which was not consistent with his own experience of this type of analysis.¹⁶⁷¹ However, the Panel does not consider that the evidence in the record is sufficient to conclude that Costa Rica's initially positive or suspect results from the first sampling survey in 2014 were not false positives.

7.852. The three other sampling surveys carried out since 2014 to date have not indicated the presence of any other false positives, although Costa Rica notes that the sampling surveys of 2015-2016 and 2019 did yield anomalous results (non-specific amplifications).¹⁶⁷² With regard to the samples that, according to Costa Rica, produced non-specific amplifications, the Panel notes that the results submitted by Costa Rica, together with its response to the Panel's request for information, have pointed to samples with inconclusive results.

7.853. The results of the 2015-2016 sampling survey indicate that 38 samples with unexpected results were sent to Macrogen Inc. (Korea) for sequencing.¹⁶⁷³

7.854. According to the table of results from the 2019 sampling survey, the results of 67 samples were verified by repeating the real-time RT-PCR, using a traditional RT-PCR with Schnell *et al.* primers, or using sequencing, including assays for which the RNA extraction was repeated.¹⁶⁷⁴ It indicates that, for 3 of these 67 assays, the results were verified both through traditional RT-PCR with the primers designed by Schnell *et al.* and through sequencing.¹⁶⁷⁵ The verification of these 2019 sampling survey results is also mentioned in the 2019 sampling survey final report.¹⁶⁷⁶ That document states that in all instances where some type of verification was carried out, the result was confirmed as negative for ASBVd. However, for 15 samples marked in the table as samples that were also analysed by traditional RT-PCR (and three of which were sent for sequencing), it recommends continuing regular surveillance and sampling to corroborate the phytosanitary status and rule out the presence of ASBVd, and even repeating the assays in a second laboratory to confirm those negative results.¹⁶⁷⁷

7.855. The Panel notes that the samples that produced non-specific amplifications are included in Annex 9. However, the Panel also notes that it is not possible, from the evidence in the record, to confirm that the 2019 recommendation has been followed to date. That recommendation is the same as that of the experts with regard to instances of false positives, namely, to continue regular surveillance and sampling of cases with anomalous results from the 2015-2016 and 2019 sampling surveys. As mentioned above, these actions would increase the scientific soundness of a determination of absence of ASBVd.

7.856. On the basis of all the foregoing, the Panel concludes that: (i) it cannot rule on the availability of the ASBVd diagnostic protocols of the laboratories of the CIBCM of the UCR, Agdia Inc. (Indiana, United States) and Macrogen Inc. (Korea), which tested the samples in 2014 and 2015-2016; the Pest Diagnostic Laboratory of the SFE has a diagnostic protocol that has been in force since 2017; and the methodology applied is presented as a recount, together with the presentation of the results of the 2015-2016 sampling survey, but it cannot confirm that a protocol was in force in 2015-2016 in the Pest Diagnostic Laboratory of the SFE; (ii) Costa Rica's false positive or suspect results from the first sampling survey in 2014 arouse certain doubts, but the evidence in the record is not sufficient to conclude that the initially positive or suspect results were not false positives; (iii) it is not possible to confirm with the evidence in the record that the trees that led to false positives or suspect results were sampled again, or if they were tested regularly, which would increase the scientific soundness of a determination of absence of ASBVd; and (iv) although the samples that produced non-specific amplifications are given in the results of the respective surveys and in Annex 9, it is not possible to confirm from the evidence in the record that, to date, the 2019 recommendation to continue regular surveillance and sampling of cases with anomalous results in

¹⁶⁷¹ Ricardo Flores Pedauy 's response to additional Panel question No. 1 for Ricardo Flores Pedauy .

¹⁶⁷² Costa Rica's response to Panel question No. 146, para. 126.

¹⁶⁷³ Costa Rica's response to the Panel's information request of 3 August 2020, pp. 157-158, Annex 12.

¹⁶⁷⁴ Costa Rica's response to the Panel's information request of 3 August 2020, pp. 292-305, Annex 20.

¹⁶⁷⁵ See Nos. 252, 264 and 265. (Costa Rica's response to the Panel's information request of 3 August 2020, pp. 292-305, Annex 20).

¹⁶⁷⁶ Final report on 2019 sampling survey, (Exhibit CRI-21), p. 5.

¹⁶⁷⁷ Final report on 2019 sampling survey, (Exhibit CRI-21), p. 5.

the 2015-2016 and 2019 sampling surveys has been followed, which would increase the scientific soundness of a determination of absence of ASBVd.

7.4.5.1.3 Conclusion on the determination of freedom from ASBVd in Costa Rica

7.857. In its analysis of the determination of freedom from ASBVd in Costa Rica, the Panel found the following flaws that affect the reliability of the determination of freedom from ASBVd in Costa Rica, and hence its scientific legitimacy:

- a. The information gathered by Costa Rica through bibliographical sources is not sufficient for Costa Rica to substantiate the absence of ASBVd in its territory. Costa Rica's assertions in its response to the Panel's information request of 3 August 2020 on its other general surveillance activities are also insufficient for Costa Rica to substantiate the absence of ASBVd in its territory. Therefore, the general surveillance activities carried out by Costa Rica are not sufficient to enable Costa Rica to substantiate the determination that its territory is free of ASBVd.
- b. There is a lack of specific information and documentation on the sampling survey design and the monitoring plan, especially for the first two sampling surveys carried out prior to Reports ARP-002-2017 and ARP-006-2016.
- c. The sampling surveys' coverage centred on the main areas of production fails to properly assess the risk of other areas where there is a probability of the disease being detected. That is to say, Costa Rica's sampling surveys, which underpin the determination that its entire territory is free of ASBVd, are not sufficiently representative considering the risk.
- d. Although Costa Rica's formula is scientifically valid, Costa Rica uses data on the planted area that differ from those reported officially. As a result, for the sampling surveys conducted after Reports ARP-002-2017 and ARP-006-2016, the planted area used for the calculations resulted in a lower number of samples.
- e. There is no evidence that a protocol with a complete and specific methodology for ASBVd sampling existed that was followed in all the sampling surveys conducted to determine the status of ASBVd in Costa Rica.
- f. Costa Rica has failed to demonstrate that it has conducted the sampling of wild and backyard trees that it claims to have conducted, and does not have a methodology to be applied for the sampling of wild and backyard trees. This is particularly relevant given the concerns expressed by Costa Rica about the diversion from intended use and spontaneous germination. This failure to include and systematize the sampling of wild and backyard trees within the ASBVd surveillance system in Costa Rica constitutes a sampling error by Costa Rica that affects the representativeness of the samples.
- g. The Panel cannot confirm from the information in the record that, with regard to ASBVd, Costa Rica carries out the regular surveillance in nurseries that it claims to carry out. The lack of surveillance in nurseries would be another sampling error by Costa Rica that affects the representativeness of the samples.
- h. The Panel cannot confirm with the information in the record that, with respect to ASBVd, Costa Rica carries out surveillance at waste disposal sites. Considering Costa Rica's concerns regarding spontaneous germination, the lack of surveillance at waste disposal sites would be another sampling error by Costa Rica that affects the representativeness of the samples.
- i. Although the presentation of results and the traceability of samples have been clarified over the course of the proceedings, complete traceability of the samples is lacking.
- j. It is not possible to confirm with the evidence in the record that the trees that led to false positives or suspect results in 2014 and anomalous results in 2015-2016 and 2019 were sampled again, or if they were tested regularly.

7.858. The Panel acknowledges the efforts that Costa Rica made between 2014 and 2019 to carry out the sampling and diagnostic tests in order to determine the absence of ASBVd in its territory. Notwithstanding the foregoing, the Panel considers that a specific surveillance system for a particular pest in a particular crop must bring together the necessary elements that would provide it with the requisite systematicity and sensitivity so that its results and conclusions are reliable and legitimately scientific.

7.859. Throughout its analysis, the Panel has noted that there is a lack of specific information and documentation on the sampling survey design and the monitoring plan, a lack of a protocol with a complete and specific methodology for ASBVd sampling, a failure to include and systematize the sampling of wild and backyard trees within the ASBVd surveillance system in Costa Rica, among other aspects that affect the methodological nature of the ASBVd-specific surveillance in Costa Rica. The Panel has also noted that sampling surveys' coverage centred on the main areas of production fails to properly assess the risk of other areas where there is a probability of the disease being detected, and that Costa Rica used data on the planted area that differ from those reported officially, among other deficient aspects.

7.860. Owing to the flaws found in the course of the analysis, this Panel is of the view that the specific surveillance system for ASBVd in Costa Rica does not bring together the necessary elements that would provide it with the requisite systematicity and sensitivity so that its results and conclusions are reliable and legitimately scientific.

7.861. In light of the foregoing, the Panel concludes that Costa Rica's assertion in Reports ARP-002-2017 and ARP-006-2016 that it was determined that its territory is free of ASBVd, which forms part of the basis for its risk assessment, lacks sufficient reliability, and, therefore, cannot be considered legitimately scientific. Moreover, the confirmation of the determination that ASBVd is absent in Costa Rica on the basis of sampling surveys conducted subsequent to Reports ARP-002-2017 and ARP-006-2016 (the 2017-2018 and 2019 surveys) also lacks sufficient reliability to be considered legitimately scientific.

7.4.5.2 Whether the pest or disease, as well as the associated potential biological and economic consequences, were identified

7.862. **Mexico** submits that Costa Rica's PRAs do not clearly define the identity of ASBVd and the disease it causes since they refer to sunblotch disease and ASBVd interchangeably, and they do not clearly distinguish the nature, characteristics, effects, symptoms and risks of each of the three variants of ASBVd.¹⁶⁷⁸ In Mexico's view, this omission meant that the PRAs did not specifically assess the probability of entry, establishment and spread, and the associated risk with respect to each of the variants, or with respect to the disease.¹⁶⁷⁹ As part of its arguments under Article 5.2 of the SPS Agreement on other relevant factors that, in Mexico's view, Costa Rica had failed to take into account in its risk assessment, Mexico reiterates that Costa Rica failed to distinguish between ASBVd and sunblotch disease.¹⁶⁸⁰

7.863. **Costa Rica** claims that Mexico has failed to demonstrate that the PRAs have not identified pests whose entry, establishment or spread a Member wants to prevent within its territory, as well as the associated potential biological and economic consequences.¹⁶⁸¹

7.864. Costa Rica submits that the risk assessment began by identifying the PRA area (Costa Rica), the pest (ASBVd) and the pathways (fresh avocado fruit for consumption and plants for planting). Costa Rica states that there is no confusion in the PRAs since the pest under analysis is ASBVd, that the titles of the PRAs are unequivocal in that regard, and that they expressly state that ASBVd is a regulated pest. Costa Rica adds that the viroid (ASBVd) and the disease it causes (sunblotch) are distinct concepts, and that the distinction between them in the PRAs is clear from the context.¹⁶⁸² Costa Rica also submits that Mexico does not explain where the obligation to exhaustively identify

¹⁶⁷⁸ Mexico's first written submission, paras. 261-262.

¹⁶⁷⁹ Mexico's first written submission, para. 263.

¹⁶⁸⁰ Mexico's first written submission, para. 477 (referring to Mexico's first written submission, paras. 259-263).

¹⁶⁸¹ Costa Rica's first written submission, para. 5.91.

¹⁶⁸² Costa Rica's first written submission, para. 5.81.

the variants of a pest, beyond identifying the pest itself, arises, and that, in any event, the PRAs do record the existence of variants of ASBVd and their different effects.¹⁶⁸³

7.865. The **Panel** reiterates that, in accordance with the first step suggested by the Appellate Body, a risk assessment of the kind relevant to this dispute must *identify* the pest or disease whose entry, establishment or spread a Member wants to prevent within its territory, as well as the potential biological and economic consequences associated with the entry, establishment or spread of that pest or disease.¹⁶⁸⁴

7.866. The Panel notes that Report ARP-002-2017 on the importation of fresh avocado fruit for consumption from Mexico identifies the pests on which the risk assessment was conducted in the list of potential quarantine pests associated with fresh avocado fruit from Mexico, under the section on the identification of a PRA area.¹⁶⁸⁵ The list includes Avocado sunblotch viroid (ASBVd). Report ARP-002-2017 goes on to describe ASBVd and even mentions its variants.¹⁶⁸⁶ In the conclusion of initiation section, Report ARP-002-2017 further states that the quarantine pests identified¹⁶⁸⁷ and associated with the identified pathway (fresh avocado fruit) are *Avocado sunblotch viroid* and the insects *Maconellicoccus hirsutus*, *Heilipus lauri* and *Conotrachelus aguacatae*.¹⁶⁸⁸ The risk analysis in question is entitled risk analysis of *Avocado sunblotch viroid*, (fresh fruit from Mexico).¹⁶⁸⁹

7.867. For its part, ARP-006-2016 is entitled "Pest Risk Analysis for *Avocado sunblotch viroid* (ASBVd) for fresh avocado fruit (*Persea americana* Mill.) for consumption and avocado plants (*Persea americana* Mill.) for planting". In the Stage 1. Initiation section, ARP-006-2016 states that, being a PRA, ASBVd was identified at this stage as the pest to be analysed.¹⁶⁹⁰

7.868. The **Panel** further notes that, as the experts explain, the viroid (ASBVd) is the pathogenic agent or causal agent of the disease (sunblotch), and the disease is the result of the plant-pathogen interaction.¹⁶⁹¹ In their datasheet, Reports ARP-002-2017 and ARP-006-2016 both state that sunblotch is caused by the ASBVd viroid.¹⁶⁹²

7.869. On this basis, the Panel considers the explanation in Reports ARP-002-2017 and ARP-006-2016 to be sufficient to identify the pest or disease whose entry, establishment or spread Costa Rica wants to prevent within its territory.

7.870. **Mexico** also asserts that the PRAs merely mention the biological and economic consequences of introducing ASBVd into Costa Rica, without adducing any evidence to support the claim, and without addressing the potential biological and economic consequences of the establishment and spread.¹⁶⁹³

7.871. Mexico submits that Costa Rica listed potential biological and economic consequences, but not all of them are pertinent and relevant. In Mexico's view, Costa Rica should have referred only to the potential biological and economic consequences of the entry, establishment and spread of ASBVd and its disease, which meant setting out the reasons why Costa Rica considered such biological and economic consequences to be possible.¹⁶⁹⁴ Mexico asserts that Article 5.1 appears to require a list of only the biological and economic consequences for which there is real and objectively justifiable

¹⁶⁸³ Costa Rica's first written submission, paras. 5.82 and 5.83.

¹⁶⁸⁴ Appellate Body Report, *Australia – Salmon*, para. 121. (emphasis original) See also Appellate Body Reports, *Japan – Agricultural Products II*, para. 112; and *Japan – Apples*, para. 196.

¹⁶⁸⁵ ARP-002-2017, (Exhibit MEX-84), pp. 10-11.

¹⁶⁸⁶ ARP-002-2017, (Exhibit MEX-84), pp. 12-13.

¹⁶⁸⁷ The Panel notes that, in the initiation stage of Report ARP-002-2017, Costa Rica refers to ASBVd as a quarantine pest. However, ISPM No. 11, which, as the Panel explains, is a relevant risk assessment technique for this dispute, states that the aim of the initiation stage is to identify the pests and pathways which are of quarantine concern or a pest that has the potential to be a quarantine pest. (ISPM No. 11, (Exhibit MEX-77), pp. 6 and 9).

¹⁶⁸⁸ ARP-002-2017, (Exhibit MEX-84), p. 15.

¹⁶⁸⁹ ARP-002-2017, (Exhibit MEX-84), p. 34.

¹⁶⁹⁰ ARP-006-2016, (Exhibit MEX-85), p. 14.

¹⁶⁹¹ Responses of Pablo Cortese and Ricardo Flores Pedauy  to Panel question No. 29 for the experts.

¹⁶⁹² ARP-002-2017, (Exhibit MEX-84), p. 62; ARP-006-2016, (Exhibit MEX-85), p. 46.

¹⁶⁹³ Mexico's first written submission, paras. 264-266.

¹⁶⁹⁴ Mexico's first written submission, para. 268.

evidence of potential occurrence, rather than all hypothetically possible consequences.¹⁶⁹⁵ Mexico adds that Costa Rica failed to identify in a sufficiently clear and detailed manner the potential biological and economic consequences of the entry, establishment and spread of ASBVd and its disease.¹⁶⁹⁶

7.872. **Costa Rica** submits that, despite its alleged failure to identify the biological and economic consequences, Mexico found them in the PRAs and repeated them verbatim.¹⁶⁹⁷ Costa Rica adds that all the consequences listed in the PRAs are likely consequences associated with the entry, establishment and spread of ASBVd, as described in the scientific literature.¹⁶⁹⁸ In Costa Rica's view, Mexico has not identified any biological or economic consequence mentioned in Costa Rica's PRAs that cannot be attributed to ASBVd if it were to enter Costa Rica.¹⁶⁹⁹

7.873. Costa Rica adds that ASBVd is considered a quarantine pest, given that it is of potential economic importance and is absent from Costa Rican territory.¹⁷⁰⁰

7.874. The **Panel** notes that Reports ARP-002-2017 and ARP-006-2016 both contain a section on the evaluation of potential economic consequences, under which is a list of what were considered potential economic and environmental consequences.¹⁷⁰¹ In fact, Mexico itself acknowledges that Costa Rica listed the potential biological and economic consequences.¹⁷⁰²

7.875. The Panel considers the statement made by Costa Rica in its Reports ARP-002-2017 and ARP-006-2016 sufficient to find, according to the step suggested by the Appellate Body, that the risk assessment *has identified* the potential biological and economic consequences associated with the entry, establishment or spread of ASBVd.

7.876. The Panel will assess below whether, in accordance with the second step suggested by the Appellate Body, Costa Rica has evaluated the associated potential biological and economic consequences identified.

7.4.5.3 Whether the likelihood of pests' or diseases' entry, establishment or spread, as well as the associated potential biological and economic consequences, were evaluated

7.4.5.3.1 Introduction to the section

7.877. The Panel will now discuss whether Costa Rica evaluated the likelihood of entry, establishment or spread of ASBVd, as well as the associated potential biological and economic consequences.

7.878. As explained, the Panel will begin its analysis by addressing the methodology in Manual NR-ARP-PO-01_M-01 that was used in the preparation of the risk assessment contained in Reports ARP-002-2017 and ARP-006-2016.

7.879. Before proceeding to analyse the various factors and elements of each step of the risk assessment contained in Reports ARP-002-2017 and ARP-006-2016, the Panel will address diversion from intended use and spontaneous germination as separate topics, since these are two fundamental premises of Reports ARP-002-2017 and ARP-006-2016.

7.880. The Panel will then examine the various factors and elements of each step of the risk assessment, i.e. the evaluation of the likelihood of entry, the evaluation of the likelihood of establishment, the evaluation of the likelihood of spread, and the evaluation of the associated potential biological and economic consequences.

¹⁶⁹⁵ Mexico's first written submission, paras. 269-270.

¹⁶⁹⁶ Mexico's first written submission, para. 271.

¹⁶⁹⁷ Costa Rica's first written submission, para. 5.84.

¹⁶⁹⁸ Costa Rica's first written submission, para. 5.85.

¹⁶⁹⁹ Costa Rica's first written submission, para. 5.86.

¹⁷⁰⁰ Costa Rica's first written submission, para. 5.87.

¹⁷⁰¹ ARP-002-2017, (Exhibit MEX-84), pp. 40-41; ARP-006-2016, (Exhibit MEX-85), pp. 21-22.

¹⁷⁰² Mexico's first written submission, para. 268.

7.4.5.3.2 The risk assessment methodology in Manual NR-ARP-PO-01_M-01

7.881. Reports ARP-002-2017 and ARP-006-2016 state that the methodology used is based on Manual NR-ARP-PO-01_M-01.¹⁷⁰³ The Panel therefore considers it necessary to begin its analysis by discussing this methodology.

7.882. **Mexico** points out that, although the manual follows a similar structure to that recommended by ISPM Nos. 2 and 11, it omits some relevant sections that had they been considered would have allowed SFE officials to arrive at conclusions that would have benefited international trade in products that are not suspected pathways for the entry, establishment and spread of pests, as fresh avocados for consumption are.¹⁷⁰⁴

7.883. Mexico states in its comments on one of the responses from the expert Robert Griffin that the fact Costa Rica simplifies in its manual how it makes judgements on the evidence, the quality of the evidence, the uncertainty, and the acceptability of risk is an indirect means by which Costa Rica attempts to justify *ex ante* a "simplified" evaluation.¹⁷⁰⁵

7.884. Mexico submits that, by simplifying its manual, Costa Rica attempts to reduce an evaluation that should be based on coherent and objective reasoning to a mere list.¹⁷⁰⁶ In Mexico's view, this is evident in light of the following: (i) the assessor did not analyse elements that the PRA denoted as "uncertainty", even though that instrument attributes critical weight to diversion from intended use; (ii) there is no evidence to suggest that the risk assessor's reasoning is substantiated by the scientific evidence presented in the PRAs; (iii) the phytosanitary measures in dispute are not sufficiently justified in relation to the actual risk associated with the import pathway for fresh Hass avocado fruit for consumption, even by the scientific evidence presented in the PRAs; (iv) the risk assessor's work was curtailed; (v) the possibility of arriving at a coherent and objective conclusion regarding the risks of the likely entry, establishment and spread of ASBVd was eliminated; (vi) courses of action in the event of a risk were not identified; (vii) existing scientific evidence relating to deviation of intended use is ignored; (viii) the simplified procedure did not allow the risk assessor to detect the lack of information regarding diversion from intended use so that specific evidence could have been sought or statistical information gathered that would have enabled the assessor to reach a coherent and objective conclusion; and (ix) cases where the opinion of experts in the field is sought are not considered.¹⁷⁰⁷

7.885. Mexico points out that, by referring to a simplified manual in the preparation of its PRA, Costa Rica eliminated the possibility for the risk assessor to carry out a coherent and objective evaluation.¹⁷⁰⁸ In Mexico's view, the possibility of reaching a coherent and objective conclusion regarding the risks arising from the likely entry, establishment and spread of ASBVd in Costa Rican territory via fresh avocados for consumption is eliminated, and, since no such evaluation exists, the implementation of restrictive and unnecessary measures such as those at issue is completely arbitrary.¹⁷⁰⁹

7.886. In Mexico's opinion, the simplification of the manual has been shown to have significant consequences.¹⁷¹⁰ Mexico states that, as the expert Robert Griffin pointed out, this simplification eliminated the possibility for the risk analysts to carry out a coherent and objective evaluation and, moreover, that the reduction to a mere checklist removes the flexibility for the analyst to reflect the epidemiology of this particular organism.¹⁷¹¹ Mexico adds that the PRA is generally lacking and is so generic that it does not contain elements which would allow analysts to resolve specific issues regarding the pest that is the subject of the dispute.¹⁷¹²

¹⁷⁰³ ARP-002-2017, (Exhibit MEX-84), p. 3; ARP-006-2016, (Exhibit MEX-85), p. 3.

¹⁷⁰⁴ Mexico's first written submission, para. 217.

¹⁷⁰⁵ Mexico's specific comments on the experts' responses to Panel question No. 137 for the experts.

¹⁷⁰⁶ Mexico's response to Panel question No. 160, para. 114.

¹⁷⁰⁷ Mexico's response to Panel question No. 160, para. 114.

¹⁷⁰⁸ Mexico's response to Panel question No. 160, para. 115.

¹⁷⁰⁹ Mexico's response to Panel question No. 160, para. 116.

¹⁷¹⁰ Mexico's comments on Costa Rica's response to Panel question No. 161, para. 1.

¹⁷¹¹ Mexico's comments on Costa Rica's response to Panel question No. 161, para. 2 (citing Robert Griffin, transcript of the Panel's meeting with the parties and the experts, day 2, p. 26).

¹⁷¹² Mexico's comments on Costa Rica's response to Panel question No. 161, para. 3 (citing Robert Griffin, transcript of the Panel's meeting with the parties and the experts, day 2, pp. 27 and 36).

7.887. **Costa Rica** submits that the manual, adopted on a voluntary basis, helps improve transparency as to how the SFE analyses pest risks, and ensures that the risk analyses take into account the relevant factors in ISPM No. 11.¹⁷¹³

7.888. Costa Rica states that Mexico has failed to demonstrate that the fact a risk assessment is simplified would be in any way relevant to compliance with Article 5.1 of the SPS Agreement. In Costa Rica's view, it is important for the phytosanitary measure to be based on a risk assessment and for it to be appropriate, taking into account the criteria under Articles 5.2 and 5.3, and Costa Rica's PRA is more than appropriate and provides the basis for the implementation of the measures in question.¹⁷¹⁴

7.889. According to Costa Rica, its manual closely reflects the factors in ISPM No. 11, which does not mention aspects, such as opinions on the evidence or the quality of the evidence, aspects on which Mexico bases its criticism of the "simplification" of the manual. Costa Rica asserts that Mexico argues that Costa Rica's manual should be based on ISPM No. 11, but even when the manual closely reflects the content of ISPM No. 11 and it is not considered relevant to include aspects not in ISPM No. 11, in Mexico's opinion, the manual, and therefore the PRA, suffer from being "simplified".¹⁷¹⁵

7.890. Costa Rica notes that, at the beginning of the dispute, Mexico's main argument was that neither the manual nor the PRA were based on ISPM No. 11, which contains standards and guidelines on how to conduct a PRA, and that Mexico argued that neither Costa Rica's manual nor its PRA took into account the factors and criteria referred to, principally, in ISPM No. 11.¹⁷¹⁶

7.891. Costa Rica contends that, in light of the experts' comments, Mexico seems to have softened its initial position by now claiming that the problem is not so much that the manual and the PRA are not based on ISPM No. 11, but that Costa Rica eliminated the possibility for the risk analyst to carry out a coherent and objective evaluation. Costa Rica notes that Mexico appears to argue that, since Costa Rica's manual and PRA stick too closely to ISPM No. 11, the risk assessor lost the flexibility to carry out an evaluation more specific to the case of ASBVd, even though this would have meant deviating from any given guideline in ISPM No. 11.¹⁷¹⁷

7.892. The **Panel** recalls that the Manual for conducting qualitative pest risk analyses by entry pathway (Manual NR-ARP-PO-01_M-01)¹⁷¹⁸, of 10 May 2016, prepared by the UARP of the SFE, was the instrument used as a guide for preparing Reports ARP-002-2017 and ARP-006-2016.

7.893. As described in detail in the factual aspects section, the manual defines the risk factors to be considered at each stage of the analysis and what ratings the risk assessor should give to each of these factors depending on whether the risk is high, medium, low or negligible (in very specific instances), according to the situation described in the manual itself.

7.894. The Panel sought the experts' advice on the process for preparing Report ARP-002-2017, including on the manual.

7.895. The expert Robert Griffin remarks that the design of Costa Rica's manual describes the elements of the assessment using qualitative criteria to establish a rating system. However, Mr Griffin points out that there are judgements that must be made on the evidence, the quality of the evidence, the uncertainty, and the acceptability of risk, and that Costa Rica attempts to simplify these judgements with criteria used in its manual. He describes the process as mechanical and connected to the criteria that Costa Rica has developed for each element of the assessment in its internal guidelines, and explains that this has the advantage of transparency, consistency, and expediency but causes it to lose some of the value and flexibility of judgement in the analysis, since the process fails to provide flexibility for expert judgements by the analysts or account for situations that may not fit with the guideline criteria.¹⁷¹⁹ Mr Griffin adds that the problem with the approach used by Costa Rica is that the conclusions of the pest risk assessment stage of Report ARP-002-2017

¹⁷¹³ Costa Rica's second written submission, para. 3.26.

¹⁷¹⁴ Costa Rica's response to Panel question No. 160, para. 165.

¹⁷¹⁵ Costa Rica's response to Panel question No. 160, para. 166.

¹⁷¹⁶ Costa Rica's comments on Mexico's response to Panel question No. 160, para. 74.

¹⁷¹⁷ Costa Rica's comments on Mexico's response to Panel question No. 160, para. 75.

¹⁷¹⁸ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104).

¹⁷¹⁹ Robert Griffin's responses to Panel questions Nos. 135 and 137 for the experts.

are the result of a process that occurs in the manual, and it is the sum of subjective values for fixed criteria rather than a process of analysis that is explained in the PRA.¹⁷²⁰

7.896. In light of the foregoing, the Panel considers the use of a fixed format, derived from Manual NR-ARP-PO-01_M-01, to be a flaw in both Report ARP-002-2017 and Report ARP-006-2016. The use of the fixed format established in the manual causes two problems that will be analysed below: (i) it limits the flexibility of judgement in the analysis, which leads to the absence of the risk assessor's reasoning; and (ii) it removes the flexibility to address ASBVd-specific issues, which affects the appropriateness of the risk assessment to the circumstances.

7.4.5.3.2.1 Reasoning of the risk assessor

7.897. The Panel recalls that a panel's role involves assessing "whether the reasoning of the risk assessor is objective and coherent, that is, whether the conclusions find sufficient support in the scientific evidence relied upon".¹⁷²¹

7.898. The Appellate Body has noted that the reasoning employed by the risk assessor plays an important role in revealing whether or not the requisite rational or objective relationship exists between the SPS measures and the risk assessment and the scientific evidence.¹⁷²² In other words, it is through the reasoning of the risk assessor that it should be possible to understand whether the risk assessment is based on the scientific evidence and whether in turn the proposed SPS measures are based on the scientific evidence and on the risk assessment.¹⁷²³

7.899. The expert Robert Griffin confirms the importance of bearing in mind the reasoning of the risk assessor. According to him, a good risk analysis requires judgement on the part of the analyst.¹⁷²⁴ Mr Griffin notes that there is little in Costa Rica's PRA to explain how the evidence is interpreted to impact on ratings and support management decisions, because Costa Rica uses a mechanical process connected to the criteria it has developed for each element of the assessment in its internal guidelines.¹⁷²⁵

7.900. Furthermore, the experts Robert Griffin and Pablo Cortese agree on the importance of the experts' judgement, stating that ISPM No. 11 contains guidelines rather than step-by-step instructions. Mr Griffin points out that it would not be practical to create a standard for risk analysis that will cover every situation; and that the expertise of analysts should be relied upon to understand what is important for the risk in any given situation, and to consider those elements and give them their proper weight and their proper analysis.¹⁷²⁶ Mr Griffin adds that ISPM No. 11 contains the primary concepts and the basic elements of risk analysis, but there is no template or format, or a specific approach for any given commodity or pest.¹⁷²⁷

7.901. The expert Pablo Cortese agrees with Mr Griffin, and points out that the standards are guidelines, and not procedural manuals that explain how to proceed step by step.¹⁷²⁸ Mr Cortese is of the view that a PRA is not merely a question of making a checklist; it requires an in-depth analysis by a skilled person, and that constitutes the expert's judgement.¹⁷²⁹

7.902. The Panel notes that Reports ARP-002-2017 and ARP-006-2016 offer little in the way of explanations to support the risk analyst's conclusions, including those related to the qualitative estimate of probability. This is especially apparent for elements where the justification for the conclusion is the probability criterion in Manual NR-ARP-PO-01_M-01 (i.e. a transcription in the reports of the descriptor from Manual NR-ARP-PO-01_M-01), and for elements for which the manual itself presents as a guide the descriptor corresponding to the probability attributed to this factor

¹⁷²⁰ Robert Griffin's response to Panel question No. 143 for the experts.

¹⁷²¹ Appellate Body Report, *Australia – Apples*, para. 215. See also Appellate Body Reports, *US/Canada – Continued Suspension*, para. 591.

¹⁷²² Appellate Body Report, *Australia – Apples*, para. 225.

¹⁷²³ Appellate Body Report, *Australia – Apples*, para. 227.

¹⁷²⁴ Robert Griffin, transcript of the Panel's meeting with the parties and the experts, day 2, p. 26.

¹⁷²⁵ Robert Griffin's response to Panel question No. 135 for the experts.

¹⁷²⁶ Robert Griffin, transcript of the Panel's meeting with the parties and the experts, day 3, p. 13.

¹⁷²⁷ Robert Griffin, transcript of the Panel's meeting with the parties and the experts, day 3, p. 14.

¹⁷²⁸ Pablo Cortese, transcript of the Panel's meeting with the parties and the experts, day 3, p. 14.

¹⁷²⁹ Pablo Cortese, transcript of the Panel's meeting with the parties and the experts, day 2, p. 49.

without any further explanation (for example, "high" probability for high risk). The lack of reasoning means that certain hypotheses affecting the calculation of probabilities are taken as fact.

7.903. The lack of reasoning by the risk assessor with respect to the use of scientific evidence also causes problems of clarity and credibility regarding the manner in which the scientific sources presented have been used to make certain assertions and reach conclusions on the probability values, casting doubt on the assessment's objectivity and coherence.

7.904. Therefore, the lack of reasoning by the risk assessor owing to the use of the fixed format established by Manual NR-ARP-PO-01_M-01 limits the scope and quality of the analysis. It cannot be determined how the scientific evidence has been used nor how the conclusions on risk have been reached, if the risk assessor does not set out his or her reasons for using such evidence and drawing such conclusions. As a result, no determination can be made as to whether the risk assessor's reasoning is objective and coherent if this reasoning is not reflected in the risk assessment.

7.4.5.3.2 Flexibility to address ASBVd-specific issues

7.905. The risk analysis expert, Robert Griffin, further notes that reducing the risk analysis to a checklist removes the flexibility for the analyst to reflect the epidemiology of this particular organism, which is unique and has a significant effect on the risk, and that the consequence of this is that it reduces the defensibility of the risk analysis and makes it more vulnerable to challenge.¹⁷³⁰ Mr Griffin points out that Costa Rica uses a fixed format for a generic PRA that is likely to be very appropriate for many commodities, but that lacks provision for changes that would adapt it to the needs of a particular pest, such as ASBVd.¹⁷³¹

7.906. Mr Griffin explains that Costa Rica has a generic assessment that uses a generic process which substantially addresses the issues and provides substantial evidence to support the conclusions. However, he points out that the epidemiology of ASBVd is unusual and there is no provision in the process to allow the PRA to be adjusted in order to account adequately for this. Mr Griffin considers this to be a serious issue, but that the PRA generally is probably effective for most commodities and pests, except that it does not enable the analyst to address special issues.¹⁷³²

7.907. Mr Griffin is concerned about the flexibility with which the manual would be applied and the freedom analysts would have to adjust and to make their analyses fit the organisms and the situations that they are facing.¹⁷³³

7.908. Considering Mr Griffin's opinion regarding the lack of flexibility, the Panel notes that, although a fixed or generic format could work for certain pests and commodities, that format does not allow the risk assessor to address issues specifically related to the pest in question, in this case ASBVd.

7.909. The Panel considers that the fixed format might be inadequate to conduct a proper assessment of the risk concerned, and could lead to errors in the evaluation of the factors for analysis and calculations of the probability of entry, establishment and spread of ASBVd. As will be explained below, the methodology of Manual NR-ARP-PO-01_M-01 does not facilitate assessment of the pest's specific characteristics, such as rate of reproduction and spread specific to ASBVd, which were not given sufficient consideration in Reports ARP-002-2017 and ARP-006-2016, despite their impact on probability.

7.4.5.3.3 Diversion from intended use and spontaneous germination in Reports ARP-002-2017 and ARP-006-2016

7.4.5.3.3.1 Introduction to the section

7.910. Costa Rica refers to the following concerns regarding fresh avocado fruit for consumption: (i) the potential for a discarded avocado seed to germinate naturally in Costa Rican territory,

¹⁷³⁰ Robert Griffin, transcript of the Panel's meeting with the parties and the experts, day 2, p. 26.

¹⁷³¹ Robert Griffin, transcript of the Panel's meeting with the parties and the experts, day 2, p. 24.

¹⁷³² Robert Griffin, transcript of the Panel's meeting with the parties and the experts, day 2, p. 36.

¹⁷³³ Robert Griffin, transcript of the Panel's meeting with the parties and the experts, day 2, p. 51.

maintaining that it is a seed that arrives perfectly viable for germination and in a territory with ideal climatic conditions for avocado trees (referred to by the parties as spontaneous germination and sometimes as unintended diversion from intended use); and (ii) the cultural practice in Costa Rica of planting the seeds of consumed avocado fruits, which, according to Costa Rica, tends towards the use of the Hass variety as rootstock (referred to by the parties as diversion of use or diversion from intended use).¹⁷³⁴

7.911. The issues of diversion from intended use and of spontaneous germination have been discussed extensively with the parties and experts throughout this dispute. As will be detailed in sections 7.4.5.3.3.2 and 7.4.5.3.3.7 below, these are cross-cutting issues that permeate the assessment of the probability of entry, establishment and spread of ASBVd in Reports ARP-002-2017 and ARP-006-2016. Given their significance in this dispute, the Panel deems it appropriate to address diversion from intended use and spontaneous germination in a separate section, before analysing the various elements and factors of the assessment of the probability of entry, establishment and spread of ASBVd in Reports ARP-002-2017 and ARP-006-2016.

7.912. The Panel will first analyse the consideration given in Reports ARP-002-2017 and ARP-006-2016 to diversion from intended use, referring in that regard to the intentional use of seeds from fresh avocados for consumption for propagation purposes, and will then turn to the consideration in the reports on spontaneous germination, referring in that regard to natural germination without human assistance of discarded seeds of fresh avocados for consumption. In this connection, the Panel will address the significance of diversion from intended use and of spontaneous germination in Reports ARP-002-2017 and ARP-006-2016, the importance of their documentation, the scientific evidence on these issues referred to in Reports ARP-002-2017 and ARP-006-2016, as well as the scientific evidence presented in that regard during the proceedings but not included in these reports.

7.4.5.3.3.2 The significance of diversion from intended use in Reports ARP-002-2017 and ARP-006-2016

7.913. **Mexico** submits that fresh avocados imported for consumption are not, in themselves, the pathway for the entry, establishment or spread of the viroid given that, in any event, it would be a subsequent occurrence, this is, the diversion from intended use or the discarding of the seed, a factor that was not considered by Costa Rica in its PRAs.¹⁷³⁵

7.914. Mexico asserts that Costa Rica deals with diversion from intended use formally in two sections of its PRA concerning the probability of transfer to a suitable host and the probability of spread after establishment, even when this issue permeates its PRA, and without explaining fundamental issues such as the existence of such diversion from intended use, how it occurs, whether it is a practice, and for how long or the extent to which it has been carried out.¹⁷³⁶

7.915. Mexico claims that the risk assessment makes the unsubstantiated assumption that all avocados imported from Mexico contain the viroid in its symptomless form, and that all avocados can be subject to diversion from intended use.¹⁷³⁷ Mexico asserts that there are no quantitative or qualitative data in the PRA on the probability of entry, establishment and spread of ASBVd arising from the diversion from intended use of imported avocados from which the seed is extracted for planting and propagation purposes, or seeds that germinate spontaneously in natural areas, in backyards, in gardens, on farms, at waste disposal centres, in rubbish dumps and at landfill sites.¹⁷³⁸

7.916. Mexico also submits that the PRAs do not provide any analysis regarding the calculation of the probability of entry, establishment or spread of ASBVd through diversion from intended use.¹⁷³⁹ Mexico confirms that diversion from intended use is mentioned in the probability table in Report ARP-002-2017 as "high 3", but this result is not based on scientific evidence, because the

¹⁷³⁴ Costa Rica's first written submission, paras. 5.120 and 5.122; response to Panel question No. 169, para. 199.

¹⁷³⁵ Mexico's second written submission, para. 124.

¹⁷³⁶ Mexico's first written submission, para. 231.

¹⁷³⁷ Mexico's first written submission, para. 232; second written submission, para. 124.

¹⁷³⁸ Mexico's response to Panel question No. 161, para. 119.

¹⁷³⁹ Mexico's response to Panel question No. 163, para. 135.

same PRA notes that there are no statistics indicating the quantity of imported fruits from which the seed is extracted for propagation purposes.¹⁷⁴⁰

7.917. Mexico adds that, as diversion from intended use and spontaneous germination play a dominant role in the risk analysis, any errors and omissions with regard to these elements affect the reliability of the risk analysis and the probability calculation.¹⁷⁴¹

7.918. Mexico submits that, although Costa Rica's PRAs supposedly focus on the pathway of imported fresh avocados for consumption, in fact, greater emphasis was placed on the risk arising from diversion from intended use, but they do not contain specific evidence on the problem that Costa Rica is seeking to address in its PRAs. Mexico asserts that Costa Rica made no effort whatsoever to calculate this uncertainty on the pretext of it being a difficult practice to document; and that, by qualifying this factor as an issue of uncertainty, it simply did not provide any evidence whatsoever on diversion from intended use.¹⁷⁴²

7.919. As part of its claims under Article 5.2 of the SPS Agreement on other relevant factors that, in Mexico's view, Costa Rica failed to take into account in its risk assessment, Mexico submits that Costa Rica should have taken into account the particular circumstances of the risk it is seeking to regulate, but the probability of which it fails to examine, in other words, the risk arising from the diversion from intended use of seeds from avocados imported for consumption. Mexico reiterates that the PRA appears to assume that ASBVd in its symptomless form is present in all imported avocados, that all their seeds, once the avocados are consumed, will be viable and subject to diversion from intended use, and that, through unassisted germination, ASBVd will be established and spread throughout Costa Rican territory. Mexico contends, however, that this has not occurred in more than 20 years of trade, and the particular circumstances of the case require a determination of how probable it is that imported avocados are symptomless, on the one hand, and, on the other, that the seeds of these avocados remain viable and are subject to diversion from intended use, whether intentional or unintentional. Mexico adds that, by failing to calculate the probability associated with these essential elements, the risk analysis is vitiated, because it forms the basis for SPS measures that seek to address the risk of contagion arising from diversion from intended use without examining the probability of that.¹⁷⁴³

7.920. **Costa Rica** states that it took into account diversion from intended use as a factor that increases the probability of establishment of ASBVd.¹⁷⁴⁴

7.921. Costa Rica points out that diversion from intended use played a major and decisive role in the evaluation of the elements of the analysis and in the calculation of the probability of entry, establishment and spread of ASBVd, and that the risk analyst unequivocally recorded the importance attached to diversion from intended use on a number of occasions.¹⁷⁴⁵ Costa Rica adds that diversion from intended use was the key factor that led to the weighting of a medium (2) probability for the

¹⁷⁴⁰ Mexico's response to Panel question No. 163, para. 137.

¹⁷⁴¹ Mexico's comments on Costa Rica's response to Panel question No. 163, para. 3.

¹⁷⁴² Mexico's response to Panel question No. 164, para. 144.

¹⁷⁴³ Mexico's first written submission, paras. 473-474.

¹⁷⁴⁴ Costa Rica's second written submission, para. 3.39.

¹⁷⁴⁵ Costa Rica's response to Panel question No. 163, para. 180. Costa Rica points out that the risk analyst observed, for example, that: (i) the practice of using Hass rootstock for planting "increases the potential for the use of seeds from avocado fruit imported for consumption" (p. 6 of the PRA); (ii) "the seeds of consumed fruit (CONSULSANTOS 2017), waste from wholesale markets and avocado processors can be a ready source of avocado seed of unknown properties. Bearing this in mind, this situation must be assessed in this PRA, in order to manage the risk appropriately ... and to mitigate the risk to an [appropriate] level" (p. 6 of the PRA); (iii) "persons who consume good quality avocado and have space to cultivate this fruit are likely to plant the seed (CONSULSANTOS 2017)" (p. 7 of the PRA); (iv) "there are currently records of expert testimony (CONSULSANTOS 2017) that demonstrate diversion from intended use ..." (p. 8 of the PRA); (v) "taking into account that the seed and skin are not consumed, the potential of such waste to introduce and subsequently spread quarantine pests was assessed. In addition, diversion from intended use was considered because, given the quantity of fruit that is imported, the NPPO would be hard-pressed to be able to track it after importation (IRSS 2017) and the viable seed borne therein (Spalding et al. 1976)" (p. 8 of the PRA). (Costa Rica's response to Panel question No. 163, para. 181).

probability of establishment with respect to cultivation practices and control measures in Costa Rica.¹⁷⁴⁶

7.922. The **Panel** observes that Reports ARP-002-2017 and ARP-006-2016 state that Costa Rica has regulations governing commercial nurseries, including avocado nurseries, which establish a nursery registry and set out the procedures to follow¹⁷⁴⁷, but that not all producers buy their propagating material (seeds and cuttings) from nurseries covered by the regulations; instead, most of them produce their own seedlings or scions on site.¹⁷⁴⁸

7.923. According to Reports ARP-002-2017 and ARP-006-2016, a range of different propagation techniques are used, for example direct seeding (the plants are subsequently grafted), germinating the seed in containers (then transplanting the seedlings to the field and grafting them) and sowing seeds in bags (grafted in the nursery and then transplanted).¹⁷⁴⁹ Reports ARP-002-2017 and ARP-006-2016 also state that, in the cantons of León Cortés, Tarrazú and Dota, the avocado seeds of fruits that fall on the ground are left to germinate in the field by themselves. When producers find them, they tend the plants and then graft them to obtain a new, low-cost plant.¹⁷⁵⁰

7.924. Reports ARP-002-2017 and ARP-006-2016 mention that the use of plants derived from stock-scion combinations is a practice recognized by the fruit industry¹⁷⁵¹; and that, in the case of Costa Rica, one of the cultivars used successfully as a rootstock in the main avocado-producing area is the Hass variety.¹⁷⁵² Reports ARP-002-2017 and ARP-006-2016 add that the practice of using Hass rootstock for planting avocados increases the possibility that seeds from avocado fruit imported for consumption will be used.¹⁷⁵³

7.925. Report ARP-002-2017 states that the cultural practices referred to create a situation in which the producer may use seeds from outside his or her farm; and that the seeds of fruit consumed¹⁷⁵⁴, and waste from wholesale markets and avocado processors can be a ready source of avocado seeds of unknown quality.¹⁷⁵⁵ Report ARP-006-2016 also states that the cultural practices referred to (use of Hass rootstock and the sale of all the fruits) create a situation in which the producer is forced to purchase seeds from outside his or her farm¹⁷⁵⁶; and that the seeds of fruits consumed¹⁷⁵⁷, and waste from wholesale markets and avocado processors can be a ready source of avocado seed, as well as illicit nurseries¹⁷⁵⁸ of unknown quality.¹⁷⁵⁹

7.926. Reports ARP-002-2017 and ARP-006-2016 state that this situation should be assessed in the PRA, to be able to manage the risk appropriately, given that, according to the reports, the risk is clear in the 2016 paper "Diversion from intended use"¹⁷⁶⁰, and to mitigate the risk to a level in line with Costa Rica's appropriate level of protection.¹⁷⁶¹ Reports ARP-002-2017 and ARP-006-2016 add that people who consume good-quality avocados and have space to cultivate this fruit are likely to

¹⁷⁴⁶ Costa Rica's response to Panel question No. 163, para. 182; comments on Mexico's response to Panel question No. 162, para. 87; comments on Mexico's response to Panel question No. 163, para. 88.

¹⁷⁴⁷ ARP-002-2017, (Exhibit MEX-84), p. 5 (citing Nursery regulations (2007), (Exhibit CRI-30)); ARP-006-2016, (Exhibit MEX-85), p. 5 (citing Nursery regulations (2007), (Exhibit CRI-30)).

¹⁷⁴⁸ ARP-002-2017, (Exhibit MEX-84), p. 5 (citing CONSULSANTOS (2010), (Exhibit MEX-119)); ARP-006-2016, (Exhibit MEX-85), p. 5 (citing CONSULSANTOS (2010), (Exhibit MEX-119)).

¹⁷⁴⁹ ARP-002-2017, (Exhibit MEX-84), p. 5 (citing CONSULSANTOS (2010), (Exhibit MEX-119)); ARP-006-2016, (Exhibit MEX-85), pp. 5-6 (citing CONSULSANTOS (2010), (Exhibit MEX-119)).

¹⁷⁵⁰ ARP-002-2017, (Exhibit MEX-84), pp. 5-6 (citing CONSULSANTOS (2010), (Exhibit MEX-119)); ARP-006-2016, (Exhibit MEX-85), p. 6 (citing CONSULSANTOS (2010), (Exhibit MEX-119)).

¹⁷⁵¹ ARP-002-2017, (Exhibit MEX-84), p. 6; ARP-006-2016, (Exhibit MEX-85), p. 6.

¹⁷⁵² ARP-002-2017, (Exhibit MEX-84), p. 6 (citing CONSULSANTOS (2010), (Exhibit MEX-119); and Garbanzo Solís (2011), (Exhibit MEX-125)); ARP-006-2016, (Exhibit MEX-85), p. 6 (citing CONSULSANTOS (2010), (Exhibit MEX-119); and Garbanzo Solís (2011), (Exhibit MEX-125)).

¹⁷⁵³ ARP-002-2017, (Exhibit MEX-84), p. 6; ARP-006-2016, (Exhibit MEX-85), p. 6.

¹⁷⁵⁴ ARP-002-2017, (Exhibit MEX-84), p. 6 (citing CONSULSANTOS (2017), (Exhibit MEX-118)).

¹⁷⁵⁵ ARP-002-2017, (Exhibit MEX-84), p. 6.

¹⁷⁵⁶ ARP-006-2016, (Exhibit MEX-85), p. 6.

¹⁷⁵⁷ ARP-006-2016, (Exhibit MEX-85), p. 6 (citing CONSULSANTOS (2017), (Exhibit MEX-118)).

¹⁷⁵⁸ ARP-006-2016, (Exhibit MEX-85), p. 6 (citing CONSULSANTOS (2017), (Exhibit MEX-118)).

¹⁷⁵⁹ ARP-006-2016, (Exhibit MEX-85), p. 6.

¹⁷⁶⁰ ARP-002-2017, (Exhibit MEX-84), p. 6 (citing IPPC Secretariat, "Diversion from intended use" (2016), (Exhibit MEX-124)); ARP-006-2016, (Exhibit MEX-85), pp. 6-7 (citing IPPC Secretariat, "Diversion from intended use" (2016), (Exhibit MEX-124)).

¹⁷⁶¹ ARP-002-2017, (Exhibit MEX-84), p. 6; ARP-006-2016, (Exhibit MEX-85), p. 7.

plant the seed¹⁷⁶²; and that not all the population has the purchasing power to buy Hass avocados, which are more expensive.¹⁷⁶³

7.927. Reports ARP-002-2017 and ARP-006-2016 state that "[t]here are currently records of expert testimony (CONSULSANTOS 2017) that demonstrate diversion from intended use, however, to date, no statistics are available on the quantity of imported fruit from which the seed is extracted for propagation purposes".¹⁷⁶⁴ Reports ARP-002-2017 and ARP-006-2016 refer to the paper "Diversion from intended use" (2016), and include the following quote:

The practice of diversion from intended use (DFIU) may be unintentional, or done with knowledge of its illegal status. It is rarely documented or reported, but anecdotal evidence suggests it is occurring in most parts of the world. It is considered most serious when products designated for consumption (including grain), time-limited decorative purposes (such as cut flowers and branches) or processing instead end up being used for planting, so that any associated pests may be introduced into the open environment unchecked.¹⁷⁶⁵

7.928. Reports ARP-002-2017 and ARP-006-2016 state that, in the probability tables in the section on the intended use of fresh fruit for consumption, the Costa Rican authorities, on the understanding that the fruit is imported with the intended use of consumption, will assign it corresponding values in the PRA. Reports ARP-002-2017 and ARP-006-2016 clarify, however, that the potential of this waste to introduce and subsequently spread quarantine pests is analysed taking into account that the seed and skin are not consumed¹⁷⁶⁶; and that diversion from intended use was considered because, given the quantity of fruit that is imported, the NPPO would be hard-pressed to be able to track it after importation¹⁷⁶⁷, and the viable seed borne therein.¹⁷⁶⁸

7.929. In the section on the probability of entry of ASBVd in Reports ARP-002-2017 and ARP-006-2016, the probability of transfer to a suitable host was deemed to be high, determined, *inter alia*, as follows: (i) the probability related to dispersal mechanisms, including vectors to allow movement from the pathway to a suitable host was deemed to be medium, after it was determined that the dispersal mechanisms from the pathway to a host are through growing a plant from the seed of symptomless fruit, because the pest is systemic in the tissue¹⁷⁶⁹; that the generation of rootstock from fruit from infected trees (including from the Hass cultivar) can significantly increase the incidence of ASBVd¹⁷⁷⁰; and that it does not require vectors, but bees can carry the pollen and infect the fruit that is pollinated¹⁷⁷¹; (ii) the probability related to the intended use of the commodity was deemed to be medium, after it was determined that its use is consumption¹⁷⁷²; (iii) the probability related to risks from by-products and waste was deemed to be high, after it was determined that the waste of fresh avocado fruit are the skins and seeds; that, as it contains a viable

¹⁷⁶² ARP-002-2017, (Exhibit MEX-84), p. 7 (citing CONSULSANTOS (2017), (Exhibit MEX-118)); ARP-006-2016, (Exhibit MEX-85), p. 7 (citing CONSULSANTOS (2017), (Exhibit MEX-118)).

¹⁷⁶³ ARP-002-2017, (Exhibit MEX-84), p. 7; ARP-006-2016, (Exhibit MEX-85), p. 7.

¹⁷⁶⁴ ARP-002-2017, (Exhibit MEX-84), p. 8 (citing CONSULSANTOS (2017), (Exhibit MEX-118)); ARP-006-2016, (Exhibit MEX-85), p. 11 (citing CONSULSANTOS (2017), (Exhibit MEX-118)).

¹⁷⁶⁵ ARP-002-2017, (Exhibit MEX-84), p. 8 (citing IPPC Secretariat, "Diversion from intended use" (2016), (Exhibit MEX-124)); ARP-006-2016, (Exhibit MEX-85), p. 11 (citing IPPC Secretariat, "Diversion from intended use" (2016), (Exhibit MEX-124)).

¹⁷⁶⁶ ARP-002-2017, (Exhibit MEX-84), p. 8; ARP-006-2016, (Exhibit MEX-85), p. 11.

¹⁷⁶⁷ ARP-002-2017, (Exhibit MEX-84), p. 8 (citing IPPC Secretariat, "Diversion from intended use" (2016), (Exhibit MEX-124)); ARP-006-2016, (Exhibit MEX-85), p. 11 (citing IPPC Secretariat, "Diversion from intended use" (2016), (Exhibit MEX-124)).

¹⁷⁶⁸ ARP-002-2017, (Exhibit MEX-84), p. 8 (citing Spalding et al. (1976), (Exhibit MEX-133)); ARP-006-2016, (Exhibit MEX-85), p. 11 (citing Spalding et al. (1976), (Exhibit MEX-133)).

¹⁷⁶⁹ ARP-002-2017, (Exhibit MEX-84), p. 37 (citing Ploetz et al. (2011), (Exhibit MEX-56)); ARP-006-2016, (Exhibit MEX-85), p. 18 (citing Ploetz et al. (2011), (Exhibit MEX-56)).

¹⁷⁷⁰ ARP-002-2017, (Exhibit MEX-84), p. 37 (citing Vallejo Pérez et al. (2017), (Exhibit MEX-47)).

¹⁷⁷¹ ARP-002-2017, (Exhibit MEX-84), p. 37 (citing Desjardins et al. (1979), pp. 14-15, (Exhibit MEX-60)); ARP-006-2016, (Exhibit MEX-85), p. 18 (citing Desjardins et al. (1979), pp. 14-15, (Exhibit MEX-60)).

¹⁷⁷² ARP-002-2017, (Exhibit MEX-84), p. 38; ARP-006-2016, (Exhibit MEX-85), p. 18.

seed, there is a risk of pest introduction through the waste¹⁷⁷³; and that the germination of a seed from a symptomless fruit would introduce the pest into the PRA area.¹⁷⁷⁴

7.930. In the section on the probability of establishment of ASBVd in Reports ARP-002-2017 and ARP-006-2016, the probability related to the availability of suitable hosts, alternate hosts and vectors in the PRA area was deemed to be low, after it was determined that the viroid has been found exclusively in *Persea americana* Mill.¹⁷⁷⁵ Reports ARP-002-2017 and ARP-006-2016 note that, in the case of seeds that germinate from imported avocado fruit, either because the waste (seed) was disposed of in a place suitable for seed germination or because it was diverted from its intended use, the pest would already be systemic in the host plant's tissue.¹⁷⁷⁶

7.931. Likewise, in the section on the probability of establishment of ASBVd in Reports ARP-002-2017 and ARP-006-2016, the probability related to cultivation practices and control measures was deemed to be medium, after it was determined, *inter alia*, that the documented cultivation practices in Costa Rica would affect the spread of the pest, given that producers are known to prepare their own seedbeds and do not turn to commercial nurseries, that pruning or harvesting tools are not disinfected between trees, that replanting orchards is extremely expensive and that nurseries, which are subject to government regulations, are not the main source of material planted in the field¹⁷⁷⁷; and that the foregoing is related to diversion from intended use, that is, the practice of using seeds from imported Hass avocados to grow new plants despite the fact that those avocados had originally been imported for human consumption.¹⁷⁷⁸

7.932. In the section on the probability of spread of ASBVd in Costa Rica, Reports ARP-002-2017 and ARP-006-2016 state, *inter alia*, that the probability related to the intended use of the product was deemed to be medium, after it was determined that the intended use of the product is for consumption.¹⁷⁷⁹

7.933. In light of the foregoing, the Panel notes that the introductory section of Reports ARP-002-2017 and ARP-006-2016 refers to the fact that cultural practices create a situation that should be assessed in the PRA, and that diversion from intended use was considered. The sections on probability of entry, establishment and spread include these considerations explicitly in some elements (for example, dispersal mechanisms, cultivation practices and control measures and the availability of suitable hosts, alternate hosts and vectors in the PRA area) and implicitly in other elements (for example, risk from by-products and waste, and intended use of the product).

7.934. In this Panel's view, considering how Reports ARP-002-2017 and ARP-006-2016 address topics related to diversion from intended use in both their introductory section and in the assessment of the elements of probability, and as Costa Rica confirms (by noting that diversion from intended use played a key and decisive role in assessing the elements of the analysis and in calculating the probability of entry, establishment and spread of ASBVd), there is no doubt that diversion from intended use is an important premise of the risk assessment carried out by Costa Rica, which permeates the assessment of the probability of entry, establishment and spread of ASBVd in Reports ARP-002-2017 and ARP-006-2016.

7.935. The Panel considers diversion from intended use to be a key aspect of the risk assessment, to which Costa Rica attaches great importance in assessing some elements of the analysis and in calculating the probabilities. If diversion from intended use of fresh avocados for consumption were not taken into consideration, it would appear that Costa Rica would have significantly fewer concerns, or maybe even none at all, regarding the entry, establishment and spread of ASBVd via the pathway of fresh fruit imported for consumption in relation to cultivated areas and backyards.

¹⁷⁷³ ARP-002-2017, (Exhibit MEX-84), p. 38; ARP-006-2016, (Exhibit MEX-85), p. 18.

¹⁷⁷⁴ ARP-002-2017, (Exhibit MEX-84), p. 38 (citing Ploetz et al. (2011), (Exhibit MEX-56)); ARP-006-2016, (Exhibit MEX-85), pp. 18–19 (citing Ploetz et al. (2011), (Exhibit MEX-56)).

¹⁷⁷⁵ ARP-002-2017, (Exhibit MEX-84), p. 38 (citing Horne (1934), (Exhibit CRI-138)); ARP-006-2016, (Exhibit MEX-85), p. 19 (citing Horne (1934), (Exhibit CRI-138)).

¹⁷⁷⁶ ARP-002-2017, (Exhibit MEX-84), p. 38 (citing Ploetz et al. (2011), (Exhibit MEX-56)); ARP-006-2016, (Exhibit MEX-85), p. 19 (citing Ploetz et al. (2011), (Exhibit MEX-56)).

¹⁷⁷⁷ ARP-002-2017, (Exhibit MEX-84), p. 39 (citing CONSULSANTOS (2010), (Exhibit MEX-119)); ARP-006-2016, (Exhibit MEX-85), pp. 19–20 (citing CONSULSANTOS (2010), (Exhibit MEX-119)).

¹⁷⁷⁸ ARP-002-2017, (Exhibit MEX-84), p. 39; ARP-006-2016, (Exhibit MEX-85), p. 20.

¹⁷⁷⁹ ARP-002-2017, (Exhibit MEX-84), p. 40; ARP-006-2016, (Exhibit MEX-85), p. 21.

7.4.5.3.3.3 The importance of documenting diversion from intended use in Reports ARP-002-2017 and ARP-006-2016

7.936. **Mexico** submits that the practice of diversion from intended use should be documented in the PRA, especially because Costa Rica presents diversion of intended use as an argument for increasing the risk and bases its analysis on diversion from intended use and spontaneous germination.¹⁷⁸⁰ According to Mexico, Costa Rica failed to evaluate the uncertainty arising from diversion from intended use due to cultural practices and spontaneous germination, such that the assessment cannot be categorized as reliable or accurate.¹⁷⁸¹ Mexico adds that the lack of scientific evidence should not be justified simply on the grounds of uncertainty, particularly if the alleged risk is based precisely on this factor.¹⁷⁸²

7.937. Mexico notes that the risk assessment does not consider data related to uncertainty, and that the experts pointed out that Costa Rica should have documented the practice of diversion from intended use in its risk assessment, which confirms that the mere mention of the practice does not equal compliance with Article 5.1 of the SPS Agreement or the relevant international standards.¹⁷⁸³

7.938. Mexico asserts that Costa Rica's PRAs do not contain an analysis of diversion from intended use, which is a practice identified in the PRAs as the main risk that the implementation of the disputed measures seeks to prevent, and that Costa Rica does not document it as a factor of uncertainty. In Mexico's view, although Costa Rica stated that diversion from intended use is the "backbone" of risk assessment, the PRAs do not contain information on diversion from intended use.¹⁷⁸⁴

7.939. Mexico considers that Costa Rica assigned fundamental value to diversion from intended use as a cultural practice and as regards spontaneous germination. However, the analysis in its PRAs does not reflect this concern, but instead gives a pretext for regarding this factor as an issue of uncertainty.¹⁷⁸⁵

7.940. **Costa Rica** asserts that intentional diversion from intended use, in other words, the practice of using avocado seeds to grow new plants despite the fact that those avocados had originally been purchased for human consumption, is a cultural practice documented by CONSULSANTOS in 2010 and 2017 and in the 2019 study on cultural practices in sowing and managing avocado seeds in Costa Rica.¹⁷⁸⁶ According to Costa Rica, several reports confirm that the practice of diversion from the intended use of avocado seeds exists and is common in Costa Rica.¹⁷⁸⁷

7.941. Costa Rica points out that, because the practice of diversion from intended use is difficult to document accurately, no statistics are yet available indicating the quantity of imported fruit from which the seed is extracted for propagation purposes; however, the practice of using the Hass variety as rootstock is a factor that increases the probability of diversion from intended use of seeds of imported Hass avocados.¹⁷⁸⁸ Costa Rica adds that the practice of using Hass rootstock increases the probability of diversion from intended use of seeds of consumed Hass avocados.¹⁷⁸⁹

¹⁷⁸⁰ Mexico's specific comments on the experts' responses to Panel questions Nos. 107, 108, 111 and 113 for the experts.

¹⁷⁸¹ Mexico's specific comments on the experts' responses to Panel question No. 95 for the experts.

¹⁷⁸² Mexico's response to Panel question No. 161, para. 118.

¹⁷⁸³ Mexico's response to Panel question No. 163, para. 139.

¹⁷⁸⁴ Mexico's response to Panel question No. 161, para. 117.

¹⁷⁸⁵ Mexico's response to Panel question No. 163, para. 134.

¹⁷⁸⁶ Costa Rica's first written submission, para. 5.130 (referring to CONSULSANTOS (2010), (Exhibit MEX-119); and CONSULSANTOS (2017), (Exhibit MEX-118)); second written submission, para. 3.39 (citing CONSULSANTOS (2017), (Exhibit MEX-118); and Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44)).

¹⁷⁸⁷ Costa Rica's response to Panel question No. 14, para. 2.

¹⁷⁸⁸ Costa Rica's first written submission, para. 5.130.

¹⁷⁸⁹ Costa Rica's first written submission, para. 5.130; second written submission, para. 3.39.

7.942. Costa Rica also points out that diversion from intended use was expressly included in the risk assessment, taking into account available information¹⁷⁹⁰, and that it depicted this practice as a factor subject to some uncertainty in its risk assessment.¹⁷⁹¹

7.943. Costa Rica adds that it is its understanding that the experts would have welcomed the inclusion of estimates to determine the probability of introduction via diversion from intended use and waste in the PRA, and that the estimates are useful when reliable data are available for a previous period that can be used as a benchmark to judge what will happen in a subsequent period, but that in Costa Rica such baseline data do not exist.¹⁷⁹²

7.944. Costa Rica asserts that Mexico emphasizes the lack of evidence on diversion from intended use, although it knows that it is occurring in most parts of the world, including Mexico, and that it is extremely difficult to quantify. Costa Rica adds that the experts confirmed that diversion from intended use is a well-known and widespread phenomenon and that, although it is difficult to document, it is certainly a clear risk factor for the introduction of ASBVd; and that they recognized the problem of diversion from intended use, especially in less sophisticated avocado industries such as that of Costa Rica.¹⁷⁹³

7.945. Costa Rica contends that diversion from intended use is a deep-rooted cultural practice in Costa Rica, especially in the highland area where the Hass variety is grown¹⁷⁹⁴, and that, while it is difficult to document, Costa Rica has continued in its efforts to do so. Costa Rica asserts that, in 2019, the Costa Rican government commissioned a study on seed management in Costa Rica (Exhibit CRI-44), and that the SFE continues to collect information on the magnitude of diversion from intended use, while training programmes for farmers are being provided that seek to raise more awareness of good agricultural practices. The impact of domestic regulations prohibiting the sowing of seeds from avocados imported from countries with ASBVd is also being monitored. Costa Rica states that all of these actions seek to minimize the impact of diversion from intended use as a risk factor in the introduction of ASBVd. All of which does not detract from the fact that, when conducting the PRA, the risk analyst should consider the existence of diversion from intended use in Costa Rica as a risk factor. According to Costa Rica, taking into account the import volumes of Hass avocados from Mexico, the risk analyst deemed the risk associated with diversion from intended use qualitatively to be "medium".¹⁷⁹⁵

7.946. In Costa Rica's view, it is logical, in the absence of quantitative data, to conduct a risk assessment expressed in qualitative terms (high, medium, low), which the risk analyst also noted on page 3 of the PRA.¹⁷⁹⁶ Costa Rica points out that the SPS Agreement does not require that the evaluation of the likelihood needs to be done quantitatively, and that the likelihood may be expressed either quantitatively or qualitatively.¹⁷⁹⁷

7.947. Costa Rica asserts that the risk analyst considered all the information available to him; that he had information on the number of units of avocados from Mexico that were imported for consumption, on the favourability of climatic conditions in Costa Rica, and on the existence of the practice of diversion from intended use as a common practice in Costa Rica; and that furthermore he had information from the IPPC itself, to the effect that "[the practice of diversion from intended use] is considered more serious when products designated for consumption (including grain)... end up being used for planting, so that any associated pest may be introduced into the open environment unchecked".¹⁷⁹⁸

¹⁷⁹⁰ Costa Rica's first written submission, para. 5.131.

¹⁷⁹¹ Costa Rica's response to Panel question No. 14, para. 1.

¹⁷⁹² Costa Rica's specific comments on the experts' responses to Panel questions Nos. 107–110 for the experts.

¹⁷⁹³ Costa Rica's comments on Mexico's response to Panel question No. 161, para. 81.

¹⁷⁹⁴ Costa Rica's response to Panel question No. 169, para. 197.

¹⁷⁹⁵ Costa Rica's comments on Mexico's response to Panel question No. 161, para. 82.

¹⁷⁹⁶ Costa Rica's response to Panel question No. 163, para. 183; comments on Mexico's response to Panel question No. 163, para. 89.

¹⁷⁹⁷ Costa Rica's comments on Mexico's response to Panel question No. 163, para. 88 (citing Appellate Body Report, *Australia – Salmon*, para. 124); comments on Mexico's response to Panel question No. 164, para. 96 (citing Appellate Body Report, *Australia – Salmon*, para. 124).

¹⁷⁹⁸ Costa Rica's response to Panel question No. 163, para. 184; comments on Mexico's response to Panel question No. 163, para. 89.

7.948. Costa Rica also asserts that it is fully consistent with the factual elements available to him that the risk analyst has deemed the "medium" probability to be the most reasonable; and that it was not a quantitative assessment, but nor was it an arbitrary or unsubstantiated assessment.¹⁷⁹⁹ Costa Rica adds that it is extremely difficult to make reference to specific evidence regarding diversion from intended use with respect to seeds of imported avocados when the general practice of diversion from intended use is categorized, even by the IPPC itself, as rarely documented or reported.¹⁸⁰⁰

7.949. Costa Rica notes that it is its understanding that the risk assessment process needs to identify and make more transparent the aspects that are still considered to be uncertain, as opposed to the aspects where there is a certain level of knowledge.¹⁸⁰¹ Costa Rica adds that its PRA contains a section very specifically identifying and addressing the issue of uncertainty. Costa Rica asserts that, on page 8 of the PRA, the risk analyst identified diversion from intended use concerning imported fruit as an issue that is subject to uncertainty, stated the facts on which there was certainty (the existence of the practice of diversion from the intended use of avocado seeds in Costa Rica based on evidence from third parties), and corroborated the plausibility of this fact by checking it against the IPPC's own 2016 paper on diversion from intended use. In Costa Rica's view, therefore, the risk analyst reached a consistent and reasonable conclusion that the practice of diversion from intended use of avocados imported for consumption is a fact in Costa Rica and a matter of importance for the IPPC itself.¹⁸⁰²

7.950. Costa Rica contends that the analyst specified any aspects about which there was uncertainty with respect to diversion from intended use, and, in that connection, he noted the lack of statistical information that would have allowed him to establish the number of imported fruits from which the seed was extracted for propagation purposes. He therefore recorded the fact that insufficient information made it impossible to calculate the ratio of fruits imported for consumption in general to those from which the seed was extracted for propagation purposes, and that the lack of information prevented him from determining, using a quantitative method, a numerical probability of the incidence of diversion from intended use. Costa Rica states that, to corroborate the plausibility of these circumstances, the risk analyst also highlighted the point made by the IPPC itself in its 2016 paper that the practice of diversion from intended use "is rarely documented or reported", and that, therefore, it is evident that the risk analyst was clear and transparent about the degree of uncertainty over diversion from intended use and how this limited his ability to carry out a quantitative analysis.¹⁸⁰³

7.951. Costa Rica asserts that, although diversion from intended use is a deep-rooted, traditional practice in Costa Rica, the existence of which has been documented, it is difficult to quantify because there is still a lack of statistical data on the practice. According to Costa Rica, the lack of an exact percentage does not mean that the risk analyst would consider that all the approximately 50 million avocados imported from Mexico for consumption every year end up with their seeds planted in Costa Rican soil, as if that had been the case, the PRA would have recommended far more stringent risk management measures.¹⁸⁰⁴ Costa Rica does not consider it acceptable to invalidate the finding that there is a significant risk of ASBVd being introduced into Costa Rica because of a lack of concrete statistics or quantitative data on the diversion from intended use practised by Costa Ricans.¹⁸⁰⁵

7.952. Costa Rica also submits that diversion from intended use is not the only factor behind the existence of a risk of introduction of ASBVd, although it certainly contributes to increasing that risk. Costa Rica points out that, even in countries with sophisticated avocado industries and with no problems of diversion from intended use, such as New Zealand, phytosanitary measures are

¹⁷⁹⁹ Costa Rica's response to Panel question No. 163, para. 185; comments on Mexico's response to Panel question No. 163, para. 90.

¹⁸⁰⁰ Costa Rica's comments on Mexico's response to Panel question No. 164, para. 95.

¹⁸⁰¹ Costa Rica's response to Panel question No. 161, para. 169.

¹⁸⁰² Costa Rica's response to Panel question No. 161, para. 170.

¹⁸⁰³ Costa Rica's response to Panel question No. 161, para. 171.

¹⁸⁰⁴ Costa Rica's response to Panel question No. 161, para. 174; comments on Mexico's response to Panel question No. 158, para. 67.

¹⁸⁰⁵ Costa Rica's comments on Mexico's response to Panel question No. 161, para. 80.

maintained for fresh avocados for consumption in order to manage the risk of introduction of ASBVd associated with this product and, in particular, its waste.¹⁸⁰⁶

7.953. Costa Rica does not regard the acknowledgement of the absence of data relating to a specific point in the PRA as a methodological flaw that invalidates the risk analysis exercise. On the contrary, as the expert Robert Griffin pointed out, it is important to detect the uncertainties because "if we know what the uncertainties are, then we can address those uncertainties with research".¹⁸⁰⁷ Costa Rica refers to the point made by Mr Griffin that "[the risk analysis] process [should always be] open to evolution and improvement ... It should never be static, it always needs to be open for improvement and for new and better information, different methodologies, whatever is appropriate, but should never be a static process".¹⁸⁰⁸ Costa Rica states that a country cannot be expected to refrain from adopting phytosanitary measures against the risk of introduction of a pest until it has obtained all necessary information to dispel the existing uncertainties.¹⁸⁰⁹

7.954. The **Panel** sought expert advice on the issue of documenting diversion from intended use in a risk assessment.

7.955. The expert Robert Griffin notes that diversion from intended use is a genuine phenomenon, and that the most appropriate context in which to consider diversion from intended use is the PRA.¹⁸¹⁰ Mr Griffin agrees with Costa Rica that this phenomena is not well-studied and is difficult to document but is of the view that it is important to document the practice of diversion from intended use and estimate its magnitude if it is going to be used in an argument for increased risk. Otherwise, it opens up the possibility for abuse as an arbitrary factor to increase risk in the absence of evidence.¹⁸¹¹ Mr Griffin considers that a reasonable approach is to estimate the probability of introduction for some proportion that is expected to actually be diverted, and that it is incumbent on the importing country to support its claim of diversion with some evidence to describe the magnitude of diversion. According to Mr Griffin, the absence of such evidence, coupled with the recognition that 100% of the imported product is unlikely to be diverted, creates an unsolvable and unfair dilemma for the exporting country.¹⁸¹² Mr Griffin considers that, from a PRA standpoint, only the importing country claiming that diversion from intended use is an issue can demonstrate that it exists and provide evidence of the magnitude.¹⁸¹³

7.956. The expert Fernando Pliego Alfaro agrees that is very important to document diversion from intended use because, in his view, therein lies the root of the problem. Mr Pliego Alfaro is of the opinion that it is essential for Costa Rica to estimate and quantify the magnitude of diversion from intended use, and that the main weakness in Costa Rica's arguments lies in the fact that it fails to provide data on when such diversion from intended use began and its magnitude.¹⁸¹⁴

7.957. As noted by the experts and, given the importance of diversion from intended use for the calculation of probabilities in Reports ARP-002-2017 and ARP-006-2016, the Panel considers that Costa Rica should have documented diversion from intended use and estimated its probability.

7.958. In the Panel's view, while diversion from intended use is an area of uncertainty that is difficult to document, Costa Rica should have gathered evidence to substantiate its existence, estimated its magnitude either quantitatively or qualitatively, and documented the degree of uncertainty.

7.959. Instructive in this regard is *Australia – Salmon*, in which the Appellate Body referred to the panel's factual findings, according to which the 1996 Final Report, which Australia submitted as a risk assessment, "lends more weight to the unknown and uncertain elements of the assessment than the 1995 Draft Report (on which the 1996 Final Report is based). This, on occasions, results in

¹⁸⁰⁶ Costa Rica's comments on Mexico's response to Panel question No. 161, para. 80.

¹⁸⁰⁷ Costa Rica's comments on Mexico's response to Panel question No. 161, para. 83 (citing Robert Griffin, transcript of the Panel's meeting with the parties and the experts, day 3, p. 42).

¹⁸⁰⁸ Costa Rica's comments on Mexico's response to Panel question No. 161, para. 83 (citing Robert Griffin, transcript of the Panel's meeting with the parties and the experts, day 2, p. 55).

¹⁸⁰⁹ Costa Rica's comments on Mexico's response to Panel question No. 161, para. 83.

¹⁸¹⁰ Robert Griffin's response to Panel question No. 160 for the experts.

¹⁸¹¹ Robert Griffin's responses to Panel questions Nos. 108 and 160 for the experts.

¹⁸¹² Robert Griffin's response to Panel question No. 158 for the experts.

¹⁸¹³ Robert Griffin's response to Panel question No. 95 for the experts.

¹⁸¹⁴ Fernando Pliego Alfaro's responses to Panel questions Nos. 107, 108, 109, 110 and 158 for the experts.

general and vague statements of mere possibility of adverse effects occurring; statements which constitute neither a quantitative nor a qualitative assessment of probability".¹⁸¹⁵ In this context, the Appellate Body considered that the existence of unknown and uncertain elements does not justify a departure from the requirements of Articles 5.1, 5.2 and 5.3, read together with paragraph 4 of Annex A, for a risk assessment.¹⁸¹⁶

7.960. The Panel will analyse below the evidence used by Costa Rica in Reports ARP-002-2017 and ARP-006-2016 with respect to the diversion from intended use of seeds from avocados for consumption and the alleged practices of planting seeds from fruit for consumption and of using Hass rootstock, as well as the evidence presented throughout the proceedings. It will also address Mexico's claim regarding the viability of the practice of using Hass rootstock.

7.4.5.3.3.4 Sources cited in support of the assertions concerning diversion from intended use in Reports ARP-002-2017 and ARP-006-2016

7.961. **Mexico** refers to the following inferences in ARP-002-2017 and ARP-006-2016 regarding diversion from intended use that it considers unfounded:

- a. The practice of using Hass rootstock increases the likelihood of using seed from avocado imported for consumption.
- b. Cultural practices create a situation in which a producer may use seed from outside his or her farm. The seeds of fruit consumed (CONSULSANTOS (2017)), waste from wholesale markets and avocado processors can be a ready source of avocado seed of unknown quality.
- c. People who consume good quality avocado and have space to cultivate this fruit are likely to plant the seed (CONSULSANTOS (2017)).
- d. There are records of expert testimony (CONSULSANTOS (2017)) that demonstrate diversion from intended use; however, there are no statistics available on the quantity of imported fruit from which the seed is extracted for propagation purposes.¹⁸¹⁷

7.962. Mexico asserts that, drawing from these inferences, Costa Rica did not base its analysis on an assessment of probability, but solely on theoretical constructs, presumptions and the mere possibility that the seed of an avocado imported for consumption would be diverted to planting.¹⁸¹⁸

7.963. Mexico further asserts that CONSULSANTOS (2010) and CONSULSANTOS (2017), cited in the PRA, were the only documents to serve as the basis for justifying the alleged existence of the cultural practice of using the seed of imported Hass avocados to grow avocado plants.¹⁸¹⁹

7.964. Mexico states that the CONSULSANTOS (2010) and CONSULSANTOS (2017) studies: (i) are not sufficient to estimate the incidence of instances in which farmers acquire avocado pits from fruit previously imported for consumption; (ii) are not a source representative of the entire territory of Costa Rica; (iii) do not provide information on the probability of a producer using seed obtained from wholesale markets or avocado processors for propagation purposes; and (iv) do not provide the specific information required to assess the probability that the seeds obtained from markets come from avocado fruit imported for consumption.¹⁸²⁰

7.965. Mexico asserts that Costa Rica provides no evidence that seed from fresh avocados for consumption imported from Mexico is used for propagation; that this reference cannot be found in CONSULSANTOS (2010); and that, instead, the author includes a chart showing the average percentage of avocado trees acquired by nursery and by rootstock seed. In Mexico's view, it follows

¹⁸¹⁵ Appellate Body Report, *Australia – Salmon*, para. 129 (citing Panel Report, *Australia – Salmon*, para. 8.83).

¹⁸¹⁶ Appellate Body Report, *Australia – Salmon*, para. 130.

¹⁸¹⁷ Mexico's first written submission, para. 327.

¹⁸¹⁸ Mexico's first written submission, para. 328.

¹⁸¹⁹ Mexico's second written submission, para. 74.

¹⁸²⁰ Mexico's second written submission, para. 131 (referring to CONSULSANTOS (2010), (Exhibit MEX-119); and CONSULSANTOS (2017), (Exhibit MEX-118)).

that propagation by seed other than that acquired from nurseries or one's own farm is minimal¹⁸²¹, that rootstock seed is obtained from the farms themselves, and that nowhere in the census does it say that these seeds are acquired or obtained from fresh avocados for consumption that are imported from Mexico.¹⁸²²

7.966. Mexico adduces that since the censuses make no direct mention of the use of seeds of imported fresh avocados as propagation material, Costa Rica has no scientific basis that explains percentages or the probability that this hypothesis will occur.¹⁸²³ Mexico adds that the CONSULSANTOS (2010) report fails to provide scientific evidence specific enough to support the argument concerning a high level of risk.¹⁸²⁴

7.967. **Costa Rica** argues that diversion from intended use is a cultural practice that was documented by CONSULSANTOS in 2010 and 2017, and has been observed by the 2019 study on cultural practices in planting and managing avocado seeds in Costa Rica.¹⁸²⁵ Costa Rica notes that the CONSULSANTOS (2010) study concluded that in all the cantons examined there was a greater tendency to obtain trees via rootstock seed than to acquire them from nurseries, and that the selecting of buds or seed for rootstock by producers who engage in grafting is a widespread practice in the Los Santos subregion.¹⁸²⁶ Costa Rica adds that it has been noted that it is common for producers, especially those that are less technically advanced, not to acquire their certified propagation material from nurseries, but to use seed that is sometimes of unknown origin.¹⁸²⁷

7.968. For Costa Rica, because the practice of diversion from intended use is difficult to document accurately, no statistics are yet available indicating the quantity of imported fruit from which the seed is extracted for propagation purposes; however, the practice of using the Hass variety as rootstock is a factor that increases the probability of the diversion from intended use of seeds of imported Hass avocados. Costa Rica adds that, although diversion from intended use is difficult to ascertain in a scientific laboratory, it poses a risk in human societies as they actually exist, such as that of Costa Rica.¹⁸²⁸

7.969. Costa Rica states that several reports find that the practice of diversion from intended use in respect of avocado seed exists and is common in Costa Rica; that it has been documented that many producers sow seeds directly in the ground for subsequent grafting, or prepare containers for transplanting into the field and grafting, or sow seeds in bags for grafting prior to their transplantation¹⁸²⁹, and that, in such cases, the origin of the seed is not always known.¹⁸³⁰

7.970. Costa Rica adds that the IPPC itself recognizes that the practice of diversion from intended use is rarely documented or reported, but that anecdotal evidence suggests it is occurring in most parts of the world and is considered most serious when products designated for consumption end up being used for planting, so that any associated pests may be introduced into the open environment unchecked. According to Costa Rica, while the IPPC document indicates that the responsibility for diversion from intended use, and its consequences, falls to the NPPO of the importing country, it also states that the NPPO is allowed to monitor trade, as a compliance procedure to ensure import requirements are met, and that concern about diversion from intended use is affecting both importing and exporting parties, and recommends caution against inclusion of

¹⁸²¹ Mexico's first written submission, para. 334 (referring to CONSULSANTOS (2010), (Exhibit MEX-119)).

¹⁸²² Mexico's first written submission, para. 335.

¹⁸²³ Mexico's first written submission, para. 337.

¹⁸²⁴ Mexico's response to Panel question No. 161, para. 120.

¹⁸²⁵ Costa Rica's first written submission, para. 5.130 (referring to CONSULSANTOS (2010), (Exhibit MEX-119); and CONSULSANTOS (2017), (Exhibit MEX-118)); second written submission, para. 3.39 (citing CONSULSANTOS (2017), (Exhibit MEX-118); and Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44)).

¹⁸²⁶ Costa Rica's first written submission, para. 5.130 (citing CONSULSANTOS (2010), (Exhibit MEX-119)).

¹⁸²⁷ Costa Rica's second written submission, para. 3.39 (citing CONSULSANTOS (2010), (Exhibit MEX-119); Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44); and Manual for Nurseries (2017), (Exhibit CRI-43)).

¹⁸²⁸ Costa Rica's first written submission, para. 5.130; second written submission, para. 3.39.

¹⁸²⁹ Costa Rica's response to Panel question No. 14, para. 2 (citing CONSULSANTOS (2010), (Exhibit MEX-119)).

¹⁸³⁰ Costa Rica's response to Panel question No. 14, para. 2 (citing Manual for Nurseries (2017), (Exhibit CRI-43), p. 20).

phytosanitary measures aimed at preventing diversion from intended use or managing associated risks, without linking them to the risk assessment. Costa Rica asserts that, where appropriate, diversion from intended use was expressly included in the risk assessment, taking into account the information available, and the degree of probability attributed to both diversion from intended use and the conclusion regarding the establishment of ASBVd was medium.¹⁸³¹ Costa Rica adds that Mexico takes into consideration diversion from intended use in its risk assessment for potatoes.¹⁸³²

7.971. The **Panel** observes that regarding diversion from intended use and the use of Hass rootstock, Reports ARP-002-2017 and ARP-006-2016 cite CONSULSANTOS (2010)¹⁸³³, Garbanzo Solís (2011)¹⁸³⁴, CONSULSANTOS (2017)¹⁸³⁵ and "Diversion from intended use" (2016).¹⁸³⁶ The Panel will discuss this evidence below.

7.972. The report CONSULSANTOS (2010) is an avocado census directed at areas producing highland avocados, which focuses on the Los Santos zone and its surrounding area. The overall objective of the census is to construct a detailed socio-economic profile of highland avocado producers and production systems in the Los Santos, Frailes and Corralillo zone.¹⁸³⁷

7.973. CONSULSANTOS (2010) indicates that it uses as a source 972 surveys from the same number of farms, and information provided by 15 producers over the telephone.¹⁸³⁸ The report CONSULSANTOS (2010) indicates, *inter alia*, the number of farms by district, the planted area by canton, the predominant cultivar (Hass), how long the avocado orchards have been in existence, the sown area and number of trees planted on farms, the most common production systems, the percentage of farms that have electricity and a cadastral plan, where producers obtain their planting materials, pruning activity and soil analysis, the weed control methods used, the months when crops are harvested, the number of kilograms of fruit per mature tree, environmental factors, whether producers are technically proficient, and training and technical assistance requirements.¹⁸³⁹

7.974. CONSULSANTOS (2010) indicates that Hass is the predominant variety in the area, accounting for over 90% of production¹⁸⁴⁰, and that an overall total of 228,533 planted trees were reported for the entire area, most of which were of the Hass cultivar.¹⁸⁴¹

7.975. CONSULSANTOS (2010) also indicates that, with the exception of the canton of Guarco, where most producers tended to obtain their planting materials through a nursery, in the other cantons there is a greater tendency to obtain trees via rootstock seed.¹⁸⁴² Regarding the place or person from which producers obtain their rootstock, according to the report CONSULSANTOS (2010), producers said they obtained their rootstock from the farm itself or the surrounding area.¹⁸⁴³ According to CONSULSANTOS (2010), the selecting of buds and seeds for rootstock by producers who engage in grafting is a widespread practice (more than 75%) among avocado producers in the Los Santos subregion.¹⁸⁴⁴

¹⁸³¹ Costa Rica's first written submission, para. 5.131 (citing IPPC Secretariat, "Diversion from intended use" (2016), (Exhibit MEX-124), p. 16).

¹⁸³² Costa Rica's first written submission, paras. 5.132-5.133 (citing Servicio Nacional de Sanidad, Inocuidad y Calidad Agroalimentaria (SENASICA), Extracto del análisis de riesgo de plagas para la importación de tubérculos de papa (*Solanum tuberosum* L.) a México (2012), (Exhibit CRI-31), p. 9; and Servicio Nacional de Sanidad, Inocuidad y Calidad Agroalimentaria (SENASICA), Medidas fitosanitarias para importación de papa fresca de EEUU y Canadá a México, publicado el 7 de abril de 2012, (Exhibit CRI-32)); second written submission, para. 3.40.

¹⁸³³ CONSULSANTOS (2010), (Exhibit MEX-119).

¹⁸³⁴ Garbanzo Solís (2011), (Exhibit MEX-125).

¹⁸³⁵ CONSULSANTOS (2017), (Exhibit MEX-118).

¹⁸³⁶ IPPC Secretariat, "Diversion from intended use" (2016), (Exhibit MEX-124).

¹⁸³⁷ CONSULSANTOS (2010), (Exhibit MEX-119), pp. 6-7.

¹⁸³⁸ CONSULSANTOS (2010), (Exhibit MEX-119), p. 58. See also CONSULSANTOS (2010), (Exhibit MEX-119), p. 8.

¹⁸³⁹ CONSULSANTOS (2010), (Exhibit MEX-119), pp. 58-62.

¹⁸⁴⁰ CONSULSANTOS (2010), (Exhibit MEX-119), p. 18.

¹⁸⁴¹ CONSULSANTOS (2010), (Exhibit MEX-119), p. 21.

¹⁸⁴² CONSULSANTOS (2010), (Exhibit MEX-119), p. 24. See also CONSULSANTOS (2010), (Exhibit MEX-119), p. 59 and figure 20.

¹⁸⁴³ CONSULSANTOS (2010), (Exhibit MEX-119), p. 25.

¹⁸⁴⁴ CONSULSANTOS (2010), (Exhibit MEX-119), p. 26.

7.976. CONSULSANTOS (2010) notes the existence of four avocado planting systems in Los Santos: traditional monoculture planting system¹⁸⁴⁵, modernized monoculture plantation system¹⁸⁴⁶, coffee-avocado companion planting system¹⁸⁴⁷ and avocado-coffee companion planting system.¹⁸⁴⁸ When defining these systems, consideration was given to whether producers are aware of the origin of rootstock and the sowing method when grafting.¹⁸⁴⁹ Producers using the traditional monoculture planting system indicate that they are sometimes aware of the origin of rootstock and the sowing method, that they use criollo or Hass rootstock from the farm, and that they mostly sow directly; producers using the modernized monoculture planting system indicate that they are generally or always aware of the origin of rootstock and the sowing method, and that they use rootstock that is sometimes more select and of greater value; producers using the coffee-avocado companion planting system indicate that they are sometimes aware of the origin of rootstock and the sowing method, and that they use 50% rootstock and 50% nursery products; and producers using the avocado-coffee companion planting system indicate that they are generally aware of the origin of rootstock and the sowing method, that they use criollo or Hass rootstock, and that they mostly sow directly.¹⁸⁵⁰

7.977. In the Panel's view, CONSULSANTOS (2010) confirms that Hass rootstock is used, and that Hass is the predominant variety in the Los Santos zone, despite there being no explicit mention of the use of Hass on Hass, as held by Costa Rica throughout the dispute. The document does not mention whether the avocado seeds come from fresh avocados for consumption, imported or otherwise, and does not specify what proportion of the rootstock seed is of the Hass variety or other varieties. Nor does CONSULSANTOS (2010) provide evidence to support the assertion in the reports concerning the existence of the practice of using seeds from imported Hass avocados to grow new plants despite the fact that the avocados were originally imported for human consumption.¹⁸⁵¹

7.978. Exhibit Garbanzo Solís (2011) is an avocado handbook, published by MAG of Costa Rica, that compiles information on good cultivation practices for the Hass variety. The author thanks avocado crop producers in the Frailes de Desamparados region and its surrounding areas for the information they enabled him to compile.¹⁸⁵² The document discusses the cultivation of avocados of the Hass variety and addresses climate, soil, land selection, the acquisition of trees or plant material, how to establish an orchard, good agricultural practices, agronomic management and quality control.

¹⁸⁴⁵ Refers to an avocado orchard that is farmed (pruning, planting distance, disease and pest control, soil management, etc.) on a low-intensity basis by the producer. The farmer is interested, but has limited technical knowledge with regard to obtaining a high level of fruit productivity and quality. (CONSULSANTOS (2010), (Exhibit MEX-119), p. 35).

¹⁸⁴⁶ Refers to an avocado orchard that has been farmed intensively, where shape and production pruning takes place, planting distances are shorter, disease and pest control is based on agrochemicals of a more specific nature sometimes not widely available in the area, and soil management and conservation practices are applied. The farmer has technical knowledge of avocados acquired through their own locally and internationally enhanced experience. (CONSULSANTOS (2010), (Exhibit MEX-119), p. 35).

¹⁸⁴⁷ Refers to a producer whose family has, for generations, dedicated its farm to cultivation practices focusing on the establishment and productivity of coffee crops in the Los Santos zone, and who, in recent years, has become interested in incorporating avocado as a companion crop for the coffee crop in order to replace traditional shade and/or improve plot productivity. The farmer is interested, but has very limited technical knowledge with regard to the specific requirements for obtaining a high level of fruit productivity and quality. (CONSULSANTOS (2010), (Exhibit MEX-119), pp. 35-36).

¹⁸⁴⁸ Refers to a producer who has shown an interest in identifying and implementing avocado farming practices that help to ensure a good level of fruit productivity and quality. The producer has a tendency to phase out coffee crops in plots where avocado trees are entering their production phase, and incorporates the use of fertilizer, pest and disease control, and good soil management and conservation practices conducive to healthy avocado trees. He or she receives or seeks training and technical assistance in respect of avocado growing, has and applies reasoned technical knowledge as regards specific avocado requirements and is able to determine how to divide the plot between coffee and avocados. (CONSULSANTOS (2010), (Exhibit MEX-119), p. 36).

¹⁸⁴⁹ CONSULSANTOS (2010), (Exhibit MEX-119), p. 36, table 7.

¹⁸⁵⁰ CONSULSANTOS (2010), (Exhibit MEX-119), p. 36, table 7.

¹⁸⁵¹ ARP-002-2017, (Exhibit MEX-84), p. 39; ARP-006-2016, (Exhibit MEX-85), p. 19.

¹⁸⁵² Garbanzo Solís (2011), (Exhibit MEX-125).

7.979. The Panel notes that Garbanzo Solís (2011) refers to the decision to plant seed and to graft directly in the field as the working method preferred by many producers.¹⁸⁵³ However, there is no specific mention of rootstock seed being of the Hass variety, nor of its origin.¹⁸⁵⁴

7.980. The CONSULSANTOS (2017) document is a 2019 affidavit that includes a communication, dated 16 March 2017, from Mr Rodrigo Jiménez Robles, representative of the consulting firm CONSULSANTOS S.R.L., to Mr Marco Vinicio Jiménez Salas, Executive Director of the SFE, in which Mr Jiménez Robles notes, as representative of CONSULSANTOS S.R.L., the company that conducted the georeferenced survey of avocado-producing farms in the Los Santos zone in 2009 and 2010, together with the diagnostic study of this activity, and as a long-standing private advisor on avocado farming in Costa Rica, that "the avocado producer under review very often uses seeds from the fruit they consume, either to set up nurseries at home or for selling in small quantities, and for planting directly in fields and subsequent grafting."¹⁸⁵⁵

7.981. The Panel notes that CONSULSANTOS (2017) refers to the use of seed of fruit for consumption for setting up nurseries at home, for selling or for growing plants for grafting. However, as mentioned above, this is not reflected in the CONSULSANTOS (2010) census referred to in the affidavit. CONSULSANTOS (2017) is an affidavit by the representative of CONSULSANTOS S.R.L. and provides no evidence to support the assertion concerning the use of fruit for consumption for propagation purposes.

7.982. The document "Diversion from intended use" (2016) is a paper published within the framework of the IPPC that reviews the issue of diversion from intended use after import of plants, plant products and other regulated articles, in order to estimate the extent of this issue and to evaluate the necessity for further guidance.¹⁸⁵⁶

7.983. The document drafted within the IPPC framework is a study that defines the concept of diversion from intended use and provides examples of relevant situations. While the study seeks to define the extent to which diversion from intended use exists, it fails to define the scope of such diversion; it notes that concern about diversion from intended use affects both importing and exporting parties; and it includes considerations regarding how both parties address diversion from intended use, and the division of responsibilities between them.

7.984. The document concludes that the widespread use of measures to avoid consequences of possible diversion indicates that diversion from intended use does impact on plant health and trade, and merits further guidance in order to achieve a technically justified, transparent and harmonized approach. The document adds that the extent to which diversion from intended use is actually occurring and increasing pest risk in importing countries remains unclear.¹⁸⁵⁷

7.985. With regard to the above-mentioned documents, it appears that CONSULSANTOS (2010) mentions the use of Hass rootstock; that the document "Diversion from intended use" (2016) confirms the existence of diversion from intended use in general, but notes that the extent to which it occurs remains unclear; and that CONSULSANTOS (2017) is the only source that mentions the use of seed from fruit for consumption for propagation purposes in Costa Rica, but consists of an affidavit that is not supported by evidence.

7.986. Therefore, even if evidence of the use of Hass rootstock in Costa Rica can be found, the Panel finds that there is insufficient scientific evidence in Reports ARP-002-2017 and ARP-006-2016 on the existence of diversion from intended use of seeds from fresh fruit for consumption, and that there are no estimates, even in qualitative terms, of the scale on which this diversion occurs in Costa Rica. This prevented the risk analyst from conducting either a qualitative or quantitative assessment of the probability of entry, establishment or spread of ASBVd in Costa Rica that would give due consideration to this diversion from intended use.

¹⁸⁵³ Garbanzo Solís (2011), (Exhibit MEX-125), p. 24.

¹⁸⁵⁴ Garbanzo Solís (2011), (Exhibit MEX-125), p. 20.

¹⁸⁵⁵ CONSULSANTOS (2017), (Exhibit MEX-118).

¹⁸⁵⁶ IPPC Secretariat, "Diversion from intended use" (2016), (Exhibit MEX-124), p. 23.

¹⁸⁵⁷ IPPC Secretariat, "Diversion from intended use" (2016), (Exhibit MEX-124), p. 23.

7.4.5.3.3.5 Documents cited in support of the assertions concerning diversion from intended use not included in Reports ARP-002-2017 and ARP-006-2016

7.987. Throughout the proceedings, Costa Rica has submitted exhibits that post-date Reports ARP-002-2017 and ARP-006-2016, or that predate but were not included in those reports, which it asserts substantiate the diversion from intended use of fresh avocados in Costa Rica and the practice of using Hass rootstock, in particular the grafting of Hass on Hass.

7.988. **Mexico** states that the new evidence provided by Costa Rica still does not prove that the skin and seeds from asymptomatic avocado fruit pose a risk of entry, establishment or spread of ASBVd within the territory of Costa Rica.¹⁸⁵⁸

7.989. Mexico states that the report, Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), post-dates the measure, and is designed specifically to justify *ex post* the circumstances that, according to the PRAs, justified the imposition of the measures by Costa Rica, but that were not duly substantiated on the basis of CONSULSANTOS (2010) and CONSULSANTOS (2017).¹⁸⁵⁹ Mexico asserts that this document: (i) notes the absence of systematic studies relating to the cultural management of avocado seed in Costa Rica before 2019; (ii) confirms that it is highly unlikely for someone to be aware of the origin of the avocado they are buying, which means that it would have been difficult for Costa Rica to have been able to calculate a high risk of probability of entry, establishment and spread deriving from the diversion from intended use of imported avocados; (iii) states that most of the seeds are obtained from the farms themselves or from nearby nurseries, and notes that at the APACOOOP nursery all the seeds used to produce rootstock are obtained from the cooperative's farm, which selects the best specimens according to size, but asserts that the criollo avocado tree works very well for grafting; (iv) restates that only 10% of the seed could come from "another origin", i.e. most producers obtain their rootstock from their own seed (65%) or purchased seed (24%), without specifying whether the purchased seed derives from the pits of avocados imported for consumption; and (v) shows that the material used on farms is mostly criollo avocado material obtained from various sources and that only a very small part of it comes from "another origin".¹⁸⁶⁰

7.990. Regarding the five affidavits from farmers, Mexico notes that these testimonies, while reflecting the opinion of private individuals, appear to be unobjective and unrepresentative, and are therefore not sufficient to confirm a cultural practice of diversion from intended use due to the importation of fresh avocados for consumption in Costa Rica.¹⁸⁶¹

7.991. Mexico indicates that the evidence submitted *ex post* by Costa Rica confirms that: (i) Costa Rica could have gathered information enabling its phytosanitary authority to assess in an objective, methodological and impartial manner the probability of the entry, establishment and spread of ASBVd through fresh avocados imported for consumption; (ii) Costa Rica has availed itself of the WTO dispute settlement process to address the errors and flaws in its measures and to try to justify them *ex post facto*; and (iii) even with the new evidence most probably designed *ex professo*, Costa Rica cannot objectively demonstrate that fresh avocados imported for consumption pose a high risk in terms of the entry, establishment and spread of ASBVd.¹⁸⁶²

7.992. Mexico submits that while Costa Rica has tried to remedy the lack of information proving that cultural practices result in the diversion from intended use of avocado pits obtained from fruit imported for consumption, such evidence is not applicable in this dispute.¹⁸⁶³

7.993. Mexico asserts that WTO dispute settlement proceedings are not the right time to be justifying *ex post* the adoption of phytosanitary measures, as Costa Rica seeks to do by attempting to validate and justify the appropriateness of its measures on the basis of scientific evidence that was not considered and included in the PRAs, and by publishing and implementing new legal

¹⁸⁵⁸ Mexico's second written submission, para. 75.

¹⁸⁵⁹ Mexico's second written submission, para. 76.

¹⁸⁶⁰ Mexico's second written submission, para. 77 (citing Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44)).

¹⁸⁶¹ Mexico's second written submission, para. 78.

¹⁸⁶² Mexico's second written submission, paras. 80-81.

¹⁸⁶³ Mexico's second written submission, para. 134 (citing México, Cuadro sobre la aplicabilidad de evidencia presentada por Costa Rica (Mexico, Table on the applicability of evidence), (Exhibit MEX-245)).

provisions that try to justify, once again *ex post*, a risk analysis lacking scientific rigour and objectivity. Mexico submits that, insofar as this is the case, the Panel should ignore this evidence.¹⁸⁶⁴

7.994. As part of its arguments under Article 5.2 of the SPS Agreement regarding available scientific evidence, Mexico states that it is submitting a comparative table displaying the literature cited by Costa Rica in its response to Panel question No. 19¹⁸⁶⁵, and another table listing all the evidence submitted by Costa Rica during the proceedings, which, according to Mexico, should be disregarded on account of being information submitted *ex professo* and prepared specifically so that Costa Rica can justify its measures during these proceedings.¹⁸⁶⁶

7.995. **Costa Rica** contends that the Costa Rican population's own cultural practices in respect of seed sowing and seed management are a key factor in determining the risk of the introduction of ASBVd in its territory, and submits a study that it claims documents the characteristics of avocado seed sowing and management as a cultural practice for avocado reproduction and, in particular, the characteristics pertaining to the re-sowing or diversion from intended use of seeds from fruit intended for consumption.¹⁸⁶⁷ According to Costa Rica, this study shows that the practice of exchanging and experimenting with different seed varieties, and the habit of sowing seeds from different products consumed in the home, mean that sowing avocado seeds is usually considered a natural and harmless practice, and that it may continue to occur despite Costa Rica's efforts to prohibit these behaviours in order to minimize the associated risks.¹⁸⁶⁸

7.996. According to Costa Rica, although there are no studies analysing the effectiveness of this practice in aggregate or macroeconomic terms¹⁸⁶⁹, the study, Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), noted the existence of the practice of grafting on to Hass rootstock, and reported that farmers consider Hass-on-Hass grafting to be a good combination because of its resilience and quality of the fruits obtained.¹⁸⁷⁰ Costa Rica asserts that the farmers made same observation in their affidavits.¹⁸⁷¹

7.997. Costa Rica contends that diversion from intended use is a deep-rooted cultural practice in Costa Rica, especially in the highland area where the Hass variety is grown¹⁸⁷², and that, while it is difficult to document, Costa Rica has continued in its efforts to do so. Costa Rica asserts that, in 2019, the Costa Rican government commissioned a study on seed management in Costa Rica, and that the SFE continues to collect information on the magnitude of diversion from intended use, while training programmes for farmers are being provided to try to raise more awareness about good agricultural practices. The impact of domestic regulations prohibiting the sowing of seeds from avocados imported from countries with ASBVd is also being monitored.¹⁸⁷³

¹⁸⁶⁴ Mexico's opening statement at the first meeting of the Panel, para. 8.

¹⁸⁶⁵ In Panel question No. 19, the Panel asked Costa Rica to submit all the documents mentioned in the bibliography of Report ARP-002-2017 and its datasheet that had not yet been submitted as exhibits.

¹⁸⁶⁶ Mexico's second written submission, para. 191 (citing Mexico, Table on the applicability of evidence, (Exhibit MEX-245)).

¹⁸⁶⁷ Costa Rica's opening statement at the first meeting of the Panel, para. 10 (referring to Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44)).

¹⁸⁶⁸ Costa Rica's opening statement at the first meeting of the Panel, para. 11.

¹⁸⁶⁹ Costa Rica's response to Panel question No. 12, para. 1.

¹⁸⁷⁰ Costa Rica's response to Panel question No. 11, para. 3 (citing Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44), p. 14).

¹⁸⁷¹ Costa Rica's response to Panel question No. 11, para. 3 (citing Declaración Jurada de Juan Gamboa Robles, 23 de septiembre de 2019 (Affidavit of Juan Gamboa Robles (2019)), (Exhibit CRI-45); Declaración Jurada de Francisco Fallas Serrano, 23 de septiembre de 2019 (Affidavit of Francisco Fallas Serrano (2019)), (Exhibit CRI-46); Affidavit of Francisco Cordero Navarro (2019), (Exhibit CRI-47); Declaración Jurada de Daniel Ureña Zumbado, 23 de septiembre de 2019 (Affidavit of Daniel Ureña Zumbado (2019)), (Exhibit CRI-48); and Declaración Jurada de Francisco Elizondo Ureña, 23 de septiembre de 2019 (Affidavit of Francisco Elizondo Ureña (2019)), (Exhibit CRI-49)).

¹⁸⁷² Costa Rica's response to Panel question No. 169, para. 197.

¹⁸⁷³ Costa Rica's comments on Mexico's response to Panel question No. 161, para. 82 (referring to Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44), and citing Decreto N° 41995-MAG del Segundo Vicepresidente en el ejercicio de la presidencia de la República y el Ministro de Agricultura y Ganadería, "Reglamento para regular el uso de semilla de aguacate (Persea americana Mill.) para propagación, extraídas de frutos frescos importados para consumo, de países con presencia de avocado sunblotch viroid (ASBVd)", del 23 de septiembre de 2019, publicado en La Gaceta N° 196, de 16 de octubre de 2019 (Regulation governing the use of avocado seeds (2019)), (Exhibits MEX-174 and CRI-53)).

7.998. Costa Rica notes that several reports find that the practice of the diversion from intended use of avocado seed exists and is common in Costa Rica.¹⁸⁷⁴ Costa Rica adds that, for example, avocado wholesalers confirm the existence of the practice whereby avocado producers purchase quantities of avocados that are not fit for sale to consumers (because they are bruised or overripe) and use them to establish their own nurseries¹⁸⁷⁵; and that the farmers themselves acknowledge in their affidavits that "avocado farming started out using seeds of uncertain origin, including seeds obtained from wholesale markets where avocado fruit was sold".¹⁸⁷⁶

7.999. Costa Rica asserts that the agricultural practice of grafting the Hass variety on to Hass rootstock is very widespread in Costa Rica and has so far yielded positive results, citing in this respect the Manual for Nurseries (2017).¹⁸⁷⁷

7.1000. Costa Rica further asserts that nothing prevents the Panel from taking into consideration the most recent information as part of its objective assessment of the matter.¹⁸⁷⁸ For Costa Rica, the ability to conduct an objective assessment of the facts would be limited if a panel were unable to consider new studies in order to verify whether a risk identified at a certain point is still present or is increasing or decreasing. Costa Rica adds that any evidence post-dating the imposition of the measures, which confirms the reasonableness of the conclusions reached in the risk analysis underpinning those measures, is evidence that a panel may take into consideration in its review.¹⁸⁷⁹ For Costa Rica, the scientific literature *post-dating* Costa Rica's risk assessment confirms the importance of ASBVd and the risk posed by avocado fruit.¹⁸⁸⁰

7.1001. As a preliminary matter, the **Panel** will address Mexico's argument that the Panel should ignore scientific evidence that was not considered and included in the PRAs, because it is evidence with which, in Mexico's view, Costa Rica is attempting to justify *ex post* a risk analysis lacking in scientific rigour and objectivity.¹⁸⁸¹

7.1002. With regard to evidence in support of a claim challenging measures that are within a panel's terms of reference, the Appellate Body has explained that a panel is not precluded from assessing a piece of evidence for the mere reason that it predates or post-dates its establishment, and that a panel enjoys a certain discretion to determine the relevance and probative value of a piece of evidence that predates or post-dates its establishment.¹⁸⁸²

7.1003. The Panel considers that the above statement by the Appellate Body may also be applicable to the evidence submitted by the respondent. In this Panel's view, it is not precluded from assessing the evidence that was submitted by Costa Rica during the proceedings, which post-dates Reports ARP-002-2017 and ARP-006-2016 (or even that predating and not included in those reports). However, in assessing this evidence and determining its relevance and probative value, the Panel will consider the fact that this evidence was not used for the risk assessments contained in Reports ARP-002-2017 and ARP-006-2016, and that Costa Rica has not submitted any subsequent risk assessment using this new evidence.

7.1004. The Panel will now address the documents cited by Costa Rica in support of the assertions on diversion from intended use that were not included in Reports ARP-002-2017 and ARP-006-006: the Manual for Nurseries (2017)¹⁸⁸³, the report Cultural practices in sowing and managing avocado seeds in Costa Rica (2019)"¹⁸⁸⁴, the affidavits submitted by Costa Rica, and Los Santos Zone (2007).¹⁸⁸⁵

¹⁸⁷⁴ Costa Rica's response to Panel question No. 14, para. 2.

¹⁸⁷⁵ Costa Rica's response to Panel question No. 14, para. 2 (citing Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44), p. 15).

¹⁸⁷⁶ Costa Rica's response to Panel question No. 14, para. 2 (citing Affidavit of Francisco Fallas Serrano (2019), (Exhibit CRI-46)).

¹⁸⁷⁷ Costa Rica's first written submission, para. 3.6 (citing Manual for Nurseries (2017), p. 30).

¹⁸⁷⁸ Costa Rica's response to Panel question No. 102.

¹⁸⁷⁹ Costa Rica's response to Panel question No. 102.

¹⁸⁸⁰ Costa Rica's second written submission, para. 3.44.

¹⁸⁸¹ Mexico's opening statement at the first meeting of the Panel, para. 8.

¹⁸⁸² Appellate Body Report, *EC – Selected Customs Matters*, para. 188.

¹⁸⁸³ Manual for Nurseries (2017), (Exhibit CRI-43).

¹⁸⁸⁴ Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44).

¹⁸⁸⁵ Los Santos Zone (2007), (Exhibit MEX-97).

7.1005. The Manual for Nurseries (2017) contains technical information on nursery management in Costa Rica, including seed selection and grafting practices.¹⁸⁸⁶

7.1006. Throughout the proceedings, Costa Rica cites the Manual for Nurseries (2017) to support its argument that the origin of the seed is not always known.¹⁸⁸⁷ The Manual for Nurseries states that, where seeds have been in contact with the soil or are of unknown provenance, they should be treated with lukewarm water at 50°C for around five minutes¹⁸⁸⁸, which does not directly prove Costa Rica's assertion that the origin of the seed is not always known. The Manual for Nurseries also recommends selecting seeds from trees that are good producers, and states that all nurseries should consider keeping and verifying a register in which the provenance of the propagation material is recorded.¹⁸⁸⁹

7.1007. During the proceedings, Costa Rica also cites this evidence to support its assertion that, in Costa Rica, the agricultural practice of grafting the Hass variety on to Hass rootstock is very widespread and has so far yielded positive results.¹⁸⁹⁰ The Manual for Nurseries (2017) states that there have been positive experiences of using rootstock from the Guatemala, Hass and some criollo varieties¹⁸⁹¹, but does not specifically mention the use of Hass on Hass or indicate that this is a widespread practice.

7.1008. The report "Cultural practices in sowing and managing avocado seeds in Costa Rica (2019)" of 10 October 2019 was drafted by the Centre for Research into Culture and Development of the State University of Distance Education of Costa Rica.¹⁸⁹²

7.1009. The report states that its objective is to document the characteristics of avocado seed sowing and management as a cultural practice in Costa Rica. It describes itself as an exploratory and descriptive report, based on a qualitative methodology that is useful for learning more about the nature and characteristics of social phenomena. The report also states that it seeks to document the main avocado reproduction practices used in Costa Rica, in particular those relating to the resowing or diversion from intended use of seeds from fruit intended for consumption.¹⁸⁹³

7.1010. With regard to methodology, the report notes that, initially, no systematic studies relating to the cultural management of avocado seed in the country were found to exist. The report indicates that semi-structured interviews were therefore used to record the expert opinion of 21 people involved in the production and marketing of avocados or professionally linked to this area, and of one consumer who took part in an interview at an agricultural fair.¹⁸⁹⁴

7.1011. According to this study, it is highly unlikely that a person knows the origin of the avocados they buy, except when purchased directly from a domestic producer.¹⁸⁹⁵

7.1012. The section on avocado reproduction and seed management by producers first addresses the subject of nurseries. An agronomist and official from the National Seed Office, which provides four nurseries with support in the certification process for genetic material for avocado propagation, states that Hass and Guatemala rootstock are used in the Hass avocado grafting process, and that

¹⁸⁸⁶ Manual for Nurseries (2017), (Exhibit CRI-43).

¹⁸⁸⁷ Costa Rica's first written submission, para. 3.5; second written submission, para. 3.39; response to Panel question No. 14, para. 2 (citing Manual for Nurseries (2017), (Exhibit CRI-43), p. 20).

¹⁸⁸⁸ Manual for Nurseries (2017), (Exhibit CRI-43), p. 20.

¹⁸⁸⁹ Manual for Nurseries (2017), (Exhibit CRI-43), pp. 19 and 36.

¹⁸⁹⁰ Costa Rica's first written submission, para. 3.6 (citing Manual for Nurseries (2017), (Exhibit CRI-43), p. 30).

¹⁸⁹¹ Manual for Nurseries (2017), (Exhibit CRI-43), p. 30.

¹⁸⁹² Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44).

¹⁸⁹³ Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44), p. 2.

¹⁸⁹⁴ Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44), p. 2.

¹⁸⁹⁵ Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44), pp. 5-6.

these varieties are promoted because they are very adaptable, flower more and produce more fruit.¹⁸⁹⁶

7.1013. The report notes that INEC, Crops (2015) indicates that 65% of farms producing avocados do so using their own seed, 24% using bought seed, and 10% using seed of "other" origin.¹⁸⁹⁷

7.1014. The report also notes that research into lowland avocados found that only 20% of avocado trees and varieties in lowland areas came from nurseries or had been obtained already grafted, while in most cases producers predominantly use their own seed or seed that they have collected.¹⁸⁹⁸

7.1015. Regarding production in highland areas, the report indicates, citing CONSULSANTOS (2010), that only in modernized avocado orchards does most of the propagation material come from nurseries, while in traditional avocado orchards and avocado-coffee plantations, the predominant approach is to plant seeds directly. In coffee-avocado plantations, both practices are found with the same frequency. The report adds that, in terms of Costa Rica's territory, only in the canton of El Guarco do the majority of avocado producers obtain their planting material from nurseries, while in the Los Santos zone, Desamparados and Corralillo de Cartago, trees are reproduced mainly using rootstock seed, which is obtained from the farms themselves or their surrounding areas.¹⁸⁹⁹

7.1016. In the report, a small-scale highland producer states that it is common for the same farm to grow both grafted and non-grafted avocado trees, and that such trees may come from the farm's own seed, from municipal nurseries, from other producers as a gift or as part of an exchange, or from public institutions by way of donations.¹⁹⁰⁰ Regarding the exchange of seeds, the report mentions that:

- a. A number of farmers interviewed say that, in some cases, seeds of unknown genetics are not trusted, while other producers exchange and reproduce seeds without any regard for this concern.¹⁹⁰¹
- b. It was noted that producers often try to reproduce in highland areas seed that has been given to them by lowland farms and vice versa, with relative success, meaning that seed mobility is common in national territory and seen as a form of experimentation and adaptation that is part of farming tradition.¹⁹⁰²
- c. Two interviewees said that they enjoyed participating in seed exchanges and in visits to farms throughout the national territory, and that this had enabled them to improve their knowledge and production practices.¹⁹⁰³

7.1017. The report further indicates that producers reproduce rootstock mainly by directly sowing their own seed.¹⁹⁰⁴ The report notes that the interviewees said that grafts were made on to criollo

¹⁸⁹⁶ Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44), p. 11.

¹⁸⁹⁷ Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44), p. 12 (citing INEC, Crops (2015), (Exhibit CRI-63)).

¹⁸⁹⁸ Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44), p. 12.

¹⁸⁹⁹ Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44), p. 12 (citing CONSULSANTOS (2010), (Exhibit MEX-119)).

¹⁹⁰⁰ Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44), p. 12.

¹⁹⁰¹ Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44), p. 12.

¹⁹⁰² Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44), p. 12.

¹⁹⁰³ Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44), p. 12.

¹⁹⁰⁴ Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44), pp. 12-13.

rootstock, as well as Hass rootstock, and that the use of Hass rootstock also seemed to yield good results.¹⁹⁰⁵ In this regard, the report presents the following testimonies:

- a. One producer believes that the best combination for a fruit tree is Hass with Hass, because of its resilience and the quality of the fruit, and that is the graft he usually uses to speed up and guarantee production.¹⁹⁰⁶
- b. Another producer said that he did not know how grafting was handled on other farms, although he felt that Hass on criollo varieties or Hass on Hass was probably used, which is the system he produced with and which he had started using by accident.¹⁹⁰⁷

7.1018. According to one interviewee, some producers graft avocado trees that have sprouted of their own accord regardless of the variety.¹⁹⁰⁸

7.1019. Regarding the diversion from intended use of fruit for consumption, the report contains the following testimonies:

- a. One producer says that she has 10 trees grown from the seeds of avocados that she ate herself, interspersed with trees that that were given to her already grafted.¹⁹⁰⁹
- b. Traders appeared to confirm the existence of the practice of using avocados sold for consumption as a source of seed for reproduction purposes. The report adds that one seller believes that seeds from avocados that have overripened or been bruised prior to being sold are often used for sowing, and that other sellers said they knew that some individuals occasionally bought quantities of overripe avocados and used them to start up nurseries.¹⁹¹⁰

7.1020. As regards the reproduction of avocados and the management of seed by non-producers, the report notes that, according to an agronomist and her research in lowland areas, the reproduction of avocados by non-farmers is quite common because people like to consume the fruit, the seed is very easy, and where the seed is fresh, it is ideal for reproduction. The agronomist says that people continue to use seed a lot for propagation purposes because they do not know how to graft, and so they generally eat the avocado and sow the seed, because avocado seeds cannot be kept for a long time. She notes that, in lowland areas, most people who cultivate avocados, 80% of them, do so using seed because someone gave it to them and told them that it was very good, or because they ate the fruit and saw that it was good.¹⁹¹¹

7.1021. The report also presents the testimony of a person who sells organic products door-to-door in the Greater Metropolitan Area. This person believes that his customers plant the seeds of the avocados they buy as a way of raising the urban population's awareness of agriculture, and that this is a growing trend, with home and community vegetable gardens in different places.¹⁹¹²

¹⁹⁰⁵ Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44), p. 14.

¹⁹⁰⁶ Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44), p. 14.

¹⁹⁰⁷ Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44), p. 14.

¹⁹⁰⁸ Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44), pp. 14-15.

¹⁹⁰⁹ Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44), p. 15.

¹⁹¹⁰ Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44), p. 15.

¹⁹¹¹ Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44), p. 15.

¹⁹¹² Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44), p. 16.

7.1022. The report notes the comment that it is not unusual for an intelligent and experienced producer to be told by a relative to come and see their tree, to see that the avocado is very good, to take it and to remove its seed.¹⁹¹³

7.1023. The report states that one older man shared his own experience, which confirmed that some urban residents are interested in having a connection with agriculture and, in particular, avocado trees close to their homes, and recounted that he had two seeds that were germinating, and that the seed is planted directly and no grafting is carried out.¹⁹¹⁴

7.1024. The report concludes that commercial avocado production has different characteristics depending on the altitudinal zone in which it takes place, the varieties used, and the experience and judgement of those involved. The report adds that the results of the rural cultural practice of exchanging and experimenting with different varieties of seeds, the habit of planting the seeds of various products consumed in the home, and the appreciation of avocados as a foodstuff, mean that planting the seeds of avocados intended for consumption is usually considered a natural and harmless practice.¹⁹¹⁵

7.1025. The Panel notes that, with the report Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), Costa Rica seeks to substantiate the diversion from intended use by both producers and non-producers, and the use of Hass on Hass. The report contains assertions regarding the exchange of seeds, the use of Hass on Hass, the care of trees that germinate spontaneously, and the use of seed from avocados for market consumption. It was, however, prepared in 2019 mainly on the basis of the testimonies of 21 people, whose representativeness in relation to the PRA area is not sufficiently explained, and, since it post-dates Reports ARP-002-2017 and ARP-006-2016, was not considered at the time of the preparation of those reports. Therefore, this information does not form part of the scientific basis used in the assessment and reasoning of the risk assessor.

7.1026. In order to substantiate the diversion from intended use and the use of Hass on Hass, Costa Rica also submits the following five affidavits.

7.1027. In the Affidavit of Juan Gamboa Robles, of 23 September 2019, the farmer from León Cortés states that, for the purpose of his agricultural activity, plants are produced using the grafting system, which involves the use of rootstock or stock of the Hass variety and cuttings or buds for grafting of the same variety; that this practice has achieved very good results in the field for many years, as well as there being genetic compatibility in terms of the materials used; and that one of the main reasons for grafting Hass on to Hass is the high demand for this type of plant among farmers. He adds that he is aware that, in the area where he lives, it is customary for many people, after having purchased avocado fruit in the local market, and given that the avocados have certain optimal characteristics such as their size, colour, texture and taste, to plant them in their gardens or on farms, with a view to propagating this plant.¹⁹¹⁶

7.1028. In the Affidavit of Francisco Fallas Serrano, of 23 September 2019, the producer and nurseryman from Pastora de Tarrazú states that he has used Hass seed as rootstock to be grafted with Hass and with other varieties; and that he is aware that avocado farming started out using seeds of uncertain origin, including seeds obtained from wholesale markets where avocado fruit was sold.¹⁹¹⁷

7.1029. In the Affidavit of Francisco Cordero Navarro, of 23 September 2019, the farmer from Pastora de Tarrazú and manager of the nursery at the Tarrazú Cantonal Agricultural Centre states that seeds were used as criollo avocado rootstock from when the nursery was first established; that

¹⁹¹³ Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44), p. 16.

¹⁹¹⁴ Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44), p. 16.

¹⁹¹⁵ Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44), p. 18.

¹⁹¹⁶ Affidavit of Juan Gamboa Robles (2019), (Exhibit CRI-45).

¹⁹¹⁷ Affidavit of Francisco Fallas Serrano (2019), (Exhibit CRI-46).

seeds were offered for sale to the Cantonal Agricultural Centre by local residents, then planted and later grafted with different varieties; and that the Hass variety has been grafted since the 1990s.¹⁹¹⁸

7.1030. In the Affidavit of Daniel Ureña Zumbado, of 23 September 2019, the farmer from Santa María de Dota states that he has grafted the Reed variety on to Hass rootstock on his property; and that he knows producers and nursery workers who graft Hass on to Hass.¹⁹¹⁹

7.1031. In the Affidavit of Francisco Elizondo Ureña, of 23 September 2019, the farmer from San Juan de San Marcos de Tarrazú, who produces avocados for his own use, states that, for the purpose of his agricultural activity, plants are produced using the grafting system, which involves the use of rootstock or stock of the Hass variety and cuttings or buds for grafting of the same variety.¹⁹²⁰

7.1032. The Panel notes that the above-mentioned affidavits seek to support Costa Rica's assertions that the country's farmers graft Hass on to Hass and sometimes use seeds of uncertain origin or from fruit bought at markets. However, these are individual affidavits from five people, whose representativeness in relation to the PRA area is not explained, and, since they post-date Reports ARP-002-2017 and ARP-006-2016, were not considered at the time of the preparation of those reports. Therefore, this information does not form part of the scientific basis used in the assessment and reasoning of the risk assessor.

7.1033. Los Santos Zone (2007) is a report containing information on the avocado agricultural chain in Costa Rica, particularly in the Los Santos zone, and includes data on its development, the climate and the edaphoclimatic requirements for Hass avocados, national distribution and cultivation areas, genetic material, production, transport, storage and distribution, and marketing.¹⁹²¹

7.1034. Costa Rica cites the Los Santos Zone (2007) report when asserting that producers in Costa Rica initially used criollo rootstock, but that criollo trees were never very good for growing avocados, and that therefore, subsequently, in the early 1990s, the Hass avocado began to be used as rootstock, this being one of the best for the soil in the area.¹⁹²² Costa Rica also cites Los Santos Zone (2007) in its assertion that grafting Hass on to Hass rootstock is a widespread agricultural practice in Costa Rica.¹⁹²³

7.1035. The report notes that commercial avocado growing was not very profitable until the Hass variety began to be used, and that with the introduction of the Hass variety in 1985-1986 through the Tarrazú Cantonal Agricultural Centre the activity started to improve, with material being reproduced in nurseries and directly in the field. The report indicates that this led to the majority of producers changing the crowns (grafts) of other varieties to Hass. Regarding rootstock, the report adds that criollo trees were used in the region, which were never very good for growing avocados, and that, subsequently, in the early 1990s, the Hass avocado began to be used as rootstock, this being one of the best for the soil in the area.¹⁹²⁴

7.1036. The Panel observes that the Los Santos Zone (2007) report supports Costa Rica's assertion concerning the use of Hass as rootstock in the Los Santos region, indicating that Hass had shown itself to be one of the best for the soil in the area, but does not support the assertion that grafting Hass on to Hass rootstock is a widespread agricultural practice in Costa Rica. The Panel recalls that, in any case, the report is not a source for Reports ARP-002-2017 and ARP-006-2016, and that this information therefore does not form part of the scientific basis used in the assessment and reasoning of the risk assessor.

7.1037. The Panel considers that Costa Rica has made efforts during the course of these proceedings to document diversion from intended use and to reinforce its evidence concerning the use of Hass as rootstock by submitting additional information. This information is not, however, reflected or

¹⁹¹⁸ Affidavit of Francisco Cordero Navarro (2019), (Exhibit CRI-47).

¹⁹¹⁹ Affidavit of Daniel Ureña Zumbado (2019), (Exhibit CRI-48).

¹⁹²⁰ Affidavit of Francisco Elizondo Ureña (2019), (Exhibit CRI-49).

¹⁹²¹ Los Santos Zone (2007), (Exhibit MEX-97).

¹⁹²² Costa Rica's first written submission, paras. 3.6 and 5.122; second written submission, para. 3.39; specific comments on the experts' responses to Panel questions Nos. 17, 62 and 107-110 for the experts.

¹⁹²³ Costa Rica's first written submission, para. 5.125.

¹⁹²⁴ Los Santos Zone (2007), (Exhibit MEX-97), p. 7.

analysed in the risk assessment contained in Reports ARP-002-2017 and ARP-006-2016, which form the basis for Costa Rica's phytosanitary requirements.

7.1038. Furthermore, while Costa Rica's efforts appear to be on the right track, in this Panel's view, the evidence provided is still insufficient to document the diversion from intended use of fresh fruit for consumption in such a way as to allow for a qualitative or quantitative assessment of the probability of entry, establishment or spread of ASBVd in Costa Rica that properly considers such diversion from intended use. In addition, there are still no estimates, whether qualitative or quantitative, concerning the magnitude of diversion from intended use.

7.1039. It should be added that the experts consulted had no direct knowledge of the use of Hass as rootstock or of the diversion from intended use of avocados in Costa Rica specifically.

7.4.5.3.3.6 Discussion on the viability of the use of Hass as rootstock

7.1040. To refute the assertions contained in Reports ARP-002-2017 and ARP-006-2016 on the use of Hass as rootstock, **Mexico** argues that no country in the world uses or mentions the Hass variety as rootstock in the industrial production of avocados.¹⁹²⁵ Mexico points out that, in its industry's experience, the use of Hass as rootstock produces weak, thin, and poor-quality seedlings with small roots. In Mexico's view, Hass avocado seeds are not a viable technological alternative for use as rootstock on commercial orchards because the fruit thus produced does not retain the favourable characteristics of the Hass cultivar.¹⁹²⁶

7.1041. In response to Costa Rica's assertion that its avocado production is not highly sophisticated and there are no extensive, modern plantations, Mexico contends that Costa Rica has not only increased its production, but has also substantially improved its domestic programmes for modernization and the development of good practices.¹⁹²⁷ In support of its argument, Mexico submits a time series analysis of the technological development of the production system of avocados and other crops such as coffee in Costa Rica, in which Mexico states that Costa Rica has increased its production for domestic consumption, and that the rise in production has allowed it to increase its exports by 420%.¹⁹²⁸ The document also refers to the National Plan for Strengthening the Avocado Sector in Costa Rica (2019).¹⁹²⁹

7.1042. Mexico notes that the use of Hass seed affects the plant's vigour, and hence its germination, and that a seed from an avocado native to Costa Rica will be better suited to the territory's conditions.¹⁹³⁰

7.1043. Mexico considers that, by reading the statements of the expert Fernando Pliego Alfaro holistically, it is very easy to conclude that grafting Hass on Hass is not a common practice in developed agricultural sectors because commercially viable results cannot be obtained from a seedling identified as being of medium quality.¹⁹³¹

7.1044. For its part, **Costa Rica** submits that the agricultural practice of grafting the Hass variety onto Hass rootstock is very widespread and has yielded positive results in terms of both volume and

¹⁹²⁵ Mexico's first written submission, para. 22.

¹⁹²⁶ Mexico's response to Panel question No. 11, para. 33 (citing Declaración Jurada del Dr Daniel Téliz Ortiz, 4 de diciembre de 2019 (Affidavit of Dr Daniel Téliz Ortiz (2019)), (Exhibit MEX-187)); second written submission, para. 86 (citing Affidavit of Dr Daniel Téliz Ortiz (2019), (Exhibit MEX-187)).

¹⁹²⁷ Mexico's comments on Costa Rica's response to Panel questions, pp. 12-13 (citing Mexico, Avocado and coffee production in Costa Rica (2020), (Exhibit MEX-286)).

¹⁹²⁸ Mexico, Avocado and coffee production in Costa Rica (2020), (Exhibit MEX-286), p. 3.

¹⁹²⁹ Mexico, Avocado and coffee production in Costa Rica (2020), (Exhibit MEX-286), pp. 5-7 (referring to Ministerio de Agricultura y Ganadería (MAG) de Costa Rica e Instituto Interamericano de Cooperación para la Agricultura (IICA), Representación Costa Rica, "Plan Nacional de Fortalecimiento del Sector Aguacatero", 26 de junio 2019 (MAG, IICA, National Avocado Production Plan (2019)), (Exhibit CRI-1)).

¹⁹³⁰ Mexico's comments on Costa Rica's response to Panel question No. 166, para. 1.

¹⁹³¹ Mexico's comments on Costa Rica's response to Panel question No. 166, para. 3 (citing Fernando Pliego Alfaro, transcript of the Panel's meeting with the parties and the experts, day 1, pp. 61-63).

quality of fruit¹⁹³², and that grafts of Hass on Hass are considered to be a good combination because of their strength and the quality of the fruit produced.¹⁹³³

7.1045. Costa Rica adds that the practice of grafting Hass onto Hass must be understood in context and in light of the characteristics of avocado crops in Costa Rica, where avocado crops are grown by small farmers mainly for their own consumption and as a secondary agricultural activity to coffee-growing, and where most avocados producers are small-scale farmers and, in many cases, with little technical knowledge.¹⁹³⁴ According to Costa Rica, avocado production in the country is not highly sophisticated nor are there modern orchards, and its avocado production is sustained by a large number of small-scale farmers with limited resources.¹⁹³⁵

7.1046. Costa Rica states that it is indisputable that no farmer in any country would use rootstocks that do not work, even though agricultural practices may be improving and progressing with the development of the industry concerned, and that, notwithstanding the possible theoretical discussion about the best varieties of seed to produce a rootstock, in Costa Rica, farmers successfully use the Hass seed to obtain a rootstock and graft Hass onto it. In Costa Rica's view, this is the existing practice and it should be considered – as it indeed was – in the risk analysis as a factor that increases the risk of diversion from intended use of the seeds of Hass avocados for consumption.¹⁹³⁶

7.1047. The **Panel** notes that the experts have no direct knowledge of the use of Hass as rootstock in Costa Rica, but they have commented on the viability of the practice in general.

7.1048. The avocado cultivation expert, Fernando Pliego Alfaro, states that the Hass variety can be used as rootstock, but it is not a very common practice in the avocado industry because seeds of other varieties give better plants, and that the practice is widespread when seeds of other varieties are unavailable and where the plant breeding industry is not very well developed. Mr Pliego Alfaro adds that the clonal Hass variety is never used as rootstock because it does not make sense to do so; that Hass seeds can be used which, once germinated, are grafted with the Hass variety, albeit with possibly poor agronomic performance; and that it is not a very widespread practice.¹⁹³⁷ For his part, the expert Ricardo Flores Pedauy  is of the view that it is not common, but if the rootstock is used, whether it is good or not will depend on soil adaptation, and he agreed that the results varied according to territory. Mr Flores Pedauy  adds that, in modern fruit cultivation, close attention is generally paid to the material used as rootstock, but this is perhaps not the case among small producers in Costa Rica.¹⁹³⁸

7.1049. The expert Fernando Pliego Alfaro reiterates that using the Hass variety as rootstock is not good practice and those who understand avocados would not use it, but it depends on the level of development of the country's avocado industry.¹⁹³⁹ Regarding the sowing of avocado seeds, Mr Pliego Alfaro states that someone who plants a seed in a backyard or garden will probably not graft it, and someone who understands avocados and cultivation would not be interested in growing an avocado plant from seed because it would have no commercial viability.¹⁹⁴⁰

7.1050. This shows that, in the experts' view, the use of Hass as a rootstock is possible, but does not yield positive results and is not a practice that is used in developed industries.

7.1051. As regards whether Costa Rica's industry is technically sophisticated, the Panel notes that the CONSULSANTOS (2010) report states that the type of avocado farmer in the area of study, i.e. the Los Santos, Frailes and Corralillo zone, are small producers.¹⁹⁴¹ The report states that only

¹⁹³² Costa Rica's first written submission, paras. 3.6, 5.122 and 5.125; second written submission, para. 3.42; and response to Panel question No. 166, para. 190.

¹⁹³³ Costa Rica's second written submission, para. 3.39.

¹⁹³⁴ Costa Rica's specific comments on Panel question No. 62 for the experts.

¹⁹³⁵ Costa Rica's specific comments on Panel questions Nos. 12 and 13 for the experts.

¹⁹³⁶ Costa Rica's response to Panel question No. 166, para. 190.

¹⁹³⁷ Fernando Pliego Alfaro's responses to Panel questions Nos. 17 and 18 for the experts.

¹⁹³⁸ Ricardo Flores Pedauy 's responses to Panel questions Nos. 17 and 18 for the experts.

¹⁹³⁹ Fernando Pliego Alfaro, transcript of the Panel's meeting with the parties and the experts, day 1,

p. 16.

¹⁹⁴⁰ Fernando Pliego Alfaro, transcript of the Panel's meeting with the parties and the experts, day 1,

p. 16.

¹⁹⁴¹ CONSULSANTOS (2010), (Exhibit MEX-119), p. 21.

4.2% of all producers surveyed appear to fall into the "technically sophisticated" category, meeting at least eight of the variables established.^{1942, 1943}

7.1052. The Cultural practices in sowing and managing avocado seeds in Costa Rica (2019) report also states that, as reported in the Agricultural Census, 76% of farms produce avocado mainly for on-farm consumption and production techniques appear to not be very sophisticated.^{1944,1945,}

7.1053. The Panel does not consider Mexico's argument concerning the viability of the use of Hass rootstock to be decisive in this case because the situation and practices of avocado producers in Costa Rica might differ from those of producers in Mexico. Therefore, considering that the Panel's task is to analyse the scientific basis for the risk assessment, the Panel's analysis as set out above focused on how Costa Rica documented its agricultural practices in relation to diversion from intended use, and not on Mexico's arguments rejecting the use of Hass as rootstock.

7.4.5.3.3.7 The relevance of spontaneous germination in Reports ARP-002-2017 and ARP-006-2016

7.1054. As mentioned above, **Mexico** submits that fresh avocados imported for consumption are not, in themselves, the pathway for the entry, establishment or spread of the viroid given that, in any event, it would be a subsequent occurrence, in other words, the diversion from intended use or the discarding of the seed, a factor that was not considered by Costa Rica in its PRAs.¹⁹⁴⁶

7.1055. Mexico submits that, as diversion from intended use and spontaneous germination play a dominant role in the risk analysis, any errors and omissions with regard to these elements affect the reliability of the risk analysis and the probability calculation.¹⁹⁴⁷

7.1056. Mexico considers that Costa Rica assigned fundamental value to diversion from intended use as a cultural practice and as spontaneous germination. However, the analysis in its PRAs does not reflect this concern and instead gives a pretext for regarding this factor as an issue of uncertainty.¹⁹⁴⁸

7.1057. **Costa Rica** asserts that spontaneous germination did not carry the same weight as diversion from intended use in the assessment of the factors and probabilities. Costa Rica points out that the risk analyst highlighted the country's unique climatic conditions and the capacity of avocado seeds to germinate without further requirements or processing as a major issue.¹⁹⁴⁹

7.1058. Costa Rica further notes that its risk assessment found that, in addition to tropical dry forests, the main life zones in the country are tropical and premontane moist and wet forests, and that, as Mexico acknowledges, for recalcitrant seeds such as those of avocados, moisture is the most critical factor that determines seeds' viability and longevity because they are sensitive to desiccation. Costa Rica adds that its wet climate prevents desiccation of avocado seeds which, furthermore, are less likely to be affected by fluctuations in humidity prior to germination.¹⁹⁵⁰

¹⁹⁴² The variables established were: whether pruning is carried out, whether soil analyses are conducted, whether leaf analyses are conducted, whether agricultural lime is added to the soil, whether biological controls are applied, whether seeds are selected, whether buds are selected, the planting distance, fruit yield per tree, and whether records are kept. (CONSULSANTOS (2010), (Exhibit MEX-119), p. 40)

¹⁹⁴³ CONSULSANTOS (2010), (Exhibit MEX-119), pp. 40-41.

¹⁹⁴⁴ Referring to the Agricultural Census, the report states that on more than 70% of farms no insecticide, fungicide, or other type of pesticide is used; that more than 40% used no fertilizer of any kind; and that less than 8% have some kind of irrigation system. (Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44), p. 7)

¹⁹⁴⁵ Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44), p. 7 (referring to INEC, Crops (2015), (Exhibit CRI-63); and INEC, Agricultural statistical atlas (2015), (Exhibit CRI-64)).

¹⁹⁴⁶ Mexico's second written submission, para. 124.

¹⁹⁴⁷ Mexico's comments on Costa Rica's response to Panel question No. 163, para. 3.

¹⁹⁴⁸ Mexico's response to Panel question No. 163, para. 134.

¹⁹⁴⁹ Costa Rica's response to Panel question No. 163, para. 186; comments on Mexico's response to Panel question No. 163, para. 92 (citing ARP-002-2017, (Exhibit MEX-84), p. 7).

¹⁹⁵⁰ Costa Rica's first written submission, para. 5.121.

7.1059. Costa Rica adds that, when it mentions germination of seeds, it is referring solely to places that are conducive to germination, and that this would include backyards but not industrial landfill sites, for example.¹⁹⁵¹

7.1060. The **Panel** observes that Reports ARP-002-2017 and ARP-006-2016 state that avocado can be grown at altitudes from sea level up to 2,500 masl; that temperature and rainfall are the two most critical factors for crop development; that, with regard to temperature, the cultivars used behave differently depending on their genetics, which allows them to adapt to most of the national territory; that 1,200 mm of rainfall annually, distributed evenly throughout the year, are sufficient to meet its water needs¹⁹⁵²; and that excess precipitation during the flowering and fruit setting stages reduces yield and causes the fruit to fall.¹⁹⁵³

7.1061. Reports ARP-002-2017 and ARP-006-2016 also note that, in the cantons of León Cortés, Tarrazú and Dota, the avocado seeds of fruits that fall on the ground are left to germinate in the field by themselves. When producers find them, they tend the plants and then graft them to obtain a new, low-cost plant.¹⁹⁵⁴

7.1062. Reports ARP-002-2017 and ARP-006-2016 mention that, according to Holdridge's (1987) classification of climatic zones, the main life zones in Costa Rica are tropical moist forest, tropical dry forest, tropical wet forest, premontane moist forest and premontane wet forest¹⁹⁵⁵; that the life zones of tropical dry forest have a marked dry season, during which avocado seeds dry up when they fall to the ground and do not germinate; that the dry season runs from December to May; and that the rest of the year is rainy, with weather conditions optimal for the germination of the seed without human assistance.¹⁹⁵⁶

7.1063. Reports ARP-002-2017 and ARP-006-2016 add that there are endemic avocado varieties in Costa Rica¹⁹⁵⁷, which are both wild and cultivated; that, unlike other parts of the world, a series of optimal climatic conditions for the germination of avocado seeds exist in Costa Rica; that in Costa Rica these seeds do not need any special treatment or care to ensure their germination; that the seeds germinate without human assistance when they fall naturally or are discarded in gardens, the countryside and fields where avocado is cultivated¹⁹⁵⁸; and that this situation does not arise in other countries, leading to considerable disparities with the possible regulations adopted by countries with different climatic conditions that import fresh avocado fruit for human consumption.¹⁹⁵⁹

7.1064. Reports ARP-002-2017 and ARP-006-2016 state that, in the probability tables, in the section on the intended use of fresh fruit for consumption, the Costa Rican authorities, on the understanding that the fruit is imported with the intended use of consumption, will assign it the corresponding values in the PRA. Reports ARP-002-2017 and ARP-006-2016 clarify, however, that, as the seed and skin are not consumed, the potential of this waste to introduce and subsequently spread quarantine pests is analysed¹⁹⁶⁰; and that diversion from intended use was considered

¹⁹⁵¹ Costa Rica's response to Panel question No. 165, para. 188.

¹⁹⁵² ARP-002-2017, (Exhibit MEX-84), p. 4 (citing Garbanzo Solís (2011), (Exhibit MEX-125)); ARP-006-2016, (Exhibit MEX-85), p. 4 (citing Garbanzo Solís (2011), (Exhibit MEX-125)).

¹⁹⁵³ ARP-002-2017, (Exhibit MEX-84), p. 4; ARP-006-2016, (Exhibit MEX-85), p. 4.

¹⁹⁵⁴ ARP-002-2017, (Exhibit MEX-84), pp. 5-6 (citing CONSULSANTOS (2010), (Exhibit MEX-119)); ARP-006-2016, (Exhibit MEX-85), p. 6 (citing CONSULSANTOS (2010), (Exhibit MEX-119)).

¹⁹⁵⁵ ARP-002-2017, (Exhibit MEX-84), p. 7 (citing Holdridge (1982), (Exhibit CRI-122)); ARP-006-2016, (Exhibit MEX-85), p. 7 (citing Holdridge (1982), (Exhibit CRI-122)). Reports ARP-002-2017 and ARP-006-2016 refer to Holdridge (1987), but the corresponding exhibit, submitted by Costa Rica, is dated 1982.

¹⁹⁵⁶ ARP-002-2017, (Exhibit MEX-84), p. 7 (citing CONSULSANTOS (2010), (Exhibit MEX-119)); ARP-006-2016, (Exhibit MEX-85), p. 7 (citing CONSULSANTOS (2010), (Exhibit MEX-119)).

¹⁹⁵⁷ ARP-002-2017, (Exhibit MEX-84), p. 7 (citing Galindo Tovar *et al.* (2008), (Exhibit MEX-22)); ARP-006-2016, (Exhibit MEX-85), p. 7 (citing Galindo Tovar *et al.* (2008), (Exhibit MEX-22)).

¹⁹⁵⁸ ARP-002-2017, (Exhibit MEX-84), p. 7 (citing CONSULSANTOS (2010), (Exhibit MEX-119)); ARP-006-2016, (Exhibit MEX-85), p. 7 (citing CONSULSANTOS (2010), (Exhibit MEX-119)).

¹⁹⁵⁹ ARP-002-2017, (Exhibit MEX-84), p. 7; ARP-006-2016, (Exhibit MEX-85), p. 7.

¹⁹⁶⁰ ARP-002-2017, (Exhibit MEX-84), p. 8; ARP-006-2016, (Exhibit MEX-85), p. 11.

because, given the quantity of fruit that is imported, the NPPO would be hard-pressed to be able to track the fruit after import¹⁹⁶¹ and the viable seed borne therein.¹⁹⁶²

7.1065. In the section on the probability of entry of ASBVd in Reports ARP-002-2017 and ARP-006-2016, the probability of transfer to a suitable host was considered high, *inter alia*, since the probability related to the risks from by-products and waste was also deemed to be high, after it was determined that the waste of fresh avocado fruit are the skins and seeds; that, as it contains a viable seed, there is a risk of pest introduction through the waste¹⁹⁶³; and that the germination of a seed from a symptomless fruit would introduce the pest into the PRA area.¹⁹⁶⁴

7.1066. In the section on the probability of establishment of ASBVd of Reports ARP-002-2017 and ARP-006-2016, the probability related to availability of suitable hosts, alternate hosts and vectors in the PRA area was deemed to be low, after it was determined that the viroid has been found exclusively in *Persea americana* Mill.¹⁹⁶⁵ Reports ARP-002-2017 and ARP-006-2016 note that, in the case of seeds that germinate from imported avocado fruit, either because the waste (seed) was disposed of in a place suitable for seed germination or because it was diverted from its intended use, the pest would already be systemic in the host plant's tissue.¹⁹⁶⁶

7.1067. As also stated in the section on the probability of establishment of ASBVd, the probability related to suitability of environment was deemed to be high, after it was determined that the conditions this pest needs to survive are those required by the host, the avocado tree¹⁹⁶⁷; that the avocado is a plant native to Mesoamerica¹⁹⁶⁸; and that the environment of the PRA area is favourable for this pest.¹⁹⁶⁹

7.1068. In the section of Reports ARP-002-2017 and ARP-006-2016 on the probability of spread of ASBVd, the probability related to the suitability of the natural or managed environment for natural spread of the pest was deemed to be high, after it was determined that the environment is ideal for the spread of the pest, given that host plants are found across the PRA area.¹⁹⁷⁰

7.1069. In the sections on entry and spread of ASBVd, the probability related to the intended use of the commodity was deemed to be medium, after it was determined that its intended use is consumption.¹⁹⁷¹

7.1070. In light of the foregoing, the Panel notes that the introductory section of Reports ARP-002-2017 and ARP-006-2016 mentions that Costa Rica's weather conditions are ideal for avocado seeds that fall or are discarded to germinate without human assistance, and that the potential of avocado waste to introduce and spread ASBVd was analysed. The Panel notes that the sections on the probability of entry, establishment and spread include considerations regarding Costa Rica's ideal environment for ASBVd and the germination of discarded seeds.

7.1071. In this Panel's view, considering the manner in which Reports ARP-002-2017 and ARP-006-2016 deal with topics related to spontaneous germination in both their introductory section

¹⁹⁶¹ ARP-002-2017, (Exhibit MEX-84), p. 8 (citing IPPC Secretariat, "Diversion from intended use" (2016), (Exhibit MEX-124)); ARP-006-2016, (Exhibit MEX-85), pp. 11-12 (citing IPPC Secretariat, "Diversion from intended use" (2016), (Exhibit MEX-124)).

¹⁹⁶² ARP-002-2017, (Exhibit MEX-84), p. 8 (citing Spalding et al. (1976), (Exhibit MEX-133)); ARP-006-2016, (Exhibit MEX-85), p. 12 (citing Spalding et al. (1976), (Exhibit MEX-133)).

¹⁹⁶³ ARP-002-2017, (Exhibit MEX-84), p. 38; ARP-006-2016, (Exhibit MEX-85), p. 18.

¹⁹⁶⁴ ARP-002-2017, (Exhibit MEX-84), p. 38 (citing Ploetz et al. (2011), (Exhibit MEX-56)); ARP-006-2016, (Exhibit MEX-85), pp. 18-19 (citing Ploetz et al. (2011), (Exhibit MEX-56)).

¹⁹⁶⁵ ARP-002-2017, (Exhibit MEX-84), p. 38 (citing Horne (1934), (Exhibit CRI-138)); ARP-006-2016, (Exhibit MEX-85), p. 19 (citing Horne (1934), (Exhibit CRI-138)).

¹⁹⁶⁶ ARP-002-2017, (Exhibit MEX-84), p. 38 (citing Ploetz et al. (2011), (Exhibit MEX-56)); ARP-006-2016, (Exhibit MEX-85), p. 19 (citing Ploetz et al. (2011), (Exhibit MEX-56)).

¹⁹⁶⁷ ARP-002-2017, (Exhibit MEX-84), p. 39; ARP-006-2016, (Exhibit MEX-85), p. 19.

¹⁹⁶⁸ ARP-002-2017, (Exhibit MEX-84), pp. 38-39 (citing Galindo Tovar et al. (2008), (Exhibit MEX-22)).

¹⁹⁶⁹ ARP-002-2017, (Exhibit MEX-84), pp. 38-39 (citing Holdridge (1982), (Exhibit CRI-122)); ARP-006-2016, (Exhibit MEX-85), p. 19. Report ARP-002-2017 refers to Holdridge (1987), but the corresponding exhibit, submitted by Costa Rica, is dated 1982.

¹⁹⁷⁰ ARP-002-2017, (Exhibit MEX-84), p. 39 (citing INEC, Crops (2015), (Exhibit CRI-63); and INEC, Agricultural statistical atlas (2015), (Exhibit CRI-64)); ARP-006-2016, (Exhibit MEX-85), p. 20 (citing INEC, Crops (2015), (Exhibit CRI-63); and INEC, Agricultural statistical atlas (2015), (Exhibit CRI-64)).

¹⁹⁷¹ ARP-002-2017, (Exhibit MEX-84), pp. 38 and 40; ARP-006-2016, (Exhibit MEX-85), pp. 18 and 21.

and in the assessment of the probability factors and elements, and as Costa Rica confirms (by pointing out that the risk analyst highlighted the country's unique climatic conditions and the capacity of avocado seeds to germinate without further requirements or processing as a major issue), there is no doubt that spontaneous germination is an important premise of the risk assessment, which permeates the assessment of the probability of entry, establishment and spread of ASBVd in Reports ARP-002-2017 and ARP-006-2016.

7.1072. The Panel considers spontaneous germination to be an aspect to which great importance is attached in the assessment of certain elements of the analysis and in the probability estimates. If spontaneous germination as a result of the disposal of seeds of fresh avocados for consumption were not taken into consideration, it would appear that Costa Rica would have significantly fewer concerns, or maybe even none at all, regarding the entry, establishment and spread of ASBVd via the pathway of fresh fruit imported for consumption, in relation to gardens, backyards, landfill sites and areas with wild trees.

7.4.5.3.3.8 The importance of documenting spontaneous germination in Reports ARP-002-2017 and ARP-006-2016

7.1073. **México** submits that the practice of diversion from intended use should be documented in the PRA, especially because Costa Rica presents diversion from intended use as an argument for increasing the risk and bases its analysis on diversion from intended use and spontaneous germination.¹⁹⁷² According to Mexico, Costa Rica failed to evaluate the uncertainty arising from diversion from intended use due to cultural practices and spontaneous germination, such that the assessment cannot be categorized as reliable or accurate.¹⁹⁷³ Mexico adds that the lack of scientific evidence should not be justified simply on the grounds of uncertainty, particularly if the alleged risk is based precisely on that factor.¹⁹⁷⁴

7.1074. Mexico states that there are no quantitative or qualitative data in the PRA on the probability of entry, establishment and spread of ASBVd arising from the diversion from intended use of imported avocados from which seed is extracted for planting and propagation purposes, or seeds that germinate spontaneously in natural areas, in backyards, in gardens, on farms, at waste disposal centres, in rubbish dumps and at landfill sites.¹⁹⁷⁵

7.1075. Mexico states that the risk assessment does not consider data related to uncertainty, and that the experts pointed out that Costa Rica should have documented the practice of diversion from intended use in its risk assessment, which confirms that the mere mention of the practice does not equal compliance with Article 5.1 of the SPS Agreement or the relevant international standards.¹⁹⁷⁶

7.1076. Mexico considers that Costa Rica assigned fundamental value to diversion from intended use as a cultural practice and as regards spontaneous germination. However, the analysis in its PRAs does not reflect this concern, but instead gives a pretext for regarding this factor as an issue of uncertainty.¹⁹⁷⁷

7.1077. **Costa Rica** submits that the natural germination of seeds on wasteland or in backyards is common in Costa Rica, which was taken into account as a risk factor for the establishment of ASBVd.¹⁹⁷⁸

7.1078. With regard to waste, Costa Rica points out that, in accordance with ISPM No. 11, the introduction of the viroid through waste was considered to be the combination of the probabilities of entry and establishment, and the germination of the seed was considered to be highly likely, both spontaneously (owing to climatic conditions and waste management) and as a result of diversion from intended use (which is a common and very widespread practice in Costa Rica). Costa Rica adds that it is its understanding that the experts would have welcomed the inclusion of estimates to

¹⁹⁷² Mexico's specific comments on the experts' responses to Panel questions Nos. 107, 108, 111 and 113 for the experts.

¹⁹⁷³ Mexico's specific comments on the experts' responses to Panel question No. 95 for the experts.

¹⁹⁷⁴ Mexico's response to Panel question No. 161, para. 118.

¹⁹⁷⁵ Mexico's response to Panel question No. 161, para. 119.

¹⁹⁷⁶ Mexico's response to Panel question No. 163, para. 139.

¹⁹⁷⁷ Mexico's response to Panel question No. 163, para. 134.

¹⁹⁷⁸ Costa Rica's second written submission, para. 3.38.

determine the probability of introduction via diversion from intended use and waste in the PRA, and that the estimates are useful when reliable data are available for a previous period that can be used as a benchmark to judge what will happen in a subsequent period, but that in Costa Rica such baseline data do not exist.¹⁹⁷⁹

7.1079. Costa Rica does not regard the acknowledgement of the absence of data relating to a specific point in the PRA as a methodological flaw that invalidates the risk analysis exercise. On the contrary, as the expert Robert Griffin pointed out, it is important to detect the uncertainties because "if we know what the uncertainties are, then we can address those uncertainties with research".¹⁹⁸⁰ Costa Rica refers to the point made by Mr Griffin that "[the risk analysis] process [should always be] open to evolution and improvement ... It should never be static, it always needs to be open for improvement and for new and better information, different methodologies, whatever is appropriate, but should never be a static process".¹⁹⁸¹ Costa Rica states that a country cannot be expected to refrain from adopting phytosanitary measures against the risk of introduction of a pest until it has obtained all necessary information to dispel the existing uncertainties.¹⁹⁸²

7.1080. The **Panel** asked the experts how the risk arising from the disposal of fruit for consumption infected with ASBVd should be assessed in a risk analysis.

7.1081. The expert Robert Griffin states that the issue with the disposal of ASBVd-infected fruits is the potential for the seed to be disposed of in a way that allows for germination. According to the expert, because avocado seeds are not consumed and are relatively large and hard, the majority will go into domestic garbage; and that because they are also organic, some may be recycled in compost or simply discarded into the environment. Mr Griffin considers that, from a PRA standpoint, some estimate is needed for the proportions of each scenario, and some knowledge is needed regarding the garbage disposal system. It is not good enough to simply assume that deviation will be 100%. There must be a good faith effort to characterize the situation with reasonable estimates and assumptions in the absence of hard data.¹⁹⁸³

7.1082. In accordance with the expert's statements, and given the importance of spontaneous germination for the calculation of probabilities in Reports ARP-002-2017 and ARP-006-2016, the Panel considers that Costa Rica should have documented the occurrence of spontaneous germination and estimated its probability.

7.1083. In the Panel's view, while it is an area of uncertainty that is difficult to document, Costa Rica should have gathered evidence to substantiate the existence of spontaneous germination, estimated its scale in either quantitative or qualitative terms, and documented the degree of uncertainty, as in the case of diversion from intended use.

7.1084. The Panel recalls that the existence of unknown and uncertain elements does not justify a departure from the requirements of Articles 5.1, 5.2 and 5.3, read together with paragraph 4 of Annex A, for a risk assessment.¹⁹⁸⁴

7.1085. The Panel will now analyse the evidence put forward by Costa Rica, in Reports ARP-002-2017 and ARP-006-2016 and throughout the proceedings, in relation to the spontaneous germination of discarded seeds of fresh avocados for consumption. It will also briefly address Mexico's argument concerning the occurrence of spontaneous germination in Costa Rica.

¹⁹⁷⁹ Costa Rica's specific comments on the experts' responses to Panel questions Nos. 107-110 for the experts.

¹⁹⁸⁰ Costa Rica's comments on Mexico's response to Panel question No. 161, para. 83 (citing Robert Griffin, transcript of the Panel's meeting with the parties and the experts, day 3, p. 42).

¹⁹⁸¹ Costa Rica's comments on Mexico's response to Panel question No. 161, para. 83 (citing Robert Griffin, transcript of the Panel's meeting with the parties and the experts, day 2, p. 55).

¹⁹⁸² Costa Rica's comments on Mexico's response to Panel question No. 161, para. 83.

¹⁹⁸³ Robert Griffin's response to Panel question No. 110 for the experts.

¹⁹⁸⁴ Appellate Body Report, *Australia – Salmon*, para. 130.

7.4.5.3.3.9 Sources cited in support of the statements regarding spontaneous germination in Reports ARP-002-2017 and ARP-006-2016

7.1086. **Mexico** argues that Costa Rica failed to demonstrate in its PRAs with scientific evidence that its climatic conditions are conducive to the germination of the seeds of fruit imported for consumption from Mexico.¹⁹⁸⁵

7.1087. Mexico indicates that Costa Rica failed to consider in its PRAs the differences between the sites in which the seeds could be discarded, since it only justifies its claim by referring to New Zealand's assertion that it "considers the waste generated by avocado imports (skin and seed) to be a pathway" (Biosecurity, 1998), without the SFE providing any further evidence or documents on this assertion.¹⁹⁸⁶

7.1088. As part of its arguments on whether the risk assessment is appropriate to the circumstances, Mexico asserts that the climatic conditions in the Los Santos zone are not a circumstance that justifies an increased probability of ASBVd transmission.¹⁹⁸⁷ Mexico submits that, while Costa Rica considers that its climatic conditions are optimal for the germination of avocado seeds without human assistance, its arguments are contradictory and based on a socio-economic census of production that cannot be considered to be valid scientific evidence for establishing an objective, scientific and logical link between the transmission of ASBVd and the probability of a seed germinating because it may be discarded on the ground.¹⁹⁸⁸

7.1089. Also as part of its arguments on whether the risk assessment is appropriate to the circumstances, Mexico argues that two references to CONSULSANTOS (2010) are the only sources cited by Costa Rica to prove that the climatic conditions of its territory are conducive to the germination of avocado seeds without human assistance. In Mexico's view, the two statements contradict each other by, on the one hand, referring to a seasonal limitation on seed germination and, on the other hand, stating that the seeds may germinate naturally at any time due to Costa Rica's climatic circumstances.¹⁹⁸⁹

7.1090. Mexico contends that these citations are incorrect because the climate is not the only factor that needs to be considered in order for a germination process to be successful. Indeed, other factors must be considered in addition to the climate, such as elevation, soil quality and characteristics, soil moisture, seed viability, the decomposition process, and seed disinfection and sowing methods. Mexico adds that it would appear that Costa Rica is seeking only to protect wild avocados, when the PRAs show that it wishes to protect commercial orchards.¹⁹⁹⁰

7.1091. **Costa Rica** submits that it conducted its risk assessment on the basis of the available scientific evidence relating to ASBVd, and that it found that scientific evidence exists to show that Costa Rica's climatic conditions are suitable for the germination of an avocado plant throughout most of the year.¹⁹⁹¹ Costa Rica states that the edaphoclimatic requirements for Hass avocados are an elevation of 1,000-2,000 masl, a temperature of 16-18°C, and rainfall of 1,200 mm per year¹⁹⁹², and that, as reflected in the CONSULSANTOS study (2010), the elevation in the Los Santos zone is 1,200-1,900 masl, the average annual temperature is 19°C, and the average rainfall is 2,400 mm per year.¹⁹⁹³

¹⁹⁸⁵ Mexico's first written submission, para. 418.

¹⁹⁸⁶ Mexico's comments on Costa Rica's response to Panel question No. 165, para. 1.

¹⁹⁸⁷ Mexico's first written submission, p. 93.

¹⁹⁸⁸ Mexico's first written submission, para. 390.

¹⁹⁸⁹ Mexico's first written submission, paras. 391-392.

¹⁹⁹⁰ Mexico's first written submission, paras. 393-394.

¹⁹⁹¹ Costa Rica's first written submission, paras. 5.121 and 5.152; second written submission, para. 3.55 (citing Galindo Tovar *et al.* (2008), (Exhibit MEX-22); CONSULSANTOS (2010), (Exhibit MEX-119), p. 15; and O'Neal Katzy Coto, "Agronomists rescue the best varieties of criollo avocado", *ucr.ac.cr* (29 de mayo de 2019) ("Agronomists rescue the best varieties of criollo avocado", *ucr.ac.cr* (2019)), (Exhibit CRI-58)).

¹⁹⁹² Costa Rica's first written submission, para. 5.121 (citing Los Santos Zone (2007), (Exhibit MEX-97), p. 8).

¹⁹⁹³ Costa Rica's first written submission, para. 5.121 (citing CONSULSANTOS (2010), (Exhibit MEX-119), p. 15).

7.1092. Costa Rica notes that its risk assessment found that, in addition to tropical dry forest, the main life zones in the country are tropical and premontane moist and wet forests¹⁹⁹⁴, and that, for recalcitrant seeds such as those of avocados¹⁹⁹⁵, moisture is the most critical factor that determines seeds' viability and longevity because they are sensitive to desiccation. Costa Rica adds that its wet climate prevents the desiccation of avocado seeds, which, furthermore, are less likely to be affected by fluctuations in humidity prior to germination.¹⁹⁹⁶

7.1093. The **Panel** observes that Reports ARP-002-2017 and ARP-006-2016 refer to Holdridge (1982)¹⁹⁹⁷, CONSULSANTOS (2010)¹⁹⁹⁸ and Garbanzo Solís (2011)¹⁹⁹⁹ when discussing Costa Rica's favourable conditions for spontaneous germination.

7.1094. Reports ARP-002-2017 and ARP-006-2016 cite Garbanzo Solís (2011) to describe the climatic requirements for avocado cultivation, highlighting that avocados can be grown at elevations from sea level up to 2,500 masl; that temperature and rainfall are the two most critical factors for crop development; that, with regard to the temperature, the cultivars used behave differently depending on their genetics, which allows them to adapt to most of the national territory; and that 1,200 mm of rainfall annually, distributed evenly throughout the year, are sufficient to meet its water needs.²⁰⁰⁰

7.1095. Garbanzo Solís (2011) states that a number of high-altitude varieties such as Ettinger and Puebla belong to the Mexican race, that the varieties of the Guatemalan race are adapted to high- and mid-elevation areas (Hass, Fujikawa, and Pinkerton), that a number of low-altitude varieties (Catalina) belong to the West Indian race, and that identifying the race allows for it to be known at which elevation the selected variety may be planted.²⁰⁰¹ Garbanzo Solís (2011) indicates that, when grown for commercial purposes, the Hass variety prefers elevations of 1,200 masl to 1,800 masl, but that these may vary depending on the prevailing microclimate; that there are difficulties associated with producing this variety at elevations below 1,100 masl; and that there are areas in the country at elevations of up to 2,500 masl, which, owing to their favourable climatic conditions, are suitable for growing and producing Hass avocados. According to Garbanzo Solís (2011), the ideal amount of rainfall for Hass avocado cultivation is not more than 1,500 mm, distributed evenly throughout the year, although this may vary depending on the area.²⁰⁰²

7.1096. The Panel notes that Reports ARP-002-2017 and ARP-006-2016 indicate that avocados may be grown from sea level and that 1,200 mm of rainfall annually, distributed evenly throughout the year, are sufficient, which does not correspond exactly with what is described in Garbanzo Solís (2011). In addition, Garbanzo Solís (2011) presents specific information on the edaphoclimatic requirements for Hass avocados in particular rather than for avocados in general, as Reports ARP-002-2017 and ARP-006-2016 appear to do. Although Garbanzo Solís (2011) states that knowing the race indicates at which elevation the selected variety may be planted, the Panel finds no support for the assertion that the cultivars used behave differently depending on their genetics, which allows avocados to adapt to most of the national territory. Furthermore, this document is a manual of good practices relating to the cultivation of the Hass variety, which, although it mentions the above information on the edaphoclimatic requirements for the cultivation of the Hass variety, does not refer directly to Costa Rica's edaphoclimatic conditions being optimal for the spontaneous germination of avocado seeds, and Reports ARP-002-2017 and ARP-006-2016 do not explain this inference.

7.1097. Reports ARP-002-2017 and ARP-006-2016 refer to the classification of climatic zones in Holdridge (1987) to describe those zones in Costa Rica. Holdridge (1982) is an entire book on the

¹⁹⁹⁴ Costa Rica's first written submission, para. 5.121 (citing Instituto Meteorológico Nacional Gestión de Desarrollo, "Regiones y subregiones climáticas de Costa Rica" (Climatic regions and subregions of Costa Rica), (Exhibit CRI-29), p. 17).

¹⁹⁹⁵ Costa Rica's first written submission, para. 5.121 (citing Ellis (1991), (Exhibit MEX-35), p. 1119).

¹⁹⁹⁶ Costa Rica's first written submission, para. 5.121 (citing Chin et al. (1989), (Exhibit MEX-130), pp. 18-19).

¹⁹⁹⁷ Holdridge (1982), (Exhibit CRI-122).

¹⁹⁹⁸ CONSULSANTOS (2010), (Exhibit MEX-119).

¹⁹⁹⁹ Garbanzo Solís (2011), (Exhibit MEX-125).

²⁰⁰⁰ ARP-002-2017, (Exhibit MEX-84), p. 4 (citing Garbanzo Solís (2011), (Exhibit MEX-125)); ARP-006-2016, (Exhibit MEX-85), p. 4 (citing Garbanzo Solís (2011), (Exhibit MEX-125)).

²⁰⁰¹ Garbanzo Solís (2011), (Exhibit MEX-125), pp. 19-20.

²⁰⁰² Garbanzo Solís (2011), (Exhibit MEX-125), p. 23.

classification of life zones in general.²⁰⁰³ Reports ARP-002-2017 and ARP-006-2016 mention that, according to Holdridge's (1987) classification of climatic zones, the main life zones in Costa Rica are tropical moist forest, tropical dry forest, tropical wet forest, premontane moist forest, and premontane wet forest.²⁰⁰⁴ However, the reports do not contain specific evidence on the edaphoclimatic conditions in the various regions of Costa Rica.

7.1098. It appears that Reports ARP-002-2017 and ARP-006-2016 seek to substantiate through Garbanzo Solís (2011) and Holdridge (1987) that Costa Rica's climatic conditions are optimal for the germination of avocado seeds, from which it can be inferred that spontaneous germination does occur in the country. However, in this Panel's view, the description of the edaphoclimatic requirements for avocados, on the basis of the requirements for Hass avocados indicated by Garbanzo Solís (2011), and the classification of climatic zones in Costa Rica, allegedly based on Holdridge's (1987) classification of life zones, without support from additional, more specific information on the edaphoclimatic conditions necessary for the germination of the seeds and from greater details on Costa Rica's regions, does not constitute sufficient evidence of the spontaneous germination of avocado seeds throughout Costa Rica's territory.

7.1099. CONSULSANTOS (2010) states that the climate in the Los Santos zone is characterized by well-defined rainy (seven months, from May to November) and dry (December to April) seasons, which is conducive to coffee flowering, and that the average rainfall is 2,400 mm per year, with an average temperature of 19°C.²⁰⁰⁵

7.1100. CONSULSANTOS (2010) also indicates that it is well known that the majority of soils in the Los Santos subregion are highly acidic, and that there is a need to supplement the absorption of nutrients from the soil via foliar application to the zone's crops. CONSULSANTOS (2010) adds that, in the case of avocados, which are a demanding species in terms of the nutrients required for them to grow and develop successfully, attention should be paid to directing producers towards making greater efforts in determining nutrient availability.²⁰⁰⁶ With regard to the environmental factors, CONSULSANTOS (2010) concludes that wind, excessive rainfall, cloud cover and high temperatures appear to have an adverse effect on avocado cultivation, but that the type of soil and the gradient were not identified as very negative factors; and that, among the environmental problems faced by the various communities, the most frequently mentioned were excessive rainfall, the presence of rubbish, climate change, strong winds, deforestation, soil erosion, overuse of agrochemicals, and water and soil pollution.²⁰⁰⁷

7.1101. Other than the foregoing explanations of the edaphoclimatic conditions in the Los Santos zone in Costa Rica and of how the climate there is conducive to coffee flowering, the Panel finds no references in CONSULSANTOS (2010) that document the existence of climatic conditions that are optimal for the spontaneous germination of avocado seeds, or any other explanations relating to this germination. The Panel finds nothing in CONSULSANTOS (2010) that supports the assertion that, in the cantons of León Cortés, Tarrazú and Dota, the avocado seeds of fruits that fall on the ground are left to germinate in the field by themselves.²⁰⁰⁸ Moreover, there is nothing in CONSULSANTOS (2010) that supports the assertion in Reports ARP-002-2017 and ARP-006-2016 that the seeds germinate without human assistance when they fall naturally or are discarded in gardens, the countryside and fields where avocado is cultivated.²⁰⁰⁹

7.1102. Therefore, in the view of this Panel, there is insufficient scientific evidence in Reports ARP-002-2017 and ARP-006-2016 on the occurrence of spontaneous germination, and there are no estimates, even in qualitative terms, of the scale on which this spontaneous germination occurs in Costa Rica. This prevented the risk analyst from conducting either a qualitative or

²⁰⁰³ Holdridge (1982), (Exhibit CRI-122).

²⁰⁰⁴ ARP-002-2017, (Exhibit MEX-84), p. 7 (citing Holdridge (1982), (Exhibit CRI-122)); ARP-006-2016, (Exhibit MEX-85), p. 7 (citing Holdridge (1982), (Exhibit CRI-122)). Reports ARP-002-2017 and ARP-006-2016 refer to Holdridge (1987), but the corresponding exhibit, provided by Costa Rica, is dated 1982.

²⁰⁰⁵ CONSULSANTOS (2010), (Exhibit MEX-119), p. 15.

²⁰⁰⁶ CONSULSANTOS (2010), (Exhibit MEX-119), p. 28.

²⁰⁰⁷ CONSULSANTOS (2010), (Exhibit MEX-119), pp. 31, 34 and 60.

²⁰⁰⁸ ARP-002-2017, (Exhibit MEX-84), pp. 5-6 (citing CONSULSANTOS (2010), (Exhibit MEX-119)); ARP-006-2016, (Exhibit MEX-85), p. 6 (citing CONSULSANTOS (2010), (Exhibit MEX-119)).

²⁰⁰⁹ ARP-002-2017, (Exhibit MEX-84), p. 7 (citing CONSULSANTOS (2010), (Exhibit MEX-119)); ARP-006-2016, (Exhibit MEX-85), p. 7 (citing CONSULSANTOS (2010), (Exhibit MEX-119)).

quantitative assessment of the probability of entry, establishment or spread of ASBVd in Costa Rica that would give due consideration to spontaneous germination.

7.4.5.3.3.10 Documents cited in support of the statements on spontaneous germination that are not included in Reports ARP-002-2017 and ARP-006-2016

7.1103. Throughout the proceedings, Costa Rica has submitted exhibits that post-date Reports ARP-002-2017 and ARP-006-2016, or that predate these reports but were not included therein. Through these exhibits, Costa Rica claims to substantiate the occurrence of spontaneous germination of avocado seeds and the suitability of its climatic conditions for this spontaneous germination.

7.1104. **Mexico** submits that, while Costa Rica provided statements and evidence prepared after the risk assessment, which refer to isolated cases in which trees have germinated from pits discarded as waste in natural areas or on farms, or as a result of the consumption of food near farms, backyards, etc., these situations are within the realm of possibility but are not probable, and it is impossible to confirm their veracity.²⁰¹⁰

7.1105. **Costa Rica** contends that it conducted its risk assessment on the basis of the available scientific evidence relating to ASBVd, and found that scientific evidence exists to show that Costa Rica's climatic conditions are suitable for the natural germination of an avocado seed.²⁰¹¹ Costa Rica states that the edaphoclimatic requirements for Hass avocados are an elevation of 1,000-2,000 masl, a temperature of 16-18°C, and rainfall of 1200 mm per year²⁰¹², and that, as reflected in the CONSULSANTOS study (2010), the elevation of the Los Santos zone is 1,200-1,900 masl, the average annual temperature is 19°C, and the average rainfall is 2,400 mm per year.²⁰¹³

7.1106. Costa Rica adds that its risk assessment found that, in addition to tropical dry forest, the main life zones in the country are tropical and premontane moist and wet forests²⁰¹⁴, and that, for recalcitrant seeds such as those of avocados²⁰¹⁵, moisture is the most critical factor that determines seeds' viability and longevity because they are sensitive to desiccation. Costa Rica submits that its wet climate prevents the desiccation of avocado seeds, which, furthermore, are less likely to be affected by fluctuations in humidity prior to germination.²⁰¹⁶

7.1107. Costa Rica asserts that the waste disposal sites in the country are often places where waste is disposed of without undergoing industrial treatment²⁰¹⁷ and that if waste matter is discarded on wasteland and the necessary conditions of humidity and temperature exist, the seed can certainly germinate spontaneously.²⁰¹⁸ Costa Rica adds that the same is true for gardens and backyards on

²⁰¹⁰ Mexico's second written submission, para. 138 (citing OR-HN-049-2019 (2019), (Exhibit CRI-69); OR-BR-FUN-0014-2019 (2019), (Exhibit CRI-70); OR-CS-0003-2019 (2019), (Exhibit CRI-71); and URCOR-CO-154/2019 (2019), (Exhibit CRI-73)).

²⁰¹¹ Costa Rica's first written submission, paras. 5.121 and 5.152; second written submission, para. 3.55 (citing Galindo Tovar *et al.* (2008), (Exhibit MEX-22); CONSULSANTOS (2010), (Exhibit MEX-119), p. 15; and "Agronomists rescue the best varieties of criollo avocado", *ucr.ac.cr* (2019), (Exhibit CRI-58)).

²⁰¹² Costa Rica's first written submission, para. 5.121 (citing Los Santos Zone (2007), (Exhibit MEX-97), p. 8).

²⁰¹³ Costa Rica's first written submission, para. 5.121 (citing CONSULSANTOS (2010), (Exhibit MEX-119), p. 15).

²⁰¹⁴ Costa Rica's first written submission, para. 5.121 (citing Climatic regions and subregions of Costa Rica, (Exhibit CRI-29), p. 17).

²⁰¹⁵ Costa Rica's first written submission, para. 5.121 (citing Ellis (1991), (Exhibit MEX-35), p. 1119).

²⁰¹⁶ Costa Rica's first written submission, para. 5.121 (citing Chin *et al.* (1989), (Exhibit MEX-130), pp. 18-19).

²⁰¹⁷ Costa Rica's response to Panel question No. 20, para. 3 (citing Ministerio de Salud de Costa Rica, Política Nacional para la Gestión Integral de Residuos 2010-2021, 1.ª ed (2011) (Ministry of Health of Costa Rica, Waste Management (2011)), (Exhibit CRI-28), p. 16); second written submission, para. 3.38 (citing Ministry of Health of Costa Rica, Waste Management (2011), (Exhibit CRI-28), p. 16); specific comments on the experts' responses to Panel questions Nos. 10 and 11 for the experts (citing Ministry of Health of Costa Rica, Waste Management (2011), (Exhibit CRI-28), p. 16).

²⁰¹⁸ Costa Rica's response to Panel question No. 20, para. 3 (citing OR-HN-049-2019 (2019), (Exhibit CRI-69); OR-BR-FUN-0014-2019 (2019), (Exhibit CRI-70); and OR-CS-0003-2019 (2019), (Exhibit CRI-71)); second written submission, para. 3.38 (citing OR-HN-049-2019 (2019), (Exhibit CRI-69); OR-BR-FUN-0014-2019 (2019), (Exhibit CRI-70); and OR-CS-0003-2019 (2019), (Exhibit CRI-71)); specific

farms, where it is customary for organic waste to be discarded in a particular place with the intention of producing homemade compost²⁰¹⁹, and that it is very common indeed in the country for some avocado trees to grow by themselves, without the producers having planted them in a planned way.²⁰²⁰

7.1108. The **Panel** notes that, in previous statements, Costa Rica cites certain exhibits to support the assertions regarding spontaneous germination that were not included in Reports ARP-002-2017 and ARP-006-2016.

7.1109. Specifically, Costa Rica cites: the report *Cultural practices in sowing and managing avocado seeds in Costa Rica (2019)*; Exhibits CRI-69 to CRI-73 containing reports from the various regions of Costa Rica; the document "Ministry of Health of Costa Rica, Waste Management (2011)"; the "Criollo Avocado" project; Galindo Tovar *et al.* (2008); "Agronomists rescue the best varieties of criollo avocado"; Climatic regions and subregions in Costa Rica; Ellis (1991); and Chin *et al.* (1989). The Panel will analyse these documents below.

7.1110. The report *Cultural practices in sowing and managing avocado seeds in Costa Rica (2019)* of 10 October 2019, described in section 7.4.5.3.3.5 above, indicates that it is very common for some avocado trees to grow by themselves, without the producers having planted them in a planned way. Those interviewed comment that this is what nature intended and it happens: there will always be a squirrel that eats from a tree and then leaves the seed somewhere and, depending on where on the farm the trees sprout, they are removed, transplanted or left to grow.²⁰²¹ The report also indicates that some producers said that the trees were already there when they bought the farms since some of the trees are 80 years old, and that others said that the trees grew by themselves, which means that animals moved the seeds before discarding them, the seeds then found a suitable place to grow, or that an avocado fell from a tree in a neighbour's backyard and the seed germinated.²⁰²²

7.1111. The report states that, during a brief group interview with members of the National Avocado Commission, it was mentioned that there were avocado trees on land that is not used for agricultural production, including a large Hass avocado tree that grew by itself, and that there is a risk that a Hass tree will sprout spontaneously. The report also states that another individual told the story of a Hass tree next to a low wall where the municipality's workers would always sit to eat lunch. There used to be another tree there, and at midday the workers always stopped and sat down for lunch in the shade, taking out the food they had brought. The individual believed that one of the workers may have left behind the seed of the avocado that he was eating because the Hass tree started to grow there.²⁰²³

7.1112. The report concludes that it is common to find avocado trees in gardens, backyards, public parks, and communal areas, in both rural and urban areas and in avocado-producing and non-producing areas, and that, in some cases, these trees were planted intentionally and in other cases it is unknown how they ended up in their location. The report adds that the climatic and soil characteristics of the national territory probably facilitate the spontaneous germination of seeds that

comments on the experts' responses to Panel questions Nos. 10 and 11 for the experts (citing OR-HN-049-2019 (2019), (Exhibit CRI-69); OR-BR-FUN-0014-2019 (2019), (Exhibit CRI-70); and OR-CS-0003-2019 (2019), (Exhibit CRI-71)).

²⁰¹⁹ Costa Rica's response to Panel question No. 20, para. 4 (citing OR-PC-034-2019 (2019), (Exhibit CRI-72); URCOR-CO-154/2019 (2019), (Exhibit CRI-73); and Universidad de Costa Rica (UCR), Ministerio de Agricultura y Ganadería (MAG), Comisión Asesora sobre Degradación de Tierras (CADETI), Ministerio de Ambiente y Energía (MINAE), "El Aguacate Criollo" (UCR, "The Criollo Avocado"), (Exhibit CRI-74)); second written submission, para. 3.38 (citing OR-PC-034-2019 (2019), (Exhibit CRI-72); URCOR-CO-154/2019 (2019), (Exhibit CRI-73); and UCR, "The Criollo Avocado", (Exhibit CRI-74)).

²⁰²⁰ Costa Rica's second written submission, para. 3.38 (citing *Cultural practices in sowing and managing avocado seeds in Costa Rica (2019)*, (Exhibit CRI-44), p. 14).

²⁰²¹ *Cultural practices in sowing and managing avocado seeds in Costa Rica (2019)*, (Exhibit CRI-44), p. 14.

²⁰²² *Cultural practices in sowing and managing avocado seeds in Costa Rica (2019)*, (Exhibit CRI-44), pp. 15-16.

²⁰²³ *Cultural practices in sowing and managing avocado seeds in Costa Rica (2019)*, (Exhibit CRI-44), p. 16.

were discarded after the fruit was consumed; and that, under very rudimentary conditions of humidity and temperature, these seeds reproduce without human intervention.²⁰²⁴

7.1113. The Panel observes that, through the report *Cultural practices in sowing and managing avocado seeds in Costa Rica* (2019), Costa Rica seeks to substantiate the existence of spontaneous germination as this report contains statements regarding trees that grew by themselves because animals carried the seeds or grew from the waste of avocado fruit for consumption. Although this report points out that it is very common for some avocado trees to grow by themselves, without the producers having planted them in a planned way, it does not substantiate this assertion with sufficiently reliable evidence.

7.1114. In addition, the report was prepared in 2019 mainly on the basis of the testimonies of 21 people, whose representativeness in relation to the area of the PRA is not sufficiently explained. The report includes accounts indicating that it is not known how avocado trees grew, and was not considered when preparing Reports ARP-002-2017 and ARP-006-2016 because it post-dates them. As a result, this information does not form part of the scientific basis used for the risk analyst's assessment and reasoning.

7.1115. Costa Rica asserts that the waste disposal sites in the country are often places where waste is disposed of without undergoing industrial treatment²⁰²⁵, and that if the waste matter is discarded on wasteland and the necessary conditions of humidity and temperature exist, the seed can certainly germinate spontaneously.²⁰²⁶ Costa Rica adds that the same is true for gardens and backyards on farms, where it is customary for organic waste to be discarded in a particular place with the intention of producing homemade compost.²⁰²⁷ To support these assertions, Costa Rica refers to Exhibits CRI-69 to CRI-73 containing reports from the various regions of Costa Rica, to the document "Ministry of Health of Costa Rica, Waste Management" (2011) and to the "Criollo Avocado" project.

7.1116. Document [OR-HN-049-2019 \(2019\)](#) is a report dated 20 November 2019, prepared by the Northern Huetar Regional Operational Unit at the request of the head of the SFE's Department of Regional Operations, which indicates that the authors carried out visits and interviews as requested in this region. The document contains information on a sanitary landfill site, and photos that are said to relate to the spontaneous germination of discarded avocado seeds alongside roads and to waste used as compost in the Northern Huetar region.²⁰²⁸

7.1117. With regard to the photographs of an avocado tree, under which there are captions indicating that it is an avocado tree by the side of a road, the document states that a housewife mentioned that the seed was discarded after the fruit's flesh had been eaten, which led to its germination and development.²⁰²⁹ The document also states that a farmer commented that he uses fruit and vegetable waste supplied to him by a fruit and vegetable seller as compost for his crops, and refers to a number of photographs allegedly showing avocado trees amid fruit and vegetable waste used as compost for crops.²⁰³⁰

²⁰²⁴ *Cultural practices in sowing and managing avocado seeds in Costa Rica* (2019), (Exhibit CRI-44), p. 18.

²⁰²⁵ Costa Rica's response to Panel question No. 20, para. 3 (citing Ministry of Health of Costa Rica, Waste Management (2011), (Exhibit CRI-28), p. 16); second written submission, para. 3.38 (citing Ministry of Health of Costa Rica, Waste Management (2011), (Exhibit CRI-28), p. 16); specific comments on the experts' responses to Panel questions Nos. 10 and 11 for the experts (citing Ministry of Health of Costa Rica, Waste Management (2011), (Exhibit CRI-28), p. 16).

²⁰²⁶ Costa Rica's response to Panel question No. 20, para. 3 (citing OR-HN-049-2019 (2019), (Exhibit CRI-69); OR-BR-FUN-0014-2019 (2019), (Exhibit CRI-70); and OR-CS-0003-2019 (2019), (Exhibit CRI-71)); second written submission, para. 3.38 (citing OR-HN-049-2019 (2019), (Exhibit CRI-69); OR-BR-FUN-0014-2019 (2019), (Exhibit CRI-70); and OR-CS-0003-2019 (2019), (Exhibit CRI-71)); specific comments on the experts' responses to Panel questions Nos. 10 and 11 for the experts (citing OR-HN-049-2019 (2019), (Exhibit CRI-69); OR-BR-FUN-0014-2019 (2019), (Exhibit CRI-70); and OR-CS-0003-2019 (2019), (Exhibit CRI-71)).

²⁰²⁷ Costa Rica's response to Panel question No. 20, para. 4 (citing OR-PC-034-2019 (2019), (Exhibit CRI-72); URCOR-CO-154/2019 (2019), (Exhibit CRI-73); and UCR, "The Criollo Avocado", (Exhibit CRI-74)); second written submission, para. 3.38 (citing OR-PC-034-2019 (2019), (Exhibit CRI-72); URCOR-CO-154/2019 (2019), (Exhibit CRI-73); and UCR, "The Criollo Avocado", (Exhibit CRI-74)).

²⁰²⁸ OR-HN-049-2019 (2019), (Exhibit CRI-69), p. 3.

²⁰²⁹ OR-HN-049-2019 (2019), (Exhibit CRI-69), p. 4.

²⁰³⁰ OR-HN-049-2019 (2019), (Exhibit CRI-69), p. 5.

7.1118. Document OR-BR-FUN-0014-2019 (2019) is a report dated 20 November 2019, prepared by the Brunca Regional Unit and addressed to the head of the SFE's Department of Regional Operations. The document contains information on waste disposal sites and photographs that are said to relate to the spontaneous germination of avocado seeds alongside roads and in backyards in the Brunca region.²⁰³¹

7.1119. The report discusses the consumption of food on farms²⁰³², but does not mention the spontaneous germination of avocado seeds as a result of food being discarded.

7.1120. As regards what is referred to as the presence of volunteer avocado trees, the report indicates that, in the region, it is common to find avocado trees in various areas of the cantons, be they backyards, farms, or roadsides, *inter alia*. As evidence of this, the report adds that various avocado trees were successfully located in the aforementioned areas, which it is claimed can be seen in four pictures included in the report.²⁰³³

7.1121. Document OR-CS-0003-2019 (2019) is a report dated 21 November 2019, prepared by the Southern Central Unit, which contains information on rubbish dumps and photographs that are said to relate to the spontaneous germination of avocado seeds alongside roads and in backyards in the Southern Central region.²⁰³⁴

7.1122. The report discusses how farmers typically have lunch and/or breakfast on the farms, and mentions that they leave the organic waste to decompose on the farm.²⁰³⁵ The report does not mention the spontaneous germination of avocado seeds as a result of food being discarded.

7.1123. The document indicates that it contains evidence of avocado trees sprouting alongside roads and in backyards, and presents a series of photographs that are said to be of avocado trees in both of these locations.²⁰³⁶

7.1124. Document OR-PC-034-2019 (2019) is a report dated 20 November 2019, prepared by the Department of Regional Operations of the Central Pacific region and addressed to the head of the SFE's Department of Regional Operations. The document contains information on a waste disposal site and photographs that are said to relate to the spontaneous germination of avocado seeds alongside roads and in backyards in the Central Pacific region.²⁰³⁷

7.1125. The report indicates that there is only one waste disposal site in the area of influence and that it has been modernized. The manager of the site stated that the waste treatment system means that no germinative plant material is produced.²⁰³⁸

7.1126. With regard to the presence of avocado trees alongside roads or in backyards, the report states that a journey was undertaken along two national highways in two cantons in which avocado crops are planted; that no avocado trees were observed alongside the road; and that, on one of the highways, two trees were seen in backyards, which it is claimed can be seen in the pictures reproduced in the document together with their coordinates.²⁰³⁹

7.1127. Document URCOR-CO-154/2019 (2019) is a report dated 20 November 2019, prepared by the Eastern Central Operational Unit and addressed to the head of the SFE's Department of Regional Operations. The document contains information on waste disposal sites and photographs that are said to relate to the spontaneous germination of avocado seeds in backyards in the Eastern Central region.²⁰⁴⁰

²⁰³¹ OR-BR-FUN-0014-2019 (2019), (Exhibit CRI-70).

²⁰³² OR-BR-FUN-0014-2019 (2019), (Exhibit CRI-70), pp. 10-12.

²⁰³³ OR-BR-FUN-0014-2019 (2019), (Exhibit CRI-70), p. 12.

²⁰³⁴ OR-CS-0003-2019 (2019), (Exhibit CRI-71).

²⁰³⁵ OR-CS-0003-2019 (2019), (Exhibit CRI-71), pp. 7-8.

²⁰³⁶ OR-CS-0003-2019 (2019), (Exhibit CRI-71), pp. 9-11.

²⁰³⁷ OR-PC-034-2019 (2019), (Exhibit CRI-72).

²⁰³⁸ OR-PC-034-2019 (2019), (Exhibit CRI-72), p. 3.

²⁰³⁹ OR-PC-034-2019 (2019), (Exhibit CRI-72), p. 4.

²⁰⁴⁰ URCOR-CO-154/2019 (2019), (Exhibit CRI-73).

7.1128. The report states that farm workers eat and may discard any food waste anywhere on the property; and that the Tarrazú Cantonal Agricultural Centre saw a case of an avocado tree, approximately 10 years old, that had sprouted from a seed that had been discarded on a coffee plantation. Photographs claiming to show this tree are included.²⁰⁴¹

7.1129. With respect to the evidence of trees that have sprouted spontaneously both alongside roads and in backyards, the report also states that it was only possible to establish from one individual's statement that a tree had sprouted spontaneously on the coffee plantation at the Tarrazú Cantonal Agricultural Centre, but that this tree was not of the Hass variety. Those people consulted in relation to backyards reported that the trees had been planted. The report presents five photographs identified as photographs of avocado trees in backyards.²⁰⁴² The document includes a photograph of a backyard in which there appears to be an avocado tree.²⁰⁴³

7.1130. The Panel notes that the five aforementioned reports contain information on the treatment of waste and present photographs that purport to substantiate the existence of avocado trees that germinated spontaneously in places where fruit and vegetable waste was used as compost for crops, as well as alongside roads, on farms and in backyards. However, they are photographs for which either no explanations are given, or for which the explanations are insufficient, regarding the spontaneous germination of the photographed trees, and that lack the systematic nature needed to support a conclusion concerning the spontaneous germination of avocado seeds at waste disposal sites, in backyards, on farms, and alongside roads. There is also no explanation of the representativeness of the photographs in relation to each region. Moreover, the reports constitute evidence that post-dates the preparation of Reports ARP-002-2017 and ARP-006-2016, therefore they do not form part of the scientific basis used for the risk analyst's assessment and reasoning.

7.1131. The document Ministry of Health of Costa Rica, Waste Management (2011) contains the National Policy for the Integrated Management of Waste 2010-21, including the strategies for waste management in Costa Rica.²⁰⁴⁴ The document indicates that, outside of the Greater Metropolitan Area, a high percentage of waste is disposed of in rubbish dumps, which are nothing more than places where waste is discarded without any means to mitigate the damage that its decomposition causes to the environment or health.²⁰⁴⁵ This confirms Costa Rica's assertion that the waste disposal sites in the country are often places where waste is disposed of without undergoing industrial treatment.²⁰⁴⁶

7.1132. Costa Rica refers to the UCR's document "The Criollo Avocado" to substantiate the germination of avocado seeds in gardens and backyards on farms, where it is customary for organic waste to be discarded in a particular place with the intention of producing homemade compost.²⁰⁴⁷ It also does so to indicate that the vast majority of those interviewed in the study state that their criollo avocado trees "sprouted by themselves on the farms"²⁰⁴⁸, and that it has been found that seeds can germinate without human assistance (as, by nature, they are meant to do).²⁰⁴⁹

7.1133. The document "The Criollo Avocado" is a project that makes an inventory and details the characteristics, propagation and conservation of criollo avocado trees, undertaken by the UCR in collaboration with the agricultural extension agencies of the Ministry of Agriculture and Livestock in San Mateo, Orotina and Esparza; the Advisory Commission on Land Degradation (CADETI); the Ministry of the Environment and Energy (MINAE); members of the Association of Avocado Producers

²⁰⁴¹ URCOR-CO-154/2019 (2019), (Exhibit CRI-73), p. 6.

²⁰⁴² URCOR-CO-154/2019 (2019), (Exhibit CRI-73), pp. 6-10.

²⁰⁴³ URCOR-CO-154/2019 (2019), (Exhibit CRI-73), p. 5.

²⁰⁴⁴ Ministry of Health of Costa Rica, Waste Management (2011), (Exhibit CRI-28).

²⁰⁴⁵ Ministry of Health of Costa Rica, Waste Management (2011), (Exhibit CRI-28), p. 16.

²⁰⁴⁶ Costa Rica's response to Panel question No. 20, para. 3 (citing Ministry of Health of Costa Rica, Waste Management (2011), (Exhibit CRI-28), p. 16); second written submission, para. 3.38 (citing Ministry of Health of Costa Rica, Waste Management (2011), (Exhibit CRI-28), p. 16); specific comments on the experts' responses to Panel questions Nos. 10 and 11 for the experts (citing Ministry of Health of Costa Rica, Waste Management (2011), (Exhibit CRI-28), p. 16).

²⁰⁴⁷ Costa Rica's response to Panel question No. 20, para. 4 (citing UCR, "The Criollo Avocado", (Exhibit CRI-74)); second written submission, para. 3.38 (citing UCR, "The Criollo Avocado", (Exhibit CRI-74)).

²⁰⁴⁸ Costa Rica's response to Panel question No. 94, para. 2 (citing UCR, "The Criollo Avocado", (Exhibit CRI-74)).

²⁰⁴⁹ Costa Rica's second written submission, para. 3.70 (citing UCR, "The Criollo Avocado", (Exhibit CRI-74)).

of San Jerónimo de Esparza; and other producers from the Jesús María and Barranca river basins. The document states that its main objective is to carry out a survey of the local criollo avocado trees, and that a total of 36 criollo avocado trees in San Mateo, Orotina and Esparza were assessed.²⁰⁵⁰

7.1134. The document highlights, *inter alia*, the following general characteristics of the criollo avocado trees studied: 60% of the trees are located in household backyards or gardens; over 50% of the trees were planted from seeds; and, with respect to the origin of these criollo avocado trees, 88% of the owners interviewed mentioned that they sprouted on the properties by themselves or they acquired them in the same area.²⁰⁵¹

7.1135. The Panel notes that, among the characteristics of the criollo avocado trees studied, the "Criollo Avocado" report mentions trees in household backyards or gardens, but not that they germinated spontaneously or from discarded organic waste as Costa Rica claims. This report confirms that those interviewed mentioned that criollo avocado trees sprouted by themselves on the properties, but this evidence relates only to the criollo avocado tree, which is native to Costa Rica. Even if this evidence were applicable to other avocado varieties, such as the Hass variety, this report was not considered when preparing Reports ARP-007-2017 and ARP-006-2016, therefore it does not form part of the scientific basis used for the risk analyst's assessment and reasoning.

7.1136. Costa Rica also cites Galindo Tovar et al. (2008)²⁰⁵², "Agronomists rescue the best varieties of criollo avocado"²⁰⁵³, "Climatic regions and subregions in Costa Rica"²⁰⁵⁴, Ellis (1991)²⁰⁵⁵ and Chin et al. (1989)²⁰⁵⁶ to substantiate its statements relating to the climatic conditions and the natural germination of avocado seeds in Costa Rica.

7.1137. Galindo Tovar et al. (2008) is an article that contains information on avocado diversity and its origins in Mesoamerica, its spread and domestication.²⁰⁵⁷ "Agronomists rescue the best varieties of criollo avocado" is a news item from the UCR that provides information on the work of two researchers to create a bank of criollo avocado germplasm and mentions the presence of trees in backyards, which appears to refer to criollo avocado trees.²⁰⁵⁸

7.1138. The Panel notes that neither of these two items of evidence directly addresses the question of whether Costa Rica's climatic conditions are suitable for the natural germination of an avocado seed.²⁰⁵⁹ Likewise, this matter is not addressed in the exhibits on the climatic conditions in Costa Rica (Climatic regions and subregions in Costa Rica) and recalcitrant seeds (Ellis (1991) and Chin et al. (1989)), which the Panel will address below.

7.1139. Climatic regions and subregions in Costa Rica describes Costa Rica's climatic conditions, establishing seven basic regions: the Northern Pacific, Central Pacific, Southern Pacific, Southern Mountainous, Central Valley, Northern, and Atlantic regions.²⁰⁶⁰ The document mentions for the various regions and subregions the existence of tropical dry forest, tropical moist forest, subtropical moist forest, subtropical wet forest, lower montane moist forest, lower montane wet forest, montane wet forest, and lower montane rain forest.²⁰⁶¹ Costa Rica's description of its climatic zones does not correspond exactly with that in "Climatic regions and subregions in Costa Rica", since it states that, in addition to tropical dry forest, the main life zones are tropical and premontane moist and wet forests.²⁰⁶²

²⁰⁵⁰ UCR, "The Criollo Avocado", (Exhibit CRI-74), p. 4.

²⁰⁵¹ UCR, "The Criollo Avocado", (Exhibit CRI-74), p. 5.

²⁰⁵² Galindo Tovar et al. (2008), (Exhibit MEX-22).

²⁰⁵³ "Agronomists rescue the best varieties of criollo avocado", *ucr.ac.cr* (2019), (Exhibit CRI-58).

²⁰⁵⁴ Climatic regions and subregions of Costa Rica, (Exhibit CRI-29).

²⁰⁵⁵ Ellis (1991), (Exhibit MEX-35).

²⁰⁵⁶ Chin et al. (1989), (Exhibit MEX-130).

²⁰⁵⁷ Galindo Tovar et al. (2008), (Exhibit MEX-22).

²⁰⁵⁸ "Agronomists rescue the best varieties of criollo avocado", *ucr.ac.cr* (2019), (Exhibit CRI-58).

²⁰⁵⁹ Costa Rica's first written submission, paras. 5.121 and 5.152; second written submission, para. 3.55 (citing Galindo Tovar et al. (2008), (Exhibit MEX-22); CONSULSANTOS (2010), (Exhibit MEX-119), p. 15; and "Agronomists rescue the best varieties of criollo avocado", *ucr.ac.cr* (2019), (Exhibit CRI-58)).

²⁰⁶⁰ Climatic regions and subregions of Costa Rica, (Exhibit CRI-29), pp. 1-2.

²⁰⁶¹ Climatic regions and subregions of Costa Rica, (Exhibit CRI-29), pp. 6, 9, 12-13, 17, 20, 24, 28-29.

²⁰⁶² Costa Rica's first written submission, para. 5.121 (citing Climatic regions and subregions of Costa Rica, (Exhibit CRI-29), p. 17).

7.1140. The articles by Ellis (1991) and Chin et al. (1989) address the matter of orthodox and recalcitrant seeds.²⁰⁶³ Ellis (1991) states that recalcitrant seeds do not survive desiccation²⁰⁶⁴, and Chin et al. (1991) notes that these seeds are sensitive to desiccation and chilling injury.²⁰⁶⁵ Neither of the two documents refers to the effect of Costa Rica's wet climate on avocado seeds in the sense that it prevents the desiccation of these seeds.

7.1141. The Panel also notes that, with the exception of the article by Galindo Tovar et al. (2008), which is cited in Reports ARP-002-2017 and ARP-006-2016 for the assertion that the avocado tree is native to Costa Rica²⁰⁶⁶, these documents are not sources for Reports ARP-002-2017 and ARP-006-2016, therefore the information contained therein does not form part of the scientific basis used in the risk analyst's assessment and reasoning.

7.1142. The Panel considers that Costa Rica has made efforts during the course of these proceedings to document the occurrence of spontaneous germination through the submission of additional information. However, this information is neither reflected nor analysed in the risk assessment contained in Reports ARP-002-2017 and ARP-006-2016, which form the basis of Costa Rica's phytosanitary requirements.

7.1143. Furthermore, while Costa Rica has sought to gather further information on spontaneous germination subsequent to Reports ARP-002-2017 and ARP-006-2016, this Panel is of the view that the evidence provided remains insufficient to document spontaneous germination due to the lack of a systematic, disciplined and objective investigation and analysis. This does not allow for an assessment, whether qualitative or quantitative, to be made of the probability of entry, establishment or spread of ASBVd in Costa Rica that properly considers this spontaneous germination. In addition, there are still no estimates, either qualitative or quantitative, of the magnitude of spontaneous germination.

7.4.5.3.3.11 Discussion of the occurrence of spontaneous germination

7.1144. To refute the assertions contained in Reports ARP-002-2017 and ARP-006-2016 on spontaneous germination, **Mexico** submits that, given the recalcitrant nature of avocado seeds, for them to germinate, specific conditions must be met and processes followed during the collection, storage and cultivation phases in order to increase or preserve their viability.²⁰⁶⁷ Mexico states that it does not deny that a pit may germinate naturally, but it argues that the recalcitrant nature of a seed, particularly if it is a discarded pit, affects the viability of the embryo due to the conditions to which the fruit is exposed from the moment it is cut down until it reaches the final consumer (including being transported, displayed for sale, refrigerated).²⁰⁶⁸

7.1145. As part of its arguments on whether the risk assessment is appropriate to the circumstances, Mexico also submits that an avocado seed does not germinate in such a spontaneous manner because it is a recalcitrant seed.²⁰⁶⁹ Mexico reiterates that other factors need to be considered in addition to the climate in order to ensure that an avocado seed germinates. It adds that, in a commercial orchard, human intervention is necessarily required for seed pretreatment, so that the plant that germinates is the best specimen for obtaining economic benefits.²⁰⁷⁰

7.1146. For Mexico, if Costa Rica had considered the product's specific characteristics, such as the recalcitrant nature of the seed, the risk assessment would have been conducted differently and would likely have reached a different conclusion with regard to the probability of entry, establishment and spread of ASBVd.²⁰⁷¹

²⁰⁶³ Ellis (1991), (Exhibit MEX-35); Chin et al. (1989), (Exhibit MEX-130).

²⁰⁶⁴ Ellis (1991), (Exhibit MEX-35), p. 1119.

²⁰⁶⁵ Chin et al. (1989), (Exhibit MEX-130), p. 18.

²⁰⁶⁶ See, for example, ARP-002-2017, (Exhibit MEX-84), p. 37 (citing Galindo Tovar et al. (2008), (Exhibit MEX-22)); ARP-006-2016, (Exhibit MEX-85), p. 18 (citing Galindo Tovar et al. (2008), (Exhibit MEX-22)).

²⁰⁶⁷ Mexico's first written submission, para. 28.

²⁰⁶⁸ Mexico's first written submission, para. 28; second written submission, para. 72.

²⁰⁶⁹ Mexico's first written submission, para. 396.

²⁰⁷⁰ Mexico's first written submission, para. 397.

²⁰⁷¹ Mexico's first written submission, para. 398.

7.1147. Mexico notes that the assertions in Costa Rica's PRA are contradictory since, on the one hand, they refer to a seasonal limitation on seed germination, and, on the other hand, state that Costa Rica's climatic circumstances mean that seeds may germinate naturally at any time. Mexico adds that, in addition to the climate, factors for germination would include, *inter alia*, elevation, soil quality and characteristics, soil moisture, seed viability, the decomposition process, and seed disinfection and sowing methods.²⁰⁷²

7.1148. Mexico also argues that, given that the proposed use of the fruits is for consumption, the waste will primarily be discarded in household bins and then in waste disposal sites, in most cases far from any susceptible hosts.²⁰⁷³ For Mexico, the probability of the discarded avocado seed germinating at a waste disposal site is virtually nil.²⁰⁷⁴ Mexico notes that rubbish dumps or waste disposal sites, by their very nature, do not offer the conditions required to ensure the germination of seeds.²⁰⁷⁵

7.1149. For its part, **Costa Rica** submits that the natural tropical conditions of the country mean that recalcitrant avocado seeds are able to spontaneously germinate and survive²⁰⁷⁶; and that its wet climate prevents the desiccation of avocado seeds.²⁰⁷⁷

7.1150. Costa Rica states that, for most of the year, its climatic conditions are suitable for the germination of avocado seeds, and that its risk assessment found that the main life zones in the country are tropical dry forests and tropical and premontane moist and wet forests, and that, for recalcitrant seeds such as those of avocados, moisture is the most critical factor that determines their longevity and viability. According to Costa Rica, its wet climate prevents the desiccation of avocado seeds.²⁰⁷⁸ Costa Rica adds that its climatic conditions mean that avocado seeds are extremely adaptable, even in low-fertility, weathered and highly acidic soils; and that its natural tropical conditions make it easy for recalcitrant avocado seeds to spontaneously germinate and survive, therefore it is essential to consider these conditions when assessing the risks associated with the germination of seeds of Hass avocado imported from countries where ASBVd is present.^{2079, 2080}

7.1151. Costa Rica notes that the edaphoclimatic requirements for Hass avocados are an elevation of 1,000-2,000 masl, a temperature of 16-18°C, and rainfall of 1,200 mm per year.²⁰⁸¹ Costa Rica asserts that it is an empirical fact that the climatic conditions necessary for avocado growing are found in much of its territory.²⁰⁸² According to Costa Rica, the country's warm and wet climate is particularly good for avocados, with the Los Santos zone and the low-lying "Bajura" area being particularly suitable for their cultivation, and where the majority of Costa Rican avocado production takes place.²⁰⁸³

²⁰⁷² Mexico's first written submission, paras. 392-394.

²⁰⁷³ Mexico's opening statement at the first meeting of the Panel, para. 45.

²⁰⁷⁴ Mexico's response to Panel question No. 20, para. 44.

²⁰⁷⁵ Mexico's second written submission, para. 62.

²⁰⁷⁶ See, for example, Costa Rica's opening statement at the first meeting of the Panel, para. 9; response to Panel question No. 7, para. 4; response to Panel question No. 8, para. 3.

²⁰⁷⁷ Costa Rica's response to Panel question No. 6, para. 4; second written submission, para. 5.121.

²⁰⁷⁸ Costa Rica's first written submission, para. 5.121 (citing Los Santos Zone (2007), (Exhibit MEX-97), p. 8; CONSULSANTOS (2010), (Exhibit MEX-119), p. 15; Climatic regions and subregions of Costa Rica, (Exhibit CRI-29), p. 17; Ellis (1991), (Exhibit MEX-35), p. 1119; and Chin *et al.* (1989), (Exhibit MEX-130), pp. 18-19); response to Panel question No. 6, para. 4; response to Panel question No. 7.

²⁰⁷⁹ Costa Rica adds that the avocado varieties adapt very well to elevations between 0 masl and 2,500 masl, with temperatures between 5°C and 28°C, requiring average rainfall of 660 mm to 1,500 mm per year and relative humidity of around 80%, and that this is precisely the description of the climate in the avocado-producing areas in Costa Rica and in a large part of the country's territory. (Costa Rica's opening statement at the first meeting of the Panel, para. 9).

²⁰⁸⁰ Costa Rica's opening statement at the first meeting of the Panel, para. 9.

²⁰⁸¹ Costa Rica's response to Panel question No. 6, para. 1 (citing Los Santos Zone (2007), (Exhibit MEX-97), p. 8).

²⁰⁸² Costa Rica's response to Panel question No. 6, para. 1 (citing "Agronomists rescue the best varieties of criollo avocado", *ucr.ac.cr* (2019), (Exhibit CRI-58)). See also Costa Rica's response to Panel question No. 7, para. 4.

²⁰⁸³ Costa Rica's response to Panel question No. 6, para. 3 (citing Los Santos Zone (2007), (Exhibit MEX-97); Climatic regions and subregions of Costa Rica, (Exhibit CRI-29); and Beatriz García, "El aguacate español, el único reducto en Europa del 'oro verde'", *Libertad Digital* (7 de Mayo 2017), (Exhibit CRI-59)).

7.1152. Costa Rica also contends that an untreated seed does not lose viability immediately after its extraction from the fruit.²⁰⁸⁴ In Costa Rica's view, avocado seeds do not require any type of scarification treatment, treatment with chemical products such as growth promoters, or controlled conditions in order to germinate, and especially not in the places from which avocado trees originate and where they propagated naturally for centuries.²⁰⁸⁵

7.1153. Costa Rica adds that waste disposal sites are often places where waste is disposed of without undergoing industrial treatment and that, in these cases, if the waste matter is discarded on wasteland and the necessary humidity and temperature conditions exist, the seed can certainly germinate.²⁰⁸⁶

7.1154. The **Panel** notes that this matter has been discussed extensively with the experts, and particularly with Fernando Pliego Alfaro, who is an expert on avocado cultivation.

7.1155. The expert Fernando Pliego Alfaro considers Costa Rica's assertions that its climatic conditions are optimal for the germination of avocado seeds to be correct. Mr Pliego Alfaro adds that while the climatic conditions across most of Costa Rica are suitable for germination, the seeds would not germinate in areas with a very marked dry season or probably only those that fall at the end of the dry season would do so.²⁰⁸⁷ According to the expert Ricardo Flores Pedauy , these assertions seemed overly optimistic. He states that, while Costa Rica's conditions may be conducive to spontaneous germination, they are not the ideal conditions that prevail in controlled environments, in which all avocado seeds still do not germinate. For Mr Flores Pedauy , these conditions may be better than in other environments, but they are not optimal.²⁰⁸⁸ The expert Pablo Cortese, for his part, considers that, while it is unlikely that a seed from the fruit of a commercially cultivated plant will germinate spontaneously when it is discarded in a field or in household compost, it could happen.²⁰⁸⁹

7.1156. Fernando Pliego Alfaro, Ricardo Flores Pedauy  and Pablo Cortese all agree that avocado seeds are recalcitrant²⁰⁹⁰ and that this recalcitrant nature affects the viability of avocado seeds. Mr Pliego Alfaro notes that the recalcitrant nature of the seed means that its life is relatively short and it maintains its capacity to germinate for only a few months.²⁰⁹¹ Mr Flores Pedauy  points out that this recalcitrant nature makes germination difficult, and that a fraction of the seeds fail to thrive.²⁰⁹² Mr Cortese, for his part, considers that this recalcitrant nature affects viability, which declines sharply if the seed is not stored under the right conditions, and that the seed is affected by desiccation, high humidity and the cold, which makes it susceptible to losing viability and decomposing.²⁰⁹³

7.1157. With regard to the specific impact of the recalcitrant nature of avocado seeds in Costa Rica, Mr Pliego Alfaro contends that discarded avocado seeds may germinate naturally in Costa Rica's climate and soil conditions.²⁰⁹⁴ Mr Flores Pedauy , on the other hand, explains that while Costa Rica's wet climate is favourable, excessive humidity is not.²⁰⁹⁵

²⁰⁸⁴ Costa Rica's specific comments on Panel question No. 23 for the experts.

²⁰⁸⁵ Costa Rica's response to Panel question No. 15, para. 3.

²⁰⁸⁶ Costa Rica's response to Panel question No. 20, para. 3 (citing OR-HN-049-2019 (2019), (Exhibit CRI-69); OR-BR-FUN-0014-2019 (2019), (Exhibit CRI-70); and OR-CS-0003-2019 (2019), (Exhibit CRI-71)); second written submission, para. 3.38 (citing OR-HN-049-2019 (2019), (Exhibit CRI-69); OR-BR-FUN-0014-2019 (2019), (Exhibit CRI-70); and OR-CS-0003-2019 (2019), (Exhibit CRI-71)); specific comments on the experts' responses to Panel questions Nos. 10 and 11 for the experts (citing OR-HN-049-2019 (2019), (Exhibit CRI-69); OR-BR-FUN-0014-2019 (2019), (Exhibit CRI-70); and OR-CS-0003-2019 (2019), (Exhibit CRI-71)).

²⁰⁸⁷ Fernando Pliego Alfaro's responses to Panel questions Nos. 8, 9, 10, 14, 19 and 24 for the experts.

²⁰⁸⁸ Ricardo Flores Pedauy 's responses to Panel questions Nos. 8, 9, 10, 14, 19 and 24 for the experts.

²⁰⁸⁹ Pablo Cortese's response to Panel question No. 24 for the experts.

²⁰⁹⁰ Responses of Fernando Pliego Alfaro, Ricardo Flores Pedauy  and Pablo Cortese to Panel questions Nos. 2 and 3 for the experts.

²⁰⁹¹ Fernando Pliego Alfaro's responses to Panel questions Nos. 4 and 34(d) for the experts.

²⁰⁹² Ricardo Flores Pedauy 's responses to Panel questions Nos. 4 and 34(d) for the experts.

²⁰⁹³ Pablo Cortese's responses to Panel questions Nos. 4 and 34(d) for the experts.

²⁰⁹⁴ Fernando Pliego Alfaro's response to Panel question No. 5 for the experts.

²⁰⁹⁵ Ricardo Flores Pedauy 's response to Panel question No. 5 for the experts.

7.1158. Mr Pliego Alfaro notes that seeds may certainly germinate if the soil moisture level and ambient temperature are right.²⁰⁹⁶ He clarifies that this statement is based on observations in avocado farms (orchards), where it is not uncommon to find seedlings from seeds that have germinated from ripe fruit that has been blown down by the wind or caused to fall by some other factor and ended up partly buried under vegetation cover; and that some, but not all, seeds may germinate. Mr Pliego Alfaro is of the view that, if seeds are discarded in a garden and end up buried in the vegetation cover, as occurs in orchards, these seeds could also germinate, although only a small percentage would do so. For Mr Pliego Alfaro, the situation at waste disposal sites and in backyards where homemade compost is produced is very different, since, in these cases, the organic waste fermentation processes mean that the temperature and aeration conditions are not right, and it is very difficult for germination to occur.²⁰⁹⁷ Mr Flores Pedauy , for his part, indicates that the seeds may germinate, but he does not believe that the majority would.²⁰⁹⁸

7.1159. The Panel observes that Costa Rica has a range of edaphoclimatic conditions in the various regions of the country, as is reflected in the document "Climatic regions and subregions in Costa Rica".²⁰⁹⁹ However, in Reports ARP-002-2017 and ARP-006-2016, spontaneous germination has been treated as a phenomenon that can occur in all areas of Costa Rican territory, throughout every season of the year, and in the edaphoclimatic conditions of the whole country, which Costa Rica presents as being optimal. Costa Rica mentions its different life zones only in the introductions to Reports ARP-002-2017 and ARP-006-2016, and that the life zones of tropical dry forest have a marked dry season, during which the avocado seeds would dry up when they fall to the ground and would not germinate.²¹⁰⁰

7.1160. The Panel finds no explanation in Reports ARP-002-2017 and ARP-006-2016 regarding how the various edaphoclimatic conditions (including temperature, elevation, humidity and soils) in the different regions of the country would affect the assignment of probabilities to the various factors and elements of the probability of entry, establishment and spread of ASBVd in Costa Rica.

7.1161. With regard to the recalcitrant nature of avocado seeds, the Panel considers that this is one of the characteristics that determines the specific edaphoclimatic conditions conducive to the germination of avocado seeds. Therefore, the consideration of this recalcitrant nature forms part of the consideration of the edaphoclimatic conditions.

7.1162. In addition, among Costa Rica's premises that Mexico considers to be baseless, Mexico mentions that Costa Rica considers that all avocado pits will germinate, become established, and successfully take root to produce avocado seedlings, which will grow and develop into trees.²¹⁰¹

7.1163. Mexico confirms that it is possible for seeds to germinate on rubbish dumps or wasteland, but that it is also important for them to become established in the ground otherwise the seed will simply begin to germinate but it will fail to take root in the ground, which means that the plant will not develop and become productive. In Mexico's view, were the opposite true, waste disposal sites across the world, and particularly those in countries that are centres of origin for avocados, would be full of avocado trees at different stages of growth.²¹⁰²

7.1164. The expert Fernando Pliego Alfaro indicates that, once the avocado plant has germinated, its vigour and size will depend on the soil characteristics, with the biggest and most vigorous plants being those that grow in nutrient-rich soils or in poor soils that have been properly fertilized.²¹⁰³

7.1165. Asked how easy it is for a seed taken from a fresh avocado fruit imported for consumption to germinate, for the germinated seed to produce a seedling, and for this seedling to grow and become a productive tree, Mr Pliego Alfaro replied that it is not easy, but it can happen. Moreover, Mr Pliego Alfaro states that Costa Rica's climate means that if the humidity and temperature

²⁰⁹⁶ Fernando Pliego Alfaro's response to Panel question No. 11 for the experts.

²⁰⁹⁷ Fernando Pliego Alfaro's clarification with respect to his response to Panel question No. 11 for the experts.

²⁰⁹⁸ Ricardo Flores Pedauy 's response to Panel question No. 11 for the experts.

²⁰⁹⁹ Climatic regions and subregions of Costa Rica, (Exhibit CRI-29).

²¹⁰⁰ ARP-002-2017, (Exhibit MEX-84), p. 7 (citing CONSULSANTOS (2010), (Exhibit MEX-119)); ARP-006-2016, (Exhibit MEX-85), p. 7.

²¹⁰¹ Mexico, transcript of the Panel's meeting with the parties and the experts, day 1, p. 9.

²¹⁰² Mexico's specific comments on the experts' responses to Panel question No. 11 for the experts.

²¹⁰³ Fernando Pliego Alfaro's response to Panel question No. 10(c) for the experts.

conditions are right, particularly in the rainy season, and the plant becomes established and is not removed, then it can indeed happen, although the probability is low, but it can happen. According to Mr Pliego Alfaro, once the plant is established in the ground and once the germination process is complete, the plant will grow to a greater or lesser extent depending on factors such as the soil conditions, but it will not die and will take several years to form flowers, if it is a seed plant, and then bear fruit.²¹⁰⁴

7.1166. Mr Pliego Alfaro adds that the most delicate phase is the seed germination and seedling establishment process. Therefore, according to him, if the seed falls at a time when the soil is not waterlogged, but there is sufficient humidity and an acceptable temperature, and a seedling of half a metre or a metre or so becomes established, that seedling, depending on the conditions, may grow to a greater or lesser extent, but it is already viable.²¹⁰⁵

7.1167. The Panel notes that, in addition to the flaws in Costa Rica's consideration of the edaphoclimatic conditions conducive to the germination of seeds, there is no analysis, characterization or evidence in the reports of the conditions conducive to the subsequent development of the embryo, or of the probabilities of this embryo becoming a developed plant that grows into a tree capable of bearing fruit. In the Panel's view, the lack of consideration of the edaphoclimatic conditions conducive to the development of the avocado tree after germination affects the assessment of the availability of host plants, and thus the probability of spread of ASBVd.

7.1168. In the Panel's view, in reaching a generalized conclusion on spontaneous germination, without considering in the assessment of the elements and factors of the probability analysis the differences in the edaphoclimatic conditions in the various regions of the country and the different situations in which a seed could be discarded (for example, on a farm, in a garden, or at a waste disposal site), Reports ARP-002-2017 and ARP-006-2016 overestimated the probability of spontaneous germination occurring in the entire PRA area. The Panel also finds that there is a failure to take into account the edaphoclimatic conditions conducive to the development of the avocado tree after germination, which affects the assessment of the availability of host plants, and thus the probability of spread of ASBVd.

7.4.5.3.3.12 Conclusion to the section

7.1169. With regard to the diversion from intended use and the spontaneous germination in Reports ARP-002-2017 and ARP-006-2016, the Panel concludes that:

- a. There is insufficient scientific evidence in Reports ARP-002-2017 and ARP-006-2016 on the existence of the diversion from intended use of seeds from fresh fruit for consumption, and there are no estimates, even in qualitative terms, of the scale on which this diversion occurs in Costa Rica, which prevented the risk analyst from conducting either a qualitative or quantitative assessment of the probability of entry, establishment or spread of ASBVd in Costa Rica that would give due consideration to this diversion from intended use.
- b. There is insufficient scientific evidence in Reports ARP-002-2017 and ARP-006-2016 on the occurrence of spontaneous germination, and there are no estimates, even in qualitative terms, of the scale on which this spontaneous germination occurs in Costa Rica, which prevented the risk analyst from conducting either a qualitative or quantitative assessment of the probability of entry, establishment or spread of ASBVd in Costa Rica that would give due consideration to this spontaneous germination.
- c. In reaching a generalized conclusion on spontaneous germination, without considering in the assessment of the elements and factors of the probability analysis the differences in the edaphoclimatic conditions in the various regions of the country and the different situations in which a seed could be discarded (for example, on a farm, in a garden, or at a waste disposal site), Reports ARP-002-2017 and ARP-006-2016 overestimated the probability of spontaneous germination occurring in the entire PRA area. There is also a failure to take into account the edaphoclimatic conditions conducive to the development

²¹⁰⁴ Fernando Pliego Alfaro, transcript of the Panel's meeting with the parties and the experts, day 1, p. 36.

²¹⁰⁵ Fernando Pliego Alfaro, transcript of the Panel's meeting with the parties and the experts, day 1, p. 65.

of the avocado tree after germination, which affects the assessment of the availability of host plants, and thus the probability of spread of ASBVd.

7.4.5.3.4 Whether the likelihood of entry, establishment and spread was evaluated in Reports ARP-002-2017 and ARP-006-2016

7.1170. Mexico claims that Costa Rica's measures are not based on a risk assessment within the meaning of paragraph 4 of Annex A to the SPS Agreement.²¹⁰⁶ Mexico notes that the "evaluation of the likelihood" must be understood as a systematic and reasoned calculation of the incidence of possible favourable instances, and that Costa Rica should have calculated, in a systematic and reasoned manner, the incidence of possible favourable instances in relation to the entry, establishment and spread of ASBVd in Costa Rican territory as a result of the importation of fresh avocados for consumption from Mexico.²¹⁰⁷

7.1171. Mexico notes that, for each stage identified along the pathway, information should have been collected so as to determine or estimate, qualitatively or quantitatively, each and every step that the pit of a fresh avocado originally imported for consumption would have to go through in order for the risk to become a reality.²¹⁰⁸

7.1172. Costa Rica submits that Mexico has failed to demonstrate how Costa Rica's risk assessment is inconsistent with the definition in paragraph 4 of Annex A to the SPS Agreement²¹⁰⁹, and indicates that each and every one of the factors identified by Mexico was considered by the risk analyst, taking into account the information and scientific evidence available.²¹¹⁰

7.1173. The Panel will analyse below the various factors and elements of Costa Rica's risk assessment, beginning with the evaluation of the likelihood of entry, followed by the evaluation of the likelihood of establishment, and concluding with the evaluation of the likelihood of spread.

7.4.5.3.4.1 Evaluation of the likelihood of entry

7.1174. **Mexico** submits that Costa Rica should have calculated, in a systemic and reasoned manner, the situations that it considered to be conducive and possible in which ASBVd could move from the point of origin to within Costa Rica through the pathway of fresh avocados imported for consumption from Mexico.²¹¹¹

7.1175. Mexico asserts that it is not possible to draw from the PRAs an analysis evaluating the probability of entry of ASBVd according to the various pathways of transmission, or its dispersal ability to move from the pathway to a host in Costa Rican territory.²¹¹²

7.1176. Mexico contends that, had Costa Rica considered information on the conditions and events that occur along the pathway of fresh avocados imported for consumption, it would have found that the probability of entry is negligible, if not nil.²¹¹³

7.1177. For Mexico, the lack of specific evidence cited for the purposes of the risk analysis of the pathway means that it is questionable that Costa Rica has objectively evaluated the likelihood of risk of entry of ASBVd into its territory through the pathway of fresh avocados imported for consumption, and, as a result of failing to collect specific scientific evidence or generate the necessary information, the outcome of the risk assessment was the over-estimation of this risk.²¹¹⁴

7.1178. Mexico adds that it would appear from the review of the risk assessment and the verification of its results that Costa Rica assumed that 100% of the fresh avocados imported from Mexico are carriers of the asymptomatic variant of ASBVd, and that all the avocado pits will be used either by

²¹⁰⁶ Mexico's first written submission, para. 382; second written submission, para. 169.

²¹⁰⁷ Mexico's first written submission, para. 272.

²¹⁰⁸ Mexico's response to Panel question No. 158, para. 106.

²¹⁰⁹ Costa Rica's second written submission, para. 3.23.

²¹¹⁰ Costa Rica's comments on Mexico's response to Panel question No. 158, para. 64.

²¹¹¹ Mexico's first written submission, paras. 273 and 314.

²¹¹² Mexico's first written submission, paras. 283-284.

²¹¹³ Mexico's second written submission, para. 116.

²¹¹⁴ Mexico's second written submission, paras. 125 and 127.

individuals, who plant the pits in their backyards, or by farmers, or will be discarded, presuming also that all such pits will spontaneously germinate at waste disposal sites.²¹¹⁵

7.1179. **Costa Rica** submits that it correctly evaluated the probability that ASBVd would enter its territory and move from the pathway (fresh fruit for consumption from Mexico) to a suitable host, leading to the establishment and spread of ASBVd and its disease.²¹¹⁶

7.1180. Costa Rica asserts that it evaluated the probability of entry of ASBVd in accordance with the factors contained in the manual, which is based on ISPM No. 11²¹¹⁷, and that, on the basis of the scientific evidence available at the time of the risk assessment, it found: that ASBVd is present in Mexico and is not subject to any specific regulations; that, as a viroid that is systemic in the plant tissue, ASBVd survives transport and storage; that pest management procedures are unable to detect fruits with asymptomatic ASBVd; and that the germination of seeds from symptomless fruit leads to the emergence of avocado trees with ASBVd.²¹¹⁸

7.1181. Costa Rica indicates that the probability that ASBVd may enter Costa Rica through the pathway of imported avocados is high due to the country's specific climatic conditions and the cultivation practices, and that these elements were fully assessed in its PRA.²¹¹⁹

7.1182. Costa Rica notes that, on the basis of coherent reasoning and respectable scientific evidence, it found: the prevalence of ASBVd in Mexico; the existence of symptomless fruit with ASBVd, in which the viroid cannot be visually detected; the presence of the viroid with infective capacity in the seeds; the viability of the seeds after transport and storage; the high transmission potential of the seeds of symptomless fruit; and the capacity of the seeds to germinate in Costa Rican soil naturally (waste) or intentionally (diversion from intended use). Costa Rica adds that Mexico has failed to demonstrate that the conclusions reached by Costa Rica in relation to the "high" probability of entry of ASBVd do not find sufficient support in the existing scientific evidence.²¹²⁰

7.1183. The **Panel** will address the parties' foregoing arguments on the likelihood of entry of ASBVd in Costa Rica when analysing each of the factors and elements considered by Costa Rica in its risk assessment to determine this probability of entry. In this connection, Reports ARP-002-2017 and ARP-006-2016 considered four factors: (i) the probability of the pest being associated with the pathway at origin; (ii) the probability of survival during transport and storage; (iii) the probability of pest surviving existing pest management procedures; and (iv) the probability of transfer to a suitable host. Reports ARP-002-2017 and ARP-006-2016 assigned a high risk to each of these four factors on the basis of the consideration of certain elements²¹²¹ within each factor, and the assignment of points to each of these elements.

7.1184. **Mexico** notes that it analyses the PRAs in light of ISPM No. 11, since Article 5.1 of the SPS Agreement requires that the risk assessment be conducted on the basis of the techniques of the relevant international organizations, and the PRAs themselves indicate that they have been prepared in a manner that is harmonized with ISPM No. 11.²¹²²

7.1185. Mexico contends that, in accordance with ISPM No. 11, Costa Rica should have: (i) identified the entry pathway; (ii) evaluated the probability of the pest being associated with the pathway at origin; (iii) evaluated the probability of survival during transport or storage; (iv) evaluated the probability of pest surviving existing pest management procedures; and

²¹¹⁵ Mexico's second written submission, para. 125.

²¹¹⁶ Costa Rica's first written submission, para. 5.92.

²¹¹⁷ Costa Rica's first written submission, para. 5.93.

²¹¹⁸ Costa Rica's first written submission, para. 5.94.

²¹¹⁹ Costa Rica's opening statement at the first meeting of the Panel, para. 8 (citing Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44); Affidavit of Juan Gamboa Robles (2019), (Exhibit CRI-45); Affidavit of Francisco Fallas Serrano (2019), (Exhibit CRI-46); Affidavit of Francisco Cordero Navarro (2019), (Exhibit CRI-47); Affidavit of Daniel Ureña Zumbado (2019), (Exhibit CRI-48); and Affidavit of Francisco Elizondo Ureña (2019), (Exhibit CRI-49)).

²¹²⁰ Costa Rica's first written submission, para. 5.126.

²¹²¹ The Panel notes that the parties refer to factors included within the factors being analysed. In order to ensure the clarity of its analysis, the Panel will refer to these factors within the factors as "elements".

²¹²² Mexico's first written submission, para. 285.

(v) evaluated the probability of transfer to a suitable host.²¹²³ Mexico submits that Costa Rica did not follow these steps.²¹²⁴

7.1186. The **Panel** notes that Costa Rica's risk assessment follows the structure mentioned by Mexico for the evaluation of the likelihood of entry. The only step that Mexico indicates is not included in the section on the evaluation of the likelihood of entry is the identification of the relevant pathway for the entry of ASBVd into Costa Rican territory.

7.1187. **Mexico** asserts that Costa Rica failed to identify the relevant pathways for the entry of ASBVd into its territory, in accordance with section 2.2.1.1 of ISPM No. 11.²¹²⁵ Mexico contends that it is not possible to find a description or evaluation of the hypothetical pathways for the entry of ASBVd in relation to fresh avocados for consumption, and that the PRAs do not support with scientific evidence or testimonies the fact that the hypothetical pathway of fresh avocados imported for consumption from Mexico is a new or potential pathway for the entry of ASBVd.²¹²⁶ Mexico adds that the scientific doctrine cited in the PRAs refers to the pathway of entry through propagation, and transmission by mechanical means or by pollen, but not to the importation of fresh avocados for consumption from Mexico. For Mexico, the identification of a pathway must be supported with specific scientific evidence, and Costa Rica should have considered specific information on the conditions and events that occur along the pathways analysed.²¹²⁷

7.1188. Mexico adds that Costa Rica should have justified the choice of pathway (importation of fresh avocados for consumption from Mexico) with scientific evidence that determined, on the basis of a systemic and reasoned evaluation, that this pathway is associated with the entry of ASBVd, and this evaluation should have been conducted for each variant of ASBVd.²¹²⁸

7.1189. Mexico contends that, as a result, Costa Rica did not conduct a probability evaluation that would allow the risk of entry to be recognized for each of the entry pathways for ASBVd in international trade in fresh avocados for consumption from Mexico.²¹²⁹

7.1190. **Costa Rica**, for its part, argues that it identified two entry pathways for ASBVd (fresh avocados for consumption and avocado plants for planting) as these are the only two avocado products that Costa Rica imports. Costa Rica notes that Report ARP-006-2016 identifies both pathways and Report ARP-002-2017 only examines the pathway of fresh avocados because this is the only avocado product that Costa Rica imports from Mexico.²¹³⁰

7.1191. The **Panel** notes that Report ARP-002-2017, which was prepared for a number of pests, indicates in its initiation stage that the phytosanitary policy under review in the document is that covering the importation into Costa Rica of fresh avocados (*Persea americana* Mill.) for consumption.²¹³¹ The Report ARP-006-2016 indicates in its initiation stage that the analysis is divided into fresh fruit for consumption and plants for planting.²¹³² In this Panel's view, the reports identify for analysis the pathways that were determined to be relevant by Costa Rica.

7.1192. With regard to Mexico's argument on the lack of scientific evidence on the identification of the pathway, in its analysis of the evaluation of the four aforementioned likelihood factors, the Panel will examine the scientific evidence used in relation to the evaluation of the likelihood of entry of ASBVd through the pathway of fresh avocados for consumption from Mexico.

7.1193. Mexico includes in its arguments a table containing a number of assertions made by Costa Rica in the PRA that, according to Mexico, constitute central aspects of the assessment and that lack a sufficient scientific basis; and a table that includes Mexico's comments on Costa Rica's assertions in Reports ARP-002-2017 and ARP-006-2016, comparing them with the original sources

²¹²³ Mexico's first written submission, para. 288.

²¹²⁴ Mexico's first written submission, para. 289.

²¹²⁵ Mexico's first written submission, paras. 290-291.

²¹²⁶ Mexico's first written submission, para. 292.

²¹²⁷ Mexico's first written submission, paras. 290-294; second written submission, para. 115.

²¹²⁸ Mexico's first written submission, para. 295.

²¹²⁹ Mexico's first written submission, para. 296.

²¹³⁰ Costa Rica's first written submission, paras. 5.102-5.103; second written submission, para. 3.32.

²¹³¹ ARP-002-2017, (Exhibit MEX-84), p. 10.

²¹³² ARP-006-2016, (Exhibit MEX-85), p. 14.

used, which, according to Mexico, demonstrate that Costa Rica failed to take scientific evidence into account when assessing the risk.²¹³³ Mexico also submits an exhibit on the evidence cited in the PRAs.²¹³⁴ The Panel takes into account the content of these tables when examining the evaluation of the likelihood of entry, establishment and spread and of the associated potential biological and economic consequences in Reports ARP-002-2017 and ARP-006-2016.

Probability of the pest being associated with the pathway at origin

7.1194. The first factor considered by Reports ARP-002-2017 and ARP-006-2016 is the probability of the pest being associated with the pathway at origin. This probability was determined to be high after considering the following five elements: (i) the prevalence of the pest in the source area; (ii) the occurrence of the pest in a life stage that would be associated with commodities, containers, or conveyances; (iii) the volume and frequency of movement along the pathway; (iv) seasonal timing; and (v) pest management, cultural and commercial procedures applied at the place of origin.

7.1195. **Mexico** asserts that Costa Rica failed to correctly evaluate the probability of ASBVd being associated at origin with the pathway of fresh avocados imported for consumption from Mexico. Mexico contends that, in accordance with section 2.2.1.2 of ISPM No. 11, Costa Rica should have determined the probability of the pest being associated with the pathway at origin, but the PRAs do not show that Costa Rica has conducted the corresponding evaluation nor do they contain scientific evidence to support the claims that characterize the probability of entry of a pest being associated with the pathway at origin as high.²¹³⁵

7.1196. Mexico claims that Costa Rica should have:

- a. Evaluated the prevalence of ASBVd and its disease in the source areas of fresh avocados for consumption from Mexico, including scientific evidence related to this prevalence in each of the regions producing fresh avocados for consumption destined for Costa Rica. Mexico states that there is no scientific evidence confirming the presence of ASBVd and its disease in the regions that were the source areas of the fresh avocados for consumption that were imported into Costa Rica from Mexico until 2015; and that the only scientific evidence in the PRA relates to evaluations that lack representativeness and do not specify whether the orchards studied produce avocados for export, or whether they exported to Costa Rica. For Mexico, the study by Vallejo Pérez et al. (2017) is not representative of either Michoacán or Mexico.²¹³⁶ Mexico adds that Costa Rica should have considered the origin of the fruit, since the prevalence of ASBVd has not been confirmed in states such as Jalisco.²¹³⁷ Mexico also asserts that the scientific testimonies cited do not refer to evidence to estimate the prevalence of the pest in Mexico or the potential economic consequences, because the SINAVEF report (2010) notes that ASBVd is present in some areas and does not indicate a specific prevalence; and the CABI and EPPO databases are imprecise sources.²¹³⁸
- b. Evaluated the occurrence of ASBVd and its disease in a life stage that would be associated with commodities, containers or conveyances. According to Mexico, Ploetz et al. (2011) refers to the way in which the disease is distributed in avocado plants and not to the life stages of ASBVd and its disease, so the PRAs do not support with scientific evidence the life stages of ASBVd and its disease that would be associated with the pathway of fresh avocados imported for consumption from Mexico.²¹³⁹

²¹³³ Mexico's first written submission, paras. 417 and 434.

²¹³⁴ Mexico's second written submission, para. 130 (referring to México, Relación de testimonios científicos utilizados en los ARP de Costa Rica (Mexico, List of scientific evidence used in Costa Rica's PRAs), (Exhibit MEX-233)).

²¹³⁵ Mexico's first written submission, para. 297.

²¹³⁶ Mexico's first written submission, para. 298 (referring to Vallejo Pérez *et al.* (2017), (Exhibit MEX-47)).

²¹³⁷ Mexico's second written submission, para. 121 (citing Declaración Jurada de Affidavit of Ramón Ayala Sánchez, (Exhibit MEX-225)).

²¹³⁸ Mexico's second written submission, para. 119 (citing SINAVEF, Update of the inventory list (2010), (Exhibit CRI-13)).

²¹³⁹ Mexico's first written submission, para. 298 (referring to Ploetz *et al.* (2011), (Exhibit MEX-56)).

- c. Evaluated the volume and frequency of movement along the pathway of fresh avocados imported for consumption from Mexico. Mexico asserts that the PRAs refer only to the average volume of avocados imported by Costa Rica, when Costa Rica should have evaluated, either qualitatively or quantitatively, the probability of entry of ASBVd with regard to the volume of symptomatic and symptomless fruit that could be present in each consignment imported from Mexico, as well as the frequency of movement along the pathway of fresh avocados imported for consumption from Mexico. For Mexico, it is apparent from the PRAs that Costa Rica failed to conduct an assessment of the probability of entry of symptomatic and symptomless fruit based on actual and statistical data, and that Costa Rica assumes that: (i) 100% of fresh avocados for consumption imported from Mexico are carriers of asymptomatic ASBVd; (ii) 100% of the seeds of these avocados will remain viable after the fruit has been consumed; (iii) 100% of these seeds will be used as propagation material in commercial orchards; and (iv) 100% of these seeds will germinate and produce diseased trees which, in turn, will bear fruit in which all variants of ASBVd are present.²¹⁴⁰
- d. Evaluated the probability of entry based on seasonal timing. Mexico contends that the PRAs do not examine the probability of entry of ASBVd based on its seasonality, and merely mention that the pest is not seasonal, citing Ploetz et al. (2011), which says that symptoms may vary according to the climate, meaning that there is no scientific basis for this evaluation.²¹⁴¹ Mexico adds that Costa Rica should have considered seasonality because, at higher temperatures, symptoms are more likely to appear and a symptomless fruit is less likely to be exported.²¹⁴²
- e. Evaluated pest management, cultural and commercial procedures applied at the place of origin. Mexico submits that Costa Rica's PRAs merely state that no protection product is known to be effective against this pest, that Mexico failed to provide any information on nursery regulations, and that selection prior to packing does not eliminate symptomless fruit, when the Mexican legislation applicable to the control of the quality and safety of avocados for export should have been considered, in addition to other measures indicated by the scientific doctrine that can be used to control and eradicate the presence of ASBVd.²¹⁴³ According to Mexico, there are legal instruments publicly available in the country that should have been considered, and that reduce the probability of risk of entry of fresh avocados for consumption that could be infected with ASBVd.²¹⁴⁴

7.1197. As regards the prevalence of ASBVd and its disease in the source areas of fresh avocados for consumption from Mexico, as part of its arguments under Article 5.2 of the SPS Agreement, Mexico adds that, although Costa Rica should have analysed the extent of the occurrence of ASBVd and its disease in a particular area or at a particular point in time²¹⁴⁵, Costa Rica does not rely upon scientific and representative evidence or any other type of valid evidence that confirms the specific area within Mexico's territory in which ASBVd and its disease are present.²¹⁴⁶ Mexico notes that the PRAs state that ASBVd is present in Mexico, but do not contain details on its distribution in the country. Mexico contends that, regardless of the fact that this claim fails to address the prevalence of the disease in accordance with ISPM No. 11, Costa Rica should have based its risk analysis on an assessment of prevalence, rather than on mere assertions that lack any precise scientific basis.²¹⁴⁷

7.1198. Mexico asserts that three of the four sources cited by Costa Rica to characterize the prevalence of ASBVd as high (that is, that ASBVd is widely distributed or present in Mexico) were not objectively analysed, because: (i) SINADEF (2010) notes that ASBVd is present in some areas, fails to indicate a specific prevalence²¹⁴⁸, and confirms the low or negligible prevalence and limited

²¹⁴⁰ Mexico's first written submission, para. 298; second written submission, para. 121.

²¹⁴¹ Mexico's first written submission, para. 298 (citing Ploetz *et al.* (2011), (Exhibit MEX-56)).

²¹⁴² Mexico's second written submission, para. 121.

²¹⁴³ Mexico's first written submission, para. 298.

²¹⁴⁴ Mexico's second written submission, para. 119 (citing México, Marco normativo relacionado con la industria del aguacate en México (2019) (Mexico, Regulatory framework related to the avocado industry in Mexico (2019)), (Exhibit MEX-126)).

²¹⁴⁵ Mexico's first written submission, paras. 454-455.

²¹⁴⁶ Mexico's first written submission, para. 456.

²¹⁴⁷ Mexico's first written submission, para. 457.

²¹⁴⁸ Mexico's second written submission, para. 119 (citing SINADEF, Update of the inventory list (2010), (Exhibit CRI-13)).

distribution of ASBVd in Mexico; (ii) De la Torre *et al.* (2009) is a study that is unrepresentative and was not corroborated by subsequent field samples; (iii) the statement concerning the study by Vallejo Pérez *et al.* (2017) is false, as Costa Rica claims that ASBVd has spread across 14% of the territory of the state of Michoacán, when, in the original text, the 14% cited refers to the incidence of ASBVd in 4.9 of the 35 trees sampled in an orchard in the municipality of Tingambato, Michoacán, and it is also noted that, of another 70 trees sampled located at different points, not one tested positive.²¹⁴⁹

7.1199. **Costa Rica** submits, with regard to ISPM No. 11, that a Member's obligation is not to act "in accordance with", but rather, to "take into account" risk assessment techniques developed by the relevant international organizations²¹⁵⁰, but that, in any event, by following the manual that is entirely based on ISPM No. 11, Costa Rica considered each and every one of the five factors²¹⁵¹ related to the probability of the pest being associated with the pathway at origin²¹⁵²:

- a. Costa Rica notes that it took into account the prevalence of the pest in the source area, which is a factor listed in Article 5.2 of the SPS Agreement. Costa Rica mentions that it requested information from Mexico but never received a reply, and therefore used the existing scientific evidence in the literature, which is another factor listed in Article 5.2. Costa Rica states that Report ARP-002-2017 considered and relied upon the undisputed fact that ASBVd is present in Mexico. Costa Rica refers to the studies by De la Torre *et al.* (2009), to the SINAVEF report (2010), and to the CABI and EPPO databases. With regard to the study by Vallejo Pérez *et al.* (2017), which, according to Costa Rica, concludes that the incidence of the viroid is 14% in Tingambato, Michoacán, Costa Rica notes that it is particularly relevant because it focuses on Michoacán, which is the main Mexican avocado-producing area and where 86.3% of the country's avocados are produced, and that there is no additional information that Costa Rica could have evaluated, as no official or other study has been conducted in Mexico to determine the prevalence of ASBVd. Costa Rica adds that ASBVd is present in Mexico without being subject to any official mechanism that mitigates its spread, so it can be presumed that the pest is widely distributed. Costa Rica submits that Vallejo Pérez *et al.* (2017) points out that the annual rate of contagion of ASBVd is 4.75%; and that Mexico has no domestic regulations to control the pest, nor has it declared that certain areas within its territory are free of ASBVd, therefore the probability of prevalence of the pest in Mexico was reasonably deemed to be high.²¹⁵³
- b. With regard to the occurrence of the pest in a life stage that would be associated with commodities, containers or conveyances, Costa Rica submits that its PRA considered the study by Ploetz *et al.* (2011), which indicates that ASBVd is systemic in avocado trees and the viroid is therefore present in all tissues of the plant (seeds, leaves, branches, fruit and roots).²¹⁵⁴ Costa Rica adds that, although the symptoms caused by ASBVd are more pronounced at high temperatures than at low temperatures, the viroid remains active regardless of the temperature variations, provided that the plant tissue stays in good condition.²¹⁵⁵ Costa Rica further notes that a viroid does not have a "life stage" as such, which is taken into account, the "life stage" aspect of ISPM No. 11 is adapted, and consideration is given to the fact that the pest is systemic in avocado trees and that the seeds of symptomless fruit have a high capacity to transmit the pest to the plants that develop from these seeds.²¹⁵⁶ Costa Rica adds that a viroid is present in the tissue of the

²¹⁴⁹ Mexico's first written submission, paras. 458-459 (citing SINAVEF, Updated inventory list (2010), (Exhibit CRI-13); Vallejo Pérez *et al.* (2017), (Exhibit MEX-47); and De la Torre *et al.* (2009), (Exhibit MEX-70)).

²¹⁵⁰ Costa Rica's first written submission, para. 5.104.

²¹⁵¹ The Panel notes that it refers to these factors as "elements" throughout its analysis.

²¹⁵² Costa Rica's first written submission, para. 5.105; second written submission, para. 3.32.

²¹⁵³ Costa Rica's first written submission, para. 5.106 (citing México, El aguacate en México (2019), (Exhibit MEX-40), p. 1; De la Torre *et al.* (2009), (Exhibit MEX-70); SINAVEF, Update of the inventory list (2010), (Exhibit CRI-13); CABI (2019), (Exhibit CRI-14); EPPO Costa Rica (2019), (Exhibits CRI-41 and MEX-208); EPPO Global Database, World distribution (2019), (Exhibit MEX-48); and Vallejo Pérez *et al.* (2017), (Exhibit MEX-47)); second written submission, para. 3.33.

²¹⁵⁴ Costa Rica's first written submission, para. 5.107 (citing Ploetz *et al.* (2011), (Exhibit MEX-56), p. 5).

²¹⁵⁵ Costa Rica's first written submission, para. 5.107.

²¹⁵⁶ Costa Rica's response to Panel question No. 167, para. 192.

commodity and is not vulnerable to transport or storage processes, and that this situation increases the risk outcome compared to other types of pests in the pathway of fresh fruit for consumption, for which several of the aforementioned factors would not contribute to the final risk value.²¹⁵⁷

- c. With regard to the volume and frequency of movement along the pathway, Costa Rica submits that it considered that the volume of avocados imported is, on average, 12,600 tonnes, with Mexico being the main country of origin, therefore the volume of Mexican avocado imports is very representative.²¹⁵⁸
- d. Turning to seasonal timing, Costa Rica asserts that it found that ASBVd is not seasonal, although its symptoms may vary depending on the climate, as established by Ploetz et al. (2011); and that the study by Everett and Siebert (2018) concludes that ASBVd is expected to survive wherever avocado trees grow, regardless of the climate.²¹⁵⁹
- e. With respect to pest management, cultural and commercial procedures applied at the place of origin, Costa Rica contends that it requested information from Mexico on its nursery certification and ASBVd control programmes, and on the existence of areas free of ASBVd, but Mexico failed to provide information in this regard.²¹⁶⁰ Costa Rica adds that the *Marco normativo relacionado con la industria del aguacate en México* (Regulatory framework for the avocado industry in Mexico) provided by Mexico does not include any specific regulations for the control and management of ASBVd, and that Mexico failed to provide any information relating to the ASBVd management procedures that are currently being applied on Mexican cultivars.²¹⁶¹

7.1200. With regard to the first element, i.e. the prevalence of the pest in the source area, the **Panel** notes that Report ARP-002-2017 deemed the probability of this element to be high, after determining that ASBVd is present without details of its distribution in Mexico²¹⁶²; that the incidence rate in Michoacán is 14%²¹⁶³; and that Mexico has neither declared areas within its territory to be pest free areas or areas of low pest prevalence, nor provided any evidence to this effect.²¹⁶⁴

7.1201. Report ARP-006-2016, which was prepared for various countries where ASBVd is present, also deemed the probability of this element to be high, after determining the presence of ASBVd in these countries. With regard to Mexico, it indicates that ASBVd is present without details of its distribution.²¹⁶⁵ Report ARP-006-2016 does not explain why a high probability is assigned to the prevalence of the pest in the source area for all countries, including Mexico.

7.1202. Report ARP-002-2017 refers to technical and scientific sources that contain relevant information on the presence of ASBVd in Mexico. According to Mexico, Costa Rica should have evaluated this element with scientific evidence on each of the avocado-producing regions in Mexico. However, Mexico does not refer to other studies that contain the detailed information that it considers should have been obtained, nor does it appear that Mexico would have helped Costa Rica to gather more information in this regard.²¹⁶⁶ The Panel does not reproach Costa Rica's use of the

²¹⁵⁷ Costa Rica's response to Panel question No. 167, para. 193.

²¹⁵⁸ Costa Rica's first written submission, para. 5.108.

²¹⁵⁹ Costa Rica's first written submission, para. 5.109 (referring to Ploetz *et al.* (2011), (Exhibit MEX-56); and K.R. Everett and B. Siebert, "Exotic plant disease threats to the New Zealand avocado industry and climatic suitability: A Review", *New Zealand Plant Protection*, Vol. 71 (2018), páginas 25-38 (Everett and Siebert (2018)), (Exhibit CRI-27), p. 27).

²¹⁶⁰ Costa Rica's first written submission, para. 5.110 (citing *Solicitud de información a México* (2015), (Exhibit CRI-42)).

²¹⁶¹ Costa Rica's first written submission, para. 5.111 (citing Mexico, *Regulatory framework related to the avocado industry in Mexico* (2019), (Exhibit MEX-126)).

²¹⁶² ARP-002-2017, (Exhibit MEX-84), p. 34 (citing De la Torre *et al.* (2009), (Exhibit MEX-70); SINAVEF, *Update of the inventory list* (2010), (Exhibit CRI-13); and CABI, *Datasheet report for ASBVd*, (Exhibit CRI-102)).

²¹⁶³ ARP-002-2017, (Exhibit MEX-84), p. 34 (citing Vallejo Pérez *et al.* (2017), (Exhibit MEX-47)).

²¹⁶⁴ ARP-002-2017, (Exhibit MEX-84), p. 34.

²¹⁶⁵ ARP-006-2016, (Exhibit MEX-85), p. 14 (citing De la Torre *et al.* (2009), (Exhibit MEX-70); and SINAVEF, *Update of the inventory list* (2010), (Exhibit CRI-13)).

²¹⁶⁶ The Panel notes that, in response to Panel question No. 59 on the information provided by Mexico to Costa Rica for the preparation of the risk analysis, Mexico cites Exhibits MEX-18, MEX-138 and MEX-201. Exhibit MEX-18, which is a background overview by Mexico of the measures applied by Costa Rica, does not

study by Vallejo Pérez *et al.* (2017)²¹⁶⁷, which reported that the incidence of trees infected in the orchards studied in the municipality of Tingambato, Michoacán, is 14%, because it is a relevant scientific study that, as such, constitutes a respected scientific source. In addition, Mexico itself notes that no official or other study has been conducted in the country to determine the prevalence of ASBVd and its disease throughout Mexican territory, and that only isolated studies are available that cannot be representative.²¹⁶⁸

7.1203. However, Report ARP-002-2017 fails to explain how the assertion on the prevalence of ASBVd in Michoacán was used, and what weight was attached to it, considering also that the study in question is limited to the municipality of Tingambato, Michoacán. During the proceedings, Costa Rica has contended that ASBVd is present in Mexico without being subject to any official mechanism that mitigates its spread, so, according to Costa Rica, it can be presumed that the pest is widely distributed. Costa Rica adds that Vallejo Pérez *et al.* (2017) points out that the annual rate of contagion of ASBVd is 4.75%, and that Mexico has no domestic regulations to control the pest, nor has it declared that certain areas within its territory are free of ASBVd, therefore the probability of prevalence of the pest in Mexico was reasonably deemed to be high.²¹⁶⁹

7.1204. The Panel notes that the Report ARP-002-2017 does not address the rate of contagion and the domestic regulations in Mexico, and Costa Rica fails to explain why it considers ASBVd to be widely distributed in Mexico, when its Report ARP-002-2017 states that there are no details of its distribution, and that the incidence of ASBVd in Michoacán is 14%. Moreover, SINAVEF (2010) indicates that ASBVd is present in Mexico, but only in certain areas and subject to official control.²¹⁷⁰ Report ARP-002-2017 fails to take into account the distribution of ASBVd in Mexico and the statement in SINAVEF (2010) that it is under official control. With regard to De la Torre *et al.* (2009), the study does not appear to reach conclusions on the prevalence or distribution of ASBVd in Mexico, only doing so on the presence of the viroid in Mexico.²¹⁷¹

7.1205. With respect to the second element, i.e. the occurrence of the pest in a life stage that would be associated with commodities, containers or conveyances, Reports ARP-002-2017 and ARP-006-2016 deemed the probability of this element to be high, after determining that ASBVd is systemic in avocado trees²¹⁷², and is therefore present in all the tissues of the plant (seeds, leaves, branches, fruit and roots).²¹⁷³

7.1206. According to Manual NR-ARP-PO-01_M-01²¹⁷⁴, a high probability is assigned to this element where a pest in more than one life stage may occur with the commodity.

7.1207. The statement that the viroid is systemic in avocado trees is found in Ploetz *et al.* (2011). However, Reports ARP-002-2017 and ARP-006-2016 fail to explain the criteria for the probability

contain any specific information on the presence and/or distribution of ASBVd in Mexico, and dates from 2019, which is after Reports ARP-002-2017 and ARP-006-2016. Exhibit MEX-138 contains the technical report of a visit to Mexico by an SFE official from Costa Rica. The report states that the official toured avocado plantations looking for symptoms of ASBVd, but did not find any, or noted that the sporadic cases of defoliation and yellowing leaves at one of the plantations could only be verified by a laboratory. The report indicates that the owner of a packing plant claimed that he had seen fruit with symptoms in the field but that fruit with these symptoms rarely arrived at the packing plant. The document states that there are no official surveys determining areas where ASBVd is present in Mexico. Exhibit MEX-201 is a submission in which it is claimed that Mexico would have no objection to sending Costa Rica information with which to conduct the PRA procedure, after completion of the documentation procedure of the emergency measure, as well as the documentation stating that Costa Rica is free of ASBVd. The submission contains no further information.

²¹⁶⁷ Vallejo Pérez *et al.* (2017), (Exhibit MEX-47).

²¹⁶⁸ Mexico's first written submission, para. 57.

²¹⁶⁹ Costa Rica's first written submission, para. 5.106 (citing SINAVEF, Update of the inventory list (2010), (Exhibit CRI-13); and Vallejo Pérez *et al.* (2017), (Exhibit MEX-47)); second written submission, para. 3.33.

²¹⁷⁰ SINAVEF, Update of the inventory list (2010), (Exhibit CRI-13), p. 17.

²¹⁷¹ De la Torre *et al.* (2009), (Exhibit MEX-70).

²¹⁷² ARP-002-2017, (Exhibit MEX-84), p. 34 (citing Ploetz *et al.* (2011), (Exhibit MEX-56)); ARP-006-2016, (Exhibit MEX-85), p. 15 (citing Ploetz *et al.* (2011), (Exhibit MEX-56)).

²¹⁷³ ARP-002-2017, (Exhibit MEX-84), p. 34; ARP-006-2016, (Exhibit MEX-85), p. 15.

²¹⁷⁴ In paragraph 7.267 above, the Panel indicated that it would read Resolutions DSFE-002-2018 and DSFE-003-2018, which contain the phytosanitary requirements, in conjunction with Reports ARP-002-2017 and ARP-006-2016 and Manual NR-ARP-PO-01_M-01. Given that the methodology used to prepare the risk assessments contained in the reports is based on the manual, and in order to gain a better understanding of the risk assessment process, the Panel will read the reports in conjunction with the manual.

value assigned or why this systemic distribution would be equivalent to a pest in more than one life stage being associated with commodities, containers, or conveyances. In addition, the source of Costa Rica's concern is the seed inside the avocado fruit, rather than all its tissues (including leaves, branches, and roots). As can be seen in other points of the analysis, Costa Rica, throughout Reports ARP-002-2017 and ARP-006-2016, uses the assertion that ASBVd is of a systemic nature, citing Ploetz *et al.* (2011), and reaches a variety of conclusions that are not substantiated and whose relationship with the systemic distribution of ASBVd is neither explained nor demonstrated.

7.1208. Costa Rica admits that a viroid does not have a "life stage" as such, but claims that the "life stage" aspect of ISPM No. 11 is adapted and consideration is given to the fact that the pest is systemic in avocado trees and that the seeds from symptomless fruits have a high capacity to transmit the pest to the plants that develop from these seeds.²¹⁷⁵ Costa Rica adds that a viroid is present in the tissue of the commodity and is not vulnerable to transport or storage processes, and that this situation increases the risk outcome compared to other types of pests in the pathway of fresh fruit for consumption, for which several of the aforementioned factors would not contribute to the final risk value.²¹⁷⁶ However, considerations on capacity for transmission by symptomless seeds and vulnerability to transport and storage processes are not found under this point of analysis in Reports ARP-002-2017 and ARP-006-2016. Moreover, it is not explained why this element ("life stage") was included when it was considered that it did not apply to ASBVd, with the risk also being classified as high.

7.1209. Reports ARP-002-2017 and ARP-006-2016 deemed the probability of the third element, i.e. the volume and frequency of movement along the pathway, to be high, after determining that, on average, 12,600 tonnes of avocado are imported into Costa Rica annually.²¹⁷⁷

7.1210. Both reports refer to the same total volume of avocado imports. Although Report ARP-002-2017 concerns fresh fruit from Mexico in particular, the specific number of Mexican avocados was not used. This is confirmed by Costa Rica's own statement, indicating that, in 2014, it imported a total of 12,424 tonnes of fresh avocado, of which 10,299 tonnes were from Mexico.²¹⁷⁸ Moreover, neither Report ARP-002-2017 nor Report ARP-006-2016 provide further explanations or address the frequency of movement along the pathway.

7.1211. Reports ARP-002-2017 and ARP-006-2016 deemed the probability of the fourth element, i.e. seasonal timing, to be high, after determining that the pest is not seasonal.²¹⁷⁹

7.1212. Reports ARP-002-2017 and ARP-006-2016 indicate that "[t]he pest is not seasonal", citing Ploetz *et al.* (2011)²¹⁸⁰, but this statement does not appear in the cited source, and there are no further explanations.

7.1213. As regards the fifth element, i.e. pest management, cultural and commercial procedures applied at the place of origin, Reports ARP-002-2017 and ARP-006-2016 deemed the probability of this element to be high, after determining that no phytosanitary protection product is known to be effective against ASBVd²¹⁸¹; that Mexico failed to provide any information on nursery regulations that would reduce the incidence of ASBVd in the field²¹⁸²; and that selection prior to packing

²¹⁷⁵ Costa Rica's response to Panel question No. 167, para. 192.

²¹⁷⁶ Costa Rica's response to Panel question No. 167, para. 193.

²¹⁷⁷ ARP-002-2017, (Exhibit MEX-84), p. 34 (citing SFE, Avocado import statistics 2015-2017 (2019), (Exhibit CRI-140)); ARP-006-2016, (Exhibit MEX-85) (citing SFE, Avocado import statistics 2015-2017 (2019), (Exhibit CRI-140)).

²¹⁷⁸ Costa Rica's first written submission, para. 5.108.

²¹⁷⁹ ARP-002-2017, (Exhibit MEX-84), p. 35 (citing Ploetz *et al.* (2011), (Exhibit MEX-56)); ARP-006-2016, (Exhibit MEX-85), p. 15 (citing Ploetz *et al.* (2011), (Exhibit MEX-56)).

²¹⁸⁰ ARP-002-2017, (Exhibit MEX-84), p. 35 (citing Ploetz *et al.* (2011), (Exhibit MEX-56)); ARP-006-2016, (Exhibit MEX-85), p. 15 (citing Ploetz *et al.* (2011), (Exhibit MEX-56)).

²¹⁸¹ ARP-002-2017, (Exhibit MEX-84), p. 35 (citing Hadidi *et al.* (2003), (Exhibit CRI-121)); ARP-006-2016, (Exhibit MEX-85), p. 15 (citing Hadidi *et al.* (2003), (Exhibit CRI-121)).

²¹⁸² ARP-002-2017, (Exhibit MEX-84), p. 35 (citing Report 025-2015-ARP-SFE (2015), (Exhibit MEX-138)); ARP-006-2016, (Exhibit MEX-85), p. 15 (citing Report 025-2015-ARP-SFE (2015), (Exhibit MEX-138)).

eliminates symptomatic fruit (should these fruits reach the packing plant), but symptomless fruit is not rejected.²¹⁸³

7.1214. The Panel notes that, according to Mexico, Costa Rica should have considered the Mexican legislation applicable to the quality and safety controls of avocados for export. The Panel notes that Reports ARP-002-2017 and ARP-006-2016 acknowledge that selection prior to packing eliminates symptomatic fruit (should these fruits reach the packing plant), although it is not explained how this statement was taken into consideration when assessing the probability, which was deemed to be high. As regards symptomless fruit, however, Mexico fails to demonstrate that it has any relevant procedures for ASBVd, and it does not appear that Mexico would have provided Costa Rica with relevant information in this respect.

Probability of survival during transport or storage

7.1215. The second factor addressed in Reports ARP-002-2017 and ARP-006-2016 was the probability of survival during transport or storage. This probability was determined to be high, after considering the probabilities of the following four elements as high: (i) the speed and conditions of transport and duration of the life cycle of the pest in relation to time in transport and storage; (ii) the vulnerability of the life stages during transport or storage; (iii) the prevalence of pest likely to be associated with a consignment; and (iv) the commercial procedures (for example, refrigeration) applied to consignments in the country of origin, country of destination, or in transport or storage.

7.1216. **Mexico** submits that Costa Rica failed to correctly evaluate the probability of survival during transport or storage of ASBVd, considering as a pathway the importation of fresh avocados for consumption from Mexico. Mexico adduces that, pursuant to ISPM No. 11, Costa Rica failed to consider temperatures and the recalcitrant nature of avocado seeds, since it did not evaluate: (i) the speed and conditions of transport of fresh avocados for consumption imported from Mexico and the duration of the life cycle of the disease in relation to time in transport and storage; (ii) the vulnerability of the life stages of ASBVd during transport or storage; (iii) the probability of the prevalence of ASBVd associated with the consignment of fresh avocados for consumption imported from Mexico; and (iv) the probability of the seeds' viability decreasing as a result of commercial procedures, such as refrigeration, applied from Mexico to the destination point. Mexico notes that Costa Rica failed to provide scientific evidence to prove the foregoing.²¹⁸⁴

7.1217. **Costa Rica** states that it followed the manual, which is based on ISPM No. 11, and took into account all the elements that ISPM No. 11 includes as examples of the factors to be considered.²¹⁸⁵ For Costa Rica, it is clear from the PRAs that the factors alluded to by Mexico were indeed considered.²¹⁸⁶

7.1218. Costa Rica submits that it considered in the PRAs the speed and conditions of transport and storage of avocados and the vulnerability of ASBVd during those processes, finding that as long as the plant tissues are in a good condition, the pest will remain infectious because it is a viroid and is systemic in all tissues of the plant. Costa Rica states that it is for this reason that the speed and conditions of transport and storage have no effect on the survival (infectivity) of the pest, and the temperature variation does not impact on ASBVd's infective capacity.²¹⁸⁷

7.1219. Costa Rica also states that it considered the viability of the seeds following commercial procedures applied to consignments, noting that the effect on seed viability was tested in the Wutscher and Maxwell (1969) study on mature Lula avocado fruits, which states that temperatures need to be between -6.7°C and -7.8°C for seed viability to be reduced by 50%, and at -8.9°C for germination to be reduced to zero. Costa Rica indicates that, when in transit, at no point are the avocados subject to temperatures below 2°C, so refrigeration does not affect viability. Costa Rica adds that the scientific evidence on the germination of seeds of the Lula variety was also taken into account, which the study by Spalding *et al.* (1976) found remains at 100% after the seeds were

²¹⁸³ ARP-002-2017, (Exhibit MEX-84), p. 35 (citing Dorantes *et al.* (2004), (Exhibit CRI-117)); ARP-006-2016, (Exhibit MEX-85), p. 15 (citing Dorantes *et al.* (2004), (Exhibit CRI-117)).

²¹⁸⁴ Mexico's first written submission, paras. 303-304.

²¹⁸⁵ Costa Rica's first written submission, para. 5.112; second written submission, para. 3.32.

²¹⁸⁶ Costa Rica's first written submission, para. 5.113.

²¹⁸⁷ Costa Rica's first written submission, para. 5.114 (citing Ploetz *et al.* (2011), (Exhibit MEX-56), p. 5; and Everett and Siebert (2018), (Exhibit CRI-27), p. 27).

stored for two months at 4.4°C in closed polyethylene bags; and that Costa Rica therefore found that the seeds of symptomless avocado fruits are viable for germination after being imported and the probability that they will transmit ASBVd is very high.²¹⁸⁸

7.1220. With respect to the first element, i.e. the speed and conditions of transport and duration of the life cycle of the pest in relation to time in transport and storage, the **Panel** notes that Reports ARP-002-2017 and ARP-006-2016 indicate that "[t]he speed and conditions of transport and duration of the life cycle of the pest in relation to time in transport and storage have no effect on the survival (infectivity) of the pest."²¹⁸⁹ This statement in the reports is not substantiated by scientific evidence.

7.1221. The reports continue with the statement that "[t]his viroid is systemic in the tissues of the plant (Ploetz *et al.* 2011), *so as long as the plant tissues are in a good condition, the pest will remain infectious*."²¹⁹⁰ Although the first statement contains a reference to a scientific source, and this reference is contained in that source, the Panel finds no support in the cited source for the second statement or for the connection that is made between the part of the statement that is included in the source (that the viroid is systemic in the tissues of the plant) and the rest of the statement (that as long as the plant tissues are in a good condition, the disease will remain infectious), which is baseless. Reports ARP-002-2017 and ARP-006-2016 do not explain this connection either.

7.1222. As regards the second element, i.e. the vulnerability of the life stages during transport and storage, Reports ARP-002-2017 and ARP-006-2016 indicate that "[t]his pest is not considered vulnerable, because it is a viroid and is distributed systemically in the plant tissue (Ploetz *et al.* 2011), *as long as the tissue is in a good condition, the pest will be present and infectious*."²¹⁹¹ The Panel notes that there is no concrete scientific basis or explanation for the assertions that the pest is not considered vulnerable and that while the tissue is in a good condition, the pest will be present and infectious, although the assertion that ASBVd is distributed systemically in the plant tissue is substantiated.

7.1223. With regard to the third element, i.e. the prevalence of pest likely to be associated with a consignment, Reports ARP-002-2017 and ARP-006-2016 state that "[b]ecause the pest is systemic in the plant tissue (Ploetz *et al.* 2011) and the symptoms are not always expressed, the pest may well be associated with the consignment. (Technical Report ARP-025, 2015)".²¹⁹² The Panel notes that Ploetz *et al.* (2011) supports the assertion that ASBVd is distributed systemically in plant tissue, but not the connection between the systemic distribution of ASBVd in an avocado and the presence of ASBVd in a consignment. Moreover, the reference to Report 025-2015-ARP-SFE (2015) is unclear. Lastly, Reports ARP-002-2017 and ARP-006-2016 indicate why it is considered that ASBVd *may* be associated with the consignment, which shows that there is potential for the pest to be associated with the consignment, yet they fail to explain how the *probability* of prevalence of the pest likely to be associated with a consignment was estimated to be high.

7.1224. On the fourth element, i.e. commercial procedures (for example, refrigeration) applied to consignments in the country of origin, country of destination, or in transport or storage, Reports ARP-002-2017 and ARP-006-2016 state that "[t]he pest is unaffected by commercial procedures and it is systemic in the plant tissue (Ploetz *et al.* 2011)."²¹⁹³ Costa Rica again uses the statement that the pest is systemic in the plant tissue, citing Ploetz *et al.* (2011), without explaining how this statement is connected with the statement that the commercial procedures do not have any effect on the pest.

²¹⁸⁸ Costa Rica's first written submission, para. 5.115 (citing Wutscher and Maxwell (1969), (Exhibit MEX-132); and Spalding *et al.* (1976), (Exhibit MEX-133)); second written submission, para. 3.35 (citing Wutscher and Maxwell (1969), (Exhibit MEX-132); and Spalding *et al.* (1976), (Exhibit MEX-133)).

²¹⁸⁹ ARP-002-2017, (Exhibit MEX-84), p. 35; ARP-006-2016, (Exhibit MEX-85), p. 16.

²¹⁹⁰ ARP-002-2017, (Exhibit MEX-84), p. 35 (citing Ploetz *et al.* (2011), (Exhibit MEX-56)); ARP-006-2016, (Exhibit MEX-85), p. 16 (citing Ploetz *et al.* (2011), (Exhibit MEX-56)). (emphasis added)

²¹⁹¹ ARP-002-2017, (Exhibit MEX-84), pp. 35-36; ARP-006-2016, (Exhibit MEX-84), p. 16. (emphasis added)

²¹⁹² ARP-002-2017, (Exhibit MEX-84), p. 36 (citing Ploetz *et al.* (2011), (Exhibit MEX-56); and Report 025-2015-ARP-SFE (2015), (Exhibit MEX-138)); ARP-006-2016, (Exhibit MEX-85), p. 16 (citing Ploetz *et al.* (2011), (Exhibit MEX-56); and Report 025-2015-ARP-SFE (2015), (Exhibit MEX-138)).

²¹⁹³ ARP-002-2017, (Exhibit MEX-84), p. 36 (citing Ploetz *et al.* (2011), (Exhibit MEX-56)); ARP-006-2016, (Exhibit MEX-85), p. 16 (citing Ploetz *et al.* (2011), (Exhibit MEX-56)).

7.1225. Reports ARP-002-2017 and ARP-006-2016 also indicate that the effect on seed viability was tested by Wutscher and Maxwell on mature Lula avocado fruits, stating that, for seed germination to be affected, temperatures need to be between -6.7°C and -7.8°C for viability to be reduced by 50%, and at -8.9°C for germination to be reduced to zero; temperatures of -5.6°C and above did not affect germination.²¹⁹⁴ Reports ARP-002-2017 and ARP-006-2016 add that the average temperature of a commercial consignment is between 5°C and 7°C²¹⁹⁵, and that Spalding et al. found that germination of seeds of the Lula variety is 100% after being stored for two months at 4.4°C in non-perforated polyethylene bags.²¹⁹⁶

7.1226. It can be seen that studies on the viability and germination of seeds of the Lula variety are cited. The studies cited in Reports ARP-002-2017 and ARP-006-2016 with regard to the viability and germination of the seed at different temperatures are relevant to avocados and constitute respected scientific sources. However, there is no explanation under this point of the connection between the viability and germination of avocado seeds and the survival of ASBVd in fresh avocado fruit during commercial procedures. In addition, the sources cited refer respectively to a study of Lula variety avocados exposed to sub-freezing temperatures in a freeze chamber²¹⁹⁷ and a study on the germination capacity of seeds from Florida-grown Lula avocados after being stored in perforated and non-perforated polyethylene bags, and in plastic mesh bags for several months in a chamber.²¹⁹⁸ Moreover, the second study explicitly concludes that additional information is needed to show the effectiveness of the storage procedure with seeds of other Florida avocado cultivars stored for up to a year under both laboratory and commercial conditions.²¹⁹⁹ In Reports ARP-002-2017 and ARP-006-2016, the risk assessor extrapolates the information from Wutscher and Maxwell (1969) and Spalding et al. (1976) on the Lula variety without any analysis or explanation justifying that the information on the Lula variety, taken from studies carried out under controlled conditions, can be extrapolated to the particular situation of Hass avocados imported for consumption.

7.1227. The Panel would like to address an additional issue concerning the calculation of the probability of the second factor, i.e. survival during transport and storage. As a final outcome of the analysis of the second factor, i.e. the probability of survival during transport or storage, Reports ARP-002-2017 and ARP-006-2016 state that this probability is high (an average of 3) which, according to Manual NR-ARP-PO-01_M-01, is because information was found showing that the pest can survive transport. However, throughout the evaluation of this factor in Reports ARP-002-2017 and ARP-006-2016, the only scientific evidence presented is Ploetz *et al.* (2011), which refers to the systemic nature of ASBVd, and the studies on the viability of seeds of the Lula variety in certain temperature and storage conditions. It is unclear why a "high" probability is assigned, which, according to the manual, would mean that "information was found showing that the pest can survive transport", and not a "medium" probability, which, according to the manual, would mean that "no information was found showing that the pest does not survive during transport, however the information found indicates that it could survive".

7.1228. The Panel notes that the scientific conclusions on the different elements of this factor, i.e. that ASBVd survives in avocados for consumption during the transport and storage of this fruit (if the avocado fruit stays alive and if ASBVd is present in the transported fruit), appear to be supported by the virology expert Ricardo Flores Pedauyé.²²⁰⁰ However, the purpose of a panel consulting with experts is not to perform its own risk assessment.²²⁰¹ It is Costa Rica's task to perform the risk assessment. The panel's task is to review the risk assessment performed by Costa Rica, and, in particular, the scientific basis and the risk analyst's reasoning. In accordance with its task, and for the reasons set out in paragraphs 7.1220 through 7.1227 above, the Panel considers that the aforementioned conclusions are not sufficiently documented with scientific evidence or explained by the risk assessor in Reports ARP-002-2017 and ARP-006-2016, in such a way that it is possible to understand how these conclusions on the probabilities were reached.

²¹⁹⁴ ARP-002-2017, (Exhibit MEX-84), p. 36 (citing Wutscher and Maxwell (1969), (Exhibit MEX-132)); ARP-006-2016, (Exhibit MEX-85), pp. 16-17 (citing Wutscher and Maxwell (1969), (Exhibit MEX-132)).

²¹⁹⁵ ARP-002-2017, (Exhibit MEX-84), p. 36; ARP-006-2016, (Exhibit MEX-85), p. 17.

²¹⁹⁶ ARP-002-2017, (Exhibit MEX-84), p. 36 (citing Spalding et al. (1976), (Exhibit MEX-133)); ARP-006-2016, (Exhibit MEX-85), p. 17 (citing Spalding et al. (1976), (Exhibit MEX-133)).

²¹⁹⁷ Wutscher and Maxwell (1969), (Exhibit MEX-132).

²¹⁹⁸ Spalding et al. (1976), (Exhibit MEX-133).

²¹⁹⁹ Spalding et al. (1976), (Exhibit MEX-133), p. 258.

²²⁰⁰ Ricardo Flores Pedauyé's responses to Panel questions Nos. 49 and 50 for the experts.

²²⁰¹ Appellate Body Reports, *US/Canada – Continued suspension*, para. 592.

Probability of pest surviving existing pest management procedures

7.1229. The third factor considered by Reports ARP-002-2017 and ARP-006-2016 is the probability of the pest surviving existing pest management procedures. This probability was determined to be high, after considering the probabilities of the following two elements as high: (i) the probability that the pest could survive post-harvest treatments; and (ii) the probability that the pest is not detected at the entry point.

7.1230. **Mexico** asserts that Costa Rica failed to correctly evaluate the probability of the pest surviving existing pest management, cultural, and commercial procedures applied in Mexico; that the PRAs do not consider that methods of detecting ASBVd exist; and that Costa Rica failed to consider scientific evidence that would support the high probability of ASBVd surviving the procedures for the importation of fresh avocados for consumption from Mexico.²²⁰²

7.1231. **Costa Rica** notes that Mexico does not subject ASBVd to any specific regulations. Costa Rica contends that it took into account that the symptomatic fruits are discarded during post-harvest operations, however, the symptomless ones are not detected by packing staff or machines, and are shipped together with pest-free fruit. Costa Rica states that specific tests must be carried out to detect these asymptomatic strains.²²⁰³ Costa Rica adds that, precisely because there are methods of detecting ASBVd in symptomless fruit, and Costa Rica is in a position to implement the most effective and rapid technique in this regard (the RT-PCR technique), the country limits the import requirements for avocados from countries where ASBVd is present to only compliance with a bilateral systems approach programme or to the certification of consignments or pest-free places of production, and to verification upon arrival through random sampling and laboratory testing. Costa Rica notes that, based on scientific evidence relating to the existence of symptomless fruit, it reached a reasonable and objective conclusion that the probability that ASBVd is not detected during visual inspection is high.²²⁰⁴

7.1232. As regards the probability that the pest could survive post-harvest treatments, the **Panel** observes that Reports ARP-002-2017 and ARP-006-2016 indicate that "[p]ost-harvest management has no effect on controlling the pest (Ploetz *et al.* 2011)."²²⁰⁵ Ploetz *et al.* (2011) is provided as a source, but there is no support for this assertion in the source cited. Reports ARP-002-2017 and ARP-006-2016 state that "[s]ymptomatic fruit are discarded during post-harvest operations, however, the symptomless ones are not detected by packing staff or machines and are shipped together with pest-free fruit" (Dorantes *et al.* 2004) (Technical Report ARP-025, 2015).²²⁰⁶ It is not explained, however, how the assertion that symptomatic fruit are discarded during post-harvest operations was taken into consideration for the assessment of the probability, which was deemed to be high.

7.1233. Regarding Mexico's argument that ASBVd detection methods were not considered, the Panel notes that Reports ARP-002-2017 and ARP-006-2016 mention specific evidence for the detection of ASBVd, referring to Schnell *et al.* (1997) under the point on the probability that the pest is not detected at the entry point.²²⁰⁷

Probability of transfer to a suitable host

7.1234. The fourth factor considered by Reports ARP-002-2017 and ARP-006-2016 is the probability of transfer to a suitable host. This probability was determined to be high, after considering the following six elements: (i) the dispersal mechanisms, including vectors to allow movement from the

²²⁰² Mexico's first written submission, paras. 305-306.

²²⁰³ Costa Rica's first written submission, para. 5.116 (citing SINAVEF, Update of the inventory list (2010), (Exhibit CRI-13); Vallejo Pérez *et al.* (2017), (Exhibit MEX-47), p. 119; and Schnell *et al.* (1997), (Exhibit MEX-68)).

²²⁰⁴ Costa Rica's first written submission, para. 5.117.

²²⁰⁵ ARP-002-2017, (Exhibit MEX-84), p. 36 (citing Ploetz *et al.* (2011), (Exhibit MEX-56)); ARP-006-2016, (Exhibit MEX-85), p. 17 (citing Ploetz *et al.* (2011), (Exhibit MEX-56)).

²²⁰⁶ ARP-002-2017, (Exhibit MEX-84), p. 36 (citing Dorantes *et al.* (2004), (Exhibit CRI-117); and Report 025-2015-ARP-SFE (2015), (Exhibit MEX-138)); ARP-006-2016, (Exhibit MEX-85), p. 17 (citing Dorantes *et al.* (2004), (Exhibit CRI-117); and Report 025-2015-ARP-SFE (2015), (Exhibit MEX-138)).

²²⁰⁷ ARP-002-2017, (Exhibit MEX-84), pp. 36-37 (citing Schnell *et al.* (2001), (Exhibit CRI-131); and Schnell *et al.* (1997), (Exhibit MEX-68)); ARP-006-2016, (Exhibit MEX-85), p. 17 (citing Schnell *et al.* (2001), (Exhibit CRI-131); and Schnell *et al.* (1997), (Exhibit MEX-68)).

pathway to a suitable host; (ii) whether the imported commodity is to be sent to a few or many destination points in the PRA area; (iii) the proximity of entry, transit and destination points to suitable hosts; (iv) the time of the year at which import takes place; (v) the intended use of the commodity; and (vi) the risks from by-products and waste.

7.1235. The probability related to dispersal mechanisms, including vectors to allow movement from the pathway to a suitable host and the probability related to the intended use of the commodity were deemed to be medium. Those deemed to be high were the probability related to whether the imported commodity is to be sent to a few or many destination points in the PRA area; the probability related to the proximity of entry, transit and destination points to suitable hosts; the probability related to the time of the year at which import takes place; and the probability related to the risks from by-products and waste.

7.1236. **Mexico** contends that Costa Rica failed to correctly evaluate the probability of transfer to a suitable host because it failed to justify with scientific evidence the information demonstrating the existence of dispersal mechanisms from the pathway of fresh avocados imported for consumption from Mexico to other suitable hosts; the destination points of fresh avocados for consumption imported from Mexico; the probability of fresh avocados for consumption from Mexico being located at entry, transit and destination points of host species; and the probability of germination of the seeds of fresh avocados imported for consumption that have been discarded after consumption.²²⁰⁸ According to Mexico, Costa Rica should have determined the probability that ASBVd would enter its territory and move from the pathway of fresh fruit for consumption from Mexico to a suitable host, leading to the establishment and spread of ASBVd and its disease.²²⁰⁹

7.1237. **Costa Rica** states that it followed the guidelines in the manual, which are based on ISPM No. 11, and separately considered the six factors²²¹⁰ that the international standard recommends be taken into account.²²¹¹ Costa Rica contends that it identified that the dispersal mechanism of ASBVd after the importation of avocados from countries where the pest is present is through growing a plant from the seed of symptomless fruit which, upon germination, will produce a plant infected with ASBVd. Costa Rica notes that there is a risk that the seed will eventually germinate naturally or because it is planted intentionally by the consumer²²¹², and that the risk of natural germination increases due to the flaws in waste management, as the skins and seeds are usually discarded in any location without further control.²²¹³ For Costa Rica, because the fruits infected with ASBVd contain a viable seed, there is an undeniable risk of the pest being introduced if that seed germinates.²²¹⁴ Costa Rica asserts that the scientific literature agrees that the transmission of ASBVd by seed is very high in the case of seeds from symptomless fruit, even reaching 100%.²²¹⁵ Costa Rica is of the view that the germination of a seed of a symptomless avocado would therefore introduce the pest into its territory.²²¹⁶

7.1238. The **Panel** notes that with regard to the first element, i.e. the dispersal mechanisms, including vectors to allow movement from the pathway to a suitable host, it is indicated in Reports ARP-002-2017 and ARP-006-2016 that, *inter alia*, "[t]he dispersal mechanisms from the pathway to a host are through growing a plant from the seed of symptomless fruit, because the pest is systemic in the tissue (Ploetz *et al.* 2011)."²²¹⁷ Report ARP-002-2017 adds that "[t]he generation of rootstock from fruit from infected trees (including from the *Hass* cultivar) can significantly increase the incidence of ASBVd (Vallejo *et al.* 2017)."²²¹⁸ Respected scientific sources (Ploetz *et al.* (2011) and Vallejo *et al.* (2017)) are cited, and information can be found in these sources that could support

²²⁰⁸ Mexico's first written submission, paras. 307-309.

²²⁰⁹ Mexico's first written submission, paras. 276-277.

²²¹⁰ The Panel notes that it refers to these factors as "elements" throughout its analysis.

²²¹¹ Costa Rica's first written submission, para. 5.118.

²²¹² Costa Rica's first written submission, para. 5.119.

²²¹³ Costa Rica's first written submission, para. 5.120 (citing Ministry of Health of Costa Rica, Waste Management (2011), (Exhibit CRI-28), p. 16); second written submission, para. 3.32.

²²¹⁴ Costa Rica's first written submission, para. 5.120.

²²¹⁵ Costa Rica's second written submission, para. 3.35 (citing Vargas *et al.* (1991), (Exhibit CRI-137); Hadidi *et al.* (2003), (Exhibit CRI-121); and S. Ochoa Ascencio, "Sunblotch o Mancha del Sol del Aguacate", Facultad de Agrobiología "Presidente Juárez", Universidad de San Nicolás de Hidalgo (UMSNH), Uruapan, Michoacán, México (2013) (Ochoa Ascencio (2013)), (Exhibit CRI-128)).

²²¹⁶ Costa Rica's second written submission, para. 3.35.

²²¹⁷ ARP-002-2017, (Exhibit MEX-84), p. 37 (citing Ploetz *et al.* (2011), (Exhibit MEX-56)); ARP-006-2016, (Exhibit MEX-85), p. 18 (citing Ploetz *et al.* (2011), (Exhibit MEX-56)).

²²¹⁸ ARP-002-2017, (Exhibit MEX-84), p. 37 (citing Vallejo Pérez *et al.* (2017), (Exhibit MEX-47)).

the assertions in the reports. The Panel also notes that the experts consulted (Fernando Pliego Alfaro, Ricardo Flores Pedauy  and Pablo Cortese) agree that a high percentage of seeds from symptomless trees are infected.²²¹⁹ However, the reports do not substantiate or explain the connection between the assertion that the dispersal mechanisms from the pathway to a host are through growing a plant from the seed of symptomless fruit and the assertion that the pest is systemic in the tissue.

7.1239. Regarding the assertion that the generation of rootstock from fruit from infected trees (including those of the Hass cultivar) can significantly increase the incidence of ASBVd, this statement is found in the cited source, but this source refers specifically to nurseries.²²²⁰ It is not explained in Costa Rica's risk assessments why the assertion on the significant increase in the incidence of ASBVd is used in the context of a fruit imported for consumption, when the statement in the source refers to plants in nurseries, where the magnitude of the spread would be different. This is because the purpose of a nursery is the production of plants. The section on this element does not substantiate or explain the generation of rootstock from the seed of fruit imported for consumption, which is an issue related to the matter of diversion from intended use that the Panel analysed in detail in section 7.4.5.3.3 above.

7.1240. Turning to the second element, i.e. whether the imported commodity is to be sent to a few or many destination points in the PRA area, Reports ARP-002-2017 and ARP-006-2016 states, without providing details or evidence, that "[t]he imported avocados are sent to many destination points, distributed across the country for retail sale in supermarket chains, by street vendors and at farmers' markets."²²²¹

7.1241. With respect to the third element, i.e. the proximity of entry, transit and destination points to suitable hosts, Report ARP-002-2017 indicates that the host species (*Persea americana* Mill.) is found throughout the country, close to the entry, transit and final destination points²²²²; that the West Indian races tend to grow naturally on the Pacific lowlands, from Guatemala to Costa Rica²²²³; that the avocado is native²²²⁴ to Costa Rica; and that avocado, both wild and cultivated, is in all regions of the country.²²²⁵ Report ARP-006-2016 includes the same assertions, other than the assertion that the West Indian races tend to grow naturally in the Pacific lowlands, from Guatemala to Costa Rica.²²²⁶ The assertion that "[t]he host species (*Persea americana* Mill.) is found throughout the country, close to the entry, transit and final destination points (Garbanzo 2011)"²²²⁷ is attributed to a source that does not contain this statement. The assertion that the avocado is in all regions of the country is also not supported by evidence. A high probability is assigned to this element, which, according to Manual NR-ARP-PO-01_M-01, is given when it is highly likely that there are host species relatively close to the entry, transit or final destination points. However, Manual NR-ARP-PO-01_M-01 does not provide more guidance on this descriptor, and Reports ARP-002-2017 and ARP-006-2016 do not adequately explain or document why it was considered that there is a high probability.

7.1242. On the fourth element, i.e. the time of year at which import takes place, Reports ARP-002-2017 and ARP-006-2016 indicate that imports take place all year round.²²²⁸ The Panel notes that there is a lack of analysis of the matter, including considerations of how many avocados enter during the various periods of the year.

7.1243. With respect to the fifth element, i.e. the intended use of the commodity, the probability was deemed to be medium, after it was determined that its use is consumption.²²²⁹ According to Manual NR-ARP-PO-01_M-01, medium probability is assigned to this point if the intended use of the

²²¹⁹ Responses of Fernando Pliego Alfaro, Ricardo Flores Pedauy  and Pablo Cortese to Panel question No. 40(a) for the experts.

²²²⁰ Vallejo P rez *et al.* (2017), (Exhibit MEX-47), p. 120.

²²²¹ ARP-002-2017, (Exhibit MEX-84), p. 37; ARP-006-2016, (Exhibit MEX-85), p. 18.

²²²² ARP-002-2017, (Exhibit MEX-84), p. 37 (citing Garbanzo Sol s (2011), (Exhibit MEX-125)).

²²²³ ARP-002-2017, (Exhibit MEX-84), p. 37 (citing Storey *et al.* (1986), (Exhibit CRI-135)).

²²²⁴ ARP-002-2017, (Exhibit MEX-84), p. 37 (citing Galindo Tovar *et al.* (2008), (Exhibit MEX-22)).

²²²⁵ ARP-002-2017, (Exhibit MEX-84), p. 37.

²²²⁶ ARP-006-2016, (Exhibit MEX-85), p. 18.

²²²⁷ ARP-002-2017, (Exhibit MEX-84), p. 37.

²²²⁸ ARP-002-2017, (Exhibit MEX-84), pp. 37-38 (citing SFE, Avocado import statistics 2015-2017 (2019), (Exhibit CRI-140)); ARP-006-2016, (Exhibit MEX-85), p. 18 (citing SFE, Avocado import statistics 2015-2017 (2019), (Exhibit CRI-140)).

²²²⁹ ARP-002-2017, (Exhibit MEX-84), p. 38; ARP-006-2016, (Exhibit MEX-85), p. 18.

commodity is consumption. Despite the fact that, throughout the risk assessment, the risk analyst assumes that the seed of fruit for consumption will be diverted from its intended use, this element is automatically assigned a medium probability, in line with the manual, and no explanation is given regarding the diversion from intended use.

7.1244. Turning to the sixth element, i.e. the risks from by-products and waste, Reports ARP-002-2017 and ARP-006-2016 indicate that the waste of fresh avocado fruit are the skins and seeds; that, as it contains a viable seed, there is a risk of pest introduction through the waste²²³⁰; and that the germination of a seed from a symptomless fruit would introduce the pest into the PRA area.²²³¹

7.1245. The reports cite Ploetz *et al.* (2011) when asserting that the germination of a seed from a symptomless fruit would introduce the pest into the PRA area. Ploetz *et al.* does not make any statements on the introduction of ASBVd into an area.

7.1246. Costa Rica has said during the proceedings that, as the fruits infected with ASBVd contain a viable seed, there is an undeniable risk of the pest being introduced if that seed germinates.²²³² Costa Rica asserts that the scientific literature agrees that the transmission of ASBVd by seed is very high in the case of seeds from symptomless fruit, even reaching 100%.²²³³ The Panel notes that Ploetz *et al.* (2011) states that the transmission of ASBVd occurs at much higher frequency (80-100%) in symptomless infected trees²²³⁴, but Reports ARP-002-2017 and ARP-006-2016 do not include this assertion under the element relating to the risks from by-products and waste. In a section entitled "spread", the datasheet for Reports ARP-002-2017 and ARP-006-2016 also indicates that transmission through the seed of symptomless fruit is very high (95%), according to Hadidi *et al.* (2003).²²³⁵ However, under the element on the risks from by-products and waste, there is no reference to the datasheet or to Hadidi *et al.* (2003), nor is this statement in particular included. The Panel notes that there is no explanation under this element that associates the high degree of transmission through symptomless seeds with the introduction of ASBVd in the PRA area as noted by Costa Rica during the proceedings. In view of the above, the considerations that led the risk assessor to conclude a "high" probability are unclear.

7.1247. The Panel notes that this element of risks from by-products and waste is linked to the diversion from intended use and the spontaneous germination that Costa Rica alleges exist. The Panel has analysed these cross-cutting matters in section 7.4.5.3.3 above.

7.1248. In addition, this element is assigned a high probability, which, according to Manual NR-ARP-PO-01_M-01, is given where there is a high risk from by-products and waste. The expert Robert Griffin considers that the point regarding by-products and waste is confusing in Costa Rica's PRA Guidelines, because the criteria use their own descriptors as criteria rather than providing metrics (high risk=high risk, medium risk=medium risk, low risk=small risk, and insignificant risk=very small risk). Mr Griffin adds that these criteria are not completely arbitrary because they are at least relative, but not transparent, and it is not possible to determine the meaning of "high probability 3" because the criteria used to derive this result provide no means to be measured or ranked.²²³⁶

7.1249. In light of Mr Griffin's response, the Panel notes that this element is guided by the descriptor in Manual NR-ARP-PO-01_M-01 corresponding to the probability assigned to this factor, without further explanation; in other words, a "high" probability is indicated where there is a high risk from by-products and waste; "medium" probability where there is some risk from by-products and waste; and "low" probability where there is little risk from by-products and waste.²²³⁷ Manual NR-ARP-PO-01_M-01 does not provide more guidance on these descriptors, and

²²³⁰ ARP-002-2017, (Exhibit MEX-84), p. 38; ARP-006-2016, (Exhibit MEX-85), p. 18.

²²³¹ ARP-002-2017, (Exhibit MEX-84), p. 38 (citing Ploetz *et al.* (2011), (Exhibit MEX-56)); ARP-006-2016, (Exhibit MEX-85), pp. 18-19 (citing Ploetz *et al.* (2011), (Exhibit MEX-56)).

²²³² Costa Rica's first written submission, para. 5.120.

²²³³ Costa Rica's second written submission, para. 3.35 (citing Vargas *et al.* (1991), (Exhibit CRI-137); Hadidi *et al.* (2003), (Exhibit CRI-121); and Ochoa Ascencio (2013), (Exhibit CRI-128)).

²²³⁴ Ploetz *et al.* (2011), (Exhibit MEX-56), p. 6.

²²³⁵ ARP-002-2017, (Exhibit MEX-84), pp. 62-63 (citing Hadidi *et al.* (2003), (Exhibit CRI-121)); ARP-006-2016, (Exhibit MEX-85), pp. 46-47 (citing Hadidi *et al.* (2003), (Exhibit CRI-121)).

²²³⁶ Robert Griffin's response to Panel question No. 112 for the experts.

²²³⁷ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 13.

Reports ARP-002-2017 and ARP-006-2016 do not adequately explain or document why it was considered that there is a high risk from by-products and waste.

7.1250. In the Panel's view, the criteria's lack of transparency combined with the lack of explanations and documentation in the reports reduce the objectivity of this element in the reports.

Additional arguments of the parties that refer generally to the likelihood of entry of ASBVd

7.1251. **Mexico** adds that, had Costa Rica considered information about the conditions and events that occur along the pathway of fresh avocados for consumption, it would have found that the likelihood of entry is negligible or zero, owing to: (i) the certification and inspection programmes for orchards, transporters and packing facilities²²³⁸; (ii) regulations concerning the certification of seeds for propagation²²³⁹; (iii) the recalcitrant nature of the seeds; (iv) the pest transmission mechanisms; and (v) the processes and instruments that reduce the likelihood of symptomatic and asymptomatic fruit being exported.²²⁴⁰

7.1252. The **Panel** notes that Mexico has maintained throughout the dispute that the risk of entry and, by extension, establishment and spread of ASBVd by the pathway of fresh avocados for consumption from Mexico is negligible or zero. However, the Panel observes that its task is to determine whether Costa Rica's risk assessment is objectively justifiable by examining whether its conclusions find sufficient support in the scientific evidence. In this regard, the Panel's task is not to impose a definitive scientific conclusion with respect to the likelihood of entry, establishment and spread, or with respect to the associated biological consequences, as suggested by Mexico.

7.1253. Moreover, the Panel has already examined some of the elements highlighted by Mexico in its analysis of Reports ARP-002-2017 and ARP-006-2016.

7.1254. **Costa Rica** contends that it concluded that avocado fruit (and their seeds) is a high-risk entry pathway for ASBVd, which is the same conclusion reached in the recent study by Everett and Siebert (2018), who observe that New Zealand only imports fresh avocados from areas free of ASBVd, yet this pathway remains a risk.²²⁴¹

7.1255. **Mexico** asserts that the study by Everett and Siebert (2018) does not rate the risk of transmission through the pathway of importing symptomless fruit, but expresses concern related to the importation of ASBVd through symptomless plants or seeds. According to Mexico, Costa Rica fails to distinguish between the risk of entry of ASBVd by means of fresh avocado imported for consumption and the risk stemming from the importation of propagation material.²²⁴²

7.1256. The **Panel** notes that the study by Everett and Siebert (2018) speaks of the risk of establishment of ASBVd in New Zealand and the particular concern of its possible importation in fruit from symptomless plants or seeds, but does not constitute a PRA or an assessment of probabilities. The Panel does not consider that the source confirms the conclusion reached by Costa Rica that there is a high risk of entry of ASBVd.

7.1257. Regarding the comparison that Costa Rica draws between its situation and that of New Zealand, **Mexico** also contends that Costa Rica's PRA addresses the applicability of New Zealand's regulations in a single paragraph, and does not explain or provide evidence to substantiate why New Zealand's circumstances are applicable to Costa Rica, other than pointing out that both countries are free of the pest. Mexico adds that the PRA does not indicate which pathways

²²³⁸ Mexico's second written submission, para. 116 (citing Asociación de Productores y Empacadores Exportadores de Aguacate de México (APEAM), Manual de Cosecha Aguacate Hass (2014), (Exhibit MEX-25); SFA, Crops monograph (2011), (Exhibit MEX-24), p. 10; and Mexico, Regulatory framework related to the avocado industry in Mexico (2019), (Exhibit MEX-126)).

²²³⁹ Mexico's second written submission, para. 116 (citing Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación (SAGARPA), Servicio Nacional de Inspección y de Certificación de Semillas (SNICS), Regla para la calificación de semilla de aguacate (*Persea americana* Mill.) (2014), (Exhibit MEX-206)).

²²⁴⁰ Mexico's second written submission, para. 116.

²²⁴¹ Costa Rica's first written submission, para. 5.95 (citing Everett and Siebert (2018), (Exhibit CRI-27), p. 33); response to Panel question No. 101, para. 4 (citing Everett and Siebert (2018), (Exhibit CRI-27), p. 33).

²²⁴² Mexico's second written submission, para. 120.

are analysed in these regulations, why the regulations are valid or whether the circumstances that gave rise to them in 1998 were different, and takes into consideration only the conclusions addressed in New Zealand's regulations but fails to analyse the corresponding PRA that served as the basis for them.²²⁴³ According to Mexico, Costa Rica could not have had access to New Zealand's PRA, therefore it took into account only the mitigation measures that resulted from it.²²⁴⁴

7.1258. **Costa Rica**, for its part, maintains that it checked whether there are rules concerning avocado fruit in other countries with a similar phytosanitary status (i.e. free of ASBVd) to Costa Rica. According to Costa Rica, previous risk assessments were taken into account and, for example, New Zealand's regulations on the importation of fresh avocados for human consumption from Australia were considered as an input.²²⁴⁵

7.1259. The **Panel** observes that, at the initiation stage, Reports ARP-002-2017 and ARP-006-2016 cite only New Zealand's requirements for fresh fruit and vegetables, and contain no reference to the risk assessment on which these requirements are based.²²⁴⁶ Costa Rica did not submit the risk assessment together with the reports' bibliography, therefore the Panel has no knowledge of that assessment. The Panel considers that Costa Rica's reports used New Zealand's regulations as an input but do not contain a comparative and substantiated analysis of the situation in Costa Rica and that in New Zealand, and this constitutes a flaw in these reports.

Additional issue concerning the calculation of the probability of entry of ASBVd in Reports ARP-002-2017 and ARP-006-2016

7.1260. Having examined in detail the various factors and elements considered in Reports ARP-002-2017 and ARP-006-2016 to determine the probability of entry of ASBVd in Costa Rica, the **Panel** wishes to note a general flaw in the assessment of the probability of entry in those reports. Costa Rica treats all the considerations at this stage of the risk assessment as factors and elements to each of which it assigns a numerical probability expressed in "points" that are added together at the end to obtain, as a final outcome, a cumulative probability, as indicated in the reports themselves.²²⁴⁷ However, this fails to consider that some of the events along the pathway may not happen.

7.1261. In this regard, the expert Robert Griffin states that the sum of values for the probability of introduction is problematic, because the probability of introduction is the result of a series of conditions and events that have a multiplicative relationship, i.e. if the probability of any event or condition in the series of events assessed for the probability of introduction is zero (or negligible), then the result is zero (no introduction). For Mr Griffin, the point is less of a PRA process question and more of a question of mathematical convention, since the numerical labels that are applied to qualitative ratings should represent an actual value in some identified units to create the possibility for mathematical operations, and those operations should represent legitimate mathematical relationships. Mr Griffin concludes that the PRA methodology used by Costa Rica is technically flawed in this respect, although it may not substantially change the result.²²⁴⁸

7.1262. In light of the foregoing, in the Panel's view, a flaw in Reports ARP-002-2017 and ARP-006-2016 is that Costa Rica failed to consider the multiplicative relationship that exists between the conditions and events on which the introduction of the pest depends (i.e. its entry and establishment). This flaw stems from the application of Manual NR-ARP-PO-01_M-01.

Conclusion on the likelihood of entry

7.1263. Having analysed the various factors and elements considered in Reports ARP-002-2017 and ARP-006-2016 to determine the probability of entry of ASBVd in Costa Rica, the Panel concludes that there are the following flaws:

²²⁴³ Mexico's first written submission, para. 180.

²²⁴⁴ Mexico's second written submission, para. 91.

²²⁴⁵ Costa Rica's first written submission, para. 5.90.

²²⁴⁶ ARP-002-2017, p. 14 (citing MAF, New Zealand's requirements (1998), (Exhibit CRI-25)); ARP-006-2016 (citing MAF, New Zealand's requirements (1998), (Exhibit CRI-25)).

²²⁴⁷ ARP-002-2017, (Exhibit MEX-84), p. 38; ARP-006-2016, (Exhibit MEX-85), p. 19.

²²⁴⁸ Robert Griffin's response to Panel question No. 90 for the experts.

- a. Regarding the scientific basis:
 - i. there are a number of assertions that do not find support in the scientific evidence;
 - ii. there are a number of assertions that refer to a source, but that source does not support those assertions, or does so only partially; and
 - iii. there is insufficient scientific evidence concerning diversion from intended use and spontaneous germination.
- b. Regarding the risk assessor's reasoning:
 - i. no explanations are given for how the evidence provided at different points in the analysis relates to the conclusions for each probability;
 - ii. no explanations are given for how some of the conclusions at different points in the analysis correspond to the criteria in Manual NR-ARP-PO-01_M-01, the methodology of which is used; and
 - iii. the same probability descriptor that appears in Manual NR-ARP-PO-01_M-01 for pests in general is used to justify the probability assigned to some of the elements, without it being adapted to the case of ASBVd and without any explanation being given.

7.1264. Moreover, Reports ARP-002-2017 and ARP-006-2016 do not consider the multiplicative relationship that exists between the conditions and events necessary for the entry of ASBVd in Costa Rica.

7.1265. The Panel considers that the result of assigning risk values, whether high, medium, or low, with their respective numerical values (3, 2, or 1), to the various factors and elements, on several occasions without the necessary scientific basis, without sufficient reasoned explanations by the risk assessor, and without considering the multiplicative relationship that exists between the conditions and events necessary for the entry of ASBVd, cannot be considered an objectively justifiable qualitative assessment of the likelihood of entry of ASBVd in Costa Rica's territory.

7.4.5.3.4.2 Evaluation of the likelihood of establishment

7.1266. **Mexico** contends that, because Costa Rica's assertions lack any scientific basis and there is insufficient scientific evidence to demonstrate that there is a likelihood of establishment of ASBVd and its disease, Costa Rica's PRAs did not evaluate the likelihood of establishment on the basis of the SPS Agreement.²²⁴⁹

7.1267. Mexico also contends that Costa Rica's PRAs do not evaluate the probability of establishment associated with all the pathways for transmitting ASBVd, and simply make unsubstantiated claims about the risk arising from the diversion from intended use of the pits of avocados imported for consumption.²²⁵⁰ For Mexico, the scientific evidence and studies on which Costa Rica bases its risk assessment do not support the conclusion that there is a medium probability of establishment of ASBVd in its territory.²²⁵¹

7.1268. Mexico asserts that Costa Rica did not base its risk assessments on a specific evaluation of the probability of establishment of ASBVd through the pathway of avocados imported for consumption, since the PRAs do not envisage a methodology for calculating the incidence of instances in which the pit of a fresh imported avocado effectively germinates and produces an avocado tree, and the percentage of germinated trees with ASBVd.²²⁵² Mexico maintains that Costa Rica should have calculated, in a systematic and reasoned manner, the situations that it considered

²²⁴⁹ Mexico's first written submission, para. 344; second written submission, para. 145.

²²⁵⁰ Mexico's first written submission, para. 315.

²²⁵¹ Mexico's second written submission, para. 129.

²²⁵² Mexico's first written submission, para. 315.

to be favourable and possible in which ASBVd could become established in its territory as a result of the importation of fresh avocados for consumption from Mexico.²²⁵³

7.1269. Mexico adds that, although Costa Rica submitted evidence in its PRAs with respect to factors such as the availability of appropriate hosts and suitability of environment, this alone does not make it possible to conduct a correct and complete evaluation of the likelihood of establishment of ASBVd in Costa Rica.²²⁵⁴ In Mexico's view, the evaluation is incomplete, as Costa Rica considered only some of the factors listed in ISPM No. 11, and failed to provide sufficient scientific evidence about these and other determining factors such as: the life stages and survival rates of ASBVd, the seed's recalcitrant nature and loss of viability during transport of the fruit, and the areas where the pest is present. Nor did it provide expert assessments of the probability of establishment of ASBVd in Costa Rica in relation to the pathway of importation of fresh avocados for consumption from Mexico.²²⁵⁵

7.1270. Mexico submits that, in the section of the PRA on cultivation practices and control measures, Costa Rica made erroneous assertions regarding the absence of means of control, and assertions based on unreliable statistical sources concerning the cultural practices of Costa Rican producers. Mexico contends that the source referred to by Costa Rica in the PRAs, CONSULSANTOS (2010), does not contain evidence or justification for the assertions included in the PRA, and is not representative of Costa Rica.²²⁵⁶

7.1271. For Mexico, Costa Rica's justification for diversion from intended use is not supported by scientific evidence that considers the importation of fresh avocados for consumption from Mexico as a pathway for the transmission of ASBVd and its disease.²²⁵⁷

7.1272. Mexico states that the establishment of ASBVd is directly related to the risk of germination of pits obtained from avocados originally imported for consumption, and that Costa Rica's PRAs point to two risk scenarios associated with this pathway: (i) diversion from intended use due to cultural practices; and (ii) the spontaneous germination of waste.²²⁵⁸

7.1273. Regarding diversion from intended use, Mexico submits that Costa Rica based its analysis on conjecture stemming from the review of scientific articles that are not specifically related to an analysis of the probability of establishment of ASBVd through the pathway of fresh avocados imported for consumption, and fails to analyse why it applied that reasoning.²²⁵⁹

7.1274. Mexico adds that Costa Rica's risk argument is apparently supported by the possibility, but not probability, that Costa Rica imports symptomless avocados for consumption, and that a diversion from the original use of the seeds could lead to the entry, establishment and spread of ASBVd in its territory. According to Mexico, Costa Rica should have relied on a scientific methodology to reach the conclusion that diversion from intended use constitutes sufficient grounds for determining that there is a high risk of the spread of ASBVd and its disease.²²⁶⁰

7.1275. Mexico also submits that, based on section 2.2.2.4 of ISPM No. 11, Costa Rica should have considered the characteristics of the seeds, particularly their recalcitrant nature and the impact of this on their viability for germination in a manner such that they could transmit the disease.²²⁶¹

7.1276. Mexico contends that Costa Rica assumes that the entire shipment of fresh imported avocados would be contaminated with ASBVd, and that all the seeds would germinate into plants that would be used as propagation material or as avocado-producing trees.²²⁶² In Mexico's view, Costa Rica should have calculated, in a systematic and reasoned manner, the incidence of possible favourable instances in which ASBVd could become established as a result of the diversion from

²²⁵³ Mexico's first written submission, para. 274.

²²⁵⁴ Mexico's first written submission, paras. 320-321.

²²⁵⁵ Mexico's first written submission, para. 322.

²²⁵⁶ Mexico's first written submission, para. 323.

²²⁵⁷ Mexico's first written submission, para. 324 (citing IPPC Secretariat, "Diversion from intended use" (2016), (Exhibit MEX-124)).

²²⁵⁸ Mexico's second written submission, para. 129.

²²⁵⁹ Mexico's second written submission, para. 130.

²²⁶⁰ Mexico's first written submission, paras. 329-332.

²²⁶¹ Mexico's first written submission, para. 333.

²²⁶² Mexico's first written submission, para. 316.

intended use of the seeds of fresh avocados for consumption from Mexico, a calculation that should have been made on the basis of section 2.2.2 of ISPM No. 11.²²⁶³ Mexico adds that Costa Rica should have evaluated the specific probability of the incidence of instances of diversion from intended use of the pits of avocados imported for consumption, which is precisely the cause of its concern, but it did not.²²⁶⁴

7.1277. Mexico states that, although Costa Rica asserts in its PRAs that diversion from intended use was considered, in a section entitled "uncertainty" it indicates that there are no statistics available on the quantity of imported fruit from which the seed is extracted for propagation purposes.²²⁶⁵ For Mexico, Costa Rica is seeking to justify its measures on the grounds of the absence of information and a simple hypothesis²²⁶⁶, when no objective analysis and assessment have been carried out of how a fresh avocado destined for human consumption could end up having its seed sown by a Costa Rican producer. In Mexico's view, Costa Rica fails to address each and every step that the pit of a fresh avocado imported for consumption would have to go through.²²⁶⁷ Mexico asserts that Costa Rica should have carried out an analysis and evaluation of the pathways followed by avocados imported for human consumption and examined how the pit would follow the pathway that it is concerned about; in other words, ending up on a farm, where it would be prepared and sown, and germinate so that it could be used as rootstock.²²⁶⁸

7.1278. For Mexico, the Panel should consider that: (i) Mexico exports fresh avocados for consumption, not seeds for propagation; (ii) not all consignments from Mexico can be considered carriers of ASBVd, nor are they intended for propagation purposes; (iii) the fruit exported from Mexico is free of symptoms; (iv) fresh avocados entering Costa Rica would first reach areas with the highest population density, and the regions with the largest avocado production areas account for only 15% of the population; and (v) after consumption, it would have to be determined how many pits are discarded outdoors or used for sowing.²²⁶⁹

7.1279. Mexico submits that Costa Rica is shifting the burden of diversion from intended use to the exporting country, yet the IPPC document Diversion from intended use (2016) indicates that the responsibility for diversion from intended use, and its consequences, falls to the NPPO of the importing country.²²⁷⁰ In Mexico's view, Costa Rica cannot attribute all the risk to the importation of fresh fruit. Rather, it should also have established local risk management measures adapted to the transmission characteristics of ASBVd. Mexico asserts that Costa Rica also failed to consider the steps taken by Mexico to restrict the exportation of avocados with symptoms of ASBVd, and other practices that could enable the detection of asymptomatic trees, such as the continuous surveillance of orchards.²²⁷¹

7.1280. Mexico adds that the germination of an avocado pit does not necessarily imply that the resulting plant will be infected with ASBVd, which Mexico claims is corroborated by an experiment carried out by Dr Daniel Téliz in 2015 and confirmed by Dr Salvador Ochoa Ascencio, who cites Wallace and Drake (1962) in this regard.²²⁷²

7.1281. Mexico submits that assuming *arguendo* that there was any likelihood of entry of asymptomatic fruit from Mexico, Costa Rica could now eliminate the risk of diversion from intended

²²⁶³ Mexico's first written submission, paras. 317–319.

²²⁶⁴ Mexico's opening statement at the first meeting of the Panel, para. 41.

²²⁶⁵ Mexico's opening statement at the first meeting of the Panel, para. 42 (citing Corrigenda ARP-002-2017 (2019), (Exhibit MEX-131)).

²²⁶⁶ Mexico's opening statement at the first meeting of the Panel, para. 42.

²²⁶⁷ Mexico's opening statement at the first meeting of the Panel, paras. 42–44.

²²⁶⁸ Mexico's opening statement at the first meeting of the Panel, paras. 48–50.

²²⁶⁹ Mexico's opening statement at the first meeting of the Panel, paras. 45–46.

²²⁷⁰ Mexico's first written submission, paras. 325–326 (citing IPPC Secretariat, Diversion from intended use (2016), (Exhibit MEX-124)).

²²⁷¹ Mexico's first written submission, para. 336.

²²⁷² Mexico's second written submission, para. 133 (citing D. Téliz, Información sobre el viroide de la mancha de sol del aguacate (2015) (Téliz (2015)), (Exhibit MEX-172); and Affidavit of Salvador Ochoa Ascencio (2020), (Exhibit MEX-222)).

use by publishing Decree No. 41995-MAG, which regulates the use, for propagation purposes, of avocado seeds from fresh fruit imported for consumption from countries where ASBVd is present.²²⁷³

7.1282. With regard to the spontaneous germination of seeds, Mexico argues that, since the proposed use of the fruit is human consumption and not planting, the waste will primarily be discarded in household bins and then at waste disposal sites, in most cases far from any susceptible hosts.²²⁷⁴

7.1283. Mexico asserts that there is no evidence of a risk of germination of a pit obtained from an avocado imported for consumption and discarded at a waste disposal site, since this purported risk is not verifiable if one considers the characteristics of the pit and the safety conditions that can be found at waste disposal sites.²²⁷⁵ Mexico states that a landfill site contains rotting, uncontrolled organic waste that attracts pests, generates harmful gases and contaminates the water and soil.²²⁷⁶ Mexico adds that pits are discarded and deposited in waste bins, where they will eventually decay and, unless they have been cleaned and disinfected, may attract other pathogens or pests that affect the viability, growth and survival of avocado plants, not to mention that pits rarely touch the ground.²²⁷⁷ For Mexico, all these factors reduce any possibility of germination regardless of whether the humidity and temperature conditions in Costa Rica are conducive to the germination of a seed. Mexico adds that these are assertions that lack any scientific basis and do not connote an ascertainable risk.²²⁷⁸

7.1284. Mexico states that the germination process of a recalcitrant seed such as an avocado seed is not simple, nor does it happen almost spontaneously, and since the probability of the success of a recalcitrant avocado seed's germination and establishment depends on many specific variables and conditions, Costa Rica should have considered them in its risk analysis, but did not.²²⁷⁹

7.1285. Mexico contends that the assessment of the risk of entry and spread of ASBVd should necessarily have been conditioned by the successful germination of a discarded pit. Mexico states that, since avocado pits contain biochemical inhibitors and mechanical barriers that make germination difficult, are recalcitrant, and must undergo a pretreatment prior to sowing, the risk of entry, establishment and spread of ASBVd through the pit of a fresh avocado for consumption that is discarded in a rubbish dump is negligible.²²⁸⁰

7.1286. Mexico asserts that, in sum, neither of the two situations that Costa Rica refers to in its PRAs – diversion from intended use due to cultural practices and spontaneous germination – justifies the finding of a risk of establishment of ASBVd through the pathway of fresh fruit imported for consumption, because:

- a. The probability of risk of entry of symptomless fruit with ASBVd is negligible, if not zero²²⁸¹;
- b. There is no real-world evidence of the spontaneous germination of avocado waste (seed and skin);
- c. The recalcitrant nature of the seed reduces the probability of an avocado pit germinating;

²²⁷³ Mexico's second written submission, para. 135 (citing Regulation governing the use of avocado seeds (2019), (Exhibits MEX-174 and CRI-53)).

²²⁷⁴ Mexico's opening statement at the first meeting of the Panel, para. 45.

²²⁷⁵ Mexico's second written submission, para. 140.

²²⁷⁶ Mexico's second written submission, para. 142 (citing "Efectos sobre la salud y el Medio ambiente de los Vertederos", *econoticias.com* (3 de mayo de 2017), (Exhibit MEX-252)).

²²⁷⁷ Mexico's second written submission, para. 142 (citing Declaración Jurada de Rodolfo de la Torre Almaraz, 22 de enero de 2020 (Affidavit of Rodolfo de la Torre Almaraz (2020)), (Exhibit MEX-227)); response to Panel question No. 20.

²²⁷⁸ Mexico's second written submission, para. 143.

²²⁷⁹ Mexico's first written submission, para. 342.

²²⁸⁰ Mexico's opening statement at the first meeting of the Panel, para. 47.

²²⁸¹ Mexico's second written submission, para. 144 (citing Asociación de Productores, Empacadores y Exportadores de Aguacate de México, A.C. (APEAM), "Informe preliminar de resultados del muestreo para detectar ASBVd en aguacates frescos para consumo destinados a la exportación", enero 2020 (APEAM, Preliminary report of sampling survey of consignments (2020)), (Exhibit MEX-223)).

- d. The evidence provided by Costa Rica is not sufficient to estimate a probability of establishment as a result of diversion from the intended use of avocado fruit imported for consumption;
- e. Its PRAs were not based on biological, statistical or scientific information supporting the hypothesis of diversion from intended use due to the cultural practice of germinating seeds in orchards and farms in Costa Rica;
- f. Its risk assessment did not estimate the probability of the spontaneous germination of a pit discarded at a waste disposal site, a rubbish dump or other site in Costa Rica;
- g. The potato PRA cited to justify the hypothesis of diversion from the intended use of fresh avocados for consumption is not applicable to this particular case;
- h. Costa Rica has failed to explain why its risk assessments lead to a presumption that the probability was estimated based on the consideration that: (i) all discarded pits will remain viable after the flesh has been consumed; (ii) all the pits will be used as propagation material after the flesh of the fruit from which they are obtained has been consumed; (iii) 100% of the seeds will germinate; and (iv) all the trees in question will be infected with ASBVd;
- i. Costa Rica did not identify, using specific data, the destination points of fresh avocados imported for consumption from Mexico;
- j. Costa Rica failed to submit evidence estimating the incidence of instances in which those seeds are discarded in a rubbish dump after the avocado has been consumed and are not viable for sowing, but are reserved for other uses²²⁸²;
- k. The *ex post* exhibits submitted by Costa Rica relate mainly to the practice of growing criollo avocados and provide very little information on the sowing of pits from avocados imported for consumption²²⁸³;
- l. It is stated in the report Cultural practices in sowing and managing avocado seeds in Costa Rica (2019) that, in non-commercial or "backyard" production, as it is also known, the seeds used are predominantly from criollo avocados.²²⁸⁴

7.1287. Mexico submits that Costa Rica should have considered assessing the percentage loss of viability of the seeds at each stage of the avocado transport chain, from when the fruit is harvested in Mexico to when it is consumed in Costa Rica and subsequently discarded in waste channels, or planted directly once the producer purchases fresh avocados imported for consumption from Mexico.²²⁸⁵ Mexico highlights the changes in temperature during transport, which it claims lead to the loss of viability of the seed, and the loss of viability that results from removing the seed from the fruit.²²⁸⁶ Mexico adds that avocado propagation for commercial purposes follows highly specific procedures that guarantee the quality of the plant and, by extension, its fruit. Mexico contends that Hass avocado seeds are not a propagation pathway often used by producers and nursery workers, that trees germinated from Hass avocado seeds without grafting will take 15 years to bear their first fruit, and that trees planted directly from Hass avocado seeds are not commercially viable.²²⁸⁷ Mexico therefore considers that, since these factors were not evaluated as part of the risk assessment, Costa Rica did not conduct a proper evaluation of the likelihood of establishment of ASBVd and its disease.²²⁸⁸

²²⁸² Mexico's second written submission, para. 144.

²²⁸³ Mexico's second written submission, para. 144 (citing Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44)).

²²⁸⁴ Mexico's second written submission, para. 144 (citing Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44)).

²²⁸⁵ Mexico's first written submission, para. 339.

²²⁸⁶ Mexico's first written submission, para. 340.

²²⁸⁷ Mexico's first written submission, para. 341.

²²⁸⁸ Mexico's first written submission, para. 342.

7.1288. Mexico concludes that, because Costa Rica's assertions lack any scientific basis and there is insufficient scientific evidence to demonstrate that there is a likelihood of establishment of ASBVd and its disease, Costa Rica's PRAs did not evaluate the likelihood of establishment on the basis of the SPS Agreement.²²⁸⁹

7.1289. **Costa Rica** asserts that it properly evaluated the likelihood of establishment of ASBVd in its territory and that Mexico has failed to demonstrate otherwise.²²⁹⁰

7.1290. Costa Rica submits that, in accordance with the manual, it examined several of the aspects that ISPM No. 11 gives as examples of factors to be evaluated: (i) availability of suitable hosts, alternate hosts and vectors in the PRA area; (ii) suitability of environment; (iii) cultivation practices and control measures; and (iv) other characteristics of the pest affecting the probability of establishment.²²⁹¹ Costa Rica states that Article 5.1 of the SPS Agreement requires Members to take into account, not to adopt, risk assessment techniques developed by the relevant international organizations.²²⁹²

7.1291. Costa Rica points out that, based on the available scientific information and the studies on diversion from intended use, it concluded that there is a medium probability of establishment of ASBVd in its territory.²²⁹³ Costa Rica adds that Everett and Siebert (2018) conclude that there is a high risk of ASBVd establishing in New Zealand and of particular concern is its importation in fruit from symptomless plants or seeds.²²⁹⁴

7.1292. Costa Rica submits that, in its risk assessment, it found the probability of availability of hosts and other characteristics of ASBVd to be low because ASBVd has been reported only in avocados and there are no known alternate hosts, and because the pest does not have a high reproductive potential or the ability to spread quickly. Costa Rica states that, nevertheless, the suitability of environment to ASBVd is high, because the environmental conditions required for its survival are those required by its host, the avocado plant, which is a plant native to Mesoamerica, and the environmental conditions in Costa Rica are propitious for ASBVd.²²⁹⁵

7.1293. Costa Rica contends that one of the essential aspects that impinges on the probability of establishment of the viroid are the cultivation practices and control measures, and states that there is no control method for ASBVd, since an infected plant cannot be cured, and the only option is to eradicate or rogue avocado trees. Costa Rica adds that the widespread cultivation practice of planting the seeds of previously consumed fruit increases the probability of establishment of the pest, since the transmission rate of ASBVd by the seeds of symptomless fruit is 100%; and that the practice of diversion from intended use is common to both private individuals and farmers.²²⁹⁶

7.1294. Costa Rica submits that it was observed that the germination of seeds from symptomless infected fruit would systematically produce avocado trees infected with the pest, and that Costa Rica took into account the environmental conditions in its territory, which is a factor listed in Article 5.2 of the SPS Agreement. In Costa Rica's view, for most of the year, its wet tropical climate provides suitable conditions for the germination of avocado seeds²²⁹⁷, and the germination of a seed may occur naturally or intentionally.²²⁹⁸

²²⁸⁹ Mexico's first written submission, para. 344; second written submission, para. 145.

²²⁹⁰ Costa Rica's first written submission, p. 56; second written submission, para. 3.36.

²²⁹¹ Costa Rica's first written submission, para. 5.127; second written submission, para. 3.36.

²²⁹² Costa Rica's first written submission, para. 5.127.

²²⁹³ Costa Rica's first written submission, para. 5.127.

²²⁹⁴ Costa Rica's first written submission, para. 5.127 (citing Everett and Siebert (2018), (Exhibit CRI-27), p. 33); second written submission, para. 3.36.

²²⁹⁵ Costa Rica's first written submission, para. 5.128 (citing Everett and Siebert (2018), (Exhibit CRI-27), p. 27; and Galindo Tovar et al. (2008), (Exhibit MEX-22)).

²²⁹⁶ Costa Rica's first written submission, para. 5.129 (citing Beltrán Peña (2013), (Exhibit MEX-63), pp. 9 and 10; Ncango et al. (2014), (Exhibit CRI-8), p. 73; CONSULSANTOS (2017), (Exhibit MEX-118); and Cambrón Crisantos (2011), (Exhibit CRI-10), p. 17).

²²⁹⁷ Costa Rica's second written submission, para. 3.36 (citing Los Santos Zone (2007), (Exhibit MEX-97), p. 8; and CONSULSANTOS (2010), (Exhibit MEX-119), p. 15).

²²⁹⁸ Costa Rica's second written submission, para. 3.37.

7.1295. Costa Rica states that a "medium" degree of probability was attributed both to the practice of diversion from intended use and to the conclusion on the establishment of ASBVd, and that Mexico itself takes into consideration diversion from intended use in its risk assessments.²²⁹⁹

7.1296. Costa Rica concludes that there are sufficient grounds for finding that there is no method to eradicate ASBVd from an infected plant; that the seed of a symptomless fruit has a high potential for transmitting the viroid; and that Costa Rican avocado producers use the seeds of consumed fruit for planting and obtaining rootstock. Costa Rica asserts that Mexico has failed to demonstrate that the conclusions drawn by Costa Rica regarding the medium probability of establishment cannot be objectively justified on the basis of available scientific evidence.²³⁰⁰

7.1297. With regard to the likelihood of establishment of ASBVd in Costa Rica, the **Panel** observes that the following factors were considered in Reports ARP-002-2017 and ARP-006-2016: (i) availability of suitable hosts, alternate hosts and vectors in the PRA area; (ii) suitability of environment; (iii) cultivation practices and control measures; and (iv) other characteristics of the pest affecting the probability of establishment. Reports ARP-002-2017 and ARP-006-2016 assigned a low probability to the first and last factors, a high probability to the second factor and a medium probability to the third factor.

7.1298. In the section devoted to the first factor, i.e. the availability of suitable hosts, alternate hosts and vectors in the PRA area, Reports ARP-002-2017 and ARP-006-2016 note, *inter alia*, that, "[i]n the case of seeds that germinate from imported avocado fruit, either because the waste (seed) was disposed of in a place suitable for seed germination or because it was diverted from its intended use, the pest would already be systemic in the host plant's tissue (Ploetz et al. (2011))".²³⁰¹ As mentioned before, the assertion that the pest is systemic in the host is supported by Ploetz et al. (2011). However, in the source cited, the Panel finds no support for the first assertion ("[i]n the case of seeds that germinate from imported avocado fruit, either because the waste (seed) was disposed of in a place suitable for seed germination or because it was diverted from its intended use") or for drawing a link between this baseless assertion about the status of the seed and the systemic nature of the pest. Costa Rica provides no evidence of the events to which it refers in the first part of this sentence, that is, the germination of the seeds of imported avocado fruit as a result of disposal (spontaneous germination) or diversion from intended use.

7.1299. In section 7.4.5.3.3 above, the Panel conducted a detailed analysis of the cross-cutting issues of spontaneous germination and diversion from intended use and the insufficient scientific evidence in that regard throughout Reports ARP-002-2017 and ARP-006-2016.

7.1300. Moreover, although Costa Rica mentions the aforementioned issues when addressing the factor of the availability of suitable hosts, alternate hosts and vectors in the PRA area, this does not constitute an analysis of the factor, i.e. of the quantity and distribution of suitable hosts in relation to the probability of establishment.

7.1301. Regarding the second factor, i.e. suitability of environment, Reports ARP-002-2017 and ARP-006-2016 state that "[t]he environmental conditions this pest needs to survive are those required by its host, the avocado tree".²³⁰² This assertion is not supported by any scientific evidence in the reports. Although the experts pointed out that ASBVd is an obligate biotrophic pathogen or intracellular parasite that requires its host to survive and multiply²³⁰³, such explanations are missing from Reports ARP-002-2017 and ARP-006-2016.

7.1302. Report ARP-002-2017 then mentions that "[t]he avocado is a plant native to Mesoamerica (Galindo *et al.* (2007)), and the environment of the PRA area is favourable for this pest (Holdridge (1987))".²³⁰⁴

²²⁹⁹ Costa Rica's first written submission, paras. 5.131-5.132.

²³⁰⁰ Costa Rica's first written submission, para. 5.134.

²³⁰¹ ARP-002-2017, (Exhibit MEX-84), p. 38 (citing Ploetz et al. (2011), (Exhibit MEX-56)); ARP-006-2016, (Exhibit MEX-85), p. 19 (citing Ploetz et al. (2011), (Exhibit MEX-56)).

²³⁰² ARP-002-2017, (Exhibit MEX-84), p. 39; ARP-006-2016, (Exhibit MEX-85), p. 19.

²³⁰³ Responses of Pablo Cortese and Ricardo Flores Pedauy  to Panel question No. 33(a) for the experts.

²³⁰⁴ ARP-002-2017, (Exhibit MEX-84), p. 39 (citing Holdridge (1982), (Exhibit CRI-122)).

7.1303. Although Holdridge (1982) is an entire book on the classification of life zones in general, it does not contain a specific description of the environment in Costa Rica, nor does it relate to environments that are favourable for ASBVd. With respect to the same assertion, the Panel notes that Report ARP-006-2016 does not cite Holdridge (1982). Rather, it refers to Datasheet ARP-001-2014²³⁰⁵, which is the datasheet for Reports ARP-002-2017 and ARP-006-2016, and does not support the assertion that the environment of the PRA area is favourable for this pest either.

7.1304. Reports ARP-002-2017 and ARP-006-2016 lack explanations, duly supported by scientific evidence, about the favourable climatic conditions for ASBVd and about the relationship between the assertions that the avocado is a plant native to Mesoamerica and that the environment of the PRA area is favourable for ASBVd. In addition, in Reports ARP-002-2017 and ARP-006-2016, no consideration is given to the different climatic conditions that exist in the various regions of Costa Rica or to seasonal variations in conditions.

7.1305. Regarding the third factor, i.e. cultivation practices and control measures, Reports ARP-002-2017 and ARP-006-2016 indicate that there is no control method for this pest²³⁰⁶, and the only option is to eradicate or rogue trees²³⁰⁷; that the documented cultivation practices in Costa Rica would affect the spread of the pest, given that producers are known to prepare their own seedbeds and do not turn to commercial nurseries, that pruning or harvesting tools are not disinfected between trees, that replanting orchards is extremely expensive, and that nurseries, which are subject to government regulations, are not the main source of material planted in the field²³⁰⁸; and that the foregoing is related to diversion from intended use, that is, the practice of using seeds from imported Hass avocados to grow new plants despite the fact that those avocados were originally imported for human consumption.²³⁰⁹

7.1306. Reports ARP-002-2017 and ARP-006-2016 cite Hadidi et al. (2003) when asserting that there is no control method for ASBVd and then add that the only option is to eradicate or rogue trees. Hadidi et al. (2003) state that an indexing programme for the propagation and dissemination of registered rootstock and scion materials tested for ASBVd offers the best approach for control of sunblotch, and that sanitation by removal of sunblotch-expressing or symptomless carrier trees is the primary mode to control spread of the disease in the field.²³¹⁰ Hadidi et al. (2003) do not state that "there is no control method". Rather, they appear to suggest that an indexing programme, together with the removal of infected trees, helps control. In the Panel's view, the risk assessor does not make accurate use of the scientific evidence referred to in support of his assertions and, despite speaking of eradication or rogueing, does not provide adequate explanations as to what is understood by these terms.

7.1307. The datasheet for the reports, in a section entitled "control", presents the information differently, indicating that the removal of infected trees is the only known method (Hadidi et al. (2003)), and that the disease is difficult to control and there are no therapeutic methods or resistant varieties.²³¹¹ However, in the section on cultivation practices and control measures, no reference is made to these statements from the datasheet.

7.1308. The Panel notes that, in another article in the record, Ploetz et al. (2011), it is stated that sunblotch is considered a minor problem in countries where tree registration programmes exclude ASBVd from propagating material, an assertion with which the experts agreed.²³¹² Ploetz et al. (2011) add that the most important control measure for sunblotch is the careful selection of pathogen-free budwood and seed that are used for propagation, and that the disease can also be controlled by removing symptomatic and symptomless trees from orchards and indexing suspect trees.²³¹³ The Panel considers that this confirms the understanding of Hadidi et al. (2003) that the

²³⁰⁵ ARP-006-2016, (Exhibit MEX-85), p. 19.

²³⁰⁶ ARP-002-2017, (Exhibit MEX-84), p. 39 (citing Hadidi et al. (2003), (Exhibit CRI-121)); ARP-006-2016, (Exhibit MEX-85), p. 19 (citing Hadidi et al. (2003), (Exhibit CRI-121)).

²³⁰⁷ ARP-002-2017, (Exhibit MEX-84), p. 39; ARP-006-2016, (Exhibit MEX-85), p. 19.

²³⁰⁸ ARP-002-2017, (Exhibit MEX-84), p. 39 (citing CONSULSANTOS (2010), (Exhibit MEX-119)); ARP-006-2016, (Exhibit MEX-85), pp. 19-20 (citing CONSULSANTOS (2010), (Exhibit MEX-119)).

²³⁰⁹ ARP-002-2017, (Exhibit MEX-84), p. 39; ARP-006-2016, (Exhibit MEX-85), p. 20.

²³¹⁰ Hadidi et al. (2003), (Exhibit CRI-121), p. 175.

²³¹¹ ARP-002-2017, (Exhibit MEX-84), p. 64; ARP-006-2016, (Exhibit MEX-85), p. 48.

²³¹² Ploetz et al. (2011), (Exhibit MEX-56), pp. 5-6; Responses of Pablo Cortese, Ricardo Flores Pedauyé and Fernando Pliego Alfaro to Panel question No. 60 for the experts.

²³¹³ Ploetz et al. (2011), (Exhibit MEX-56), p. 6.

indexing of propagation material and the removal of infected trees may be considered control methods for ASBVd. However, Reports ARP-002-2017 and ARP-006-2016 merely state that there is no control method for ASBVd, and do not reflect the explanations found in the articles that form part of their scientific basis, namely Ploetz et al. (2011) and Hadidi *et al.* (2003).

7.1309. Reports ARP-002-2017 and ARP-006-2016 cite CONSULSANTOS (2010) when asserting that the documented cultivation practices in Costa Rica would affect the spread of the pest, given that producers are known to prepare their own seedbeds and do not turn to commercial nurseries, that pruning or harvesting tools are not disinfected between trees, that replanting orchards is extremely expensive, and that nurseries, which are subject to government regulations, are not the main source of material planted in the field.

7.1310. The report CONSULSANTOS (2010), which is described in section 7.4.5.3.3 above and relates to an avocado census in the area of Los Santos, Frailes and Corralillo, contains questions on planting materials.²³¹⁴ It is noted that, with the exception of the canton of Guarco, where most producers tended to obtain their planting materials through a nursery, in the other cantons there is a greater tendency to obtain trees via rootstock seed.²³¹⁵ This confirms that nurseries are not the main source of material planted in the field in the areas investigated in the census, except for the canton of Guarco. However, CONSULSANTOS (2010) does not support the assertions that pruning or harvesting tools are not disinfected between trees or that replanting orchards is extremely expensive. Indeed, CONSULSANTOS (2010) contains no reference to the disinfection of tools or the cost of replanting orchards.²³¹⁶ It mentions only that the establishment and expectations of avocado production make it a costly process for the average Costa Rican farmer.²³¹⁷

7.1311. In addition, the Panel notes that the assertion in Reports ARP-002-2017 and ARP-006-2016 that the foregoing is related to diversion from intended use, that is, the practice of using seeds from imported Hass avocados to grow new plants, is not supported by the sources cited under this point, namely Hadidi *et al.* (2003) and CONSULSANTOS (2010), and no other scientific evidence has been submitted in this regard.

7.1312. The Panel recalls that, according to Costa Rica, one of the essential aspects that impinges on the probability of establishment of ASBVd are the cultivation practices and control measures²³¹⁸, and the Panel found in its analysis in section 7.4.5.3.3.4 above that there is insufficient scientific evidence concerning diversion from intended use throughout Reports ARP-002-2017 and ARP-006-2016.

7.1313. With regard to the fourth factor, i.e. other characteristics of the pest affecting the probability of establishment, Reports ARP-002-2017 and ARP-006-2016 point out that ASBVd does not have a high reproductive potential or the ability to spread quickly.²³¹⁹ A low probability is assigned to this factor, which, according to Manual NR-ARP-PO-01_M-01, is given when a pest does not have a high reproductive potential or the ability to spread quickly. In other words, to justify the probability assigned to this factor, Reports ARP-002-2017 and ARP-006-2016 present the same criterion as that indicated in the manual for the assessment of the probability of the factor, without any further explanation being given.

7.1314. The experts consulted commented on the issue of the reproduction of ASBVd and its consideration in Reports ARP-002-2017 and ARP-006-2016.

7.1315. The expert on risk assessment methods and techniques, Robert Griffin, notes that the section on the probability of establishment does not address the potential for adaptation by the pest, the reproductive strategy of the pest, or the method of pest survival, which are biological characteristics that affect the uncertainty and evidence associated with the probabilities for establishment. In Mr Griffin's opinion, while they do not need to be specifically highlighted, they

²³¹⁴ CONSULSANTOS (2010), (Exhibit MEX-119), pp. 24-25 and 37-38.

²³¹⁵ CONSULSANTOS (2010), (Exhibit MEX-119), p. 24.

²³¹⁶ Mexico's first written submission, para. 242.

²³¹⁷ CONSULSANTOS (2010), (Exhibit MEX-119), p. 64.

²³¹⁸ Costa Rica's first written submission, para. 5.129.

²³¹⁹ ARP-002-2017, (Exhibit MEX-84), p. 39; ARP-006-2016, (Exhibit MEX-85), p. 20.

should be identified to the extent that they are factors in the probabilities, but he does not see that Costa Rica did this.²³²⁰

7.1316. Mr Griffin expresses the view that the elements used by Costa Rica are reasonable and relatively complete, but the analysis and evaluation of certain elements is questionable. Mr Griffin notes that a key point is that an infected seed is not common, and if one is planted or grows volunteer, it results in one infected plant and not an outbreak. Mr Griffin is of the view that the spread is relatively slow, containment is easy once detected, and the impacts are very limited. Mr Griffin considers that criteria used by Costa Rica in its PRA lead to conservative conclusions resulting in high scores through most of the assessment of the likelihood and consequences of introduction, which, when added together and averaged, result in a high overall score, when several low probability events would argue for a lower risk.²³²¹

7.1317. Mr Griffin states that his concerns are primarily in the area of the analysis of the probability of introduction and spread, and refers to the element under "other characteristics" that deals with the rate of reproduction and spread of the pest, which is a very important question in the case of ASBVd. Mr Griffin expresses the view that the question of the rate of reproduction and spread of the pest under "other characteristics" of the probability of establishment is a critical factor for spread, and it has no weight in the analysis of spread and very little weight in the analysis of establishment.²³²²

7.1318. The experts Pablo Cortese and Fernando Pliego Alfaro concur. Mr Cortese states that it is not necessarily always the case that a plant is established, or that its establishment results in an epidemic, and that introduction is not the same as an epidemic and need not trigger an epidemic or establishment.²³²³ Mr Pliego Alfaro also comments that ASBVd is not a pest that spreads because it has been in a country for a long time. Mr Pliego Alfaro considers that once farmers see a tree displaying symptoms, they uproot it, since symptoms appear even in asymptomatic trees when they are checked or pruned in any way.²³²⁴ Mr Pliego Alfaro asserts that ASBVd can be controlled relatively well if the country uses material that is certified and free from sunblotch, but that even if the country does not adopt this approach, it is not a disease that progresses much over time.²³²⁵

7.1319. In light of the foregoing, the Panel observes that, in evaluating the likelihood of establishment, the risk assessor paid little attention to the rate of reproduction and spread of the pest, which is a critical factor for the spread of ASBVd. In the Panel's view, Reports ARP-002-2017 and ARP-006-2016 do not give sufficient consideration to the rate of reproduction and spread of the pest, bearing in mind the points made by the experts that the germination of an infected avocado plant does not lead to an outbreak, and that ASBVd is not a pest that progresses much over time. In view of the foregoing, although Costa Rica assigns a low probability to the factor of other characteristics of the pest affecting the probability of establishment, the calculation of the probability of establishment of ASBVd in Costa Rica was affected by the failure to give sufficient consideration to the rate of reproduction and spread of ASBVd.

7.1320. Moreover, the inclusion of an analysis of ASBVd's potential for adaptation, its reproductive strategy, and its methods of survival would have facilitated an understanding of the pest's potential for adaptation to the environment.

7.1321. The Panel considers that the reproduction and spread of the pest is a key step that would complete the chain of conditions and events resulting in the introduction of ASBVd into Costa Rica. The Panel recalls that, as stated in paragraphs 7.1260 to 7.1262 above, Reports ARP-002-2017 and ARP-006-2016 do not consider, throughout the analysis of the probability of introduction, the

²³²⁰ Robert Griffin's response to Panel question No. 153 for the experts.

²³²¹ Robert Griffin's response to Panel question No. 113 for the experts.

²³²² Robert Griffin, transcript of the Panel's meeting with the parties and the experts, day 2, pp. 23-24.

²³²³ Pablo Cortese, transcript of the Panel's meeting with the parties and the experts, day 2, pp. 25 and 29-30.

²³²⁴ Fernando Pliego Alfaro, transcript of the Panel's meeting with the parties and the experts, day 2, pp. 32-33.

²³²⁵ Fernando Pliego Alfaro, transcript of the Panel's meeting with the parties and the experts, day 3, p. 30.

multiplicative relationship between the conditions and events related to the pathway of fresh avocados for consumption.

7.1322. In the Panel's view, the aforementioned flaws result in an overestimation of the likelihood of introduction of ASBVd in Costa Rica. Moreover, the failure to pay sufficient attention to a key factor for ASBVd —the rate of reproduction and spread of the pest— renders the risk assessment inadequate for the viroid.

7.1323. Lastly, the Panel notes that, in its arguments concerning the evaluation of the likelihood of establishment of ASBVd in Reports ARP-002-2017 and ARP-006-2016, Mexico refers repeatedly to diversion from intended use and spontaneous germination.

7.1324. Mexico contends that the establishment of ASBVd is directly related to the risk of germination of the pits of avocados originally imported for consumption, and that Costa Rica's PRAs point to two risk scenarios associated with this pathway: (i) diversion from intended use due to cultural practices; and (ii) the spontaneous germination of waste.²³²⁶ Mexico asserts that neither of the two situations that Costa Rica refers to in its PRAs – diversion from intended use due to cultural practices and spontaneous germination – justifies the finding of a risk of establishment of ASBVd through the pathway of fresh fruit imported for consumption.²³²⁷

7.1325. Costa Rica states that, based on the available scientific information and the studies on diversion from intended use, it concluded that there is a medium probability of establishment of ASBVd in its territory.²³²⁸ Costa Rica also states that it found that its climatic conditions are conducive to the germination of avocado seeds, which may occur naturally or intentionally.²³²⁹

7.1326. The Panel observes that diversion from intended use was considered in Reports ARP-002-2017 and ARP-006-2016 under the probability factors related to the availability of suitable hosts, alternate hosts and vectors in the PRA area and to cultivation practices and control measures; and that spontaneous germination was considered under the factor related to the availability of suitable hosts, alternate hosts and vectors in the PRA area. The Panel examined in detail the evaluation of these factors.

7.1327. The Panel also refers to its conclusions in sections 7.4.5.3.3.4 and 7.4.5.3.3.9 above to the effect that there is insufficient scientific evidence in Reports ARP-002-2017 and ARP-006-2016 on the existence of diversion from the intended use of seeds from fresh fruit for consumption and on the spontaneous germination of such seeds, nor are there estimates, even in qualitative terms, of the scale on which diversion from intended use and spontaneous germination occur in Costa Rica. The foregoing meant that the risk analyst was unable to carry out either a qualitative or quantitative assessment of the probability of entry, establishment or spread of ASBVd in Costa Rica that would give due consideration to this diversion from intended use and spontaneous germination.

Conclusion on the likelihood of establishment

7.1328. Having analysed the various factors and elements considered in Reports ARP-002-2017 and ARP-006-2016 to determine the likelihood of establishment of ASBVd in Costa Rica, the Panel concludes that there are the following flaws:

- a. Regarding the scientific basis:
 - i. there are assertions that do not find support in the scientific evidence;
 - ii. there are assertions that refer to a source, but that source does not support those assertions or does so only partially;

²³²⁶ Mexico's second written submission, para. 129.

²³²⁷ Mexico's second written submission, para. 144 (citing Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44)).

²³²⁸ Costa Rica's first written submission, para. 5.127.

²³²⁹ Costa Rica's second written submission, paras. 3.36-3.37.

- iii. there is a failure to consider information relevant to the risk assessment contained in the scientific evidence cited; and
 - iv. there is insufficient scientific evidence concerning diversion from intended use and spontaneous germination.
- b. Regarding the risk assessor's reasoning:
- i. no explanations are given for how the evidence provided at different points in the analysis relates to the conclusions for each probability; and
 - ii. the same probability descriptor that appears in Manual NR-ARP-PO-01_M-01 for pests in general is used to justify the probability assigned to some of the factors, without it being adapted to the case of ASBVd and without any explanation being given.

7.1329. Moreover, in evaluating the likelihood of establishment of ASBVd in Costa Rica, the risk assessor pays little attention to the rate of reproduction and spread of ASBVd, which is a critical factor for the spread of the pest, thereby affecting the evaluation of the likelihood of establishment of ASBVd in Costa Rica.

7.1330. Furthermore, Reports ARP-002-2017 and ARP-006-2016 do not consider the multiplicative relationship that exists between the conditions and events necessary for the establishment of ASBVd in Costa Rica. Since this flaw is found in relation to the likelihood of both entry and establishment, which together make up the likelihood of introduction of the pest, the Panel considers that Reports ARP-002-2017 and ARP-006-2016 have overestimated the overall likelihood of introduction of ASBVd into Costa Rica.

7.1331. The Panel considers that the result of assigning risk values, whether high, medium, or low, with their respective numerical values (3, 2, or 1), to the various factors, on several occasions without the necessary scientific basis, without sufficient reasoned explanations by the risk assessor, without paying due attention to the rate of reproduction and spread of ASBVd, and without considering the multiplicative relationship that exists between the conditions and events necessary for the establishment of ASBVd, cannot be considered an objectively justifiable qualitative assessment of the likelihood of establishment of ASBVd in Costa Rica's territory.

7.4.5.3.4.3 Evaluation of the likelihood of spread

7.1332. **Mexico** submits that Costa Rica's PRAs should have included a systematic, reasoned and scientific analysis of the incidence of instances of the spread of ASBVd in the territory of Costa Rica; in other words, evaluated the probability that, once it had become established, ASBVd would spread to the rest of the territory through infected trees used as propagation material or through simply sowing seeds in commercial orchards.²³³⁰

7.1333. For Mexico, Costa Rica should have evaluated the probability of ASBVd being transmitted through each of the pathways of transmission and, if applicable, justified why imported fresh avocados for consumption is a pathway that particularly warrants the application of phytosanitary measures.²³³¹

7.1334. Mexico states that, according to the fresh fruit PRA (2015), the probability of ASBVd and its disease spreading naturally is minimal, since a number of external factors are required for it to be transmitted from one host to another, such as using propagation material infected with ASBVd (buds, seedlings, and cuttings), using tools that have not been disinfected, and pollen.²³³²

7.1335. Mexico further states that, pursuant to the fresh fruit PRA (2015), the probability of ASBVd transferring successfully from the pathway to a suitable host will be determined by the pest's

²³³⁰ Mexico's first written submission, paras. 275 and 345.

²³³¹ Mexico's first written submission, para. 346.

²³³² Mexico's first written submission, para. 347 (citing J.C. Picado Salmerón, "Evaluación del Riesgo presentado por frutos frescos de aguacate (palta) procedente de México y destinados a Costa Rica como vía de ingreso para ASBVd", julio de 2015 (Picado Salmerón, Fresh fruit PRA (2015)), (Exhibit MEX-61)); second written submission, para. 150.

dispersal mechanisms, its ability to move from the pathway on its own, and the ability of the pathway to cause diversion from intended use. Consequently, Costa Rica should have analysed these three factors, and not merely made unsubstantiated claims about the possibility (and not probability) of seeds germinating simply by falling to the ground.²³³³

7.1336. Mexico contends that there is no scientific evidence confirming that the pathway of fresh avocados imported for consumption from Mexico is a pathway for the spread of ASBVd. Mexico adds that transmission by natural means is low, given that it is closely linked to the trade in propagation material and to cultural practices that lead to the transmission of the pathogen by mechanical means, but that these are not pathways analysed in the PRAs, nor are they related to the pathway of fresh avocados imported for consumption.²³³⁴ Mexico asserts that, as a result, the probability of ASBVd and its disease being transmitted by natural or mechanical means through the pathway of fresh fruit imported for consumption from Mexico is minimal.²³³⁵

7.1337. Mexico refers to section 2.2.3 of ISPM No. 11 and states that, according to that ISPM, in order to estimate the probability of spread of the pest, reliable biological information should be obtained from areas where the pest currently occurs.²³³⁶ In this connection, Mexico argues that Costa Rica based its PRAs on two studies carried out in Mexico: De la Torre et al. (2009) and Vallejo Pérez et al. (2017), which are not representative or relevant for describing the status of ASBVd and its disease in Mexico or even in the places where they were conducted, since: (i) De la Torre et al. (2009) is based on 30 samples from five trees located in a commercial orchard in the municipality of Tingambato, Michoacán; and (ii) Vallejo Pérez et al. (2017) is based on samples from 70 avocado trees of Mexican race in the municipalities of Quimixtlán, Puebla, and Zumpahuacán and Tenancingo, state of Mexico, which did not report the presence of ASBVd, and samples from 35 Hass avocado trees in the municipality of Tingambato, Michoacán, with ASBVd found to be present in only 14% of the samples.²³³⁷ Mexico points out that the state of Michoacán accounts for 2.99% of the national territory, and that 26 of the 32 states in Mexico produce and export avocados.²³³⁸ Mexico contends that the evaluation of the probability of spread should have included biological information from other avocado-producing municipalities both in Michoacán and in the other 25 avocado-producing states in Mexico, and from countries where the disease is present, such as the United States, Spain, South Africa, and Peru.²³³⁹

7.1338. Mexico states that, in accordance with section 2.2.3 of ISPM No. 11, after obtaining reliable biological information from areas where ASBVd currently occurs, Costa Rica should have carefully compared the situation in the PRA area with these areas and used expert judgement to assess the probability of spread.²³⁴⁰ Mexico asserts that, while Costa Rica's PRAs list the factors to be considered in accordance with the ISPM, the conclusions therein are based on general assertions and have no scientific basis. According to Mexico, in the PRAs, there is no comparison of the biological information obtained, nor does it appear that experts were consulted specifically to assess the probability of spread of ASBVd in Costa Rica.²³⁴¹ Mexico adds that the only evidence cited is Ploetz et al. (2011), which is not related to the probability of spread of ASBVd through the pathway of fresh avocados imported for consumption from Mexico.²³⁴²

7.1339. Mexico submits that, in order to conduct a proper assessment of the probability of spread of ASBVd and its disease through fresh fruit imported for consumption, Costa Rica should have considered: comparing reliable biological information from areas where ASBVd and its disease were present in Mexico with the conditions of the PRA area; using expert judgement to assess the probability of spread of ASBVd and its disease; the pathways of transmission in avocados and the actual probability of risk associated with each one; the probability of germination of a seed based

²³³³ Mexico's first written submission, para. 348 (citing Picado Salmerón, Fresh fruit PRA (2015), (Exhibit MEX-61)).

²³³⁴ Mexico's first written submission, para. 349 (citing Vallejo Pérez et al. (2017), (Exhibit MEX-47), pp. 119–120).

²³³⁵ Mexico's first written submission, para. 350.

²³³⁶ Mexico's first written submission, para. 351.

²³³⁷ Mexico's first written submission, para. 351 (referring to De la Torre et al. (2009), (Exhibit MEX-70); and Vallejo Pérez et al. (2017), (Exhibit MEX-47)).

²³³⁸ Mexico's first written submission, para. 352.

²³³⁹ Mexico's first written submission, para. 353.

²³⁴⁰ Mexico's first written submission, para. 354.

²³⁴¹ Mexico's first written submission, para. 355.

²³⁴² Mexico's first written submission, para. 355 (referring to Ploetz et al. (2011), (Exhibit MEX-56)).

on factors that could adversely affect its viability; the probability of an avocado tree being viable for commercial production and being used for propagation purposes; and the processes carried out by Mexican producers to minimize the presence of fruit with ASBVd in exported fruit.²³⁴³ For Mexico, Costa Rica carried out an extremely limited analysis of the quality of the verification of instances of risk occurrence, and should have conducted a clear, objective and coherent assessment of the transmission methods by which, if applicable, the viroid would spread through its territory.²³⁴⁴

7.1340. Mexico adds that there are authors who note that seedlings that germinate from the seeds of plants infected with ASBVd may not test positive for ASBVd.²³⁴⁵ Accordingly, assuming *arguendo* that the pit of an imported fruit germinated as a result of diversion from intended use or spontaneously, Costa Rica would be required to evaluate the probability of spread according to the pest's ability to replicate, bearing in mind the characteristics of ASBVd.²³⁴⁶

7.1341. Regarding spread as a result of diversion from intended use resulting from cultural practices, Mexico states that, according to the scientific literature, once established, ASBVd may spread through the grafting of propagation material, natural root-to-root grafts in the field, mechanical damage, and pollen²³⁴⁷, and contends that: (i) Mexico does not export propagation material to Costa Rica, therefore the probability of ASBVd being transmitted through propagation material is zero; (ii) since the probability of entry and establishment of ASBVd is negligible, the probability of spread is even lower; and, (iii) having reviewed the PRAs, Costa Rica does not seem to have provided scientific evidence of the practice of grafting Hass onto Hass.²³⁴⁸ Mexico asserts that, given that Costa Rica's risk assessment contains no other reason to justify, on the basis of scientific evidence or other information, the risk of spread of ASBVd on account of cultural practices, Costa Rica failed to assess the probability of spread of ASBVd through the pathway of fresh avocados imported for consumption.²³⁴⁹

7.1342. With respect to the risk arising from the spontaneous germination of avocado waste, Mexico contends that, in its risk assessment, Costa Rica did not consider any scientific evidence confirming the risk that could result from the spread of ASBVd through seeds that germinate spontaneously at waste disposal sites, on farms or in backyards²³⁵⁰; that the probability that an avocado pit discarded at waste disposal sites will germinate is practically zero because of the recalcitrant nature of the seed and as a result of the probability that the pit will rot or become infected owing to the soil conditions; and that it cannot be deduced from the memorandums submitted by Costa Rica as *ex post facto* exhibits to prove spontaneous germination that there was any possibility that those trees had propagated naturally.²³⁵¹

7.1343. Mexico adds that the probability of the disease spreading naturally is low; that there is no scientific evidence confirming that transmission through pollen is viable in uncontrolled environments; and that another avocado tree would have to be nearby in order for ASBVd to be transmitted through natural root grafting, which is unlikely to happen at a waste disposal site.²³⁵² Mexico maintains that, assuming, for the sake of argument, that a tree germinated spontaneously at a waste disposal site, it would take this plant 8 to 10 years to bear its first fruit, and the spread of the disease would depend on a fruit, cutting or seedling being taken from the tree for propagation purposes, which has not been argued by Costa Rica.²³⁵³

7.1344. Mexico asserts that the risk of spread can be controlled through domestic regulations governing the use of propagation material on farms and in nurseries.²³⁵⁴

²³⁴³ Mexico's first written submission, para. 356.

²³⁴⁴ Mexico's first written submission, paras. 357–358.

²³⁴⁵ Mexico's second written submission, paras. 147–149 (citing Téliz (2015), (Exhibit MEX-172); Affidavit of Rodolfo de la Torre Almaraz (2020), (Exhibit MEX-227); and Affidavit of Salvador Ochoa Ascencio (2020), (Exhibit MEX-222)).

²³⁴⁶ Mexico's second written submission, para. 149.

²³⁴⁷ Mexico's second written submission, para. 150.

²³⁴⁸ Mexico's second written submission, para. 151.

²³⁴⁹ Mexico's second written submission, para. 152.

²³⁵⁰ Mexico's second written submission, para. 153.

²³⁵¹ Mexico's second written submission, para. 154.

²³⁵² Mexico's second written submission, para. 155.

²³⁵³ Mexico's second written submission, para. 156.

²³⁵⁴ Mexico's second written submission, para. 157.

7.1345. Mexico concludes that, even if an avocado pit from a fruit imported for consumption were to germinate, the probability of spread would be zero, since the spread of ASBVd by natural means is minimal; there is no scientific evidence confirming the practice of grafting Hass onto Hass using scions obtained from the pits of imported avocados; and the risk of spread arising from the pathway of fresh avocados imported for consumption is not a verifiable risk.²³⁵⁵

7.1346. **Costa Rica** submits that it correctly evaluated the probability of the spread of ASBVd²³⁵⁶; and that Mexico does not claim that the scientific evidence underpinning the risk assessment concerning the spread of ASBVd is not respectable, nor has it provided any evidence that Costa Rica failed to carry out an assessment of the case. Costa Rica states that it found, in accordance with the scientific literature, that ASBVd spreads mainly through grafting, and that mechanical transmission is possible.²³⁵⁷

7.1347. Costa Rica contends that, although Mexico claims that the probability of ASBVd spreading naturally is minimal, this contradicts its own assertion that one of the most significant risks of spreading stems from natural root grafting, which is a natural means of spread. Costa Rica adds that what is being assessed is the probability of ASBVd spreading once it has become established in Costa Rica, and not the probability of it spreading solely by natural means.²³⁵⁸ Costa Rica adds that the main dispersal mechanisms of ASBVd described in the scientific literature are grafting and obtaining rootstock from infected seeds, and that obtaining Hass rootstock from seeds and grafting Hass onto Hass are widely used agricultural practices in Costa Rica that would spread ASBVd very efficiently if the viroid were to enter and establish itself in the territory of Costa Rica.²³⁵⁹

7.1348. Costa Rica adds that if a farm had infected Hass trees, grafts and the use of pruning tools would spread ASBVd very effectively; and that multiple cuttings can be taken for grafting from a single productive Hass tree that is infected and consequently infect several seedlings. Costa Rica asserts that, as a result, once it has been introduced into a territory, ASBVd spreads very easily, which is why it found that there was a high probability of ASBVd spreading if the pest were to be introduced into its territory.²³⁶⁰

7.1349. Costa Rica contends that, while Mexico claims that Costa Rica should have included an analysis of the incidence of instances of the spread of ASBVd in the territory of Costa Rica, this was impossible because ASBVd is absent in Costa Rica. Costa Rica also contends that, when assessing the probability of entry of ASBVd, it took into account the scientific evidence in De la Torre et al. (2009) and Vallejo Pérez et al. (2017) regarding the prevalence of the pest in Mexico, and that no official or other study has been conducted in Mexico.²³⁶¹ Costa Rica adds that, in Mexico, ASBVd is not subject to any kind of regulation.²³⁶²

7.1350. Costa Rica concludes that, based on the scientific evidence relating to the spread of ASBVd once it is established in a territory, it found that there is a risk of the viroid spreading through various mechanisms, in particular grafting and seeds used to obtain rootstock. Costa Rica adds that Mexico has failed to demonstrate that the conclusions drawn by Costa Rica regarding the high probability of spread of ASBVd cannot be objectively justified on the basis of available scientific evidence.²³⁶³

7.1351. Concerning the probability of spread of ASBVd in Costa Rica, the **Panel** observes that six factors were considered in Reports ARP-002-2017 and ARP-006-2016: (i) the suitability of the natural or managed environment for the natural spread of the pest; (ii) the presence of natural barriers; (iii) the potential for movement with commodities or conveyances; (iv) the intended use

²³⁵⁵ Mexico's second written submission, paras. 155–158.

²³⁵⁶ Costa Rica's first written submission, p. 58.

²³⁵⁷ Costa Rica's first written submission, paras. 5.135–5.136; second written submission, para. 3.41.

²³⁵⁸ Costa Rica's first written submission, para. 5.136.

²³⁵⁹ Costa Rica's first written submission, para. 5.136 (citing Everett and Siebert (2018), (Exhibit CRI-27); and Semancik (2003), (Exhibit MEX-46)); second written submission, para. 3.42 (citing CONSULSANTOS (2010), (Exhibit MEX-119); Manual for Nurseries (2017), (Exhibit CRI-43); and Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44)).

²³⁶⁰ Costa Rica's second written submission, para. 3.42.

²³⁶¹ Costa Rica's first written submission, para. 5.137 (referring to De la Torre et al. (2009), (Exhibit MEX-70); and Vallejo Pérez et al. (2017), (Exhibit MEX-47)).

²³⁶² Costa Rica's first written submission, para. 5.138 (citing SINAVEF, Update of the inventory list (2010), (Exhibit CRI-13)).

²³⁶³ Costa Rica's first written submission, para. 5.139.

of the commodity; (v) potential vectors of the pest in the PRA area; and (vi) potential natural enemies of the pest in the PRA area. Reports ARP-002-2017 and ARP-006-2016 assigned a high probability to the first, second, and sixth factors, a medium probability to the third and fourth factors, and a low probability to the fifth factor.

7.1352. Regarding the first factor, i.e. the suitability of the natural or managed environment for the natural spread of the pest, Reports ARP-002-2017 and ARP-006-2016 refer to what is specified under the point on the suitability of environment in the section on the probability of establishment. Reports ARP-002-2017 and ARP-006-2016 further note that the environment is ideal for the spread of the pest, given that host plants are found across the PRA area.²³⁶⁴

7.1353. The Panel notes that the above statement is not fully supported by the source cited. INEC (2015) presents the results of a national agricultural census conducted in Costa Rica in 2014. The document indicates the total number of avocado-growing farms broken down by various criteria, including province, and mentions the seven provinces of Costa Rica.²³⁶⁵ In the Panel's view, Reports ARP-002-2017 and ARP-006-2016 do not contain sufficient explanations in this respect, and it cannot be inferred from the document concerning the agricultural census that Costa Rica's environment is considered suitable for the spread of ASBVd.

7.1354. This factor is assigned a high probability, which, according to Manual NR-ARP-PO-01_M-01, is given where there is evidence that the pest adapts to ecological and climatic conditions similar to those found in crop-growing areas in Costa Rica. The Panel notes that no justification is given for the probability value assigned to this element, including an explanation of why there is deemed to be evidence that ASBVd adapts to ecological and climatic conditions similar to those found in avocado-producing areas in Costa Rica.

7.1355. Moreover, as noted in section 7.4.5.3.4.2 above, in the point on suitability of environment referred to by Costa Rica under this factor, in Reports ARP-002-2017 and ARP-006-2016, no consideration is given to the different climatic conditions in the various areas of Costa Rica, or to seasonal differences in conditions.

7.1356. The Panel further recalls that, in the point on the suitability of environment, there was also no explanation, duly supported by scientific evidence, of why the climatic conditions are favourable for ASBVd.

7.1357. With respect to the second factor, i.e. the presence of natural barriers, Reports ARP-002-2017 and ARP-006-2016 indicate that the country has no natural barriers to prevent the spread of the pest.²³⁶⁶

7.1358. This factor is assigned a high probability, which, according to Manual NR-ARP-PO-01_M-01, is given where there are not many natural barriers in the country to limit spread. Manual NR-ARP-PO-01_M-01 also indicates that, in this case, account should be taken of the fact that, in Costa Rica, the probability of this factor would always be deemed to be high because of the country's size and geographical conditions.

7.1359. No supporting scientific evidence is presented under this point, nor is an explanation given for the decision to assign a high probability to this factor, bearing in mind the characteristics of ASBVd. In the Panel's view, this element is automatically assigned a high probability, in line with the manual.

7.1360. Regarding the third factor, i.e. the potential for movement with commodities or conveyances, Reports ARP-002-2017 and ARP-006-2016 indicate that the product will be distributed throughout the country for sale.²³⁶⁷

²³⁶⁴ ARP-002-2017, (Exhibit MEX-84), p. 39 (citing INEC, Crops (2015), (Exhibit CRI-63)); and INEC, Agricultural statistical atlas (2015), (Exhibit CRI-64)); ARP-006-2016, (Exhibit MEX-85), p. 20 (citing INEC, Crops (2015), (Exhibit CRI-63); and INEC, Agricultural statistical atlas (2015), (Exhibit CRI-64)).

²³⁶⁵ INEC, Crops (2015), (Exhibit CRI-63), pp. 119-122; and INEC, Agricultural statistical atlas (2015), (Exhibit CRI-64), p. 45.

²³⁶⁶ ARP-002-2017, (Exhibit MEX-84), p. 40; ARP-006-2016, (Exhibit MEX-85), p. 20.

²³⁶⁷ ARP-002-2017, (Exhibit MEX-84), p. 40; ARP-006-2016, (Exhibit MEX-85), p. 20.

7.1361. This factor is assigned a medium probability, which, according to Manual NR-ARP-PO-01_M-01, is given when one of the following factors is present: there is evidence that the pest is able to move quickly (i.e. by more than 10 km per year) from one place to another either of its own accord, naturally, or through human activity with commodities or conveyances.

7.1362. The Panel notes that Reports ARP-002-2017 and ARP-006-2016 do not elaborate on the assertion that fresh avocados will be distributed throughout the country for sale, nor do they provide supporting scientific evidence. In addition, no explanation is given for the decision to assign a medium probability to this element, or, in particular, for why the pest would be able to move quickly from one place to another.

7.1363. As for the fourth factor, i.e. the intended use of the commodity, Reports ARP-002-2017 and ARP-006-2016 indicate that the commodity is intended for consumption.²³⁶⁸ The factor is assigned a medium probability, which, according to Manual NR-ARP-PO-01_M-01, is given when the intended use of the commodity, once the pest is established, is consumption. As in the section on the probability of entry of ASBVd, the Panel notes that, despite the fact that, throughout the risk assessment, it is assumed that the seed of fruit for consumption will be diverted from its intended use, this element is automatically assigned a medium probability, in line with the manual, and no explanation is given regarding the diversion from intended use in relation to avocados.

7.1364. With regard to the fifth factor, i.e. potential vectors of the pest in the PRA area, Reports ARP-002-2017 and ARP-006-2016 indicate that the pest has no known vector.²³⁶⁹

7.1365. This factor is assigned a low probability, which, according to Manual NR-ARP-PO-01_M-01, is given when there are no vectors in the country but they are likely to be introduced easily.

7.1366. Manual NR-ARP-PO-01_M-01 contains no explanation of what is meant by the assertion that vectors are likely to be introduced easily. In Reports ARP-002-2017 and ARP-006-2016, no supporting scientific evidence is presented, nor is further explanation given as to whether a vector was considered to exist that is likely to be introduced. In this respect, it is worth noting the point made by the expert Robert Griffin that, in the case of vectors of ASBVd, there are none, so it is not low; it should be zero, so this element is irrelevant to ASBVd.²³⁷⁰

7.1367. As for the sixth factor, i.e. potential natural enemies of the pest in the PRA area, Reports ARP-002-2017 and ARP-006-2016 indicate that this pest has no natural enemies.²³⁷¹

7.1368. This factor is assigned a high probability, which, according to Manual NR-ARP-PO-01_M-01, is given when there are no potential natural enemies in the country and their introduction is unlikely.

7.1369. Report ARP-002-2017 cites Ploetz et al. (2011) to support the claim that ASBVd has no natural enemies, while Report ARP-006-2016 refers to Datasheet ARP-001-2014. The Panel finds no support for the assertion either in Ploetz et al. (2011) or in the datasheet for the reports. As in the case of vectors, the expert Robert Griffin notes, in relation to this factor, that there are no natural enemies, so there is nothing to observe, and the element is irrelevant to ASBVd.²³⁷² Costa Rica does not explain the inclusion of this factor either.

7.1370. While two factors that are irrelevant to ASBVd were included in Reports ARP-002-2017 and ARP-006-2016, no consideration at all is given to the rate of reproduction and spread of ASBVd. The Panel recalls that Mr Griffin expresses the view that the question of the rate of reproduction and spread of the pest is a critical factor for spread, and it is given practically no weight in the analysis of spread.²³⁷³

²³⁶⁸ ARP-002-2017, (Exhibit MEX-84), p. 40; ARP-006-2016, (Exhibit MEX-85), p. 21.

²³⁶⁹ ARP-002-2017, (Exhibit MEX-84), p. 40 (citing Ploetz et al. (2011), (Exhibit MEX-56)); ARP-006-2016, (Exhibit MEX-85), p. 21 (citing Ploetz et al. (2011), (Exhibit MEX-56)).

²³⁷⁰ Robert Griffin, transcript of the Panel's meeting with the parties and the experts, day 2, p. 24.

²³⁷¹ ARP-002-2017, (Exhibit MEX-84), p. 40 (citing Ploetz et al. (2011), (Exhibit MEX-56)); ARP-006-2016, (Exhibit MEX-85), p. 21.

²³⁷² Robert Griffin, transcript of the Panel's meeting with the parties and the experts, day 2, p. 24.

²³⁷³ Robert Griffin, transcript of the Panel's meeting with the parties and the experts, day 2, p. 24.

7.1371. The Panel also recalls Mr Griffin's comments that a key point is that an infected seed is not common, and if one is planted or grows volunteer, it results in one infected plant and not an outbreak; and that the spread is relatively slow, containment is easy once detected, and the impacts are very limited.²³⁷⁴ The expert Pablo Cortese states that introduction is not the same as an epidemic.²³⁷⁵ The expert Fernando Pliego Alfaro expresses the view that ASBVd is not a pest that spreads because it has been in a country for a long time. Mr Pliego Alfaro considers that once farmers see a tree displaying symptoms, they uproot it.²³⁷⁶ Mr Pliego Alfaro adds that someone who bought avocados and planted them in his or her garden could obtain a plant, but if this plant were contaminated, the tree would be isolated and the chances of transmitting the disease would be low.²³⁷⁷

7.1372. In the Panel's view, in Reports ARP-002-2017 and ARP-006-2016, no attention at all is paid to the rate of reproduction and spread of the pest. This is important, bearing in mind the points made by the experts that ASBVd spreads relatively slowly and does not spread because it has been in a country for a long time, since infected trees are isolated or uprooted.

7.1373. The Panel considers that the calculation of the probability of spread of ASBVd in Costa Rica was affected by the failure to consider the rate of reproduction and spread of ASBVd. This flaw results in an overestimation of the probability of spread of ASBVd in Costa Rica. Moreover, as mentioned in section 7.4.5.3.4.2 above, the failure to pay attention to these key factors for ASBVd renders the risk assessment inadequate for the viroid.

7.1374. The Panel further notes that, during the proceedings, Costa Rica asserts that, once it has been introduced into a territory, ASBVd spreads very easily, which is why it found that there was a high probability of ASBVd spreading if the pest were to be introduced into its territory.²³⁷⁸ This is neither explained nor substantiated in the reports, and seems to contradict what the experts say.

7.1375. With regard to Mexico's argument that Costa Rica should have obtained reliable biological information from areas where ASBVd currently occurs and then carefully compared the situation in the PRA area with these areas and used expert judgement to assess the probability of spread, this Panel is of the view that Mexico merely states that the studies by De la Torre et al. (2009) and Vallejo Pérez et al. (2017) are not representative or relevant for describing the status of ASBVd and its disease in Mexico or even in the places where they were conducted. However, as mentioned in relation to the factor on the prevalence of the pest in the source area, in the section on the probability of entry of ASBVd, Mexico does not refer to other studies that contain the detailed information that Mexico considers should have been obtained, nor does it appear that Mexico would have helped Costa Rica to gather more information in this regard. In addition, Mexico itself notes that no official or other study has been conducted in the country to determine the prevalence of ASBVd and its disease throughout Mexican territory, and that only isolated studies are available that cannot be representative.²³⁷⁹

7.1376. Moreover, the Panel observes that the only source used in the section of Report ARP-002-2017 on the probability of spread is Ploetz et al. (2011), and there is no mention of the studies by De la Torre et al. (2009) and Vallejo Pérez et al. (2017).

7.1377. With respect to the parties' arguments regarding the probability of spread related to diversion from intended use and spontaneous germination, the Panel refers to its conclusions in section 7.4.5.3.3 above.

²³⁷⁴ Robert Griffin's response to Panel question No. 113 for the experts.

²³⁷⁵ Pablo Cortese, transcript of the Panel's meeting with the parties and the experts, day 2, pp. 25 and 29-30.

²³⁷⁶ Fernando Pliego Alfaro, transcript of the Panel's meeting with the parties and the experts, day 2, pp. 32-33.

²³⁷⁷ Fernando Pliego Alfaro, transcript of the Panel's meeting with the parties and the experts, day 4, p. 2.

²³⁷⁸ Costa Rica's second written submission, para. 3.42.

²³⁷⁹ Mexico's first written submission, para. 57.

Conclusion on the likelihood of spread

7.1378. Having analysed the various factors and elements considered in Reports ARP-002-2017 and ARP-006-2016 to determine the likelihood of the spread of ASBVd in Costa Rica, the Panel concludes that there are the following flaws:

- a. Regarding the scientific basis:
 - i. there are assertions that do not find support in the scientific evidence;
 - ii. there is an assertion that refers to a source, but that source does not support that assertion; and
 - iii. there is insufficient scientific evidence concerning diversion from intended use and spontaneous germination.
- b. Regarding the risk assessor's reasoning:
 - i. no explanations are given for assertions made at different points in the analysis and how they relate to the conclusions for each probability; and
 - ii. no explanations are given for how some of the conclusions at different points of the analysis correspond to the criteria in Manual NR-ARP-PO-01_M-01, the methodology of which is used.

7.1379. In addition, when assessing the probability of spread of ASBVd in Costa Rica, the risk assessor includes factors that are irrelevant to ASBVd, yet pays no attention to the rate of reproduction and spread of the pest, which is a critical factor for the spread of ASBVd. Both flaws affect the evaluation of the likelihood of ASBVd spreading in the territory of Costa Rica.

7.1380. The Panel considers that the result of assigning risk values, whether high, medium, or low, with their respective numerical values (3, 2, or 1), to the various factors, on several occasions without the necessary scientific basis, without sufficient reasoned explanations by the risk assessor, and without paying any attention to the rate of reproduction and spread of ASBVd, cannot be considered an objectively justifiable qualitative assessment of the likelihood of spread of ASBVd in Costa Rica's territory.

7.4.5.3.5 Evaluation of the associated potential biological and economic consequences

7.1381. **Mexico** submits that Costa Rica should have evaluated the potential for the occurrence of the economic and biological consequences associated with the entry, establishment and spread of ASBVd and its disease through the pathway of fresh avocados imported for consumption from Mexico.²³⁸⁰

7.1382. In Mexico's view, Costa Rica ignored the criteria set out in Manual NR-ARP-PO-01_M-01 and section 2.3 of ISPM No. 11, as it failed to assess the potential economic consequences based on quantitative data that would provide monetary values. Mexico contends that Costa Rica merely speculated and made unsubstantiated assertions with regard to the potential economic consequences of the entry, establishment and spread of ASBVd and its disease, and simply transcribed the risk factors included in the manual, without providing quantitative data or other statistical or scientific evidence to corroborate its assertions.²³⁸¹

7.1383. Mexico maintains that Costa Rica failed to justify the effects listed in the PRAs with scientific evidence demonstrating that these consequences were potentially associated with the entry, establishment and spread of ASBVd by means of the importation into Costa Rica of fresh avocados

²³⁸⁰ Mexico's first written submission, para. 360.

²³⁸¹ Mexico's first written submission, paras. 361-362.

for consumption from Mexico.²³⁸² Mexico argues that the assertions in the PRAs, which in Costa Rica's view denote a high risk, are erroneous and without foundation:

- a. With respect to crop losses, in yield and quality, Mexico submits that Vallejo Pérez *et al.* (2007) is not a representative study; that the estimates of economic losses cannot be reconciled with the fact that Mexico is the world's leading exporter; that the yield per hectare is rising year on year; that ASBVd is not a significant pest for local producers; that ASBVd and its disease affect the yield of an infected tree, but this does not mean that the entire orchard or plantation will be infected; and that ASBVd is not considered a quarantine pest of economic importance by the world's largest avocado producers and exporters;
- b. As for the effects on export market access, in Mexico's view, the presence of ASBVd and its disease has had no effects on export market access because the world's leading importers do not regulate ASBVd as a quarantine pest in fresh fruit for consumption;
- c. Concerning changes to producer costs or input demands, including control costs, Mexico contends that this factor has no real impact either, since in practice, ASBVd is detected through daily checks in commercial orchards, and it is sufficient to remove the diseased tree, without it being necessary to purchase chemical materials or specialized tools for its disposal;
- d. With regard to changes to domestic or foreign consumer demand for a product resulting from quality changes, according to Mexico, Costa Rica should have considered that, owing to the quality standards of the avocado industry in Mexico, the probability of exporting an avocado with symptoms is minimal, and the symptomless variant has no effect on the fruit's intrinsic qualities (quantity of oil, taste or smell of the product) and will therefore have no impact on domestic or foreign demand for the product;
- e. Regarding the feasibility and cost of eradication or containment, Mexico argues that, in practice, the effects are limited to the elimination of the infected tree, and the costs of the control and eradication of other avocado diseases are greater than for ASBVd.²³⁸³

7.1384. Mexico adds that it cannot be said that all pests are of economic importance, since several factors determine the behaviour of a pest or disease, and in the case of ASBVd, it is not possible to establish its potential economic impact without first conducting epidemiological studies.²³⁸⁴ Mexico submits that real-world experience demonstrates that ASBVd has no serious economic consequences related to avocado crop losses, in yield and quality, and that the quality, safety and traceability of the entire chain involved in the trade in fresh avocado fruit as a whole lessen the actual impact that ASBVd may have.²³⁸⁵ Mexico adds that, while there is scientific literature referring to possible losses associated with ASBVd, these conclusions cannot be extrapolated without further analysis in the manner that Costa Rica did.²³⁸⁶

7.1385. Mexico maintains that its avocado industry is exemplary, since, if a pest whose characteristics affected the yield or quality of avocado fruit were found, the Mexican Government would take action to prevent damage to the finances and assets of producers; and that this also occurs in the United States and Peru.²³⁸⁷ Mexico also adds, with respect to the effects on market access, that it is the largest international market supplier.²³⁸⁸ Mexico further notes that the confirmed presence of ASBVd in a municipality of Michoacán in 2009 has had no impact on the yield.²³⁸⁹

²³⁸² Mexico's first written submission, para. 365.

²³⁸³ Mexico's first written submission, para. 363 (referring to Vallejo Pérez *et al.* (2017), (Exhibit MEX-47)).

²³⁸⁴ Mexico's second written submission, para. 159 (citing Affidavit of Salvador Ochoa Ascencio (2020), (Exhibit MEX-222)).

²³⁸⁵ Mexico's second written submission, para. 160.

²³⁸⁶ Mexico's second written submission, para. 161 (citing Vallejo Pérez *et al.* (2017), (Exhibit MEX-47); and Saucedo Carabez *et al.* (2014), (Exhibit MEX-45)).

²³⁸⁷ Mexico's second written submission, paras. 162-163.

²³⁸⁸ Mexico's second written submission, para. 164.

²³⁸⁹ Mexico's second written submission, paras. 165-167.

7.1386. Regarding the evaluation of the possibility of biological consequences, Mexico asserts that the PRAs contain no reference to scientific studies or documentary evidence to corroborate the claims made therein, and merely make the following conjectures that are not supported by scientific evidence of a link between the biological consequences listed and the importation of fresh avocados for consumption from Mexico:

- a. With regard to the negative effect of the introduction of the pest on native avocado germplasm and therefore the detriment of biodiversity, in Mexico's view, this is irrelevant because ASBVd is transmitted only to the Hass variety, and Costa Rica does not have domestic measures to enhance the native variety, nor does it regulate nurseries and orchards to ensure that certified propagation material is used. Mexico adds that, in the opinion of Dr Salvador Ochoa, in the hypothetical case that ASBVd were introduced in a given territory in which native varieties of avocados were located, these native varieties could not be affected by the mere introduction of ASBVd because the main transmission pathway is through agricultural practices and not through a natural process associated with the biology of ASBVd²³⁹⁰;
- b. Concerning the uncertainty as to whether ASBVd can infect other species of plants of the genus *Persea*, Mexico states that the only host of the disease is the subgenus *Persea americana* Mill.²³⁹¹, and that Costa Rica failed to substantiate its claim that there is uncertainty as to whether the viroid can infect other plant species, a scenario not backed up by the evidence.²³⁹²

7.1387. Mexico concludes that, since the potential economic and biological consequences associated with the entry, establishment and spread of ASBVd through the pathway of fresh avocados imported for consumption from Mexico are not supported by scientific evidence, Costa Rica failed to conduct a coherent and objective risk assessment. Thus, the PRAs do not satisfy the second requirement of paragraph 4 of Annex A to the SPS Agreement.²³⁹³

7.1388. **Costa Rica** contends that it correctly evaluated the potential economic and biological consequences associated with the entry, establishment and spread of ASBVd²³⁹⁴, and that Mexico has failed to demonstrate otherwise.²³⁹⁵ Costa Rica submits that Mexico does not argue that the scientific evidence related to the economic significance is unreliable or lacks the rigour required to be taken into account.²³⁹⁶

7.1389. Costa Rica asserts that it took into account the potential damage in terms of loss of production or sales and the costs of control or eradication of the pest in its territory, both of which are factors listed in Article 5.3 of the SPS Agreement. Costa Rica argues that the scientific literature attests to the enormous potential economic impact of ASBVd, which results in losses in yield and quality, and notes that: (i) Semancik (2003) states that an estimated yield reduction of about 30% was noted for the Fuerte cultivar with sunblotch, and that, in the case of trees acting as symptomless carriers of ASBVd, a dramatic reduction (95%) in yield can occur in the Caliente and Reed varieties; (ii) Ploetz et al. (2011) conclude that all infected trees, symptomless or not, usually have greatly reduced yields; (iii) the fresh fruit PRA (2015) recognizes ASBVd as a pest of high economic importance; and (iv) Vallejo Pérez et al. (2017) estimated economic losses of up to USD 6,650 per hectare per year and crop losses of up to 1,710 kg per hectare.²³⁹⁷

7.1390. Costa Rica also states that other potential import markets could impose restrictions on the entry of Costa Rican avocados if ASBVd were to enter Costa Rica, and that the changes to demand

²³⁹⁰ Mexico's first written submission, para. 367; second written submission, para. 168.

²³⁹¹ Mexico's first written submission, paras. 367–369.

²³⁹² Mexico's second written submission, para. 168.

²³⁹³ Mexico's first written submission, para. 370.

²³⁹⁴ Costa Rica's first written submission, p. 60.

²³⁹⁵ Costa Rica's second written submission, para. 3.48.

²³⁹⁶ Costa Rica's first written submission, paras. 5.140-5.141.

²³⁹⁷ Costa Rica's first written submission, para. 5.142 (citing Semancik (2003), (Exhibit MEX-46), p. 171; Ploetz et al. (2011), (Exhibit MEX-56), p. 5; Picado Salmerón, Fresh fruit PRA (2015), (Exhibit MEX-61); and Ncango et al. (2014), (Exhibit CRI-8), p. 69); second written submission, para. 3.51 (citing Semancik (2003), (Exhibit MEX-46), p. 171; Ploetz et al. (2011), (Exhibit MEX-56), p. 5; Picado Salmerón, Fresh fruit PRA (2015), (Exhibit MEX-61); and Vallejo Pérez et al. (2017), (Exhibit MEX-47)).

for the product that could result from ASBVd becoming established in Costa Rica are obvious in light of the symptoms that it produces.²³⁹⁸

7.1391. Costa Rica maintains that the scientific literature attests to the high costs of control and eradication of the pest, and agrees that the main problems associated with the disease are the handling costs. In Costa Rica's view, since there is no cure for the disease, the only solution is to remove all infected trees that display symptoms and conduct tests to detect symptomless infected trees in order to destroy them as well. Costa Rica submits that it therefore found the potential for biological consequences and the serious economic impact that would result from the introduction of ASBVd.²³⁹⁹

7.1392. Regarding the potential biological consequences, Costa Rica contends that it took into account the fact that the avocado (*Persea americana* Mill.) is the only host of ASBVd in the natural environment, which reduces the probability of biological consequences stemming from the infection of other plant species, but found that the introduction of the pest would have a negative impact on native avocado germplasm and would therefore be detrimental to biodiversity. Costa Rica adds that there is uncertainty regarding the potential for ASBVd to infect other plant species of the genus *Persea*, that, in any event, the introduction of the pest would have a negative impact on avocado germplasm, and that Mexico's assertion that ASBVd is transmitted only to the Hass variety contradicts the scientific literature, which mentions, for example, the Caliente and Reed varieties.²⁴⁰⁰

7.1393. Costa Rica concludes that it found potential economic and biological consequences flowing from the entry, establishment and spread of ASBVd, and that Mexico has failed to demonstrate that Costa Rica's conclusions regarding the medium probability of such an impact cannot be objectively justified on the basis of available scientific evidence.²⁴⁰¹

7.1394. The **Panel** recalls that, in paragraph 4 of Annex A, the first type of risk assessment is defined as the evaluation of the likelihood of entry, establishment or spread of a pest or disease within the territory of an importing Member according to the sanitary or phytosanitary measures which might be applied, and of the associated potential biological and economic consequences.

7.1395. In Report ARP-002-2017, the section on potential economic consequences includes a list of pest effects.

7.1396. Report ARP-002-2017 states that the pest is significant, bearing in mind that it will have effects such as:

- a. Crop losses, in yield and quality;
- b. Effects on export market access;
- c. Changes to producer costs or input demands, including control costs;
- d. Changes to domestic or foreign consumer demand for a product resulting from quality changes;
- e. Feasibility and cost of eradication or containment;

²³⁹⁸ Costa Rica's first written submission, para. 5.143 (citing EPPO Global Database, World distribution (2019), (Exhibit MEX-48); Ochoa Ascencio (2013), (Exhibit CRI-11); Geering (2018), (Exhibit MEX-43); Everett and Siebert (2018), (Exhibit CRI-27); and Saucedo Carabez et al. (2014), (Exhibit MEX-45)).

²³⁹⁹ Costa Rica's first written submission, para. 5.143 (citing EPPO Global Database, World distribution (2019), (Exhibit MEX-48); Ochoa Ascencio (2013), (Exhibit CRI-11); Geering (2018), (Exhibit MEX-43); Everett and Siebert (2018), (Exhibit CRI-27); and Saucedo Carabez et al. (2014), (Exhibit MEX-45)); second written submission, para. 3.51 (citing Saucedo Carabez et al. (2014), (Exhibit MEX-45); Hadidi et al. (2003), (Exhibit CRI-121); Picado Salmerón, Fresh fruit PRA (2015), (Exhibit MEX-61); Coit (1928), (Exhibit CRI-9); and I.E. Suarez, R.A. Schnell, D.N. Kuhn and R.E. Lits, "Micrografting of ASBVd-infected Avocado (*Persea americana*) plants", *Plant Cell Tissue and Organ Culture*, Vol. 80 (2005) (Suarez et al. (2005)), (Exhibit CRI-136)).

²⁴⁰⁰ Costa Rica's first written submission, para. 5.144 (citing Semancik (2003), (Exhibit MEX-46), p. 171); second written submission, para. 3.49.

²⁴⁰¹ Costa Rica's first written submission, para. 5.145.

- f. Resources needed for additional research and advice²⁴⁰²;
- g. Vallejo Pérez et al. (2017) estimate that the pest could cause economic losses of USD 6,650 per hectare per year²⁴⁰³;
- h. Vallejo Pérez et al. (2017) estimate that the crop yield could fall by between 730 kg/ha and 1,710 kg/ha (from an average yield of 9,850 kg/ha in Mexico).²⁴⁰⁴

7.1397. Report ARP-006-2016 also states that the pest is significant, bearing in mind that it will have effects such as those listed in subparagraphs (a) to (f) of the preceding paragraph.²⁴⁰⁵ The content of subparagraphs (g) and (h) of the preceding paragraph, which refer to Vallejo Pérez et al. (2017), is not included in Report ARP-006-2016. It is not clear why, in Report ARP-006-2016 concerning fresh avocados for consumption from several countries with ASBVd, the data from Vallejo Pérez et al. (2017), used in Report ARP-002-2017, are not used in the section on the assessment of the potential economic consequences of the entry, establishment and spread of ASBVd in Costa Rica.

7.1398. The only statements for which evidence is cited, and which are quantitative in nature, are that the pest may cause economic losses of USD 6,650 per hectare per year and that the crop yield would fall by between 730 kg/ha and 1,710 kg/ha (from an average yield of 9,850 kg/ha in Mexico). The other factors are mentioned but not explained or supported by evidence.

7.1399. Vallejo Pérez et al. (2017) note that the study found that, in Michoacán, there was a 14% incidence of ASBVd and that this could increase to approximately 25–30% over a 10-year period, causing losses of 730–1,710 kg/ha (from an average national yield of 9,850 kg/ha) in orchards at full production, equal to losses of USD 2,800 to USD 6,650 per hectare per year.²⁴⁰⁶ The Panel notes that the data used by Costa Rica coincide with the statements made by Vallejo Pérez et al. (2017), but Costa Rica has mentioned only the highest figure in the range of potential economic losses in USD, and that these are estimates based on a study of a municipality in Michoacán, Mexico, and predicated on an increase in the incidence of ASBVd to up to 25–30% over a 10-year period.

7.1400. Reports ARP-002-2017 and ARP-006-2016 also state that, in countries where ASBVd is present, reported average crop losses have been 30%; on average, 80% of fruits are rejected at the packing stage; and there has been a significant reduction in the yield of symptomless infected trees.²⁴⁰⁷

7.1401. To support these assertions, Reports ARP-002-2017 and ARP-006-2016 refer to Datasheet ARP-001-2014. Support is not found in the datasheet for the claim that, on average, 80% of fruits are rejected at the packing stage.

7.1402. It is noted in the datasheet that Saucedo Carabez *et al.* indicate that there was a significant reduction in the yield of symptomatic sunblotch-infected trees²⁴⁰⁸; that the yield of asymptomatic Hass trees was reduced by 15–30%; and that the yield of symptomatic trees can fall by as much as 75%.²⁴⁰⁹ The Panel observes that, according to the datasheet, the yield of both symptomatic and asymptomatic trees is reduced, but the figure is higher for symptomatic trees. According to the source cited, namely Saucedo Carabez et al. (2014), in the study that was carried out, the reduction among the symptomatic Hass trees was 76% in the first year and 67% in the second year. For the asymptomatic Hass trees, the figures were 15% and 30%.²⁴¹⁰ The data in the factsheet are therefore supported by the source cited, but in the risk assessment, the highest figures reported in the aforementioned study are presented as an average, and an assertion is made that could give the impression that the reduction in yield is greater for asymptomatic trees than for symptomatic trees.

²⁴⁰² ARP-002-2017, (Exhibit MEX-84), pp. 40-41.

²⁴⁰³ ARP-002-2017, (Exhibit MEX-84), p. 41 (citing Vallejo Pérez et al. (2017), (Exhibit MEX-47)).

²⁴⁰⁴ ARP-002-2017, (Exhibit MEX-84), p. 41 (citing Vallejo Pérez et al. (2017), (Exhibit MEX-47)).

²⁴⁰⁵ ARP-006-2016, (Exhibit MEX-85), pp. 21-22.

²⁴⁰⁶ Vallejo Pérez *et al.* (2017), (Exhibit MEX-47), p. 124.

²⁴⁰⁷ ARP-002-2017, (Exhibit MEX-84), p. 41; ARP-006-2016, (Exhibit MEX-85), pp. 21-22.

²⁴⁰⁸ ARP-002-2017, (Exhibit MEX-84), p. 63 (citing Saucedo Carabez *et al.* (2014), (Exhibit MEX-45)); ARP-006-2016, (Exhibit MEX-85), p. 47 (citing Saucedo Carabez *et al.* (2014), (Exhibit MEX-45)).

²⁴⁰⁹ ARP-002-2017, (Exhibit MEX-84), p. 63; ARP-006-2016, (Exhibit MEX-85), p. 47.

²⁴¹⁰ Saucedo Carabez *et al.* (2014), (Exhibit MEX-45), p. 5.

7.1403. Moreover, the figures given in the section of the reports on potential economic consequences are extrapolated to the case of Costa Rica. It is not explained how these figures are applicable to Costa Rica's circumstances, including its environmental, production, and control conditions.

7.1404. The Panel also observes that, during the proceedings, Costa Rica has referred to other sources, including Semancik (2003) and Ploetz et al. (2011), to support its assertion about the economic impact of ASBVd, but these sources are not included in the reports.

7.1405. Regarding the biological consequences, Reports ARP-002-2017 and ARP-006-2016 indicate that:

- a. The introduction of ASBVd would have a negative effect on native avocado germplasm and would therefore be detrimental to biodiversity;
- b. There is uncertainty about the potential for this viroid to infect other plant species of the genus *Persea*, such as the aguacatillo (*Persea caerulea*), a tree on which quetzal birds feed, creating potential biodiversity consequences. Report ARP-002-2017 adds that, while ASBVd has been transmitted to *Persea schiedeana* only as part of scientific studies, the possibility cannot be ruled out that, in response to higher inoculum pressure, it could be transmitted to other species of the genus *Persea* and even native *Lauraceae* species.²⁴¹¹

7.1406. The Panel notes that none of the above statements on the associated biological consequences is supported by evidence.

7.1407. In view of the foregoing, as far as the potential economic consequences are concerned, the Panel finds that Reports ARP-002-2017 and ARP-006-2016 refer to effects for which no explanation or justification can be found. In addition, there are statements that refer to two sources and contain quantitative data, but these data are extrapolated to the case of Costa Rica with no explanation of how they are applicable to Costa Rica's circumstances. As to the potential biological consequences, the statements in Reports ARP-002-2017 and ARP-006-2016 are not substantiated.

7.1408. The Panel observes that, in the case of the associated biological and economic consequences, the relevant definition of "risk assessment" in Annex A to the SPS Agreement refers to an evaluation of the potential consequences.²⁴¹² While it is an evaluation of the *potential consequences*, there still needs to be an *evaluation*, which is missing from Reports ARP-002-2017 and ARP-006-2016.

7.1409. The Panel therefore considers that Costa Rica has not conducted an evaluation of the associated potential biological and economic consequences, and this constitutes a flaw in the risk assessment in Reports ARP-002-2017 and ARP-006-2016.

7.4.5.3.6 Other general arguments concerning the evaluation of the likelihood of entry, establishment and spread in Reports ARP-002-2017 and ARP-006-2016

7.1410. In this section, the **Panel** will address Mexico's general arguments concerning the evaluation of the likelihood of entry, establishment and spread in Reports ARP-002-2017 and ARP-006-2016, which relate to scientific evidence, and a general argument concerning uncertainty, which also relates to the evaluation of these three probabilities in the reports.

7.1411. As to the general arguments concerning scientific evidence, **Mexico** submits that Costa Rica should have based its PRAs on sufficient scientific evidence related specifically to the

²⁴¹¹ ARP-002-2017, (Exhibit MEX-84), p. 41; ARP-006-2016, (Exhibit MEX-85), p. 22.

²⁴¹² With regard to the evaluation of the economic and biological consequences, the Panel notes that, while the definition of "risk assessment" relevant to this dispute in paragraph 4 of Annex A to the SPS Agreement requires an evaluation of the associated potential biological and economic consequences, ISPM No. 5 defines "pest risk assessment (for quarantine pests)" as "[e]valuation of the probability of the introduction and spread of a pest and the magnitude of the associated potential economic consequences", and ISPM No. 11 states that a risk assessment includes "an evaluation of the probability of pest entry, establishment, and spread, and of their potential economic consequences". (ISPM No. 5, (Exhibit MEX-74), p. 14; and ISPM No. 11, (Exhibit MEX-77), p. 6).

entry, establishment and spread of ASBVd through the importation of fresh avocados for consumption from Mexico²⁴¹³, and that it should have based its probability assessment on scientific evidence demonstrating that the importation of fresh avocados for consumption from Mexico is a pathway for the entry, establishment and spread of ASBVd and its disease in the territory of Costa Rica.²⁴¹⁴ Mexico asserts that Costa Rica failed to assess, using specific scientific evidence, the probability of entry, establishment and spread of ASBVd through the pathway of fresh avocados imported for consumption from Mexico or another country where ASBVd is present.²⁴¹⁵

7.1412. Mexico contends that the risk assessment analysis should have determined the probability that ASBVd would be introduced, established and spread specifically through fresh avocados imported for human consumption²⁴¹⁶, but that Costa Rica's PRA fails to evaluate the introduction of ASBVd through fresh avocados for human consumption, instead it focuses more generally on introduction allegedly through the diversion from intended use of discarded pits.²⁴¹⁷

7.1413. For Mexico, to meet the specificity requirement in the risk assessment, it is not sufficient to take into account scientific literature that addresses the disease or pest in a general manner. Rather, there needs to be scientific evidence that specifically focuses on the disease, pathway, host, or vector that is being evaluated.²⁴¹⁸

7.1414. In its arguments under Article 5.2 of the SPS Agreement concerning available scientific evidence, Mexico notes that the conclusions of the PRAs are not based on relevant scientific evidence, since: (i) there is no scientific evidence in the PRAs to support the claim in the risk assessment that there is a high probability of entry, establishment and spread of ASBVd through the pathway of fresh avocados imported for consumption from Mexico, and some of the bibliographic sources are studies and general opinions on ASBVd that are not specific to the risk scenario and pathway of entry, establishment and spread considered by Costa Rica; (ii) the PRAs rely on isolated evidence that has no scientific or statistical basis and was developed without consideration for scientific criteria and methodologies; and (iii) the PRAs did not involve tests, experiments, surveys, or any other tool that would enable the collection of scientific and statistical data to help to substantiate the conclusions that they contain.²⁴¹⁹

7.1415. Mexico asserts that the bibliographic sources cited in the PRAs constitute scientific evidence containing conclusions that are erroneous and out of context. Mexico transcribes in a table some of the statements made in the PRAs that, in its view, cannot be considered as scientific evidence that has been applied to the specific hypothesis put forward by Costa Rica, since there are translation errors and the statements are *petitiones principii* with no scientific basis.²⁴²⁰

7.1416. In addition, according to Mexico, Costa Rica should have demonstrated the applicability of the bibliography to the case in question and, where the lack of specificity of the former did not help in reaching a particular conclusion, it should have carried out quantitative or qualitative analysis to support its conclusions, and made sure to review all existing scientific evidence up to 2017.²⁴²¹ Mexico asserts that Costa Rica did not use a scientific basis specifically related to the pathway of fresh avocados imported for consumption.²⁴²²

7.1417. Mexico adds that, throughout the risk analysis, Costa Rica makes assertions and cites evidence that have no scientific basis and are not supported by clear statistical sources.²⁴²³ Mexico notes that reference is made to CONSULSANTOS (2010) and CONSULSANTOS (2017), which it questions because: the name of the person who gave the expert testimony is omitted from the bibliography, casting doubt on the statement's credibility; the census report contains references to

²⁴¹³ Mexico's first written submission, para. 278.

²⁴¹⁴ Mexico's first written submission, para. 279.

²⁴¹⁵ Mexico's second written submission, para. 114.

²⁴¹⁶ Mexico's opening statement at the first meeting of the Panel, para. 30.

²⁴¹⁷ Mexico's opening statement at the first meeting of the Panel, para. 34.

²⁴¹⁸ Mexico's second written submission, para. 117.

²⁴¹⁹ Mexico's first written submission, para. 432.

²⁴²⁰ Mexico's first written submission, paras. 433-434; second written submission, para. 192.

²⁴²¹ Mexico's first written submission, para. 438.

²⁴²² Mexico's second written submission, para. 189.

²⁴²³ Mexico's first written submission, para. 436.

a person, with no additional information provided to corroborate the information²⁴²⁴; and these are documents prepared by a commercial legal entity not engaged in research activity.²⁴²⁵ Mexico states that the references based on documents CONSULSANTOS (2010) and CONSULSANTOS (2017) are therefore not objective or scientific.²⁴²⁶

7.1418. Mexico adds that it is not sufficient to cite scientific literature; it must be demonstrated and explained, in an objective and coherent manner, why the literature is applicable and specific to the case in question. Mexico presents a comparative table displaying the literature cited by Costa Rica in its response to Panel question No. 19.^{2427, 2428}

7.1419. Mexico submits that Costa Rica took some of the scientific testimonies cited, including those of Drs Salvador Ochoa Ascencio, Daniel Téliz, and Rodolfo de la Torre, out of context and adapted them so that they corroborated its assumptions.²⁴²⁹

7.1420. Mexico also contends that Costa Rica failed to consider other scientific evidence that should have been used when evaluating the likelihood of entry of ASBVd into the territory of Costa Rica, as there were available studies related to the risk of entry, establishment and spread of ASBVd through the pathway of fresh avocados imported for consumption.²⁴³⁰ In Mexico's view, the Panel should assess the "Evaluation of the risk posed by fresh avocado fruit from Mexico and destined for Costa Rica as a pathway for the entry of sunblotch viroid" (Fresh fruit PRA), which determines, based on an arithmetic formula, that the probability of transmission through the pathway of fresh avocados imported for consumption from Mexico is minimal, therefore the resulting risk is negligible.²⁴³¹ Mexico asserts that the PRAs do not contain any reasoning stemming from a statistical analysis and based on a scientific methodology. According to Mexico, Costa Rica analysed the scientific evidence incorrectly and failed to carry out an objective, scientific, and specific evaluation of the probability of entry of ASBVd, since Mexico considers the high probability value to be arbitrary, and that a proper evaluation would conclude that the risk is negligible.²⁴³²

7.1421. Mexico adds that the fresh fruit PRA sets out the factors that should have been considered by the Costa Rican phytosanitary authority and makes it clear that: (i) fresh Hass avocado fruit do not possess the characteristics to be used as a rootstock; (ii) the Hass avocado pit is very unlikely to germinate successfully, since removing it from the fruit exposes it to drying and rotting, and it comes from a fruit that did not fully ripen on the tree; (iii) a seedling from a germinated avocado pit will not be very hardy, will take 12 years to produce its first flowers and 15 years to bear its first fruits; (iv) pollen is not a vector for the transmission of the viroid; and (v) the transmission of the disease is contingent on ASBVd being present in the embryo of a viable seed.²⁴³³ According to Mexico, the fresh fruit PRA should be taken into consideration to the extent that it elaborates on the majority of the concerns that Costa Rica covers in its PRAs, mainly with respect to diversion from intended use. The fact that it does not address the risks arising from waste does not invalidate the rest of the evaluation.²⁴³⁴

²⁴²⁴ Mexico's first written submission, para. 436 (referring to CONSULSANTOS (2010), (Exhibit MEX-119); and CONSULSANTOS (2017), (Exhibit MEX-118)).

²⁴²⁵ Mexico's first written submission, para. 437.

²⁴²⁶ Mexico's first written submission, para. 437 (referring to CONSULSANTOS (2010), (Exhibit MEX-119); and CONSULSANTOS (2017), (Exhibit MEX-118)); second written submission, para. 192 (referring to CONSULSANTOS (2010), (Exhibit MEX-119); and CONSULSANTOS (2017), (Exhibit MEX-118)).

²⁴²⁷ Mexico's second written submission, para. 191 (citing Mexico, List of scientific evidence used in Costa Rica's PRAs, (Exhibit MEX-233)).

²⁴²⁸ In its question No. 19, the Panel asked Costa Rica to submit all the documents mentioned in the bibliography of Report ARP-002-2017 and its datasheet, which had not yet been submitted as exhibits.

²⁴²⁹ Mexico's second written submission, paras. 194-197 (citing Affidavit of Salvador Ochoa Ascencio (2020), (Exhibit MEX-222); Affidavit of Dr Daniel Téliz Ortiz (2019), (Exhibit MEX-187); and Affidavit of Rodolfo de la Torre Almaraz (2020), (Exhibit MEX-227)).

²⁴³⁰ Mexico's first written submission, p. 74; second written submission, para. 122.

²⁴³¹ Mexico's first written submission, paras. 310-311 (referring to Picado Salmerón, Fresh fruit PRA (2015), (Exhibit MEX-61)).

²⁴³² Mexico's first written submission, paras. 312-313.

²⁴³³ Mexico's second written submission, para. 122.

²⁴³⁴ Mexico's second written submission, para. 123.

7.1422. **Costa Rica** indicates that it conducted its risk assessment on the basis of available scientific evidence concerning ASBVd.²⁴³⁵ For Costa Rica, the only apparent aim of Mexico's table is to baselessly discredit the scientific literature underpinning Costa Rica's PRAs.²⁴³⁶

7.1423. Regarding the fresh fruit PRA (2015), Costa Rica argues that it is a risk assessment by Mexico for Costa Rica, therefore it is not a study in which the party that commissioned it had no commercial interest.²⁴³⁷ Costa Rica adds that the mathematical formula in the study merely reproduces, in the form of an equation, the elements of any risk assessment, and that there are no statistics, which shows that not everything can be evaluated using a purely statistical approach.²⁴³⁸ Costa Rica also adds that the study disregards essential elements that explain the risk in this case, such as the risks arising from waste, and acknowledges that a seed left in normal temperature and humidity conditions remains viable for several days after its removal from the fruit. Moreover, Costa Rica asserts that the study ignores the widespread agricultural practice in Costa Rica of grafting Hass onto Hass rootstocks.²⁴³⁹

7.1424. The **Panel** observes that Reports ARP-002-2017 and ARP-006-2016 contain a variety of sources, including scientific articles, databases, and agricultural censuses.

7.1425. The expert Robert Griffin considers that the sources of evidence used in Costa Rica's PRA are documented and that the evidence is clearly linked to the relevant aspects of the PRA. He is of the opinion that there is an ample bibliography for Costa Rica's PRA and that a lot of scientific information is provided.²⁴⁴⁰ The expert Fernando Pliego Alfaro also believes the sources to be adequate.²⁴⁴¹ The expert Ricardo Flores Pedauy  states that the bibliographic selection is correct and encompasses existing literature on ASBVd.²⁴⁴²

7.1426. The Panel considers that most of the scientific evidence in Reports ARP-002-2017 and ARP-006-2016 comes from respected sources, such as scientific articles published in scientific journals. Accordingly, most of the scientific evidence cited in these reports can in itself be considered legitimate. This is a separate issue from the way in which the scientific evidence was used by the risk assessor, or the lack of scientific evidence on some issues, which the Panel has already analysed.

7.1427. The Panel further notes that Mexico's table refers mainly to aspects related to the way in which the evidence was used, which has been considered in the Panel's analysis of the evaluation of the likelihood of entry, establishment and spread of ASBVd in Reports ARP-002-2017 and ARP-006-2016.²⁴⁴³

7.1428. The only one of Mexico's arguments that does relate to the legitimacy of the scientific evidence is that the references based on documents CONSULSANTOS (2010) and CONSULSANTOS (2017) are neither objective nor scientific.²⁴⁴⁴ In its table, Mexico states that CONSULSANTOS constitutes evidence, but not scientific evidence.²⁴⁴⁵ The Panel has already addressed this particular evidence in section 7.4.5.3.3 above.

7.1429. The bibliographies of Reports ARP-002-2017 and ARP-006-2016 appear to include scientific sources that are sufficiently specific to avocados and ASBVd. In this particular case, the Panel does not see the need for the scientific evidence to be as specific as Mexico appears to suggest in stating that Costa Rica should have based its PRAs on sufficient scientific evidence related specifically to the

²⁴³⁵ Costa Rica's first written submission, para. 5.152.

²⁴³⁶ Costa Rica's first written submission, para. 5.180.

²⁴³⁷ Costa Rica's first written submission, para. 5.123 (referring to Picado Salmer n, Fresh fruit PRA (2015), (Exhibit MEX-61)).

²⁴³⁸ Costa Rica's first written submission, para. 5.124.

²⁴³⁹ Costa Rica's first written submission, para. 5.125.

²⁴⁴⁰ Robert Griffin's response to Panel question No. 153 for the experts; Robert Griffin, transcript of the Panel's meeting with the parties and the experts, day 2, pp. 9-10.

²⁴⁴¹ Fernando Pliego Alfaro's response to Panel question No. 91(a) and (b) for the experts.

²⁴⁴² Ricardo Flores Pedauy 's response to Panel question No. 91(a) and (b) for the experts.

²⁴⁴³ The Panel recalls that it has found, throughout the assessment of probabilities in Reports ARP-002-2017 and ARP-006-2016, assertions that do not find support in the scientific evidence and others that refer to a source, but that source does not support those assertions or does so only partially.

²⁴⁴⁴ Mexico's first written submission, para. 437.

²⁴⁴⁵ Mexico's first written submission, para. 434.

entry, establishment and spread of ASBVd through the importation of fresh avocados for consumption from Mexico.

7.1430. The Panel is of the view that the need for the evidence to be specific depends on the hypothesis to be demonstrated. The Panel would like to illustrate this point by noting the difference between the present case and previous ones that have addressed the issue of the specificity of the risk assessment.

7.1431. In *EC – Hormones*, the European Communities presented scientific studies and opinions indicating that the hormones at issue in that case had carcinogenic potential.²⁴⁴⁶ The Appellate Body found that the studies constituted general studies which showed the existence of a general risk of cancer, but did not focus on and did not address the particular kind of risk at stake, i.e. the carcinogenic or genotoxic potential of the residues of those hormones found in meat derived from cattle to which the hormones had been administered for growth promotion purposes, as is required by paragraph 4 of Annex A to the SPS Agreement.²⁴⁴⁷ The Appellate Body therefore concluded that the studies were relevant but were not sufficiently specific to the case at hand.^{2448, 2449}

7.1432. In *Japan – Apples*, the Panel found that, although Japan's PRA made determinations as to the entry, establishment and spread of the disease in question through a collection of various hosts (including apple fruit), it failed to evaluate the entry, establishment or spread of the disease through apple fruit as a separate and distinct vector.²⁴⁵⁰ In that dispute, the United States argued that Japan's PRA failed to focus specifically on the product at issue, namely fresh apple fruit. The panel observed that the PRA described the risk of entry or spread of the disease through various possible hosts (or different types of plants), including but not exclusively apple fruit, and that only one paragraph specifically addressed fresh fruit. The panel noted that the conclusion of the PRA did not purport to relate exclusively to the introduction of the disease through apple fruit, but rather more generally, apparently, through any susceptible host/vector, and that, in that case, the risk varied considerably according to the host plant.²⁴⁵¹ The Appellate Body considered that, given that the measure at issue related to the risk of transmission of the disease through apple fruit, in an evaluation of whether the risk assessment was sufficiently specific to the case at hand, the nature of the risk addressed by the measure at issue is a factor to be taken into account.²⁴⁵² The Appellate Body concluded that Japan's PRA evaluation of the risks associated with all possible hosts taken together was not sufficiently specific to qualify as a "risk assessment" under the SPS Agreement for the evaluation of the likelihood of entry, establishment or spread of the disease in question in Japan through apple fruit.²⁴⁵³

7.1433. The Panel notes that, in the present case, Reports ARP-002-2017 and ARP-006-2016 contain risk assessments for the specific pathway of fresh avocados for consumption, so the pathway can be considered sufficiently specific. The Panel also notes that the risk assessment in

²⁴⁴⁶ Appellate Body Report, *EC – Hormones*, para. 199. See also Appellate Body Reports, *US/Canada – Continued Suspension*, para. 558.

²⁴⁴⁷ Appellate Body Report, *EC – Hormones*, para. 200. See also Appellate Body Reports, *US/Canada – Continued Suspension*, para. 558.

²⁴⁴⁸ Appellate Body Report, *EC – Hormones*, para. 200.

²⁴⁴⁹ The Appellate Body in *US/Canada – Continued Suspension* also addressed the issue of the specificity required of a risk assessment. The Appellate Body noted that the particular risk being assessed by the European Communities was the possibility of certain adverse effects from the presence of residues of oestradiol-17 β in bovine meat treated with this hormone, and stated that the European Communities were not required to establish a direct causal relationship between the possibility of adverse health effects and the residues of oestradiol-17 β in bovine meat. Rather, it was sufficient for them to demonstrate that the additional human exposure to residues of oestradiol-17 β in meat from treated cattle is one of the factors contributing to the possible adverse health effects. The Appellate Body explained that the risk assessment must be "appropriate to the circumstances", which suggests that the scientific inquiry must take due account of particular methodological difficulties posed by the nature and characteristics of the particular substance and risk being evaluated. However, that does not excuse the risk assessor from evaluating whether there is a connection between the particular substance being evaluated and the possibility that adverse health effects may arise. (Appellate Body Reports, *US/Canada – Continued Suspension*, para. 562).

²⁴⁵⁰ Appellate Body Report, *Japan – Apples*, para. 200 (citing Panel Report, *Japan – Apples*, paras. 8.268–8.271).

²⁴⁵¹ Panel Report, *Japan – Apples*, paras. 8.263–8.271; Appellate Body Report, *Japan – Apples*, paras. 200–203.

²⁴⁵² Appellate Body Report, *Japan – Apples*, para. 203.

²⁴⁵³ Appellate Body Report, *Japan – Apples*, paras. 203 and 206.

Reports ARP-002-2017 and ARP-006-2016 refers to evidence on ASBVd and avocados in particular. Regardless of the flaws in the use of scientific evidence, part of the aforementioned evidence specifically addresses the pest or disease in question and the product or host concerned.

7.1434. In the Panel's view, the analysis of the pathway of fresh fruit imported for consumption from Mexico implies the need for certain specific considerations, such as the volume and frequency of imports of fresh avocados for consumption from Mexico, the quality control procedures in place in Mexico to discard symptomatic fruit, the distribution of fresh avocado fruit imports in Costa Rica's markets, the product's intended use, and, according to Costa Rica, diversion from intended use and spontaneous germination. Analysis of these issues would give the risk assessment the specificity required in this case and would have an impact on the magnitude of the risk of the particular pathway (i.e. fresh avocado fruit).

7.1435. However, Mexico maintains that even more specificity is required. Mexico states that Costa Rica failed to evaluate, using specific scientific evidence, the probability of entry, establishment and spread of ASBVd through the pathway of fresh avocados imported for consumption from Mexico or another country where ASBVd is present.²⁴⁵⁴ In the Panel's view, in the present case, there are issues such as the relationship or interaction between ASBVd and its host (the avocado) that do not appear to be affected by whether the avocados are fresh avocados in general or fresh avocados imported for consumption. Thus, the scientific evidence in Reports ARP-002-2017 and ARP-006-2016 related to these aspects may be considered relevant and sufficiently specific, although the Panel recalls that it found flaws in the scientific basis of the reports with respect to some of these issues. Moreover, Mexico does not appear to refer to any scientific evidence specific to fresh fruit for consumption imported from Mexico or another country where ASBVd is present, other than in its fresh fruit PRA (2015)²⁴⁵⁵, nor does it explain how the scientific findings would be affected by the consideration of fresh fruit for consumption imported from Mexico in particular.

7.1436. With regard to Mexico's argument concerning the fresh fruit PRA (2015), the Panel notes that a risk assessment could consider, at the initiation stage, other PRAs carried out with respect to the pathway or pest at issue.²⁴⁵⁶ The Panel observes, however, that the fresh fruit PRA (2015) was prepared by an agricultural engineer, referred to as a national consultant on phytosanitary matters, and not by an NPPO. In its background section, the study refers to Costa Rica's emergency measures, and later sections of the document deal with the concept of a phytosanitary emergency, the absence of the viroid in Costa Rica as a fundamental argument for the measure in place, the order of factors affecting the technical justification, and the impact of the proposed measure on international trade. In addition, the document contains an Annex entitled "Analysis of unacceptable arguments by the SFE authorities". In the Panel's view, that risk assessment is a response by Mexico to Costa Rica's 2015 emergency measures and not a neutral study based on objective research. Therefore, Costa Rica cannot reasonably be expected to be guided by the fresh fruit PRA (2015) in its risk assessment.

7.1437. In light of the foregoing, and without prejudice to the Panel's findings in its analysis of the risk assessment that there are flaws in the scientific basis used and in the risk assessor's reasoning, the Panel disagrees with Mexico's argument regarding the level of specificity required of all the scientific evidence in the risk assessment at issue. The Panel also disagrees with Mexico's argument concerning the fresh fruit PRA (2015).

7.1438. However, the Panel observes a general flaw related to the scientific basis of Reports ARP-002-2017 and ARP-006-2016: the lack of an explanation of the quality of the evidence.

7.1439. As noted above, the expert Robert Griffin considers that the sources of evidence used in Costa Rica's PRA are documented and that the evidence is clearly linked to the relevant aspects of the PRA. Nevertheless, Mr Griffin notes that Costa Rica does not offer any observations on the quality of the evidence.²⁴⁵⁷ In his opinion, there is an ample bibliography for Costa Rica's PRA, and a lot of

²⁴⁵⁴ Mexico's second written submission, para. 114.

²⁴⁵⁵ Mexico's second written submission, para. 122.

²⁴⁵⁶ It should be noted that ISPM No. 11 refers to the consideration of previous PRAs. (ISPM No. 11, (Exhibit MEX-77), p. 9).

²⁴⁵⁷ Robert Griffin's response to Panel question No. 135 for the experts.

scientific information is provided, but the quality of that information needs to be studied by the risk analyst.²⁴⁵⁸

7.1440. Mr Griffin states that if we do not have any analysis of the quality of the evidence, we do not know how important the evidence is to the conclusions, which is a key issue and goes hand in hand with the issue of uncertainty, because we do not want to assume that all the evidence is equally important, and if it is, that should be stated, but typically that is not the case. For Mr Griffin, the lack of comments will create vulnerabilities in the PRA and in terms of being able to explain the link between the evidence and the conclusions.²⁴⁵⁹ The expert Fernando Pliego Alfaro concurs with Mr Griffin on the issue of vulnerability, because, in his view, the quality of the evidence presented in the PRA is not equal.²⁴⁶⁰

7.1441. Mr Griffin notes that ISPM No. 11 does not provide guidance on how to judge the quality of evidence, but that this is a scientific process, and scientists in general are aware of how to judge the evidence related to their area of expertise. For Mr Griffin, one would expect that analysts, if they are not the scientists, are consulting the scientists in order to understand the value of the evidence that they are reviewing.²⁴⁶¹

7.1442. In the Panel's view, and considering the words of the experts Robert Griffin and Fernando Pliego Alfaro, the risk assessor's failure to explain the quality of the evidence in Reports ARP-002-2017 and ARP-006-2016 has resulted in a lack of clarity on the weight that the risk assessor gave to each piece of evidence and on how the evidence influenced the conclusions and probability values assigned to each factor or element of the analysis. In other words, because of the failure to analyse the quality of the evidence, there is a lack of clarity about the relationship between the risk assessor's conclusions and the available scientific evidence.

7.1443. In conclusion, while the Panel considers that most of the scientific evidence in Reports ARP-002-2017 and ARP-006-2016 comes from respected sources, that it can accordingly be seen in itself as legitimate, and that it includes evidence that may be considered relevant and sufficiently specific, the lack of analysis on the quality of that evidence constitutes a flaw in the risk assessor's reasoning.

7.1444. With regard to uncertainty, **Mexico** contends that a lack of information or theoretical uncertainty does not give WTO Members licence to stray from the objectivity that should prevail in the risk assessment, or, as in this particular case, to assume that all exported fresh fruits are asymptomatic and thus class them as high risk.²⁴⁶²

7.1445. Mexico also submits that, while it may not be necessary for the risk assessment to be quantitative, Costa Rica should have analysed the probability of diversion from intended use of avocado seeds, since this is directly related to the probability of spread of ASBVd, and this probability should be supported by evidence. For Mexico, even if there was uncertainty, this should have been taken into account when considering risk.²⁴⁶³

7.1446. Mexico asserts that Costa Rica failed to evaluate the uncertainty arising from diversion from intended use due to cultural practices and spontaneous germination, such that the assessment cannot be classified as reliable or accurate.²⁴⁶⁴

7.1447. Mexico contends that, although Costa Rica's PRAs supposedly focus on the pathway of fresh avocados imported for consumption, in fact, greater emphasis was placed on the risk arising from diversion from intended use. However, the PRAs do not contain specific evidence addressing the problems that Costa Rica intended them to address. According to Mexico, Costa Rica made no effort to calculate this uncertainty on the pretext of it being a difficult practice to document, and, by

²⁴⁵⁸ Robert Griffin, transcript of the Panel's meeting with the parties and the experts, day 2, pp. 9-10.

²⁴⁵⁹ Robert Griffin, transcript of the Panel's meeting with the parties and the experts, day 3, pp. 10-11.

²⁴⁶⁰ Fernando Pliego Alfaro, transcript of the Panel's meeting with the parties and the experts, day 3,

p. 11.

²⁴⁶¹ Robert Griffin, transcript of the Panel's meeting with the parties and the experts, day 3, p. 19.

²⁴⁶² Mexico's second written submission, para. 50.

²⁴⁶³ Mexico's first written submission, para. 232.

²⁴⁶⁴ Mexico's specific comments on the experts' responses to Panel question No. 95 for the experts.

qualifying this factor as an issue of uncertainty, it simply did not provide any evidence of diversion from intended use.²⁴⁶⁵

7.1448. Mexico asserts that Costa Rica seeks to validate the determination made by the risk analyst by justifying the finding of a medium risk level only because it did not have information to support the aforementioned practice, which is completely arbitrary and implausible, and demonstrates the lack of consistency between the risk identified, the scientific evidence analysed and the measures ultimately implemented by Costa Rica. Mexico states that uncertainty and the realm of the hypothetical cannot underpin the application of risk mitigation measures and that, despite this, Costa Rica seems to be insisting that the exception (i.e. uncertainty) should become the rule.²⁴⁶⁶

7.1449. **Costa Rica** argues that it was transparent in identifying uncertainty with regard to the degree of diversion from intended use.²⁴⁶⁷

7.1450. In Costa Rica's view, it is correct to state that the risk rating should be based solely on scientific evidence and not on uncertainty, and that risk is determined by both scientific evidence and uncertainty.²⁴⁶⁸ For Costa Rica, the uncertainty that may exist with respect to some elements of the analysis, including the probability of the risk materializing and the adverse consequences arising from that, is a key element in the assessment of the risk.²⁴⁶⁹

7.1451. Costa Rica does not regard the acknowledgement of the absence of data relating to a specific point in the PRA as a methodological flaw that invalidates the risk analysis exercise. On the contrary, as the expert Robert Griffin pointed out, it is important to detect the uncertainties because "if we know what the uncertainties are, then we can address those uncertainties with research".²⁴⁷⁰ Costa Rica refers to the point made by Mr Griffin that "[the risk analysis] process [should always be] open to evolution and improvement ... It should never be static, it always needs to be open for improvement and for new and better information, different methodologies ... but should never be a static process".²⁴⁷¹ Costa Rica states that a country cannot be expected to refrain from adopting phytosanitary measures against the risk of introduction of a pest until it has obtained all necessary information to dispel the existing uncertainties.²⁴⁷²

7.1452. The **Panel** sought the experts' views on the situations of uncertainty in Reports ARP-002-2017 and ARP-006-2016.

7.1453. The expert Robert Griffin expresses concern regarding the lack of an analysis of uncertainty in the PRA, and comments that Costa Rica has not sufficiently documented the areas and degree of uncertainty.²⁴⁷³ Mr Griffin considers that the analysis of uncertainty in Costa Rica's PRA is generally absent.²⁴⁷⁴

7.1454. Mr Griffin also says that there is no structured treatment of uncertainty. He states that each point of uncertainty that affects the risk assessment needs to be identified and distinguished from the evidence for its effect on the assessment, and that this point is critically important to understand when risk is being related to evidence and when it is being related to uncertainty.²⁴⁷⁵

7.1455. Mr Griffin adds that identifying areas of uncertainty is useful for directing research to priorities that support PRA and better regulatory decisions. For Mr Griffin, since most research is not directly done for PRA purposes, it is not unusual for there to be numerous areas where knowledge

²⁴⁶⁵ Mexico's response to Panel question No. 164, para. 144.

²⁴⁶⁶ Mexico's comments on Costa Rica's response to Panel question No. 163, para. 2.

²⁴⁶⁷ Costa Rica's specific comments on the experts' responses to Panel question No. 90 for the experts.

²⁴⁶⁸ Costa Rica's response to Panel question No. 161, para. 172.

²⁴⁶⁹ Costa Rica's response to Panel question No. 161, para. 173.

²⁴⁷⁰ Costa Rica's comments on Mexico's response to Panel question No. 161, para. 83 (citing Robert Griffin, transcript of the Panel's meeting with the parties and the experts, day 3, p. 42).

²⁴⁷¹ Costa Rica's comments on Mexico's response to Panel question No. 161, para. 83 (citing Robert Griffin, transcript of the Panel's meeting with the parties and the experts, day 2, p. 55).

²⁴⁷² Costa Rica's comments on Mexico's response to Panel question No. 161, para. 83.

²⁴⁷³ Robert Griffin's responses to Panel questions Nos. 90 and 142 for the experts.

²⁴⁷⁴ Robert Griffin, transcript of the Panel's meeting with the parties and the experts, day 2, pp. 27-28.

²⁴⁷⁵ Robert Griffin's response to Panel question No. 90 for the experts.

gaps can be filled, and uncertainties can be reduced with simple, inexpensive studies focused specifically on PRA questions.²⁴⁷⁶

7.1456. Furthermore, in terms of how to deal with uncertainty over diversion from intended use, Mr Griffin notes that, because there is a paucity of data as it does not appear that much research has been done on the issue, the question needs to be determined by expert opinion.²⁴⁷⁷ Mr Griffin considers that experts could be consulted with respect to the probabilities and to analyse the uncertainties. He adds that the conclusion will be that, based on expert opinion, there is a certain probability and a certain uncertainty.²⁴⁷⁸ The expert Pablo Cortese, for his part, states that expert judgement is key, and that experience and expert judgement are fundamental to a good risk analysis.²⁴⁷⁹

7.1457. It should be mentioned that risk assessment techniques developed by the relevant international organization in phytosanitary matters, ISPM Nos. 2 and 11, also underline the importance of uncertainty. According to ISPM No. 2, uncertainty is a component of risk and therefore important to recognize and document when performing PRAs. It is stated in ISPM No. 2 that the nature and degree of uncertainty in the analysis should be documented and communicated, and the use of expert judgement indicated.²⁴⁸⁰ Moreover, it is asserted in ISPM No. 11 that estimation of the probability of introduction of a pest and of its economic consequences involves many uncertainties, and that it is important to document the areas of uncertainty and the degree of uncertainty in the assessment, and to indicate where expert judgement has been used.²⁴⁸¹ ISPM Nos. 2 and 11 both indicate that this is necessary for transparency and may also be useful for identifying and prioritizing research needs.²⁴⁸²

7.1458. In *Australia – Apples*, the Appellate Body noted that "[i]t is clear from a complete reading of ISPM No. 2 and ISPM No. 11 that, in addition to the sections on 'uncertainty' that call for the transparency and documentation of the nature and degree of uncertainty, the general sections on 'documentation' specify that the entire pest risk analysis process should be sufficiently documented".²⁴⁸³

7.1459. In view of the foregoing, the Panel agrees that it is important to identify and document issues of uncertainty and estimate the degree of uncertainty. The Panel finds no explanation or analysis by the risk assessor with respect to the situations of uncertainty in Reports ARP-002-2017 and ARP-006-2016.

7.1460. Reports ARP-002-2017 and ARP-006-2016 merely contend, in a section entitled "uncertainty", that "[t]here are currently records of expert testimony (CONSULSANTOS 2017) that demonstrate diversion from intended use, however, to date, no statistics are available on the quantity of imported fruit from which the seed is extracted for propagation purposes".²⁴⁸⁴ Report ARP-002-2017 cites the paper "Diversion from intended use" (2016):

The practice of diversion from intended use (DFIU) may be unintentional, or done with knowledge of its illegal status. It is rarely documented or reported, but anecdotal evidence suggests it is occurring in most parts of the world. It is considered most serious when products designated for consumption (including grain), time-limited decorative purposes (such as cut flowers and branches) or processing instead end up being used for planting, so that any associated pests may be introduced into the open environment unchecked.²⁴⁸⁵

²⁴⁷⁶ Robert Griffin's response to Panel question No. 91(c) for the experts.

²⁴⁷⁷ Robert Griffin, transcript of the Panel's meeting with the parties and the experts, day 3, p. 40.

²⁴⁷⁸ Robert Griffin, transcript of the Panel's meeting with the parties and the experts, day 3, p. 41.

²⁴⁷⁹ Pablo Cortese, transcript of the Panel's meeting with the parties and the experts, day 3, p. 14.

²⁴⁸⁰ ISPM No. 2, (Exhibit MEX-72), pp. 14-15.

²⁴⁸¹ ISPM No. 11, (Exhibit MEX-77), p. 22.

²⁴⁸² ISPM No. 2, (Exhibit MEX-72), p. 15; and ISPM No. 11, (Exhibit MEX-77), p. 22.

²⁴⁸³ Appellate Body Report, *Australia – Apples*, para. 247.

²⁴⁸⁴ ARP-002-2017, (Exhibit MEX-84), p. 8 (citing CONSULSANTOS (2017), (Exhibit MEX-118)); ARP-006-2016, (Exhibit MEX-85), p. 11 (citing CONSULSANTOS (2017), (Exhibit MEX-118)).

²⁴⁸⁵ ARP-002-2017, (Exhibit MEX-84), p. 8 (citing IPPC Secretariat, "Diversion from intended use" (2016), (Exhibit MEX-124)); ARP-006-2016, (Exhibit MEX-85), p. 11 (citing IPPC Secretariat, "Diversion from intended use" (2016), (Exhibit MEX-124)).

7.1461. In this section entitled "uncertainty", it is stated that there is uncertainty over diversion from intended use, but this area of uncertainty is not defined and the degree of uncertainty is not identified. In addition, Reports ARP-002-2017 and ARP-006-2016 do not address in any way the uncertainty associated with spontaneous germination. That is to say, there is no clear identification or documentation of either the areas or the degree of uncertainty concerning two of the main premises of Reports ARP-002-2017 and ARP-006-2016, i.e. spontaneous germination and diversion from intended use, despite the lack of evidence described in sections 7.4.5.3.3.4 and 7.4.5.3.3.9 above.

7.1462. Moreover, the Panel observes that Costa Rica does not provide an explanation and estimate of the uncertainty associated with each probability in Reports ARP-002-2017 and ARP-006-2016. This affects the reliability of the probabilities that were assigned to the various factors and elements of the risk assessment in Reports ARP-002-2017 and ARP-006-2016, since it is not clear to what extent each conclusion in this risk assessment is based on evidence, and to what extent uncertainty influences the conclusions. In the Panel's view, this is particularly important when it comes to the factors and elements for which diversion from intended use and spontaneous germination have been considered, and to other issues where there is uncertainty, such as the prevalence of the pest in Mexico, the prevalence of asymptomatic fruit in a consignment, the quantity and distribution of host plants, and economic and biological consequences of the introduction and spread of ASBVd, which are issues in relation to which sufficient data appear to be lacking.

7.1463. All this despite the fact that Manual NR-ARP-PO-01_M-01 states that the estimation of the probability of introduction of a pest and of its economic consequences involves many uncertainties, and that it is important to document the areas of uncertainty and the degree of uncertainty in the assessment.²⁴⁸⁶

7.1464. Manual NR-ARP-PO-01_M-01 indicates that "[i]n all instances where sufficient information is not available, either following one's own research or because the exporting country's information is insufficient, the uncertainty should be taken into account and the probability should be calculated as high".²⁴⁸⁷ The manual does not explain why uncertainty due to insufficient information justifies the assignment of a high probability. In the Panel's view, the situation of uncertainty requires greater caution when assessing the probability that a certain event will occur or that a certain condition will be met. The concept of uncertainty cannot be used to assign, automatically and without further explanation, a high probability.

7.1465. In addition, although, according to Robert Griffin and Pablo Cortese, using expert judgement would have been a way to address uncertainty, the Panel finds no indication in Reports ARP-002-2017 and ARP-006-2016 that this was done. This despite the fact that certain issues of uncertainty, such as diversion from intended use and spontaneous germination, influenced the calculation of the probability of entry, establishment and spread of ASBVd. If expert judgement was used, this should have been documented in the reports.

7.1466. In the Panel's view, the calculation of probabilities in Reports ARP-002-2017 and ARP-006-2016 was affected by the failure to identify and sufficiently document the situations of uncertainty and the uncertainties associated with the probabilities, and this constitutes a flaw in the risk assessment in Reports ARP-002-2017 and ARP-006-2016.

7.4.5.3.7 Conclusion on the evaluation of the likelihood of entry, establishment and spread, and of the associated potential biological and economic consequences

7.1467. The Panel recalls that it reached the following intermediate conclusions with respect to the evaluation of the likelihood of entry, establishment and spread, and of the associated potential biological and economic consequences in its analysis of Costa Rica's risk assessment contained in Reports ARP-002-2017 and ARP-006-2016:

- a. The use of a fixed format, derived from Manual NR-ARP-PO-01_M-01, in Reports ARP-002-2017 and ARP-006-2016 limits the flexibility of judgement in the analysis, which leads to the absence of the risk assessor's reasoning; and removes the flexibility to address

²⁴⁸⁶ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 20.

²⁴⁸⁷ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 7.

ASBVd-specific issues, which affects the appropriateness of the risk assessment to the circumstances;

- b. There is insufficient scientific evidence in Reports ARP-002-2017 and ARP-006-2016 on the existence of diversion from intended use of seeds from fresh fruit for consumption, and there are no estimates, even in qualitative terms, of the scale on which this diversion occurs in Costa Rica, which prevented the risk analyst from conducting either a qualitative or quantitative assessment of the probability of entry, establishment or spread of ASBVd in Costa Rica that would give due consideration to this diversion from intended use;
- c. There is insufficient scientific evidence in Reports ARP-002-2017 and ARP-006-2016 on the occurrence of spontaneous germination, and there are no estimates, even in qualitative terms, of the scale on which this spontaneous germination occurs in Costa Rica, which prevented the risk analyst from conducting either a qualitative or quantitative assessment of the probability of entry, establishment or spread of ASBVd in Costa Rica that would give due consideration to this spontaneous germination;
- d. In reaching a generalized conclusion on spontaneous germination, without considering in the assessment of the elements and factors of the probability analysis the differences in the edaphoclimatic conditions in the various regions of the country and the different situations in which a seed could be discarded (for example, on a farm, in a garden or at a landfill site), Reports ARP-002-2017 and ARP-006-2016 overestimated the probability of spontaneous germination occurring in the entire PRA area. There is also a failure to take into account the edaphoclimatic conditions conducive to the development of the avocado tree after germination, which affects the assessment of the availability of host plants, and thus the probability of the spread of ASBVd;
- e. Assigning risk values, whether high, medium, or low, with their respective numerical values (3, 2, or 1), to the various factors and elements, on several occasions without the necessary scientific basis, without sufficient reasoned explanations by the risk assessor, and without considering the multiplicative relationship that exists between the conditions and events necessary for the entry of ASBVd, cannot be considered an objectively justifiable qualitative assessment of the likelihood of entry of ASBVd in Costa Rica's territory;
- f. Assigning risk values, whether high, medium, or low, with their respective numerical values (3, 2, or 1), to the various factors, on several occasions without the necessary scientific basis, without sufficient reasoned explanations by the risk assessor, without paying due attention to the rate of reproduction and spread of ASBVd, and without considering the multiplicative relationship that exists between the conditions and events necessary for the establishment of ASBVd, cannot be considered an objectively justifiable qualitative assessment of the likelihood of establishment of ASBVd in Costa Rica's territory;
- g. Assigning risk values, whether high, medium, or low, with their respective numerical values (3, 2, or 1), to the various factors, on several occasions without the necessary scientific basis, without sufficient reasoned explanations by the risk assessor, and without paying any attention to the rate of reproduction and spread of ASBVd, cannot be considered an objectively justifiable qualitative assessment of the likelihood of spread of ASBVd in Costa Rica's territory;
- h. Reports ARP-002-2017 and ARP-006-2016 refer to economic effects and biological consequences without explanation or justification, and there are statements about economic effects that refer to two sources and contain quantitative data, but these data are extrapolated to the case of Costa Rica with no explanation of how they are applicable to Costa Rica's circumstances. Thus, there has been no evaluation of the associated potential biological and economic consequences, and this constitutes a flaw in the risk assessment in Reports ARP-002-2017 and ARP-006-2016;
- i. While most of the scientific evidence in Reports ARP-002-2017 and ARP-006-2016 comes from respected sources, can accordingly be seen in itself as legitimate, and includes

evidence that may be considered relevant and sufficiently specific, the lack of analysis on the quality of the evidence constitutes a flaw in the risk assessor's reasoning;

- j. The calculation of probabilities in Reports ARP-002-2017 and ARP-006-2016 was affected by the failure to identify and sufficiently document the situations of uncertainty and the uncertainties associated with the probabilities, and this constitutes a flaw in the risk assessment in Reports ARP-002-2017 and ARP-006-2016.

7.1468. In view of the flaws noted in the previous paragraph, the Panel concludes that Costa Rica's risk assessment contained in Reports ARP-002-2017 and ARP-006-2016 does not comply with the second step suggested by the Appellate Body based on the definition of "risk assessment" in paragraph 4 of Annex A to the SPS Agreement, i.e. to evaluate the likelihood of entry, establishment or spread of ASBVd, as well as the associated potential biological and economic consequences.

7.4.5.4 Whether the likelihood of entry, establishment or spread of a pest or disease was evaluated according to the sanitary or phytosanitary measures which might be applied

7.1469. With regard to the third step suggested by the Appellate Body based on the definition of "risk assessment" in paragraph 4 of Annex A to the SPS Agreement, **Mexico** submits that Costa Rica failed to evaluate the likelihood of entry, establishment or spread of ASBVd according to the SPS measures which might be applied, and therefore failed to conduct a risk assessment based on paragraph 4 of Annex A.²⁴⁸⁸

7.1470. In Mexico's view, although the PRAs identify four measures (three of which are alternatives) that could be applied to the importation of fresh avocados, Costa Rica failed to evaluate the effectiveness of each of these measures in reducing the risk arising from the transmission of ASBVd and its disease through the pathway of fresh avocados imported for consumption.²⁴⁸⁹ Mexico notes that Costa Rica also failed to evaluate other possible alternatives, distinct from those already in place since Resolution DSFE-11-2015, therefore the PRAs are *ex post facto* assessments conducted to justify the measures with the intention of restricting trade in fresh avocados for consumption from Mexico.²⁴⁹⁰

7.1471. Mexico also submits that, in its PRAs, Costa Rica merely recommends three alternative measures that the PRAs assume will be applied individually, without consideration as to their effectiveness; and that the three proposed measures are inconsistent with Costa Rica's main concern, namely, the diversion from intended use of the pits of fresh avocados imported for consumption.²⁴⁹¹ Mexico adds that it is within the framework of the proceedings that Costa Rica decided to implement a regulation on the diversion from intended use of the pits of avocados imported for consumption, and that there is no substantive analysis of how this regulation operates or how it would reduce the risk of entry, establishment and spread of ASBVd in its territory. According to Mexico, had such an analysis been carried out, Costa Rica would have concluded that this regulation was sufficient to address the negligible risk of ASBVd being transmitted through a fresh avocado imported for consumption.²⁴⁹² Mexico contends that Costa Rica preferred to require Mexico to comply with one of the three measures as an alternative, when certification is disproportionate, entails unnecessary costs, is economically unfeasible and does not guarantee that the alleged risk will be mitigated.²⁴⁹³

7.1472. Mexico asserts that Costa Rica should have calculated the probability of entry, establishment and spread of ASBVd and its disease based on the effectiveness of each of the measures applied in mitigating the risk, as well as that of other possible alternatives, rather than simply indicating or identifying measures already in place.²⁴⁹⁴ According to Mexico, Costa Rica should have: (i) identified the measures that reduce the risk of concern; (ii) considered these measures in the PRAs as a risk reduction factor; and (iii) linked these measures to the evaluation of the likelihood

²⁴⁸⁸ Mexico's first written submission, para. 381.

²⁴⁸⁹ Mexico's first written submission, para. 375.

²⁴⁹⁰ Mexico's first written submission, para. 375; second written submission, para. 171 (citing Resolution DSFE-11-2015, (Exhibit MEX-3)).

²⁴⁹¹ Mexico's opening statement at the first meeting of the Panel, para. 53.

²⁴⁹² Mexico's opening statement at the first meeting of the Panel, para. 54.

²⁴⁹³ Mexico's opening statement at the first meeting of the Panel, para. 55.

²⁴⁹⁴ Mexico's first written submission, paras. 376-377.

of entry, establishment or spread of ASBVd and its disease within Costa Rican territory according to the SPS measures which might be applied.²⁴⁹⁵ Mexico notes that Costa Rica merely indicated that inspections at entry points were insufficient, without having conducted the appropriate evaluation.²⁴⁹⁶

7.1473. Mexico submits that the PRA indicates only that inspections conducted at entry points are considered insufficient because ASBVd is asymptomatic in fruits and specific tests are needed to detect it, yet fails to take into account that the fresh fruit exported by Mexico is for human consumption, not for propagation material.²⁴⁹⁷

7.1474. Mexico also submits that Costa Rica could have considered other measures that do not fall solely upon the importing country, such as, for example, local risk management measures that involve strictly regulating the certification in nurseries of propagation material free of ASBVd, and requiring owners of commercial avocado farms to use this material.²⁴⁹⁸

7.1475. Mexico adds that Costa Rica also failed to evaluate other specific measures that might be applicable, such as those proposed by Mexico as alternative measures in its claim under Article 5.6 of the SPS Agreement, which Mexico considers technically and economically viable for reducing the risk of transmission of ASBVd and its disease through the pathway of fresh avocados imported for consumption from Mexico.²⁴⁹⁹ According to Mexico, if Costa Rica had fulfilled the obligation to conduct a risk assessment according to the measures which might be applied, it would have considered and analysed in detail why the domestic regulation was or was not a measure that in itself mitigated any risk of entry, establishment and spread of ASBVd arising from the diversion from intended use of the pit obtained from fresh fruit imported for consumption.²⁵⁰⁰

7.1476. Mexico points out that the general measures recommended by the risk assessments are further evidence that they are measures designed to justify decisions *ex post facto*, which explains why these general measures remained simple recommendations, even though some would be able to achieve Costa Rica's ALOP, such as its regulation governing diversion from intended use.²⁵⁰¹ In Mexico's view, the fact that Costa Rica has decided to implement the regulation without conducting a new risk assessment highlights that the adoption of its measures was an *ex post* decision.²⁵⁰²

7.1477. **Costa Rica** asserts that Mexico has not demonstrated how Costa Rica failed to comply with this element of the definition of "risk assessment" under paragraph 4 of Annex A to the SPS Agreement. Costa Rica contends that it considered the measures which might be applied, rather than simply the measures that were in place when the risk analysis was carried out, and that the measure contained in Resolution DSFE-03-2015 was completely different from the measures adopted in 2018. According to Costa Rica, Resolution DSFE-03-2015 temporarily suspended the phytosanitary authorizations for the importation of avocados from countries where ASBVd is present, and, in 2018, phytosanitary requirements were adopted that allowed for the importation of fresh avocado fruit and, at the same time, sought to ensure that Costa Rica maintains its ASBVd-free status.²⁵⁰³

7.1478. Costa Rica also contends that the risk assessment did not seek to justify *ex post* the import suspension that was in place in Costa Rica²⁵⁰⁴, and that, during the risk management stage, alternatives were considered and it was eventually recommended that measures that would not prohibit the importation of avocado fruit should be adopted.²⁵⁰⁵ Costa Rica asserts that it took into account the relative cost-effectiveness of alternative approaches to limiting risks, which is one of the economic factors listed in Article 5.3 of the SPS Agreement. Costa Rica indicates that it did consider inspections at entry points, but, given that ASBVd is asymptomatic in fruits and tests are

²⁴⁹⁵ Mexico's first written submission, para. 378.

²⁴⁹⁶ Mexico's first written submission, para. 379.

²⁴⁹⁷ Mexico's opening statement at the first meeting of the Panel, para. 52.

²⁴⁹⁸ Mexico's first written submission, para. 379.

²⁴⁹⁹ Mexico's first written submission, para. 380.

²⁵⁰⁰ Mexico's second written submission, para. 172.

²⁵⁰¹ Mexico's second written submission, para. 173 (referring to Regulation governing the use of avocado seeds (2019), (Exhibits MEX-174 and CRI-53)).

²⁵⁰² Mexico's second written submission, para. 174.

²⁵⁰³ Costa Rica's first written submission, paras. 5.146-5.147; second written submission, para. 3.45.

²⁵⁰⁴ Costa Rica's first written submission, para. 5.147; second written submission, para. 3.45.

²⁵⁰⁵ Costa Rica's first written submission, para. 5.148.

needed to detect it, it was determined that visual inspections upon entry of the goods were not sufficient; and that therefore measures whose relative cost-effectiveness was considered to be optimal were recommended, aimed at certifying the absence of the viroid in the exporting country and verifying this absence in the importing country.²⁵⁰⁶

7.1479. Costa Rica states that the risk assessment recommended the adoption of other general measures that Costa Rica has made every effort to implement: (i) avocado-producing areas continue to be actively monitored, verifying the absence of ASBVd through extensive sampling and diagnostic tests; (ii) efforts are being stepped up in programmes on good agricultural practices for avocados and in teaching producers about the importance of using certified seeds; (iii) it is hoped that the producing sector will be trained to implement and become certified in good agricultural practices, and that a certification programme for avocado plants and nurseries will be developed, for which technical standards for the certification of avocado seeds, buds and nursery stock were adopted; and (iv) at the time of Costa Rica's first written submission, there already existed a draft decree regulating the use for propagation purposes of avocado seeds extracted from fresh fruit for consumption from countries where ASBVd is present.²⁵⁰⁷

7.1480. On this point, Costa Rica asserts that Decree No. 41995-MAG was published on 16 October 2019, which prohibits the sowing of seeds from avocado fruit imported from countries where ASBVd is present. Costa Rica submits that this Decree recognizes that ASBVd can be transmitted by seeds, which is why there is a risk of introduction in the event of diversion from intended use, and the use for propagation purposes of seeds extracted from fresh avocado fruit imported for consumption from countries where ASBVd is present is therefore prohibited. Costa Rica adds that it is mandated that nursery workers are responsible for ensuring that avocado seeds do not come from fruit imported from countries where ASBVd is present, and verification powers and penalties in the event of non-compliance are also established.²⁵⁰⁸

7.1481. Costa Rica concludes that, in addition to adopting alternative phytosanitary requirements for the importation of fresh avocados, it is doing its utmost at the domestic level to protect its phytosanitary status as free of ASBVd, and that Mexico has not demonstrated that Costa Rica has failed to evaluate the likelihood of entry, establishment and spread of ASBVd according to the sanitary or phytosanitary measures which might be applied.²⁵⁰⁹

7.1482. The **Panel** recalls that the definition of "risk assessment" in the SPS Agreement requires that the evaluation of the likelihood of entry, establishment or spread of a disease be conducted "according to the sanitary or phytosanitary measures which might be applied".

7.1483. Emphasizing the use of the term "might" in the conditional tense, the Appellate Body in *Japan – Apples* explained that "a risk assessment should not be limited to an examination of the measure already in place or favoured by the importing Member. In other words, the evaluation contemplated in paragraph 4 of Annex A to the *SPS Agreement* should not be distorted by preconceived views on the nature and the content of the measure to be taken; nor should it develop into an exercise tailored to and carried out for the purpose of justifying decisions *ex post facto*."²⁵¹⁰

²⁵⁰⁶ Costa Rica's second written submission, para. 3.46.

²⁵⁰⁷ Costa Rica's first written submission, para. 5.149(citing MAG, IICA, National Avocado Production Plan (2019), (Exhibit CRI-1); Oficina Nacional de Semillas de Costa Rica, "Normas Técnicas para la Certificación de Semillas, Yemas y Plantas de vivero de Aguacate (*Persea americana* Mill.)", aprobado el 17 de octubre 2017 (Technical standards for seeds (2017)), (Exhibit CRI-33); and Presidente de la República y Ministro de Agricultura y Ganadería de Costa Rica, "Proyecto de Decreto para 'Regular el uso de semilla de aguacate (*Persea americana* Mill.) para propagación, extraídas de frutos importados para consumo, de países con presencia de Avocado sunblotch viroid (ASBVd)", 13 de septiembre de 2019 (Draft decree governing the use of avocado seeds (2019)), (Exhibit CRI-34)); second written submission, para. 3.47.

²⁵⁰⁸ Costa Rica's opening statement at the first meeting of the Panel, paras. 13-14 (citing Regulation governing the use of avocado seeds (2019), (Exhibits MEX-174 and CRI-53)); response to Panel question No. 93 (citing Regulation governing the use of avocado seeds (2019), (Exhibits MEX-174 and CRI-53)); second written submission, para. 3.47 (citing Regulation governing the use of avocado seeds (2019), (Exhibits MEX-174 and CRI-53)).

²⁵⁰⁹ Costa Rica's first written submission, para. 5.150.

²⁵¹⁰ Appellate Body Report, *Japan – Apples*, para. 208.

7.1484. This Panel concurs with the foregoing, and considers that in order to evaluate the likelihood of entry, establishment or spread according to the SPS measures which might be applied, a Member should identify and ponder different measures that could be applied to address the risk in question.

7.1485. In the section entitled "pest risk management", Reports ARP-002-2017 and ARP-006-2016 indicate that inspections carried out at entry points are considered insufficient to ensure phytosanitary security, given that ASBVd in particular is asymptomatic in fruits and that specific tests are needed to detect it.²⁵¹¹

7.1486. Reports ARP-002-2017 and ARP-006-2016 recommend the following phytosanitary measures in addition to the phytosanitary certificate:

- a. Consignments must be accompanied by an official phytosanitary certificate issued by the country of origin, which indicates, in the section for additional declarations, that the fruit is free of ASBVd; or
- b. Consignments must be accompanied by an official phytosanitary certificate issued by the country of origin, which indicates, in the section for additional declarations, that the fruit comes from a place of production free of ASBVd (previously recognized by the SFE); or
- c. Consignments must adhere to a systems approach programme established bilaterally.²⁵¹²

7.1487. Moreover, Reports ARP-002-2017 and ARP-006-2016 contain the following general recommendations for the Directors of the SFE:

- a. Determine the absence of ASBVd at the entry point, by sampling and testing.
- b. Continue to monitor avocado-producing areas actively.
- c. Teach producers about the importance of using certified seed.
- d. Step up programmes on good agricultural practices for avocados.
- e. Regulate the use for propagation of seeds from avocados imported for consumption.²⁵¹³

7.1488. On the basis of the above, the Panel notes that the reports refer to inspections at entry points as an option that was considered to be insufficient, and include the recommendation for the three alternative phytosanitary requirements in place, as well as general recommendations.

7.1489. The Panel also observes that, according to the manual for the preparation of the reports (Manual NR-ARP-PO-01_M-01), risk management is the process of identifying ways to react to a perceived risk, evaluating the efficacy of these actions, and identifying the most appropriate options.^{2514, 2515} The manual includes a section on the identification and selection of appropriate risk management options, and lists some of the measures most commonly applied to traded commodities.²⁵¹⁶ The manual also presents risk management options tailored to the risk assessment outcome.²⁵¹⁷

7.1490. The reports repeat what is stated in the manual that, for the high-risk rating, it is recommended that specific phytosanitary measures be applied, and that inspections conducted at

²⁵¹¹ ARP-002-2017, (Exhibit MEX-84), p. 42; ARP-006-2016, (Exhibit MEX-85), p. 23.

²⁵¹² ARP-002-2017, (Exhibit MEX-84), pp. 42-43 and 49; ARP-006-2016, (Exhibit MEX-85), pp. 23-24.

²⁵¹³ ARP-002-2017, (Exhibit MEX-84), p. 43.

²⁵¹⁴ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 21.

²⁵¹⁵ This is also indicated in ISPM No. 11 in its section on the pest risk management stage.

(ISPM No. 11, (Exhibit MEX-77), p. 22).

²⁵¹⁶ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), pp. 21-23.

²⁵¹⁷ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 24.

entry points are considered insufficient to ensure phytosanitary security²⁵¹⁸, adding the explanation that ASBVd in particular is asymptomatic in fruits and that specific tests are needed to detect it.²⁵¹⁹

7.1491. The Panel notes that one of the alternative requirements imposed (that the provenance of the product must be a place of production free of a particular pest) comes from the manual's high risk rating list, which also mentions verification at origin where deemed necessary.²⁵²⁰ With regard to the options within the importing country, the manual indicates that these options could include careful surveillance to try and detect the entry of the pest as early as possible, eradication programmes to eliminate any foci of infestation and/or containment action to limit spread.²⁵²¹

7.1492. In the view of the Panel, Reports ARP-002-2017 and ARP-006-2016 fail to explain the measure selection process, and, specifically, which measures could be applied and why the recommended measures were chosen over other measures. While the reports do mention and set out why conducting inspections at entry points was rejected as an option that would fail to address the risk posed by asymptomatic fruit, there is no mention or analysis of other risk management options that could reduce the risk associated with those fruits. The reports do not offer a relative assessment of the measures, that is by comparing them with other measures or combinations of measures that could reduce the risk. In addition, it is not explained whether or how the manual's lists of risk management options were considered, or how it was decided to recommend the three alternative phytosanitary requirements and suggest the general recommendations. There is also no assessment of the expected results of the application of the recommended SPS measures. In other words, the reports lack an assessment of the technical, economic and operational feasibility of these measures.

7.1493. With regard to the measures previously in place, the Panel notes that the 2015 emergency measure implemented through Resolution DSFE-03-2015 was a temporary suspension of the issuing of phytosanitary import certifications for avocados from Australia, Ghana, Guatemala, Israel, Mexico, South Africa, Spain and Venezuela.²⁵²²

7.1494. Subsequently, Resolution DSFE-11-2015 established the following phytosanitary requirements for imports of avocado fruit for consumption from Mexico, with respect to ASBVd: (i) plantations must comprise plants from nurseries certified by the NPPO of the country of origin, as free of ASBVd, previously recognized by the SFE of Costa Rica; (ii) products must come from a place of production free of ASBVd, previously recognized by the SFE of Costa Rica. It was also determined that the products would be subject to phytosanitary controls at the point of entry. Furthermore, it was indicated that fruit samples would be sent to the SFE nurseries in Pavas, San José, for planting and subsequent laboratory analysis to determine whether they were free of ASBVd, by the Central Laboratory for Pest Diagnosis of the Laboratory Department of the SFE.²⁵²³

7.1495. Taking into account the foregoing, Reports ARP-002-2017 and ARP-006-2016 also fail to explain why it was decided to maintain the same type of measures as those imposed through Resolution DSFE-11-2015, and why a decision was made to add the systems approach and the general recommendations.

7.1496. In sum, the Panel is of the view that, besides the reference to inspections at entry points, Reports ARP-002-2017 and ARP-006-2016 fail to mention or analyse other potential risk management measures. The reports include recommendations for three alternative measures, as well as general recommendations, without providing an explanation of why they were chosen or how they relate to the risk management options in Manual NR-ARP-PO-01_M-01, should such a relationship exist. The reports simply set out the recommendations on measures to be applied without explaining which other measures could be applied. In other words, they do not identify or ponder the measures that could be applied.

7.1497. As a result, the Panel concludes that Reports ARP-002-2017 and ARP-006-2016 fail to evaluate the likelihood of entry, establishment or spread *according to the SPS measures which might*

²⁵¹⁸ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 24.

²⁵¹⁹ ARP-002-2017, (Exhibit MEX-84), p. 42; ARP-006-2016, (Exhibit MEX-85), p. 23.

²⁵²⁰ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 24.

²⁵²¹ Manual NR-ARP-PO-01_M-01, (Exhibit MEX-104), p. 23.

²⁵²² Resolution DSFE-03-2015, (Exhibit MEX-1), p. 2.

²⁵²³ Resolution DSFE-11-2015, (Exhibit MEX-3), p. 9.

be applied, which means that the risk assessment does not comply with the third step suggested by the Appellate Body based on the definition of "risk assessment" in paragraph 4 of Annex A to the SPS Agreement.

7.1498. Given that the consideration of the relative cost-effectiveness of alternative approaches to limiting risks is one of the relevant economic factors listed in Article 5.3 of the SPS Agreement, the Panel will elaborate on this matter in the section 7.4.5.8 below.

7.1499. Similarly, Mexico's argument on whether or not the domestic regulation on the use of the seeds was a measure that, by itself, mitigated any risk of entry, establishment and spread of ASBVd arising from the diversion from intended use of the pit obtained from fresh fruit imported for consumption relates to Mexico's trade-restrictiveness claims under Article 5.6 of the SPS Agreement. Therefore, the Panel will address this argument in section 7.5 below.

7.4.5.5 Whether Costa Rica's risk assessment in Reports ARP-002-2017 and ARP-006-2016 is appropriate to the circumstances

7.1500. **Mexico** submits that Costa Rica's measures are not based on a risk assessment "as appropriate to the circumstances", since Costa Rica failed to consider both the circumstances specific to the pathway of fresh avocados imported for consumption, and the circumstances relating to the origin and destination of the product at issue.²⁵²⁴

7.1501. Mexico considers that the nature of the expression "appropriate to the circumstances" requires an objective analysis of the specific situations that should influence how a country conducts its risk assessment, such as the source (disease-causing organism) and subject (fresh avocados for consumption) of the risk, as well as the country-specific situations of the product's points of origin (Mexico) and destination (Costa Rica).²⁵²⁵

7.1502. **Costa Rica** submits that Mexico has failed to establish that Costa Rica's measures are not based on a risk assessment "as appropriate to the circumstances".²⁵²⁶

7.1503. Costa Rica notes that, under past case law, the requirement that the risk assessment be "appropriate to the circumstances" has been considered to leave some flexibility for an assessment of risk on a case-by-case basis, in terms of product, origin and destination, in particular, country-specific situations. Costa Rica adds that, for example, relevant circumstances are considered to be the fact that the importing country is free of the pest under analysis, or that its climatic conditions make it a potentially favourable environment for the spread of the pest.²⁵²⁷

7.1504. Costa Rica asserts that it carried out a risk assessment specifically for the pest, ASBVd, and the pathway of fresh avocados fruit for consumption, noting, in particular, the country-specific situations, such as the absence of the viroid in Costa Rican territory and Costa Rica's favourable climatic conditions.²⁵²⁸

7.1505. As a third party, the **European Union** is of the view that "as appropriate to the circumstances" indicates that consideration must be given to the methodological difficulties posed by the nature and characteristics of the specific substance and risk being evaluated, and that WTO Members have to assess the risk, on a case-by-case basis, in terms of product, origin and destination, including, in particular, country-specific situations. According to the European Union, this expression provides some flexibility for Members in the conduct of their risk assessments, without absolving them of their duty to base their measures on a risk assessment.²⁵²⁹ The European Union is of the opinion that the question of whether the elements set forth in Articles 5.2

²⁵²⁴ Mexico's first written submission, para. 409; second written submission, para. 182.

²⁵²⁵ Mexico's first written submission, para. 385.

²⁵²⁶ Costa Rica's first written submission, p. 64.

²⁵²⁷ Costa Rica's first written submission, para. 5.155 (citing Panel Report, *Japan – Apples*, paras. 8.239-8.240); second written submission, para. 3.24 (citing Panel Report, *Japan – Apples*, paras. 8.239-8.240).

²⁵²⁸ Costa Rica's second written submission, para. 3.24.

²⁵²⁹ European Union's response to Panel question No. 6, para. 19 (citing Appellate Body Reports, *US/Canada – Continued Suspension*, para. 562; and Panel Reports, *Australia – Salmon*, para. 8.71; and *US – Animals*, para. 7.323).

and 5.3 were taken into account is also relevant to the determination of whether the risk assessment is "appropriate to the circumstances".²⁵³⁰

7.1506. **Canada**, as a third party, indicates that the phrase "appropriate to the circumstances" applies to the assessment of risks conducted by the WTO Member pursuant to Article 5.1, and that the types of circumstances that could be considered by a panel include the source and subject of the risk, as well as product, origin and destination, including country-specific situations; the risk assessment techniques developed by the relevant international organizations as well as scientific opinions; and the factors considered in the assessment of risks under Articles 5.2 and 5.3.²⁵³¹ Canada further indicates that the phrase "appropriate to the circumstances" only applies to the obligation under Article 5.1 providing Members with a certain degree of flexibility²⁵³², but does not qualify or provide discretion to the WTO Member to determine which of the factors listed in Articles 5.2 and 5.3 need to be taken into account.²⁵³³ Canada adds that this phrase does not annul or supersede the obligation of a WTO Member to base its measure on a risk assessment.²⁵³⁴

7.1507. The **Panel** recalls that Article 5.1 requires Members to ensure that their sanitary or phytosanitary measures are based on an assessment, *as appropriate to the circumstances*, of the risks.

7.1508. The Panel notes that the phrase "as appropriate to the circumstances" provides Members with a certain degree of flexibility in meeting the requirements of Article 5.1 of the SPS Agreement²⁵³⁵, but that this flexibility does not relieve the Member from the requirements of this Article.²⁵³⁶

7.1509. As regards the circumstances to which the provision refers, the panel in *Australia – Salmon* considered that these circumstances may include the source of the risk and the subject of the risk, as well as the product, origin and destination, including, in particular, country-specific situations.²⁵³⁷ In addition, the panel in *US – Animals* considered that the question of whether the elements set forth in Articles 5.2 and 5.3 were taken into account is relevant to the determination of whether the risk assessment is appropriate to the circumstances in accordance with Article 5.1.²⁵³⁸

7.1510. This Panel concurs with those panels, and considers that the circumstances to which the phrase "as appropriate to the circumstances" refers include the source and subject of the risk, the product, origin, destination, and the elements set forth in Articles 5.2 and 5.3.

7.1511. With regard to the consideration of whether there exists a risk assessment appropriate to the circumstances, the panel in *Japan – Apples (Article 21.5 – US)* held that this consideration is not limited to a procedural review as to whether the risk assessment followed a certain form, *in casu* the IPPC standards. More importantly, the substance of the PRA, that is the scientific evidence which is being evaluated, must support the conclusions of the PRA.²⁵³⁹

7.1512. As part of the evaluation of the likelihood of entry, establishment or spread of ASBVd, the Panel has already analysed the consideration in Reports ARP-002-2017 and ARP-006-2016 of the circumstances relevant to the risk assessment, including, in this case, those relating to ASBVd, avocado fruit, Costa Rica's climatic conditions, its cultural practices, the status of ASBVd in Costa Rican territory, the presence of ASBVd in Mexico, and the potential biological and economic

²⁵³⁰ European Union's response to Panel question No. 6, para. 20 (citing Panel Report, *US – Animals*, para. 7.323).

²⁵³¹ Canada's response to Panel question No. 6, para. 16 (citing Panel Report, *Australia – Salmon*, para. 8.71).

²⁵³² Canada's response to Panel question No. 6, para. 17 (citing Appellate Body Report, *EC – Hormones*, para. 129); opening statement at the first meeting of the Panel, para. 15 (citing Appellate Body Report, *EC – Hormones*, para. 129).

²⁵³³ Canada's response to Panel question No. 6, para. 17; opening statement at the first meeting of the Panel, para. 16.

²⁵³⁴ Canada's opening statement at the first meeting of the Panel, para. 15 (citing Panel Report, *Australia – Salmon*, para. 8.57).

²⁵³⁵ Appellate Body Report, *EC – Hormones*, para. 129.

²⁵³⁶ Panel Report, *EC – Approval and Marketing of Biotech Products*, para. 7.3053.

²⁵³⁷ Panel Report, *Australia – Salmon*, para. 8.71.

²⁵³⁸ Panel Report, *US – Animals*, para. 7.323.

²⁵³⁹ Panel Report, *Japan – Apples (Article 21.5 – US)*, para. 8.129.

consequences. In the course of its analysis of the reports, the Panel has found flaws relating to the consideration of these circumstances.

7.1513. In the view of this Panel, given the flaws found in relation to the consideration of these circumstances that are relevant to Costa Rica's risk assessment, the risk assessment in Reports ARP-002-2017 and ARP-006-2016 cannot be considered a risk assessment *appropriate to the circumstances* within the meaning of Article 5.1 of the SPS Agreement.

7.1514. The Panel observes that Mexico has identified a number of specific circumstances that, in its view, Costa Rica should have considered for its risk assessment to be appropriate to the circumstances. The Panel will address these specific circumstances to the extent that it has not done so previously.

7.1515. Mexico states that Costa Rica failed to consider the circumstances that had a direct impact on the outcome of the SFE's risk assessments, such as: the presence of ASBVd and its disease in Costa Rica; the recalcitrant nature of avocado seeds; the more than 20 years of trade in fresh avocados for consumption between Mexico and Costa Rica without a single risk situation arising; the uninterrupted trade, prior to the preparation of the PRA, in avocados from Mexico and other countries where ASBVd and its disease are present; and Mexico's status as the world's leading exporting country thanks to its avocado quality, yield and production level.²⁵⁴⁰

7.1516. As regards the presence of ASBVd and its disease in Costa Rica, **Mexico** refers to the declaration of freedom from ASBVd, to the samples taken, and to the evidence, scientific testimonies and statements by members of the avocado industry to assert that they indicate the presence of ASBVd and its disease.²⁵⁴¹

7.1517. Mexico also asserts that the climatic conditions in the Los Santos zone are not a circumstance that justifies an increased probability of ASBVd transmission.²⁵⁴²

7.1518. With regard to the recalcitrant nature of avocado seeds, Mexico contends that an avocado seed does not germinate in such a spontaneous manner because it is a recalcitrant seed, and that if Costa Rica had considered the seed's recalcitrant nature, the risk assessment would have been conducted differently and would probably have reached a different conclusion with regard to the likelihood of entry, establishment and spread of ASBVd.²⁵⁴³

7.1519. **Costa Rica** refers to the arguments it presented in relation to the absence of ASBVd in the country, the suitability of its climatic conditions, and the viability of avocado seeds.²⁵⁴⁴

7.1520. The **Panel** has already addressed the matter of the presence of ASBVd in Costa Rica in section 7.3 above, and the matters of Costa Rica's climatic conditions and the seed's recalcitrant nature in section 7.4.5.3.3 above.

7.1521. Turning to the more than 20 years of trade in fresh avocados for consumption between Mexico and Costa Rica, **Mexico** asserts that during the 22-year period from 1993 to 2015, Costa Rica imported a total of 137,492.46 tonnes of fresh avocado for consumption from Mexico, without a single instance of ASBVd and its disease having been reported in the fresh avocados imported. Therefore, according to Mexico, assuming, *arguendo*, that Costa Rica is free of ASBVd, this implies that: (i) Mexico's control measures are sufficient to prevent the exportation of products infected with ASBVd; (ii) the pathway of fresh avocados imported for consumption from Mexico is not a means for the spread of ASBVd and its disease; and (iii) the risk posed by fresh avocado fruit for consumption is negligible.²⁵⁴⁵

7.1522. Mexico adds that from 2009, when the presence of ASBVd was officially reported in Michoacán, until 2015, Mexico exported a total of 58,562,723 tonnes of fresh avocado for consumption to Costa Rica, which means an average of 292,814,615 avocado seeds that, according

²⁵⁴⁰ Mexico's first written submission, para. 386.

²⁵⁴¹ Mexico's first written submission, para. 388.

²⁵⁴² Mexico's first written submission, p. 93.

²⁵⁴³ Mexico's first written submission, paras. 395-398.

²⁵⁴⁴ Costa Rica's first written submission, paras. 5.156-5.157.

²⁵⁴⁵ Mexico's first written submission, para. 399.

to Costa Rica's line of argumentation, each represent an opportunity for the entry, establishment and spread of ASBVd, therefore there would be 292,814,615 avocado seeds planted that were infected with ASBVd and its disease.²⁵⁴⁶

7.1523. For Mexico, if Costa Rica had considered the circumstances surrounding the fact that no instances of ASBVd were detected in consignments of fresh avocados for consumption from Mexico during the period of trade before the measures were in place, it would have conducted the risk assessment differently and would probably have reached a different conclusion with regard to the likelihood of entry, establishment and spread of ASBVd.²⁵⁴⁷

7.1524. As part of its arguments under Article 5.2 of the SPS Agreement, Mexico also submits that Costa Rica's risk assessment failed to take into account as an additional relevant factor the fact that Mexico exported avocados to Costa Rica for more than 22 years, since Mexico exported 137,492.46 tonnes of fresh avocado for consumption from 1993 to May 2015, without the presence of ASBVd having been reported once.²⁵⁴⁸ In the same section, Mexico also notes that another relevant factor that Costa Rica failed to consider is that Costa Rica has not detected ASBVd in shipments from Mexico, as stated by the SFE in 2015.²⁵⁴⁹

7.1525. **Costa Rica**, for its part, contends that at no point did Mexico report the presence of ASBVd in its territory; that, for 20 years, ASBVd was never detected in consignments of avocados from Mexico because Costa Rica, unaware that ASBVd was established in Mexico, did not impose phytosanitary requirements²⁵⁵⁰; and that Costa Rica learned of the presence of ASBVd in Mexico as a result of the IV Latin American Avocado Congress held in San José in July 2013, at which it was revealed for the first time that ASBVd was present in Mexico.²⁵⁵¹ Costa Rica states that, in mid-2013, it began the verification process to determine whether ASBVd was still absent from or had entered Costa Rican territory and that, due to technical constraints, in particular, the lack of laboratories able to carry out reliable diagnostic tests, the first results from the sampling survey carried out in 2014 arrived in October, and the results of a number of inconclusive samples that had been sent to Korea for sequencing arrived in early April 2015. Costa Rica asserts that, in light of the fact that all the samples examined tested negative for ASBVd, the country began its revision of the risk assessment for ASBVd and temporarily suspended the phytosanitary authorizations for avocados from countries where ASBVd is present.²⁵⁵²

7.1526. Costa Rica adds that, from the moment ASBVd was found in Mexico until Costa Rica adopted its temporary measure, Costa Rica acted with due caution, refraining from taking action on imported products until its territory was confirmed to be free of ASBVd. Costa Rica states, however, that the risk of entry for ASBVd was significant owing to Mexico's lack of transparency, as well as the difficulties Costa Rica faced when it came to establishing, through sampling surveys and reliable diagnostic tests, that the country remained free of ASBVd and thus could regulate it as a quarantine pest.²⁵⁵³

7.1527. At the Panel's meeting with the parties and the experts, Costa Rica asserted that it is not true that it has imported avocado fruit from Mexico for more than 20 years when ASBVd was present in Mexico. Costa Rica states that ASBVd was detected in Mexico for the first time in 2009 and Costa Rica became aware of this fact in 2013. Costa Rica's first measures were then applied as of 2015. Therefore, according to Costa Rica, it cannot be said that the risk has existed for 20 years.²⁵⁵⁴

7.1528. With regard to the continued trade to date between Costa Rica and other countries where ASBVd and its disease are present, **Mexico** submits that, among the main suppliers of fresh

²⁵⁴⁶ Mexico's first written submission, para. 400.

²⁵⁴⁷ Mexico's first written submission, para. 401.

²⁵⁴⁸ Mexico's first written submission, para. 469.

²⁵⁴⁹ Mexico's first written submission, paras. 470-472 (citing Servicio Nacional de Sanidad, Inocuidad y Calidad Agroalimentaria (SENASICA), Oficio B00.306-2015 (2015), (Exhibit MEX-140); and Solicitud de información sobre el análisis de aguacate importado a Costa Rica (2018), (Exhibit MEX-141)).

²⁵⁵⁰ Costa Rica's first written submission, paras. 5.160-5.161; response to Panel question No. 5.

²⁵⁵¹ Costa Rica's first written submission, para. 5.162 (citing Ochoa Ascencio (2013), (Exhibit CRI-11)); response to Panel question No. 5.

²⁵⁵² Costa Rica's first written submission, para. 5.163 (citing Memorandum CIBCM-PCDV-044-2014 (2014), (Exhibit MEX-115); and Memorandum CIBCM-PCDV-021-2015 (2015), (Exhibit MEX-134)); response to Panel question No. 5.

²⁵⁵³ Costa Rica's first written submission, para. 5.164.

²⁵⁵⁴ Costa Rica, transcript of the Panel's meeting with the parties and the experts, day 2, p. 30.

avocados for consumption are countries such as Chile, Peru, Honduras, Nicaragua, Guatemala and the United States, which do not regulate ASBVd as a quarantine pest, and that Costa Rica has been trading since 2015 with countries such as Peru and Guatemala, in the territories of which ASBVd has been declared present.²⁵⁵⁵ Mexico adds that, once the measures at issue were imposed, Peruvian avocados supplanted Mexican ones in Costa Rica.²⁵⁵⁶

7.1529. According to Mexico, this shows that the probability of entry, establishment and spread of ASBVd through the pathway of fresh avocados imported for consumption is minimal or zero, therefore Costa Rica should have considered the circumstances of the presence of ASBVd in other countries and the fact that, for the main producers and importers of fresh avocados for consumption, ASBVd is not a regulated quarantine pest.²⁵⁵⁷

7.1530. Mexico adds that it is highly questionable that Costa Rica has remained free of the pathogen after having received fresh avocados for consumption from Mexico for so many years, in addition to continuing to market avocados from other countries where ASBVd is present, such as Peru or Guatemala, despite having full knowledge of this.²⁵⁵⁸ Mexico questions how there can have been more than 20 years of uninterrupted trade in avocados between Mexico and Costa Rica and other countries where ASBVd is present, without a single outbreak or instance of ASBVd being recorded in Costa Rica.²⁵⁵⁹

7.1531. In Mexico's view, this situation seems paradoxical and there can only be two possible answers: (i) that the risk of entry, establishment and spread of ASBVd defined as high by Costa Rica is actually not, and the irrefutable proof of this is the alleged absence of ASBVd in its territory; or (ii) that, as a result of this high risk of entry, establishment and spread, ASBVd is already present in Costa Rica.²⁵⁶⁰ For Mexico, this contradiction shows that the premises throughout Costa Rica's risk assessment are incorrect.²⁵⁶¹

7.1532. **Costa Rica**, for its part, states that Guatemala was subject to the suspension of phytosanitary authorizations for avocados adopted pursuant to Resolution DSFE-03-2015, and the only tonne that entered Costa Rica in 2015 did so before the resolution was adopted; and that, in the case of Peru, imports of avocados had already been certified since 2012 as coming from a place of production free of ASBVd.²⁵⁶²

7.1533. Costa Rica asserts that, before ASBVd appeared in Mexico, other countries where the pest is present were already subject to phytosanitary measures, and that, for example, Peru and the United States (California), where ASBVd has long been present, have for years been subject to the phytosanitary requirement to certify that avocados come from an ASBVd-free place of production.²⁵⁶³

7.1534. The **Panel** observes that, according to Mexico, Costa Rica's risk assessment should have considered as specific circumstances (or taken into account as relevant factors under Article 5.2)

²⁵⁵⁵ Mexico's first written submission, para. 402 (citing EPPO Global Database, World distribution (2019), (Exhibit MEX-48)).

²⁵⁵⁶ Mexico's first written submission, para. 403 (citing "Importadores prevén un precio más alto para el aguacate Hass de Perú", *La Nación* (2015), (Exhibit MEX-91)).

²⁵⁵⁷ Mexico's first written submission, para. 404.

²⁵⁵⁸ Mexico's second written submission, para. 177.

²⁵⁵⁹ Mexico's opening statement at the first meeting of the Panel, para. 29.

²⁵⁶⁰ Mexico's opening statement at the first meeting of the Panel, para. 29; second written submission, para. 180.

²⁵⁶¹ Mexico's opening statement at the first meeting of the Panel, para. 30.

²⁵⁶² Costa Rica's first written submission, paras. 5.165-5.167 (citing Servicio Fitosanitario del Estado (SFE), Unidad de Análisis de Riesgo de Plagas, Guía Técnica ARP 05, "Requisitos fitosanitarios para la importación de frutas, hortalizas, raíces, bulbos y tubérculos para consumo fresco o para la industria", NR-ARP-GT05 (Perú) (2012) (SFE, Phytosanitary requirements, NR-ARP-GT05 (Peru) (2012)), (Exhibit CRI-37), p. 35).

²⁵⁶³ Costa Rica's response to Panel question No. 5, para. 1 (citing SFE, Phytosanitary requirements, NR-ARP-GT05 (Peru) (2012), (Exhibit CRI-37); and Servicio Fitosanitario del Estado (SFE), Unidad de Análisis de Riesgo de Plagas, Guía Técnica ARP 05, "Requisitos fitosanitarios para la importación de frutas, hortalizas, raíces, bulbos y tubérculos para consumo fresco o para la industria", NR-ARP-GT05 (Estados Unidos) (2012) (SFE, Phytosanitary requirements, NR-ARP-GT05 (US) (2012)), (Exhibit CRI-54)).

the more than 20 years of trade in fresh avocados for consumption between Mexico and Costa Rica and the continued trade to date between Costa Rica and other countries where ASBVd is present.

7.1535. The Panel understands that Mexico's concern regarding the failure to consider the more than 20 years of trade between Mexico and Costa Rica and the continued trade to date between Costa Rica and other countries where ASBVd is present is linked to the contradictions that Mexico finds in the fact that Costa Rica has classified the risk of entry, establishment and spread of ASBVd in its territory as high, while, at the same time, determining that ASBVd is absent in its territory, despite the trade to which Mexico refers.

7.1536. The Panel observes that the parties disagree over how long ASBVd was present in Mexico while Costa Rica continued importing from Mexico, and, therefore, over how long imports of Mexican avocados into Costa Rica posed a risk. The parties also disagree over whether imports from other countries where ASBVd is present posed and continue to pose a risk.

7.1537. With respect to the trade between Mexico and Costa Rica, Mexico submits that there are records dating back to 1948 that refer to the possible detection of avocado trees with ASBVd in Mexico, that an article was published in 2009, which for the first time confirmed the presence of ASBVd in Mexico through RT-PCR, and that the article speaks of surveys in 2006-2007.²⁵⁶⁴ Costa Rica, for its part, contends that it is not true that Costa Rica has imported avocado fruit from Mexico for more than 20 years when ASBVd was present in Mexico. Costa Rica states that ASBVd was detected in Mexico for the first time in 2009, at which time, according to Costa Rica, the incidence of ASBVd in the avocado-producing zones in Mexico was still low; that Costa Rica became aware of this fact in 2013; and that Costa Rica's first measures were then applied as of 2015, therefore, according to Costa Rica, it cannot be said that the risk has existed for 20 years.²⁵⁶⁵

7.1538. The Panel observes that the table of avocado exports from Mexico to Costa Rica in the period 1993-2015 submitted by Mexico confirms that there was an uninterrupted trade in avocados between Mexico and Costa Rica for over 20 years.²⁵⁶⁶ The data are available from the cited source, UN COMTRADE.²⁵⁶⁷ Regarding the time during which there was some risk stemming from imports of Mexican avocados to Costa Rica, the Panel considers that it is not possible to determine with certainty at what point ASBVd appeared in avocados in Mexico. There is scientific literature that speaks of the presence of ASBVd in Mexico as far back as 1948.²⁵⁶⁸ However, the statements on the presence of ASBVd in that literature are based on observations of symptoms, which would not be reliable to confirm scientifically the presence of ASBVd. The record does not contain any research in which molecular diagnostic testing was used to detect ASBVd in Mexico prior to the study by De la Torre Almaráz *et al.* That study, published in 2009, was carried out using RT-PCR and dot-blot analysis on samples taken from Hass avocados in a survey in 2006-2007.²⁵⁶⁹ Costa Rica's emergency measure, which temporarily suspended the importation of fresh avocados from Mexico, was issued in 2015. On the basis of the foregoing, ASBVd was present in Mexico's territory for at least 8-9 years before 2015.

7.1539. With regard to trade with other countries where ASBVd is present, Mexico submits that among the main suppliers of fresh avocados for consumption are countries such as Chile, Peru, Honduras, Nicaragua, Guatemala and the United States, which do not regulate ASBVd as a quarantine pest, and that Costa Rica has been trading since 2015 with countries such as Peru and Guatemala, in the territories of which ASBVd has been declared present.²⁵⁷⁰ Costa Rica asserts, for its part, that, before ASBVd appeared in Mexico, other countries where the pest was present were already subject to phytosanitary measures, and that, for example, Peru and the United States

²⁵⁶⁴ Mexico's response to Panel question No. 4, para. 15 (citing De la Torre *et al.* (2009), (Exhibit MEX-70); Saucedo Carabez *et al.* (2019), (Exhibit MEX-175); and Trask (1948), (Exhibit MEX-176)).

²⁵⁶⁵ Costa Rica's response to Panel question No. 5; transcript of the Panel's meeting with the parties and the experts, day 2, p. 30.

²⁵⁶⁶ Exportaciones de aguacate a Costa Rica originarias de México, 1993-2015, (Exhibit MEX-217).

²⁵⁶⁷ UN Comtrade Database, accessed 18 January 2022, <https://comtrade.un.org/Data/>.

²⁵⁶⁸ See Saucedo Carabez *et al.* (2019), (Exhibit MEX-175), p. 2; and Trask (1948), (Exhibit MEX-176), pp. 3-4.

²⁵⁶⁹ De la Torre *et al.* (2009), (Exhibit MEX-70).

²⁵⁷⁰ Mexico's first written submission, para. 402 (citing EPPO Global Database, World distribution (2019), (Exhibit MEX-48)).

(California) where ASBVd has long been present, have for years been subject to the phytosanitary requirement to certify that avocados come from an ASBVd-free place of production.²⁵⁷¹

7.1540. The exhibit that contains the requirements as of 2012 for Peru mentions, as general requirements for fresh products for consumption: "They must be properly packaged and identified and free of plant debris, soil, snails and slugs." Under the country-specific requirements for Peru, it states that "[t]he consignment must be accompanied by an official phytosanitary certificate issued by the country of origin, which indicates, in the section for additional declarations, that it comes from a place of production free of avocado sunblotch viroid."²⁵⁷² The exhibit that contains the requirements as of 2012 for the United States indicates that "[t]he consignment must be accompanied by an official phytosanitary certificate issued by the country of origin, which indicates, in the section for additional declarations, that it comes from an area free of *Bactrocera dorsalis*, from a place of production free of avocado sunblotch viroid."^{2573, 2574}

7.1541. The Panel is unable to ascertain with the information in the record whether imports from other countries where ASBVd is present posed and continue to pose a risk.

7.1542. With regard to the contradiction that Mexico finds, the expert Robert Griffin remarks that the probability of entry and establishment may be low or negligible because the infection level is low in source countries or imported consignments, and that greater frequency and volume are required for enough infected seed to escape and germinate to introduce the disease. Mr Griffin considers that Costa Rica is likely assuming a worst-case as the norm, and that Costa Rica cannot claim with absolute certainty that ASBVd is absent, but that Mexico's assertion that Costa Rica's position is contradictory is based on absolutes and he disagrees with it. For Mr Griffin, in reality, the situation is described by probabilities surrounded by uncertainties, and the focus should not be on absolute conclusions but on whether the evidence supports the closest representation of reality.²⁵⁷⁵

7.1543. The expert Fernando Pliego Alfaro, for his part, asserts that if Costa Rica is still free from ASBVd, the most convincing explanation is that, to date, it has not used many seeds from imported fruit to develop rootstock in the country.²⁵⁷⁶

7.1544. Regardless of the disagreements between the parties over how long the presence of ASBVd in Mexico and in other countries posed or has been posing a risk, in the Panel's view, the considerations that give rise to the contradictions identified by Mexico are related to the assertion in Reports ARP-002-2017 and ARP-006-2016 on the absence of ASBVd in Costa Rica and to the assignment of values to some of the factors and elements of the assessment of the probability of entry, establishment and spread of ASBVd in Costa Rica. These factors and elements are, for example, the probability of the pest being associated with the pathway at origin (including the prevalence of ASBVd in Mexico), the probability of transfer to a suitable host, and the probability related to cultivation practices and control measures. The Panel has already addressed the determination of freedom of ASBVd and the aforementioned factors and elements of the risk assessment, and has found flaws that affect the reliability of this determination of freedom and of the assignment of probability values to these factors and elements.

7.1545. The Panel considers that the contradictions identified by Mexico should not arise in a risk assessment that is based on respectable scientific evidence and coherent reasoning, and that can, in that sense, be objectively justified. Trade-related questions should be explained by or considered in the risk assessment through the analysis of the relevant factors and elements, such as the probability of the pest being associated with the pathway at origin (including the volume and

²⁵⁷¹ Costa Rica's response to Panel question No. 5, para. 1 (citing SFE, Phytosanitary requirements, NR-ARP-GT05 (Peru) (2012), (Exhibit CRI-37); and SFE, Phytosanitary requirements, NR-ARP-GT05 (US) (2012), (Exhibit CRI-54)).

²⁵⁷² SFE, Phytosanitary requirements, NR-ARP-GT05 (Peru) (2012), (Exhibit CRI-37), pp. 1 and 35.

²⁵⁷³ SFE, Phytosanitary requirements, NR-ARP-GT05 (US) (2012), (Exhibit CRI-54), p. 12.

²⁵⁷⁴ Reports ARP-002-2017 and ARP-006-2016 also state that Costa Rica has regulations that concern Peru and the United States (California), citing SFE (2017). (ARP-002-2017, (Exhibit MEX-84), p. 14; ARP-006-2016, (Exhibit MEX-85), p. 10). The relevant exhibit, referred to in Costa Rica's response to Panel question No. 19 (Exhibit CRI-140), contains information on the importation of avocados from January 2015 to December 2017, but does not mention the regulations. See SFE, Avocado imports statistics 2015-2017 (2019), (Exhibit CRI-140).

²⁵⁷⁵ Robert Griffin's response to Panel question No. 52 for the experts.

²⁵⁷⁶ Fernando Pliego Alfaro's response to Panel question No. 52 for the experts.

frequency of movement along the pathway and the prevalence of ASBVd in Mexico), the probability of transfer to a suitable host (including dispersal mechanisms, the destination points in the PRA area, the time of the year at which import takes place, and the risks from by-products and waste), and the rate of reproduction and spread of ASBVd.

7.1546. In view of the foregoing, the Panel does not consider that the more than 20 years of trade in fresh avocados for consumption between Mexico and Costa Rica and the continued trade to date between Costa Rica and other countries where ASBVd is present should be viewed as specific circumstances (or factors under Article 5.2) to be analysed separately. However, in the Panel's view, Costa Rica should have considered the trade flows between itself and the countries where ASBVd is present when analysing various factors or elements of the risk assessment. These trade flows affect the magnitude of the risk of entry, establishment and spread of ASBVd in Costa Rica, and also constitute information that is relevant to the consideration of the measures that might be applied.

7.1547. As regards Mexico's status as the world's leading exporter of fresh avocados for consumption, **Mexico** asserts that Costa Rica should have considered the factors that make Mexico the world's main supplier of fresh avocados, such as the quality of its fruit, which is the result of the high sowing, crop, harvesting and packing standards that are monitored by the authorities and the industry workers themselves.²⁵⁷⁷ Mexico adds that there has been no fall in avocado production and yield levels since the notification of the presence of ASBVd in Michoacán, and, on the contrary, these levels have increased, meaning that Mexico's yield levels are much higher than the global standard and than those of Costa Rica.²⁵⁷⁸

7.1548. Mexico submits that, if Costa Rica had considered the circumstances of the avocado production in Mexico, it would have conducted the risk assessment differently and would probably have reached a different conclusion with regard to the likelihood of entry, establishment and spread of ASBVd and its disease.²⁵⁷⁹

7.1549. As part of its arguments under Article 5.2 of the SPS Agreement, Mexico also submits that Costa Rica's risk assessment failed to take into account as another relevant factor the fact that, despite ASBVd being present in Mexico, it has not led to the devastation of the industry and there is no evidence to suggest that ASBVd and its disease have given rise to a phytosanitary risk or problem for Mexico.²⁵⁸⁰

7.1550. **Costa Rica**, for its part, contends that Mexico fails to explain why this information is relevant; that the avocado industries in Mexico and Costa Rica cannot be compared at any level; and that the fact that Mexico has been able to maintain a stable yield in its production, despite the presence of ASBVd, says nothing about the serious economic consequences that Costa Rica's avocado production could suffer as a result of the viroid entering the country.²⁵⁸¹

7.1551. Costa Rica states that it does not consider that, in order to conduct a risk assessment appropriate to the circumstances, it should have taken into account Mexico's position as the world's leading avocado exporter, but that it did take into account the fact that Mexico has traditionally been the main exporter of avocados to Costa Rica, which is why, since Costa Rica learned in 2013 of the presence of ASBVd in Mexico, all necessary steps have been taken to ensure the implementation of appropriate risk mitigation measures that are consistent with all Costa Rica's obligations under the SPS Agreement.²⁵⁸²

7.1552. The **Panel** notes that, according to Mexico, Costa Rica should have considered the factors that make Mexico the world's main supplier of fresh avocados, such as the quality of its fruit, which is the result of the high sowing, crop, harvesting and packing standards. However, Mexico fails to explain why these factors would affect the evaluation of the likelihood of entry, establishment and

²⁵⁷⁷ Mexico's first written submission, para. 405.

²⁵⁷⁸ Mexico's first written submission, paras. 406-407 (citing Mexico, *The avocado in Mexico* (2019), (Exhibit MEX-40)).

²⁵⁷⁹ Mexico's first written submission, para. 408.

²⁵⁸⁰ Mexico's first written submission, para. 468.

²⁵⁸¹ Costa Rica's first written submission, para. 5.168.

²⁵⁸² Costa Rica's second written submission, para. 3.24.

spread of ASBVd in Costa Rican territory, and why they would constitute a circumstance to which Costa Rica's risk assessment must be appropriate.

7.1553. Mexico refers to the fact that there has been no fall in avocado production and yield levels in the country since the notification of the presence of ASBVd in Michoacán, and, on the contrary, these levels have increased; and that Costa Rica failed to take into account in its risk assessment that ASBVd has not led to the devastation of the Mexican industry and there is no evidence that ASBVd has given rise to a phytosanitary risk or problem for Mexico.

7.1554. The Panel considers that these situations could be related to the evaluation of potential economic consequences associated with the entry, establishment and spread of ASBVd. The expert Robert Griffin notes that the primary factor for measuring harm is usually the impact on yield, which is quantified based on the market value of the lost crop. Mr Griffin adds that, in many cases, analysts may draw from the experiences of other countries, which can provide valuable insight.²⁵⁸³

7.1555. The Panel does not consider, however, that, when evaluating the potential economic consequences, Costa Rica should necessarily have considered that there has been no fall in Mexico's production levels or that ASBVd has not led to the devastation of the Mexican industry. Costa Rica should have assessed the potential economic consequences by gathering sufficient scientific evidence, which could include information on the experience of the Mexican industry if considered applicable, but also other types of information, provided that this information was sufficient to support the risk analyst's conclusions.

7.1556. In light of the foregoing, in the Panel's view, the circumstances identified by Mexico as specific circumstances that Costa Rica should have considered for its risk assessment to be appropriate to the circumstances have been addressed previously or do not constitute a circumstance that should have been considered as such separately (or as a factor of Article 5.2).

7.1557. However, the Panel reiterates its conclusion in paragraph 7.1513 above, that, given the flaws found in relation to the consideration of the circumstances that are relevant to Costa Rica's risk assessment, the risk assessment in Reports ARP-002-2017 and ARP-006-2016 cannot be considered as a risk assessment *appropriate to the circumstances* within the meaning of Article 5.1 of the SPS Agreement.

7.4.5.6 Whether the risk assessment techniques of international organizations were taken into account

7.1558. **Mexico** submits that Costa Rica did not take into account ISPM Nos. 4, 6, and 11 when preparing Reports ARP-006-2016 and ARP-002-2017, contrary to the third aspect necessary to determine whether Costa Rica carried out a risk assessment in accordance with Article 5.1 of the SPS Agreement.²⁵⁸⁴ In its responses to the Panel's questions, Mexico contends that Costa Rica should have taken into account ISPM Nos. 2 and 11²⁵⁸⁵, and that these ISPMs are the risk assessment techniques referred to in Article 5.1, since they are specific standards concerning risk assessment techniques developed by the IPPC, the relevant international organization in matters of plant health.²⁵⁸⁶

7.1559. Mexico maintains that Costa Rica failed to take into account the relevant international standards for a PRA, because: (i) it did not use as a basis the methodology proposed in ISPM No. 11²⁵⁸⁷; (ii) the scientific evidence included in the PRAs to justify each aspect of ISPM No. 11 is not based on conclusions regarding the probability of entry, establishment and spread of ASBVd and its disease through the pathway of fresh avocados imported for consumption from Mexico²⁵⁸⁸; and (iii) contrary to the recommendations in ISPM Nos. 4 and 6, Costa Rica did not consider the requirements and procedures for claiming that its territory is ASBVd-free as an element

²⁵⁸³ Robert Griffin's response to Panel question No. 114(c) for the experts.

²⁵⁸⁴ Mexico's first written submission, para. 413.

²⁵⁸⁵ Mexico's response to Panel question No. 103(c), para. 141.

²⁵⁸⁶ Mexico's response to Panel question No. 103(d), para. 142.

²⁵⁸⁷ Mexico's first written submission, para. 410.

²⁵⁸⁸ Mexico's first written submission, para. 411.

of the pest risk assessment, which means that its SPS measures lack the scientific basis needed to argue that all of Costa Rica is free of ASBVd.²⁵⁸⁹

7.1560. For Mexico, the fact that Costa Rica cited sections of ISPM No. 11 does not mean that it based its reasoning on the instrument. Accordingly, Costa Rica cannot be considered to have taken into account the risk assessment techniques set out therein.²⁵⁹⁰

7.1561. Mexico also asserts that Costa Rica did not clarify how it estimated the probability of the introduction of ASBVd from discarded seeds within the meaning of ISPM No. 5, which shows that it did not conduct an assessment as appropriate to the circumstances and in accordance with the assessment techniques recommended by the IPPC.²⁵⁹¹

7.1562. **Costa Rica** argues that Mexico has failed to demonstrate how Costa Rica's risk assessment did not "take into account" risk assessment techniques developed by the relevant international organizations. Costa Rica states that, in the phytosanitary domain, PRA techniques are set out mainly in ISPM No. 11, and that, while there is no need to respect each and every aspect of ISPM No. 11 or to achieve a specific result, the risk analyst must consider or pay attention to the stipulations of this international standard.²⁵⁹²

7.1563. Costa Rica adds that it is fully aware of the importance of the IPPC guidelines and the procedural guidelines in the ISPMs, and that, because of this, it went beyond the obligation to take into account the ISPMs and produced a manual that transposes the recommendations in ISPM No. 11 into a domestic tool with which the SFE must comply. Costa Rica states that the manual, adopted on a voluntary basis, helps to increase transparency as to how the SFE analyses pest risks, and ensures that the risk analyses take into account the relevant factors in ISPM No. 11.²⁵⁹³

7.1564. Costa Rica also submits that its risk assessment followed the stipulations of its manual with respect to conducting a PRA. Since these stipulations are based entirely on ISPM No. 11, its risk assessment necessarily took into account risk assessment techniques developed by the relevant international organizations.²⁵⁹⁴ Costa Rica asserts that the failure to follow each and every aspect of an international standard does not render the risk assessment inconsistent with Article 5.1 of the SPS Agreement, since Members are free to conduct the risk assessment according to the appropriate methodology that they deem relevant, and taking into account risk assessment techniques does not require that the assessment be "based on" or "conform with" these techniques.²⁵⁹⁵

7.1565. Costa Rica adds that the best way to examine whether its phytosanitary authority took into account international standards – in this case, ISPM No. 11 – is to address this element in the risk assessment analysis under Article 5.1 of the SPS Agreement.²⁵⁹⁶

7.1566. The **European Union**, as a third party, is of the view that Article 5.1 of the SPS Agreement requires the Member to take into account the risk assessment techniques included in ISPM Nos. 2 and 11, to the extent that those techniques are deemed to have been developed by the relevant international organizations. However, Article 5.1 does not require that the Member comply with such techniques.²⁵⁹⁷

7.1567. The European Union considers that "to take into account" is less stringent than "to base on" or "to conform with". Nonetheless, the risk assessment techniques developed by the relevant international organizations can provide very useful guidance as to whether the risk assessment at issue constitutes a proper risk assessment within the meaning of Article 5.1.²⁵⁹⁸

²⁵⁸⁹ Mexico's first written submission, para. 412.

²⁵⁹⁰ Mexico's second written submission, para. 193.

²⁵⁹¹ Mexico's second written submission, para. 126.

²⁵⁹² Costa Rica's second written submission, para. 3.25.

²⁵⁹³ Costa Rica's second written submission, paras. 3.26-3.27.

²⁵⁹⁴ Costa Rica's first written submission, para. 5.77.

²⁵⁹⁵ Costa Rica's first written submission, para. 5.101.

²⁵⁹⁶ Costa Rica's second written submission, para. 3.27.

²⁵⁹⁷ European Union's response to Panel questions Nos. 1(c) and (d), para. 10.

²⁵⁹⁸ European Union's response to Panel question No. 7, paras. 23-25 (citing Panel Reports, *Japan – Apples*, para. 8.241; and *US/Canada – Continued Suspension*, para. 7.458).

7.1568. **Canada** states, as a third party, that ISPM Nos. 2 and 11 are "risk assessment techniques" relevant to any analysis under Article 5.1, and that these ISPMs were developed by a relevant international organization, the IPPC, recognized in Annex A, paragraph 3, as an international body that develops international standards, guidelines and recommendations.²⁵⁹⁹

7.1569. Canada submits that ISPM No. 2 sets out general requirements for the PRA. Canada recalls that the Appellate Body in *Australia – Apples* described ISPM No. 2 as "a framework describing the pest risk analysis process"; found that ISPM No. 11 "provides details for the conduct of pest risk analysis to determine if pests are quarantine pests and describes the integrated processes to be used for risk assessment, as well as the selection of risk management options"; and determined that, read together, ISPM Nos. 2 and 11 "present the general framework for conducting a pest risk assessment".²⁶⁰⁰ Canada adds that the Appellate Body then applied these risk assessment techniques to evaluate Australia's assessment under Article 5.1.²⁶⁰¹

7.1570. Canada asserts that there is no requirement for risk assessments to be based on, or conform to, risk assessment techniques developed by relevant international organizations²⁶⁰², but that Article 5.1 still requires WTO Members to "give consideration" to such techniques when conducting their risk assessments.²⁶⁰³

7.1571. **El Salvador** states, as a third party, that ISPM No. 2 establishes a framework that describes the PRA process, and that ISPM No. 11 provides details for the conduct of a PRA to determine if pests are quarantine pests. El Salvador considers that ISPM Nos. 2 and 11 constitute international standards applicable to the risk assessment that each Member must undertake and establish the stages of the procedure to be included in the PRA, in accordance with Article 5.1 of the SPS Agreement.²⁶⁰⁴

7.1572. El Salvador adds that ISPM Nos. 2 and 11 establish the framework for the PRA process and that the process set out in ISPM Nos. 2 and 11 is a risk assessment technique developed by FAO as the relevant international organization, in compliance with Article 5 of the SPS Agreement.²⁶⁰⁵

7.1573. The **Panel** recalls that Article 5.1 of the SPS Agreement requires Members to ensure that their sanitary or phytosanitary measures are based on an assessment, as appropriate to the circumstances, of the risks to human, animal or plant life or health, *taking into account risk assessment techniques developed by the relevant international organizations*.

7.1574. The SPS Agreement does not specifically identify the relevant international organizations for purposes of Article 5.1. However, the Panel notes the observation of the panel in *US – Continued Suspension* that the relevant international organizations for the purposes of harmonization, as identified in paragraph 3 of Annex A to the SPS Agreement, are relevant international organizations for purposes of Article 5.1.²⁶⁰⁶

7.1575. In *Australia – Apples*, in the context of Article 5.1, the Appellate Body noted that, according to paragraph 3(c) of Annex A to the SPS Agreement, the international standards, guidelines, and recommendations relevant for plant health are those developed under the auspices of the IPPC in cooperation with regional organizations operating within the framework of the IPPC.²⁶⁰⁷

²⁵⁹⁹ Canada's response to Panel question No. 1(c), para. 5.

²⁶⁰⁰ Canada's response to Panel question No. 1(c), para. 6 (citing Appellate Body Report, *Australia – Apples*, para. 245 and fn 376).

²⁶⁰¹ Canada's response to Panel question No. 1(c), para. 6 (citing Appellate Body Report, *Australia – Apples*, paras. 248 and 261).

²⁶⁰² Canada's opening statement at the first meeting of the Panel, para. 18 (citing Appellate Body Report, *Australia – Apples*, para. 246); response to Panel question No. 7(a), para. 19 (citing Appellate Body Report, *Australia – Apples*, para. 246).

²⁶⁰³ Canada's opening statement at the first meeting of the Panel, para. 18.

²⁶⁰⁴ El Salvador's response to Panel question No. 1(c).

²⁶⁰⁵ El Salvador's response to Panel question No. 1(d).

²⁶⁰⁶ Panel Report, *US – Continued Suspension*, para. 7.446.

²⁶⁰⁷ Appellate Body Report, *Australia – Apples*, para. 245.

7.1576. In this context, this Panel considers that the ISPMs, which were developed within the framework of the IPPC, constitute standards developed by a relevant international organization within the meaning of Article 5.1 of the SPS Agreement.

7.1577. Regarding the obligation to "take into account", the ordinary meaning of the phrase, according to the *Diccionario de la lengua española* of the Real Academia Española, is "*tener presente, considerar*" ("to keep in mind, consider").²⁶⁰⁸

7.1578. In interpreting Article 5.3 of the SPS Agreement, the panel in *Russia – Pigs (EU)* reviewed other panels' interpretations of expressions similar to "shall take into account" in Articles 5.1, 5.2, 5.4, and 10.1 of the SPS Agreement, and 12.3 of the TBT Agreement, and expressed its agreement with these interpretations.²⁶⁰⁹ That panel referred to, among other matters, the panel in *US – Animals*, which stated that "to take into account" means "to take into consideration, notice" and does not require any particular result of that consideration.²⁶¹⁰

7.1579. The panel in *Japan – Apples* expressed the view that the requirement to take into account risk assessment techniques developed by the relevant international organizations does not impose that a risk assessment be "based on" or "in conformity with" such risk assessment techniques, and that, while such techniques should be considered relevant, a failure to respect each and every aspect of them would not necessarily signal that the risk assessment is not in conformity with Article 5.1.²⁶¹¹ The panel added that, nonetheless, reference to these risk assessment techniques can provide very useful guidance as to whether the risk assessment at issue constitutes a proper risk assessment within the meaning of Article 5.1.²⁶¹²

7.1580. The Appellate Body in *Australia – Apples* noted that the obligation to conduct a pest risk assessment that takes into account internationally developed risk assessment techniques does not imply that compliance with such techniques alone suffices to demonstrate compliance with a Member's obligations under the SPS Agreement.²⁶¹³ The Appellate Body added that, however, reference by the risk assessor to such techniques is useful both to the risk assessor, should a dispute arise in relation to the risk assessment, and to the panel that is called upon to review the consistency of that risk assessment with the provisions of the SPS Agreement.²⁶¹⁴

7.1581. It should be noted that the panel in *EC – Approval and Marketing of Biotech Products* expressed the view that the phrase "taking into account risk assessment techniques developed by the relevant international organizations" addresses how risks are to be assessed.²⁶¹⁵

7.1582. In light of the foregoing, this Panel considers that its task in this case is to identify whether there are risk assessment techniques for the purposes of Article 5.1 developed in the framework of the IPPC, and to determine whether, in carrying out its risk assessment, Costa Rica has taken these into account, in the sense of taking into consideration. The Panel agrees that the risk assessment need not be based on or in conformity with risk assessment techniques, and that compliance with such techniques alone is not sufficient to meet the requirements of Article 5.1, but also notes that these techniques provide important guidance on how to conduct a risk assessment, in this case a phytosanitary risk assessment.

7.1583. The Panel will now address the ISPMs that Mexico identified as risk assessment techniques that, in its view, Costa Rica did not take into account in its risk assessment, i.e. ISPM Nos. 2, 4, 6, and 11. The Panel will determine whether these ISPMs are risk assessment techniques for the

²⁶⁰⁸ *Diccionario de la lengua española*, Real Academia Española, accessed 30 November 2021, <https://dle.rae.es/cuenta>.

²⁶⁰⁹ Panel Report, *Russia – Pigs (EU)*, paras. 7.760–7.767.

²⁶¹⁰ Panel Report, *Russia – Pigs (EU)*, para. 7.763 (citing Panel Reports, *US – Animals*, para. 7.401, in turn citing Appellate Body Report, *Korea – Various Measures on Beef*, para. 111; and Panel Reports, *US – COOL*, para. 7.776).

²⁶¹¹ Panel Report, *Japan – Apples*, para. 8.241. See also Panel Reports, *Canada – Continued Suspension*, paras. 7.452–7.459; and *US – Continued Suspension*, paras. 7.462–7.469; and Appellate Body Report, *Australia – Apples*, para. 246.

²⁶¹² Panel Report, *Japan – Apples*, para. 8.241.

²⁶¹³ Appellate Body Report, *Australia – Apples*, para. 246.

²⁶¹⁴ Appellate Body Report, *Australia – Apples*, para. 246.

²⁶¹⁵ Panel Reports, *EC – Approval and Marketing of Biotech Products*, para. 7.3022.

purposes of Article 5.1 of the SPS Agreement, and whether Costa Rica took them into account when conducting its risk assessment.

7.1584. As the Panel already explained in section 2.2 above, ISPM Nos. 2, 4, 6, and 11 are international standards developed in the framework of the IPPC.

7.1585. The Panel does not consider ISPM No. 4, "Requirements for the establishment of pest free areas", to be a risk assessment technique for the purposes of Article 5.1 of the SPS Agreement, since it describes the requirements for the establishment and use of PFAs as a risk management option for phytosanitary certification of plants and plant products and other regulated articles exported from the PFA or to support the scientific justification for phytosanitary measures taken by an importing country for protection of an endangered PFA²⁶¹⁶, which does not constitute guidance on how to conduct a risk assessment. Moreover, Mexico states that it "agrees with the experts that Costa Rica was not required to establish a PFA within its territory".²⁶¹⁷

7.1586. As noted in paragraph 7.459 above, ISPM No. 6, "Surveillance", is referred to in ISPM No. 8, "Determination of pest status in an area", which is in turn referred to in ISPM No. 11. ISPM No. 6 is a tool that describes the components of survey and monitoring systems for the purpose of pest detection and the supply of information for use in PRAs, the establishment of PFAs and, where appropriate, the preparation of pest lists.²⁶¹⁸ As such, ISPM No. 6 is relevant to risk assessment techniques but does not in itself constitute a risk assessment technique for the purposes of Article 5.1 of the SPS Agreement.

7.1587. The parties and third parties agree that ISPM Nos. 2 and 11 are risk assessment techniques pursuant to Article 5.1.²⁶¹⁹ ISPM Nos. 2 and 11 have also previously been accepted as risk assessment techniques for the purposes of Article 5.1 by the Appellate Body, which acknowledged that ISPM Nos. 2 and 11 "present the general framework for conducting a pest risk assessment".²⁶²⁰

7.1588. As explained, with regard to its scope, ISPM No. 2 provides a framework that describes the PRA process within the scope of the IPPC, and introduces the three stages of PRA, i.e. initiation, pest risk assessment and pest risk management.²⁶²¹ This standard provides detailed guidance on stage 1 (initiation), summarizes stages 2 (risk assessment) and 3 (risk management)²⁶²², and refers to other ISPMs, including ISPM No. 11, for further analyses throughout PRA Stages 2 and 3.²⁶²³ With regard to its scope, ISPM No. 11 provides details for the conduct of PRA to determine if pests are quarantine pests, and describes the integrated processes to be used for risk assessment as well as the selection of risk management options.²⁶²⁴

7.1589. In short, ISPM No. 2 provides a framework that describes the PRA process²⁶²⁵, while ISPM No. 11 provides specific guidance on quarantine pests PRA.²⁶²⁶ Therefore, ISPM Nos. 2 and 11 provide guidance on how to conduct a pest risk assessment and identify its stages and what they should include.

7.1590. In view of the above, the Panel agrees with the parties and third parties that ISPM Nos. 2 and 11 constitute risk assessment techniques for the purposes of Article 5.1 of the SPS Agreement.

²⁶¹⁶ ISPM No. 4, (Exhibit MEX-73), p. 4.

²⁶¹⁷ Mexico's comments on the experts' responses to Panel questions Nos. 164, 165, and 167 for the experts; response to Panel question No. 129.

²⁶¹⁸ CIPF, Guía de la CIPF sobre Vigilancia Fitosanitaria (2019), p. 1, accessed 30 November 2021, <https://www.fao.org/3/ca3764es/CA3764ES.pdf>.

²⁶¹⁹ Mexico's response to Panel question No. 103(d), para. 142; Costa Rica's response to Panel questions Nos. 103(a) and (c), para. 5; second written submission, para. 3.24. See also European Union's response to Panel questions Nos. 1(c) and (d), paras. 9 and 10; Canada's response to Panel question No. 1(c), para. 5; El Salvador's response to Panel question No. 1(d).

²⁶²⁰ Appellate Body Report, *Australia – Apples*, fn 356 (citing Panel Report, *Australia – Apples*, paras. 2.69 and 2.71).

²⁶²¹ ISPM No. 2, (Exhibit MEX-72), p. 4.

²⁶²² ISPM No. 2, (Exhibit MEX-72), p. 4.

²⁶²³ ISPM No. 2, (Exhibit MEX-72), pp. 4 and 6.

²⁶²⁴ ISPM No. 11, (Exhibit MEX-77), p. 5.

²⁶²⁵ ISPM No. 2, (Exhibit MEX-72), p. 4.

²⁶²⁶ ISPM No. 2, (Exhibit MEX-72), p. 13.

7.1591. The Panel notes that Manual NR-ARP-PO-01_M-01 reflects most of the factors and elements described in ISPM Nos. 2 and 11 for a pest risk assessment. As a result, Reports ARP-002-2017 and ARP-006-2016 generally follow the structure described in these ISPMs and contain most of the factors and elements suggested therein. Regarding how to conduct the risk assessment, the Panel considers that Costa Rica has taken into consideration the general framework for conducting a pest risk assessment established in ISPM Nos. 2 and 11. Although the Panel has found flaws in the assessment of the factors and elements suggested in the ISPM, including in terms of the insufficient documentation of uncertainty, an issue specifically addressed in ISPM Nos. 2 and 11, the Panel does not consider these flaws sufficient to conclude that Costa Rica failed to take into account ISPM Nos. 2 and 11 in its assessment of risks in Reports ARP-002-2017 and ARP-006-2016. Thus, in the Panel's view, Costa Rica took into account ISPM Nos. 2 and 11 as risk assessment techniques within the meaning of Article 5.1 of the SPS Agreement.

7.1592. In summary, the Panel concludes that ISPM Nos. 2 and 11 are risk assessment techniques developed by one of the relevant international organizations that Costa Rica should have taken into account when conducting its risk assessment; and that Costa Rica did take into account ISPM Nos. 2 and 11 when conducting its risk assessment. The Panel does not consider ISPM Nos. 4 and 6 to be risk assessment techniques for the purposes of Article 5.1 of the SPS Agreement.

7.4.5.7 Whether the factors listed in Article 5.2 of the SPS Agreement were taken into account

7.1593. **Mexico** claims that Costa Rica's measures are contrary to Article 5.2 of the SPS Agreement.²⁶²⁷ Mexico asserts that Article 5.2 of the SPS Agreement complements the obligation set forth in Article 5.1 by indicating the elements that Members must take into account in the assessment of risks.²⁶²⁸ Mexico submits that, when conducting the risk assessment, Costa Rica should have considered the elements listed in that article, but Costa Rica has failed to provide the elements necessary to demonstrate that it did so.²⁶²⁹

7.1594. Mexico maintains that, in its risk assessment, Costa Rica did not consider available scientific evidence, relevant inspection, sampling and testing methods, the prevalence of ASBVD, quarantine treatments, or other relevant factors.²⁶³⁰

7.1595. **Costa Rica** submits that Mexico has failed to establish that its measures are inconsistent with Article 5.2 of the SPS Agreement.²⁶³¹ Costa Rica asserts that Mexico does not present any new arguments in relation to this Article.²⁶³² For Costa Rica, while it is logical to take into account the elements contained in Article 5.2 in the risk assessment analysis under Article 5.1 of the SPS Agreement, Mexico uses Article 5.2 to repeat the arguments related to its claim under Article 5.1.²⁶³³

7.1596. Costa Rica contends that it has already set out, in the context of Article 5.1, how its risk assessment took into account risk assessment techniques developed by the relevant international organizations, which, in this case, are reflected in ISPM No. 11. Costa Rica adds that the factors listed in Articles 5.2 and 5.3 of the SPS Agreement are already contained in ISPM No. 11. Thus, a risk assessment that takes into account ISPM No. 11 can be expected to address the relevant factors in Articles 5.2 and 5.3, as is the case with Costa Rica's risk assessment.²⁶³⁴

7.1597. Costa Rica concludes that, for the same reasons given under Article 5.1 of the SPS Agreement, Mexico has not substantiated its claim that Costa Rica has failed to conduct a proper risk assessment that takes into account risk assessment techniques developed by the relevant

²⁶²⁷ Mexico's first written submission, p. 105.

²⁶²⁸ Mexico's first written submission, para. 425.

²⁶²⁹ Mexico's first written submission, para. 429.

²⁶³⁰ Mexico's first written submission, pp. 105-123.

²⁶³¹ Costa Rica's first written submission, p. 67.

²⁶³² Costa Rica's first written submission, para. 5.173.

²⁶³³ Costa Rica's first written submission, paras. 5.178-5.179.

²⁶³⁴ Costa Rica's first written submission, para. 5.182.

international organizations, and that the Panel should therefore reject Mexico's claim under Article 5.2 of the SPS Agreement.²⁶³⁵

7.1598. Regarding the expression "to take into account" in Articles 5.1, 5.2, and 5.3, the **European Union** asserts, as a third party, that its ordinary meaning is "to take into consideration" and that it does not require any particular result of that consideration, as confirmed by the case law.²⁶³⁶ For the European Union, the expression "taking available scientific evidence into account" does not require that a Member conform its actions to a particular conclusion in a particular scientific study. Rather, it seeks to ensure that a Member, when assessing risk with the aim of formulating an appropriate SPS measure, has as wide a range as possible of scientific information before it to ensure that its measure will be based on sufficient scientific data and supported by scientific principles.²⁶³⁷

7.1599. **Canada** states, as a third party, that the phrase "take into account" has been interpreted to mean "give consideration" and "take into consideration, notice".²⁶³⁸ Canada considers that, in the context of Articles 5.2 and 5.3, the phrase "take into account" means that Members must give consideration to the evidence and information in conducting the risk assessment.²⁶³⁹ Canada asserts that Members are required to "take into account" the factors listed in Articles 5.2 and 5.3 but are not required to show that they incorporated the factors in their assessment of risks²⁶⁴⁰ or to conform their actions to a particular conclusion in a particular scientific study.²⁶⁴¹ For Canada, the obligation to "take into account" will vary according to the specific facts of the case, the SPS risks at issue and the risk assessment conducted by the Member.²⁶⁴²

7.1600. **El Salvador** states, as a third party, that the Appellate Body has interpreted the expression "take into account" to mean "take into consideration, notice". According to El Salvador, the factors referred to in Articles 5.1, 5.2, and 5.3 should be considered and assessed, and the SPS measure should be based on or supported by them.²⁶⁴³

7.1601. The **Panel** recalls that Article 5.2 requires Members to take into account certain factors in the assessment of risks. These factors are: (i) available scientific evidence; (ii) relevant processes and production methods; (iii) relevant inspection, sampling and testing methods; (iv) prevalence of specific diseases or pests; (v) existence of pest- or disease-free areas; (vi) relevant ecological and environmental conditions; and (vii) quarantine or other treatment.

7.1602. The Panel further recalls that, in considering the factors to be taken into account when conducting a risk assessment, the Appellate Body in *EC – Hormones* referred to the listing of factors in Article 5.2 of the SPS Agreement and stated that it is not a closed list.²⁶⁴⁴ The Appellate Body added that "[i]t is essential to bear in mind that the risk that is to be evaluated ... is not only risk ascertainable in a science laboratory operating under strictly controlled conditions, but also risk ... in the real world".²⁶⁴⁵

7.1603. The panel in *US – Continued Suspension* was of the view that taking available scientific evidence into account "does not require that a Member conform its actions to a particular conclusion in a particular scientific study", since "[t]he available scientific information may contain a multiplicity of views and data on a particular topic".²⁶⁴⁶ Article 5.2 aims to ensure that a Member, when assessing

²⁶³⁵ Costa Rica's first written submission, para. 5.183; second written submission, para. 3.58.

²⁶³⁶ European Union's response to Panel question No. 7, paras. 21-22.

²⁶³⁷ European Union's response to Panel question No. 7, para. 26 (citing Panel Report, *US – Continued Suspension*, para. 7.480).

²⁶³⁸ Canada's response to Panel question No. 7(a), para. 18 (citing Panel Report, *Russia – Pigs (EU)*, para. 7.767); response to question No. 7(c), para. 22; opening statement at the first meeting of the Panel, para. 17 (citing Panel Report, *Russia – Pigs (EU)*, para. 7.767).

²⁶³⁹ Canada's opening statement at the first meeting of the Panel, para. 19.

²⁶⁴⁰ Canada's response to Panel question No. 7(a), para. 20.

²⁶⁴¹ Canada's response to Panel question No. 7(a), para. 20 (citing Panel Report, *US – Continued Suspension*, para. 7.480).

²⁶⁴² Canada's response to Panel question No. 7(b), para. 21.

²⁶⁴³ El Salvador's response to Panel questions Nos. 7(a) and (c).

²⁶⁴⁴ Appellate Body Report, *EC – Hormones*, para. 187. See also Appellate Body Report, *Australia – Apples*, para. 207.

²⁶⁴⁵ Appellate Body Report, *EC – Hormones*, para. 187. See also Appellate Body Reports, *US/Canada – Continued Suspension*, para. 527; *India – Agricultural Products*, para. 5.19; and *Australia – Apples*, para. 207.

²⁶⁴⁶ Panel Report, *US – Continued Suspension*, para. 7.480.

risk, "has as wide a range as possible of scientific information before it to ensure that its measure will be based on sufficient scientific data and supported by scientific principles".²⁶⁴⁷

7.1604. The Panel reiterates that, according to the *Diccionario de la lengua española* of the Real Academia Española, the ordinary meaning of the phrase "*tener en cuenta*" ("take into account") is "*tener presente, considerar*" ("to keep in mind, consider").²⁶⁴⁸

7.1605. This Panel also considers relevant to its analysis under Article 5.2 the observations of the panel in *Russia – Pigs (EU)* on the phrase "take into account" in the context of Article 5.3 of the SPS Agreement. As explained, the panel in *Russia – Pigs (EU)* reviewed other panels' interpretations of expressions similar to "shall take into account" in Articles 5.1, 5.2, 5.4, and 10.1 of the SPS Agreement and 12.3 of the TBT Agreement, and expressed its agreement with these interpretations.²⁶⁴⁹ The panel referred to, among other matters, the panel in *US – Animals*, which noted that "to take into account" means "to take into consideration, notice" and does not require any particular result of that consideration.²⁶⁵⁰

7.1606. As to the relationship between Articles 5.1 and 5.2 of the SPS Agreement, previous panels have considered that "[t]hese provisions directly inform each other", in that Article 5.2 "sheds light on the elements that are of relevance in the assessment of risks" foreseen in Article 5.1²⁶⁵¹, that Article 5.2 is inextricably linked to Article 5.1²⁶⁵², and that Article 5.2 "instructs WTO Members on how to conduct a risk assessment".²⁶⁵³

7.1607. In accordance with the foregoing, the Panel will now analyse whether, in the assessment of risks, Costa Rica has taken into account, in the sense of take into consideration, the factors listed in Article 5.2 of the SPS Agreement that were mentioned by Mexico.

7.1608. With regard to available scientific evidence, **Mexico** contends that the conclusions of the PRAs are not based on relevant scientific evidence²⁶⁵⁴ and that, from an analysis of the bibliographic references and scientific evidence referred to in the PRAs, it cannot be concluded that the scientific evidence considered by Costa Rica is adequate and sufficient to support its hypothesis.²⁶⁵⁵

7.1609. **Costa Rica**, for its part, submits that Mexico failed to establish that its measures are inconsistent with Article 5.2 of the SPS Agreement²⁶⁵⁶, and states that Mexico again disputes, under Article 5.2, the relevance of the scientific evidence used by Costa Rica in its risk assessment challenged under Article 5.1.²⁶⁵⁷

7.1610. The **Panel** observes that, as explained, the list of factors provided in Article 5.2 must be taken into account in the assessment of risks, and a panel may therefore examine the available scientific evidence and other factors when analysing claims related to the assessment of risks under Article 5.1 of the SPS Agreement. Thus, this Panel analysed the factors in Article 5.2 as part of its analysis of the various factors and elements of the evaluation of the likelihood of entry, establishment and spread of ASBVd and of the associated potential biological and economic consequences in Reports ARP-002-2017 and ARP-006-2016.

7.1611. On the basis of this analysis of the various factors and elements of Costa Rica's risk assessment, the Panel found some flaws with regard to the scientific basis for Reports ARP-002-2017 and ARP-006-2016, including the existence of assertions that do not find support in the

²⁶⁴⁷ Panel Report, *US – Continued Suspension*, para. 7.480.

²⁶⁴⁸ *Diccionario de la lengua española*, Real Academia Española, accessed 30 November 2021, <https://dle.rae.es/cuenta>.

²⁶⁴⁹ Panel Report, *Russia – Pigs (EU)*, paras. 7.760–7.767.

²⁶⁵⁰ Panel Report, *Russia – Pigs (EU)*, para. 7.763 (citing Panel Reports, *US – Animals*, para. 7.401, in turn citing Appellate Body Report, *Korea – Various Measures on Beef*, para. 111; and Panel Reports, *US – COOL*, para. 7.776).

²⁶⁵¹ Panel Report, *Japan – Apples*, para. 8.230.

²⁶⁵² Panel Report, *Australia – Apples*, para. 7.211 (citing Appellate Body Reports, *US/Canada – Continued Suspension*, para. 527).

²⁶⁵³ Panel Report, *US – Poultry (China)*, para. 7.171.

²⁶⁵⁴ Mexico's first written submission, para. 432.

²⁶⁵⁵ Mexico's first written submission, para. 439.

²⁶⁵⁶ Costa Rica's first written submission, p. 67.

²⁶⁵⁷ Costa Rica's first written submission, para. 5.180.

scientific evidence; the existence of assertions that refer to a source, but that source does not support those assertions, or does so only partially; the failure to consider information relevant to the risk assessment contained in the scientific evidence cited; and the failure to explain the quality of the evidence. The Panel considers that these flaws are sufficient to find that Costa Rica failed to comply with its obligation under Article 5.2 to take into account available scientific evidence in the assessment of risks.

7.1612. With respect to relevant inspection, sampling and testing methods, **Mexico** argues that, in its risk assessment, Costa Rica did not consider relevant inspection, sampling and testing methods that demonstrate the alleged absence of ASBVd in its territory. For Mexico, the sampling surveys conducted by Costa Rica to determine the absence of ASBVd lack the proper application of scientific methodology, and Costa Rica failed to consider relevant inspection, sampling and testing methods that would have allowed it to obtain objective and reliable results.²⁶⁵⁸

7.1613. As noted above, **Costa Rica** submits that Mexico has failed to establish that its measures are inconsistent with Article 5.2 of the SPS Agreement.²⁶⁵⁹ Costa Rica asserts that Mexico does not present any new arguments in relation to this Article.²⁶⁶⁰

7.1614. Regarding inspection, sampling and testing methods, Costa Rica contends that it observed that, although Mexico carries out post-harvest visual inspections and discards fruit with symptoms of ASBVd, this does not solve the problem of asymptomatic fruit, since not all fruit infected with ASBVd displays symptoms²⁶⁶¹, meaning that the only way to know for certain whether a fruit is infected is through laboratory testing, preferably using the RT-PCR technique.²⁶⁶² Costa Rica states that it found, therefore, that there are no crop treatments or post-harvest inspections that could prove effective in Mexico against the risk posed by symptomless infected fruit.²⁶⁶³

7.1615. In the **Panel's** view, the "relevant inspection, sampling and testing methods" referred to in Article 5.2 include methods used in connection with consignments, which may affect the risk being evaluated and may therefore be relevant to the likelihood of entry, establishment or spread of a pest. The Panel does not consider that Article 5.2 concerns sampling and diagnostic methods related to the determination of pest status in an area. Mexico has not explained why sampling and diagnostic methods related to the determination of pest status in an area would be covered by this factor in Article 5.2 of the SPS Agreement.²⁶⁶⁴

7.1616. Moreover, the Panel addressed the issue of inspection, sampling and testing methods in section 7.4.5.3.4.1 above, in its examination of the elements related to pest management procedures in Costa Rica's Reports ARP-002-2017 and ARP-006-2016.

7.1617. Regarding the prevalence of specific diseases or pests, **Mexico** submits that Costa Rica did not consider the prevalence of ASBVd in its risk assessment. Mexico asserts that, although Costa Rica should have analysed the extent of the presence of ASBVd and its disease in a particular area or at a particular point in time²⁶⁶⁵, Costa Rica does not use as a basis scientific and representative evidence or other valid evidence confirming the specific area within Mexico's territory in which ASBVd and its disease are present.²⁶⁶⁶ Mexico states that it may be concluded that the prevalence of ASBVd in Mexico is low, and the lack of an official survey to ascertain the places where ASBVd is found

²⁶⁵⁸ Mexico's first written submission, para. 453 (citing LaNGIF, Avocado Sunblotch Viroid, (Exhibit MEX-53)); second written submission, paras. 192 and 198.

²⁶⁵⁹ Costa Rica's first written submission, p. 67.

²⁶⁶⁰ Costa Rica's first written submission, para. 5.173.

²⁶⁶¹ Costa Rica's second written submission, para. 3.34 (citing Mohamed and Thomas (1980), (Exhibit CRI-125); Desjardins (1987), (Exhibit CRI-101); and Schnell et al. (2001), (Exhibit CRI-131)).

²⁶⁶² Costa Rica's second written submission, para. 3.34 (citing Schnell et al. (1997), (Exhibit MEX-68)).

²⁶⁶³ Costa Rica's second written submission, para. 3.34.

²⁶⁶⁴ The Panel notes that the prevalence of a pest in an area is a factor to be taken into account in the assessment of risks, as indicated in Article 5.2 through the reference to the prevalence of specific diseases or pests, and in Article 6.1 when it establishes that, in assessing the sanitary or phytosanitary characteristics of a region, Members shall take into account, *inter alia*, the level of prevalence of specific diseases or pests.

²⁶⁶⁵ Mexico's first written submission, paras. 454-455.

²⁶⁶⁶ Mexico's first written submission, para. 456.

reflects the fact that the disease has not posed a phytosanitary problem and is not economically significant.²⁶⁶⁷

7.1618. Mexico adds that Costa Rica should have considered, objectively, not only the prevalence of ASBVd in its territory but also, separately, that of its disease, and that Mexico presented conclusive evidence demonstrating that ASBVd and its disease have been present in Costa Rica.²⁶⁶⁸

7.1619. **Costa Rica** submits that Mexico has failed to establish that its measures are inconsistent with Article 5.2 of the SPS Agreement.²⁶⁶⁹ Costa Rica asserts that Mexico does not present any new arguments in relation to this Article.²⁶⁷⁰

7.1620. Costa Rica states that Mexico is taking advantage of the opportunity to advance, once more, many of the arguments that it already put forward under Article 5.1. Costa Rica asserts that Mexico reiterates that Costa Rica did not correctly determine its status as free of ASBVd, having already presented this argument in relation to the likelihood of entry of ASBVd, and that it again alleges that Costa Rica did not consider the prevalence of ASBVd in Mexico, having already raised this point when addressing the pest's association with the pathway at origin.²⁶⁷¹

7.1621. The **Panel** addressed Mexico's arguments regarding the prevalence of ASBVd in Mexico in section 7.4.5.3.4.1 above. The Panel noted that Report ARP-002-2017 refers to technical and scientific sources that contain relevant information on the presence of ASBVd in Mexico, but that the report fails to explain how the assertion in Vallejo Pérez et al. (2017) that the prevalence of ASBVd in Michoacán stood at 14% was used, and what weight was attached to it.

7.1622. With respect to Mexico's argument concerning the prevalence of ASBVd in the territory of Costa Rica, the Panel notes that Mexico's argument is based on its assertion that ASBVd is present in Costa Rica. The Panel refers to its finding in paragraph 7.310 above that Mexico has failed to demonstrate, as a matter of fact, that ASBVd is present in Costa Rica.

7.1623. Regarding quarantine treatments, **Mexico** maintains that Costa Rica failed to take them into account in its risk assessment, since the PRA manual does not establish a general standard for evaluating this factor in PRAs.²⁶⁷² Mexico states that it establishes only phytosanitary requirements for the importation of avocado plants for sowing or planting from the United States, which requires a certificate indicating that the product is from Ventura County, California, and specifying that it is ASBVd-free.²⁶⁷³

7.1624. **Costa Rica** submits that Mexico has failed to establish that its measures are inconsistent with Article 5.2 of the SPS Agreement.²⁶⁷⁴ Costa Rica asserts that Mexico does not present any new arguments in relation to this Article.²⁶⁷⁵

7.1625. Costa Rica states that Mexico is taking advantage of the opportunity to advance, once more, many of the arguments that it already put forward under Article 5.1. Costa Rica asserts that Mexico reiterates that other quarantine treatments were not taken into account, having already questioned the consideration of ASBVd as a quarantine pest by other countries in the context of the identification of the pest and its potential economic and biological consequences.²⁶⁷⁶

7.1626. The **Panel** notes that Mexico maintains that the manual does not establish a general standard for evaluating quarantine treatments in PRAs²⁶⁷⁷, but does not explain what standard

²⁶⁶⁷ Mexico's first written submission, para. 462.

²⁶⁶⁸ Mexico's first written submission, para. 461.

²⁶⁶⁹ Costa Rica's first written submission, p. 67.

²⁶⁷⁰ Costa Rica's first written submission, para. 5.173.

²⁶⁷¹ Costa Rica's first written submission, para. 5.181.

²⁶⁷² Mexico's first written submission, paras. 463-464.

²⁶⁷³ Mexico's first written submission, para. 465 (citing Servicio Nacional de Sanidad, Inocuidad y Calidad Agroalimentaria (SENASICA), Requisitos fitosanitarios para la importación de los EE.UU., publicado en 2013 (SENASICA, Phytosanitary requirements for importation from the US, published in 2013), (Exhibit MEX-139)).

²⁶⁷⁴ Costa Rica's first written submission, p. 67.

²⁶⁷⁵ Costa Rica's first written submission, para. 5.173.

²⁶⁷⁶ Costa Rica's first written submission, para. 5.181.

²⁶⁷⁷ Mexico's first written submission, paras. 463-464.

should have been established or what treatment should have been considered with respect to ASBVd in Costa Rica's risk assessment. Mexico also states that it establishes phytosanitary requirements only for the importation of avocado plants for sowing or planting from the United States²⁶⁷⁸, but does not explain the relevance to this factor of the way in which Mexico regulates ASBVd.

7.1627. The Panel observes that Mexico has identified other specific relevant factors that it argues Costa Rica should have considered in its risk assessment in order to comply with Article 5.2. The Panel will now address these factors.

7.1628. **Mexico** submits that Costa Rica failed to take into account the following other relevant factors in its risk assessment: that, even though the viroid is present in Mexico, it has not had any impact on the industry; that Mexico has exported avocados to Costa Rica for more than 22 years; that Costa Rica has not detected ASBVd in consignments from Mexico; the diversion from intended use of seeds from imported avocados for consumption; and the distinction between the ASBVd pathogen and sunblotch disease.

7.1629. **Costa Rica**, for its part, submits that Mexico has failed to establish that its measures are inconsistent with Article 5.2 of the SPS Agreement.²⁶⁷⁹ Costa Rica states that Mexico is taking advantage of the opportunity to advance, once more, many of the arguments that it already put forward under Article 5.1, including that ASBVd has not devastated the industry in Mexico, the historical trade between Mexico and Costa Rica, that ASBVd has not been detected in consignments from Mexico, the diversion from intended use of seeds, and that Costa Rica did not distinguish between ASBVd and sunblotch disease.²⁶⁸⁰

7.1630. With respect to what Mexico considers to be other relevant factors, the **Panel** has already addressed all the issues referred to by Mexico. The Panel conducted a detailed analysis of the arguments of the parties concerning diversion from intended use in Reports ARP-002-2017 and ARP-006-2016 in section 7.4.5.3.3.4 above, in which it identified the lack of sufficient scientific evidence and estimates of the scale on which such diversion occurs in Costa Rica, and in section 7.4.5.3.6 on the matter of uncertainty in the reports.

7.1631. Section 7.4.5.5 above on whether Costa Rica's risk assessment is appropriate to the circumstances addresses Mexico's arguments concerning its position as the world's leading exporter of fresh avocados for consumption and concerning the more than 20 years of trade between Mexico and Costa Rica. Regarding these issues, Mexico asserts that, even though the viroid is present in Mexico, it has not had any impact on the industry, that Mexico has exported avocados to Costa Rica for more than 22 years, and that Costa Rica has not detected ASBVd in consignments from Mexico. Costa Rica, for its part, submits that it is not true that it has imported avocado fruit from Mexico for more than 20 years when ASBVd was present in Mexico. The Panel has already addressed this in paragraphs 7.1521 through 7.1556 above.

7.1632. Mexico's argument concerning the need to distinguish between the ASBVd pathogen and sunblotch disease in the risk assessment was already addressed in section 7.4.5.2 above.

7.1633. On the basis of the foregoing, the Panel concludes that, in its risk assessment, Costa Rica did not take into account the available scientific evidence or the prevalence of specific diseases or pests. The Panel therefore concludes that Costa Rica has acted inconsistently with Article 5.2 of the SPS Agreement by failing to take into account the factors under that Article in its assessment of risks.

7.4.5.8 Whether the factors listed in Article 5.3 of the SPS Agreement were taken into account in the assessment of the risk in question

7.1634. **Mexico** submits that, in assessing the risk to plant life or health, Costa Rica did not take into account all the relevant economic factors mentioned in Article 5.3 of the SPS Agreement.²⁶⁸¹

²⁶⁷⁸ Mexico's first written submission, para. 465 (citing SENASICA, Phytosanitary requirements for importation from the US, published in 2013, (Exhibit MEX-139)).

²⁶⁷⁹ Costa Rica's first written submission, p. 67.

²⁶⁸⁰ Costa Rica's first written submission, para. 5.181.

²⁶⁸¹ Mexico's first written submission, para. 498.

7.1635. Mexico states that, while this obligation does not imply that the consideration will require a particular course of action from the Member imposing an SPS measure, there can be no consideration without addressing the factors in a way that indicates their analysis beyond merely listing them, since there must be at least one reasoned explanation.²⁶⁸²

7.1636. Mexico asserts that Costa Rica failed to consider relevant factors such as the costs of control or eradication and the relative cost-effectiveness of alternative approaches in its risk assessment. As a result, its measures are inconsistent with Article 5.3 of the SPS Agreement and therefore it did not conduct a risk assessment in accordance with Articles 5.1 and 5.2 of the Agreement.²⁶⁸³

7.1637. **Costa Rica** submits that Mexico has failed to establish that Costa Rica's measures are inconsistent with Article 5.3 of the SPS Agreement²⁶⁸⁴, and that Mexico does not present any new arguments under Article 5.3 with respect to the risk assessment.²⁶⁸⁵

7.1638. Costa Rica asserts that Article 5.3 of the SPS Agreement reflects elements of ISPM No. 11 related to the content of a risk assessment in the phytosanitary context, such as analysis of commercial consequences or costs of control measures for the importing Member.²⁶⁸⁶ For Costa Rica, it is therefore to be expected that any risk assessment that takes into account risk assessment techniques developed by the relevant international organizations – in this case, ISPM No. 11 – in accordance with Article 5.1 of the SPS Agreement, will consider the factors listed in Article 5.3 of the SPS Agreement.²⁶⁸⁷

7.1639. Costa Rica adds that the obligation to "take into account" under Article 5.3 does not imply a particular course of action from the Member imposing an SPS measure and does not require respect for each and every aspect of the instrument that is taken into account. It is therefore an obligation to "take into consideration" but does not imply any particular result in the risk assessment.²⁶⁸⁸

7.1640. Costa Rica states that, when one speaks of "potential" economic damage, the costs of control or eradication of a pest that does not yet exist, and the cost-effectiveness of "potential" risk mitigation measures, one is speaking of hypothetical or potential scenarios that could occur if the pest existed in the national territory and produced effects, and that this intellectual exercise may be overly complex.²⁶⁸⁹ Costa Rica adds that, despite the potential complexity of this assessment, it did its utmost to consider the possible adverse effects of the establishment and spread of the viroid and the possible costs of eradication in the event of its spread, and that the relative cost-effectiveness of alternative approaches to limiting risks was considered and discussed at length.²⁶⁹⁰

7.1641. Costa Rica asserts that Mexico is using Article 5.3 of the SPS Agreement to repeat arguments that it already put forward under Article 5.1 of the SPS Agreement, which is a conceptual error, since compliance with Articles 5.2 and 5.3 of the SPS Agreement should be analysed when considering the risk assessment under Article 5.1 of the SPS Agreement. Costa Rica adds that all the arguments presented by Mexico were already addressed in Mexico's claim under Article 5.1 of the SPS Agreement.²⁶⁹¹

7.1642. Costa Rica maintains that, for the same reasons given under Article 5.1 of the SPS Agreement, Mexico has not substantiated its claim that Costa Rica has failed to conduct a proper risk assessment that takes into account risk assessment techniques developed by the relevant international organizations. The Panel should therefore reject Mexico's claim under Article 5.3 of the SPS Agreement.²⁶⁹²

²⁶⁸² Mexico's first written submission, para. 480.

²⁶⁸³ Mexico's first written submission, para. 507; comments on Costa Rica's response to Panel question No. 170, para. 2.

²⁶⁸⁴ Costa Rica's first written submission, p. 70; second written submission, para. 3.58.

²⁶⁸⁵ Costa Rica's first written submission, para. 5.184.

²⁶⁸⁶ Costa Rica's first written submission, para. 5.188; second written submission, para. 3.25.

²⁶⁸⁷ Costa Rica's first written submission, para. 5.188.

²⁶⁸⁸ Costa Rica's comments on Mexico's response to Panel question No. 170, para. 102 (citing Panel Reports, *Russia – Pigs (EU)*, para. 7.767; and *Japan – Apples*, para. 7.761).

²⁶⁸⁹ Costa Rica's response to Panel question No. 56, para. 1.

²⁶⁹⁰ Costa Rica's response to Panel question No. 56, paras. 2-3.

²⁶⁹¹ Costa Rica's first written submission, paras. 5.189-5.190.

²⁶⁹² Costa Rica's first written submission, para. 5.192; second written submission, para. 3.58.

7.1643. The **European Union** states, as a third party, that Article 5.3 requires a Member to give consideration to the relevant economic factors listed therein, which does not require a particular course of action.²⁶⁹³ The European Union considers that, while no particular result is required, a Member is obliged to take into consideration the factors listed in Article 5.3 of the SPS Agreement and this consideration should be found in its risk assessment and risk management, even if it does not lead to a particular outcome.²⁶⁹⁴

7.1644. **Canada's** opinion, as a third party, is that WTO Members must consider, at a minimum, the relevant economic factors set out in Article 5.3. Canada asserts that those factors represent a closed list, but that this does not prevent a WTO Member from considering other economic factors in its assessment of risks, and adds that the obligation to "take into account" does not require a particular result. According to Canada, to establish a violation of Article 5.3, there must be a finding that the respondent has failed to take into account at least one of the relevant economic factors listed in the provision.²⁶⁹⁵

7.1645. **El Salvador** states, as a third party, that, in assessing the risk to animal or plant life or health and determining the measure to be applied for achieving the ALOP, Members are required to take into account the relevant economic factors listed in Article 5.3, and not other economic factors. El Salvador adds that this obligation does not imply, however, that consideration of the relevant economic factors requires a particular course of action from the Member imposing an SPS measure, since the provision requires the Member only to analyse these economic factors when adopting an SPS measure, not to perform or carry out an additional action.²⁶⁹⁶

7.1646. The **Panel** recalls that Article 5.3 requires that, in assessing the risk to animal or plant life or health and determining the measure to be applied for achieving the ALOP from such risk, Members should take into account as relevant economic factors: (i) the potential damage in terms of loss of production or sales in the event of the entry, establishment or spread of a pest or disease; (ii) the costs of control or eradication in the territory of the importing Member; and (iii) the relative cost-effectiveness of alternative approaches to limiting risks.

7.1647. Regarding the obligation to "take into account", as mentioned above, the ordinary meaning of the phrase, according to the *Diccionario de la lengua española* of the Real Academia Española, is "tener presente, considerar" ("to keep in mind, consider").²⁶⁹⁷

7.1648. The panel in *Russia – Pigs (EU)* reviewed other panels' interpretations of expressions similar to "shall take into account" in Articles 5.1, 5.2, 5.4, and 10.1 of the SPS Agreement and 12.3 of the TBT Agreement, and expressed its agreement with these interpretations.²⁶⁹⁸ The panel referred to, among other matters, the panel in *US – Animals*, which noted that "to take into account" means "to take into consideration, notice" and does not require any particular result of that consideration.²⁶⁹⁹

7.1649. The panel in *Russia – Pigs (EU)* considered that a Member has the obligation to give consideration to the relevant economic factors listed in that provision, and not to other economic factors, but that this obligation does not imply that consideration of the relevant economic factors will require a particular course of action from the Member imposing an SPS measure.²⁷⁰⁰

7.1650. This Panel is of the view that *taking into account* the relevant economic factors listed in Article 5.3 of the SPS Agreement is an obligation to take into consideration those factors, even if the provision does not require any particular result of that consideration, in the sense of requiring a

²⁶⁹³ European Union's response to Panel question No. 7, para. 27 (citing Panel Report, *Russia – Pigs (EU)*, para. 7.767).

²⁶⁹⁴ European Union's response to Panel question No. 8, para. 32 (citing Panel Report, *US – Animals*, paras. 7.401-7.402).

²⁶⁹⁵ Canada's response to Panel questions Nos. 8(a), (b) and (c), paras. 23-25; opening statement at the first meeting of the Panel, para. 20.

²⁶⁹⁶ El Salvador's response to Panel questions Nos. 8(a) and (b).

²⁶⁹⁷ *Diccionario de la lengua española*, Real Academia Española, accessed 30 November 2021, <https://dle.rae.es/cuenta>.

²⁶⁹⁸ Panel Report, *Russia – Pigs (EU)*, paras. 7.760-7.767.

²⁶⁹⁹ Panel Report, *Russia – Pigs (EU)*, para. 7.763 (citing Panel Reports, *US – Animals*, para. 7.401, in turn citing Appellate Body Report, *Korea – Various Measures on Beef*, para. 111; and Panel Reports, *US – COOL*, para. 7.776).

²⁷⁰⁰ Panel Report, *Russia – Pigs (EU)*, para. 7.767.

particular course of action. The Panel concurs with the European Union that, while no particular result is required, a Member is obliged to take into consideration the factors listed in Article 5.3, and this consideration should be found in its risk assessment and risk management, even if it does not lead to a particular outcome.²⁷⁰¹

7.1651. As noted by the panel in *Russia – Pigs (EU)* in interpreting Article 5.3 for the first time, this provision refers to the obligation of taking into account the relevant economic factors listed therein in two different situations: (i) when assessing the risk to animal or plant life and health; and (ii) when determining the measure to be applied to achieve the ALOP.²⁷⁰² Mexico claims that Costa Rica violated Article 5.3 of the SPS Agreement by failing to take into account the factors in Article 5.3 in both situations.²⁷⁰³

7.1652. In this section, the Panel will address Mexico's arguments concerning whether Costa Rica took into account the relevant economic factors listed in Article 5.3 in the first situation, i.e. when assessing the risk in question, and later in its analysis, it will address Mexico's arguments with respect to the second situation, i.e. when determining the measure to be applied to achieve the ALOP.

7.1653. The panel in *Russia – Pigs (EU)* considered that the first situation is informed by the obligation to base SPS measures on scientific principles (Article 2.2), through an assessment of risk appropriate to the circumstances (Articles 5.1 and 5.2), and was of the opinion that the obligation to take into account relevant economic factors when carrying out an assessment is contingent upon the obligation to base an SPS measure on a risk assessment pursuant to Articles 5.1 and 5.2 of the SPS Agreement.²⁷⁰⁴ In addition, the panel in *US – Animals* considered that, when determining whether a risk assessment is "appropriate to the circumstances" in accordance with Article 5.1, the question of whether the elements set forth in Articles 5.2 and 5.3 were taken into account is relevant.²⁷⁰⁵

7.1654. As noted, the list of relevant economic factors in Article 5.3 must be taken into account in the assessment of risks, and the Panel therefore considers that a panel may examine these economic factors when analysing claims related to the assessment of risks under Article 5.1 of the SPS Agreement.

7.1655. In particular, the Panel recalls that it has reviewed the assessment of the potential economic consequences associated with the entry, establishment or spread of pests or diseases, which is one of the components of the risk assessment in this dispute. The Panel considers that the economic factors consisting of the potential damage in terms of loss of production or sales in the event of the entry, establishment or spread of a pest or disease and the costs of control or eradication in the territory of the importing Member are covered by this assessment. Accordingly, the Panel will refer to this review in its analysis of Mexico's arguments with respect to the economic factors, and will address Mexico's arguments that have not been addressed in its previous analysis.

7.1656. In light of the foregoing, the Panel will now consider whether Costa Rica took into account, in the sense of taking into consideration, the relevant economic factors listed in Article 5.3 of the SPS Agreement in assessing the risk to plant life or health in Reports ARP-002-2017 and ARP-006-2016.

7.1657. Regarding the potential damage in terms of loss of production or sales in the event of the entry, establishment or spread of a pest or disease, **Mexico** submits that the sections of the PRAs on the "Effects of the pest" reflect the fact that no analysis has been carried out of the potential returns or profit that may be forgone as a result of the entry, establishment or spread of ASBVd in the territory of Costa Rica through fresh avocados imported for consumption.²⁷⁰⁶

²⁷⁰¹ European Union's response to Panel question No. 8, para. 32 (citing Panel Report, *US – Animals*, paras. 7.401-7.402).

²⁷⁰² Panel Report, *Russia – Pigs (EU)*, para. 7.769.

²⁷⁰³ Mexico's first written submission, p. 123.

²⁷⁰⁴ Panel Report, *Russia – Pigs (EU)*, para. 7.770.

²⁷⁰⁵ Panel Report, *US – Animals*, para. 7.323.

²⁷⁰⁶ Mexico's first written submission, paras. 482-485; second written submission, para. 201.

7.1658. For Mexico, there has also been no calculation of the potential losses that could result from the entry, establishment or spread of ASBVd in the territory of Costa Rica through the fresh avocados imported for consumption involving at least the following factors: (i) total avocado production in Costa Rica; (ii) the average sale price of avocado by intermediaries to the public in Costa Rica; (iii) the potential decrease in production; (iv) the potential decrease in yield per hectare; (v) the potential decrease in the sales prices of intermediaries and the retail price; (vi) the potential percentage reduction in the actual yield of avocado trees because of ASBVd; (vii) variables that consider different scenarios such as the spread of the disease in the largest production area in Costa Rica, in backyards; and (viii) the potential impact on exports.²⁷⁰⁷

7.1659. Mexico adds that the 30% decrease claimed by Costa Rica is incorrect and cannot be considered a widespread loss in ASBVd-infected avocado orchards. Mexico states that the study from which the reference is obtained focused only on two orchards in the state of Michoacán (Uruapan and Tingambato). Mexico asserts that, in the Uruapan orchard, a comparison was drawn between the total yield of 12 Hass trees (four healthy, four symptomatic and four asymptomatic), that, in November 2011, there was a 15% reduction in the yield of asymptomatic trees compared to healthy ones, and that, in November 2012, there was a 30% reduction. For Mexico, there is no scientific basis to assert that, in countries where ASBVd and its disease are present, reported average crop output losses have been 30%, since the reduction in the yield of a symptomless Hass tree may be smaller than the average reported by Costa Rica, and Costa Rica has not demonstrated that a reduction of more than 30% in the yield of a symptomless tree has been reported anywhere in the world.²⁷⁰⁸ Mexico adds that Costa Rica did not provide specific reasoning as to why it is valid to extrapolate the information supplied with respect to crop losses.²⁷⁰⁹

7.1660. Mexico also contends that in no section of Datasheet ARP-001-2014 is there a specific reference to a study or document reporting that 80% of fruits are rejected at the packing stage, as alleged by Costa Rica, which means that there is no scientific basis for such an assertion.²⁷¹⁰

7.1661. Mexico adds that two key factors that should have been taken into consideration in the assessment are: (i) the fact that the presence of ASBVd in Mexico has not seriously harmed avocado production, such that Mexico remains the world's leading exporter, with a yield per hectare that is higher than the world average; (ii) if it is accepted that Costa Rica is ASBVd-free, the exportation of Mexican avocados to Costa Rica has not, for at least 20 years, caused ASBVd to spread in the territory of the country, nor has it resulted in a decline in Costa Rican avocado production.²⁷¹¹

7.1662. Mexico also contends that Costa Rica has never requested evidence from Mexico concerning the aforementioned factors.²⁷¹²

7.1663. Regarding the costs of control or eradication in the territory of the importing Member, **Mexico** states that, in its PRA, Costa Rica lists various factors in its assessment of the potential consequences but does not explain how it considered the costs of control or eradication beyond including them as a bullet point, and there is no indication in the methodology used of the qualitative impact that this factor could have on the effects.²⁷¹³

7.1664. Mexico submits that, even though Costa Rica mentioned the possibility of there being costs of control and eradication or containment, it did not carry out a comprehensive study on these factors. Mexico states that Costa Rica failed to take into account the precise costs of control or eradication of the pest, which could have served as a basis for calculating economic losses in the event of the entry, establishment or spread of ASBVd in the territory of Costa Rica through fresh avocados imported for consumption. For Mexico, this exercise should have been undertaken, at least hypothetically, and should have mentioned, *inter alia*: (i) the direct and indirect costs of carrying out an eradication programme; (ii) the budget for the materials used in the eradication; (iii) the hours of work required; (iv) the impact on the budget for controlling and eradicating ASBVd; and

²⁷⁰⁷ Mexico's first written submission, para. 485; second written submission, para. 201.

²⁷⁰⁸ Mexico's first written submission, para. 486.

²⁷⁰⁹ Mexico's second written submission, para. 202.

²⁷¹⁰ Mexico's first written submission, para. 487.

²⁷¹¹ Mexico's first written submission, paras. 488-489.

²⁷¹² Mexico's first written submission, para. 490.

²⁷¹³ Mexico's first written submission, para. 481.

(v) a comparison with the costs incurred in Mexico in order to control ASBVd.²⁷¹⁴ Mexico adds that Costa Rica failed to evaluate the possible methods of eradicating the pest or compare the situations of other countries where ASBVd is present.²⁷¹⁵

7.1665. **Costa Rica** submits that Mexico has not established that Costa Rica's measures are inconsistent with Article 5.3 of the SPS Agreement²⁷¹⁶, and that Mexico does not present any new arguments under Article 5.3 with respect to the risk assessment.²⁷¹⁷

7.1666. As noted, Costa Rica asserts that Article 5.3 of the SPS Agreement reflects elements of ISPM No. 11 related to the content of a risk assessment in the phytosanitary context, such as analysis of commercial consequences or costs of control measures for the importing Member.²⁷¹⁸ For Costa Rica, it is therefore to be expected that any risk assessment that takes into account risk assessment techniques developed by the relevant international organizations – in this case, ISPM No. 11 – in accordance with Article 5.1 of the SPS Agreement, will consider the factors listed in Article 5.3 of the SPS Agreement.²⁷¹⁹

7.1667. Costa Rica adds that all the arguments presented by Mexico were already addressed in Mexico's claim under Article 5.1 of the SPS Agreement.²⁷²⁰ Costa Rica contends that it correctly evaluated the potential economic and biological consequences associated with the entry, establishment and spread of ASBVd and that Mexico has failed to demonstrate otherwise.²⁷²¹ Costa Rica states that it took into account the potential damage in terms of loss of production or sales and the costs of control or eradication of the pest in its territory, both of which are factors listed in Article 5.3 of the SPS Agreement.²⁷²²

7.1668. As noted above, the **Panel** considers that the economic factors consisting of the potential damage in terms of loss of production or sales in the event of the entry, establishment or spread of a pest or disease and the costs of control or eradication in the territory of the importing Member are covered by the evaluation of the potential economic consequences associated with the entry, establishment or spread of pests or diseases, which is one of the components of a risk assessment of the type relevant to this dispute. The Panel will therefore refer to its analysis of the evaluation of the potential biological and economic consequences in Reports ARP-002-2017 and ARP-006-2016.

7.1669. Both the potential damage in terms of loss of production or sales in the event of the entry, establishment or spread of a pest or disease and the costs of control or eradication in the territory of the importing Member are in the list of effects of the pest in Reports ARP-002-2017 and ARP-006-2016. In this list, reference is made to, *inter alia*, crop losses, in yield and quality; effects on export market access; changes to producer costs or input demands, including control costs; changes to domestic or foreign consumer demand for a product resulting from quality changes; and feasibility and cost of eradication or containment.²⁷²³

7.1670. As set out in section 7.4.5.3.5 above, in Report ARP-002-2017, some figures are provided for economic losses per hectare per year and the reduction in yield, but the highest figures are given from ranges that appear in the sources cited, and an unsubstantiated assertion is made about the percentage of fruit rejected at the packing stage. This information is missing completely from Report ARP-006-2016. This is relevant to the analysis of the economic factor consisting of the potential damage in terms of loss of production or sales under Article 5.3.

7.1671. Regarding the costs of control and eradication, Reports ARP-002-2017 and ARP-006-2016 mention, among the effects of the pest, changes to producer costs or input demands, including

²⁷¹⁴ Mexico's first written submission, para. 493; second written submission, para. 201.

²⁷¹⁵ Mexico's second written submission, para. 202.

²⁷¹⁶ Costa Rica's first written submission, p. 70; second written submission, para. 3.58.

²⁷¹⁷ Costa Rica's first written submission, para. 5.184.

²⁷¹⁸ Costa Rica's first written submission, para. 5.188; second written submission, para. 3.25.

²⁷¹⁹ Costa Rica's first written submission, para. 5.188.

²⁷²⁰ Costa Rica's first written submission, paras. 5.189-5.190.

²⁷²¹ Costa Rica's first written submission, p. 60; second written submission, para. 3.48.

²⁷²² Costa Rica's first written submission, paras. 5.140-5.143; second written submission, para. 3.51.

²⁷²³ ARP-002-2017, (Exhibit MEX-84), pp. 40-41; ARP-006-2016, (Exhibit MEX-85), p. 21.

control costs, and feasibility and cost of eradication or containment²⁷²⁴, but, as mentioned in section 7.4.5.3.5 above, this reference is made without any explanation or substantiation.

7.1672. The Panel finds relevant the statement made by the expert Robert Griffin that he does not consider the analysis of "potential" harm and "possible" risk mitigation methods to be an intellectual exercise or excessively complex. For Mr Griffin, it is a requirement of the SPS Agreement and the subject of detailed guidance in section 2.3 of ISPM No. 11, and, while it is possible to construct any level of complex analyses of impacts and the cost-effectiveness of mitigations, much simpler analyses are more common and useful.²⁷²⁵

7.1673. Mr Griffin also refers to the methodology used by Costa Rica to estimate the harm in terms of loss of production or sales and the costs of control, and states that it is a simple list that gives equal weight to each item as they are summed to give an overall score that determines the category (high, medium, or low). For Mr Griffin, this methodology is transparent but overly simplistic, and, although it provides the structure to include these aspects into the PRA, there is no analysis beyond the bimodal response of yes/no.²⁷²⁶

7.1674. Considering Mr Griffin's comments and the flaws identified in the evaluation of the potential economic consequences, this Panel is of the view that it cannot be concluded that Costa Rica has taken into account, in the sense of taking into consideration, the potential damage in terms of loss of production or sales and the costs of control or eradication in its territory in Reports ARP-002-2017 and ARP-006-2016.

7.1675. For the Panel, the mere mention of effects related to the economic factors in a list, without the necessary substantiation or explanation, does not mean that these relevant economic factors have been taken into account by Costa Rica in its assessment of the risk of ASBVd. The Panel therefore concludes that Costa Rica failed to take into account the first two factors under Article 5.3 of the SPS Agreement in its assessment of the risk in question.

7.1676. Concerning the relative cost-effectiveness of alternative approaches to limiting risks, **Mexico** contends that Costa Rica did not evaluate the cost-effectiveness of these alternative approaches to limiting risks because it took into account only one alternative to the three measures proposed in the PRA: the carrying out of inspections at entry points. Mexico asserts that this implies that, among other possibilities, Costa Rica ignored Mexico's proposal to certify consignments of symptomless fresh avocados for consumption and Chile's measure to prohibit the diversion from intended use of the seeds of avocados for consumption, without limiting the importation of avocados.²⁷²⁷ Mexico adds that no detailed cost-effectiveness analysis was conducted of the reasons for selecting the measures that were determined to be applicable.²⁷²⁸

7.1677. Mexico argues that if Costa Rica had followed the process provided for in Article 5.3 of the SPS Agreement, it would have: (i) determined its ALOP, taking into consideration Article 5.4 of the SPS Agreement; (ii) listed all the possible measures in its PRAs; (iii) assessed and indicated the pros and cons of each one and carried out a qualitative analysis to justify maintaining the requirement for a phytosanitary certificate; (iv) pointed out which measures would be onerous for Costa Rica to implement, for individuals, and the impact on avocado-exporting countries, including on Mexican avocado producers and importers; (v) selected the measures considered appropriate to the circumstances in the territory of Costa Rica; and (vi) pointed out the reasons why the measures selected were preferable to the rest and, if appropriate, explained in detail why the requirement for a phytosanitary certificate is a mechanism that must be imposed on top of the measures related to diversion from intended use.²⁷²⁹

²⁷²⁴ ARP-002-2017, (Exhibit MEX-84), pp. 40-41; ARP-006-2016, (Exhibit MEX-85), p. 21.

²⁷²⁵ Robert Griffin's response to Panel question No. 114(b) for the experts.

²⁷²⁶ Robert Griffin's response to Panel question No. 114(a) for the experts.

²⁷²⁷ Mexico's first written submission, para. 495.

²⁷²⁸ Mexico's first written submission, para. 496.

²⁷²⁹ Mexico's first written submission, para. 497.

7.1678. **Costa Rica** submits that Mexico has failed to establish that Costa Rica's measures are inconsistent with Article 5.3 of the SPS Agreement²⁷³⁰, and that Mexico does not present any new arguments under Article 5.3 with respect to the risk assessment.²⁷³¹

7.1679. As noted, Costa Rica asserts that Article 5.3 of the SPS Agreement reflects elements of ISPM No. 11 related to the content of a risk assessment in the phytosanitary context, such as analysis of the commercial consequences or costs of control measures for the importing Member.²⁷³² For Costa Rica, it is therefore to be expected that any risk assessment that takes into account risk assessment techniques developed by the relevant international organizations – in this case, ISPM No. 11 – in accordance with Article 5.1 of the SPS Agreement, will consider the factors listed in Article 5.3 of the SPS Agreement.²⁷³³

7.1680. Costa Rica adds that all the arguments presented by Mexico were already addressed in Mexico's claim under Article 5.1 of the SPS Agreement.²⁷³⁴ Costa Rica also maintains that it took into account the relative cost-effectiveness of alternative approaches to limiting risks.²⁷³⁵

7.1681. For the analysis of Costa Rica's consideration of the relative cost-effectiveness of alternative approaches to limiting risks, the **Panel** finds relevant its analysis of whether, in Costa Rica's risk assessment, the evaluation of the likelihood of entry, establishment and spread of ASBVd was carried out according to the sanitary or phytosanitary measures which might be applied. Also relevant is the statement made by expert Robert Griffin to the effect that he sees no evaluation of the cost-effectiveness of other possible measures.²⁷³⁶

7.1682. As noted in section 7.4.5.4 above, it is the Panel's view that, while Reports ARP-002-2017 and ARP-006-2016 mention the inspection at entry points, they fail to mention or analyse other potential risk management measures. The reports set out only the recommendations on measures to be applied, without explaining which other measures could be applied. In other words, they do not identify or ponder the measures that could be applied.

7.1683. The reports indicate that inspections carried out at entry points would not be sufficient, given that ASBVd is asymptomatic in fruits.²⁷³⁷ Aside from this assertion about the effectiveness of inspections, which does not include a complete analysis of their cost-effectiveness, the Panel finds no other indication that Costa Rica took into account the relative cost-effectiveness of alternative approaches to limiting risks.

7.1684. In the view of the Panel, without identifying other measures which might be applied, it is impossible to analyse or consider the various measures that could mitigate the risk. In other words, the relative cost-effectiveness of these alternative approaches to limiting risks cannot be taken into account unless the approaches have been identified and explained.

7.1685. In view of the foregoing, the Panel is of the opinion that it cannot be concluded that, in its assessment of the risk of ASBVd, Costa Rica took into account, in the sense of taking into consideration, the relative cost-effectiveness of alternative approaches to limiting risks. The Panel therefore concludes that Costa Rica failed to take into account this relevant economic factor under Article 5.3 of the SPS Agreement in its assessment of the risk in question.

7.1686. Based on all the above, the Panel concludes that, in its risk assessment, Costa Rica did not take into account the potential damage in terms of loss of production or sales in the event of the entry, establishment or spread of ASBVd; the costs of control or eradication in the territory of Costa Rica; or the relative cost-effectiveness of alternative approaches to limiting risks. The Panel therefore concludes that Costa Rica has acted inconsistently with Article 5.3 of the SPS Agreement

²⁷³⁰ Costa Rica's first written submission, p. 70; second written submission, para. 3.58.

²⁷³¹ Costa Rica's first written submission, para. 5.184.

²⁷³² Costa Rica's first written submission, para. 5.188; second written submission, para. 3.25.

²⁷³³ Costa Rica's first written submission, para. 5.188.

²⁷³⁴ Costa Rica's first written submission, paras. 5.189-5.190.

²⁷³⁵ Costa Rica's first written submission, paras. 5.147-5.149; second written submission, para. 3.46.

²⁷³⁶ Robert Griffin's response to Panel question No. 114(a) for the experts.

²⁷³⁷ ARP-002-2017, (Exhibit MEX-84), p. 42; ARP-006-2016, (Exhibit MEX-85), p. 23.

because Costa Rica failed to take into account the relevant economic factors listed in that Article in its assessment of the risk in question.

7.4.5.9 Conclusion on the risk assessment in Reports ARP-002-2017 and ARP-006-2016

7.1687. The Panel recalls that it reached the following intermediate conclusions with respect to its analysis of Costa Rica's risk assessment contained in Reports ARP-002-2017 and ARP-006-2016:

- a. Costa Rica's assertion in Reports ARP-002-2017 and ARP-006-2016 that it determined that its territory is free of ASBVd, which forms part of the basis for its risk assessment, lacks sufficient reliability, and, therefore, cannot be considered legitimately scientific. Moreover, the confirmation of the determination that ASBVd is absent in Costa Rica on the basis of sampling surveys conducted subsequent to Reports ARP-002-2017 and ARP-006-2016 (the 2017-2018 and 2019 surveys) also lacks sufficient reliability to be considered legitimately scientific;
- b. Contrary to Mexico's argument, the risk assessment in Reports ARP-002-2017 and ARP-006-2016 identifies the pest or disease (ASBVd) whose entry, establishment or spread Costa Rica wants to prevent within its territory, as well as the potential biological and economic consequences associated with the entry, establishment or spread of this pest or disease, and thus complies with the first step suggested by the Appellate Body based on the definition of "risk assessment" in paragraph 4 of Annex A to the SPS Agreement;
- c. The use of a fixed format, derived from Manual NR-ARP-PO-01_M-01, in Reports ARP-002-2017 and ARP-006-2016 limits the flexibility of judgement in the analysis, which leads to the absence of the risk assessor's reasoning; and removes the flexibility to address ASBVd-specific issues, which affects the appropriateness of the risk assessment to the circumstances;
- d. There is insufficient scientific evidence in Reports ARP-002-2017 and ARP-006-2016 on the existence of diversion from the intended use of seeds from fresh fruit for consumption, and there are no estimates, even in qualitative terms, of the scale on which this diversion occurs in Costa Rica, which prevented the risk analyst from conducting either a qualitative or quantitative assessment of the probability of entry, establishment or spread of ASBVd in Costa Rica that would give due consideration to this diversion from intended use;
- e. There is insufficient scientific evidence in Reports ARP-002-2017 and ARP-006-2016 on the occurrence of spontaneous germination, and there are no estimates, even in qualitative terms, of the scale on which this spontaneous germination occurs in Costa Rica, which prevented the risk analyst from conducting either a qualitative or quantitative assessment of the probability of entry, establishment or spread of ASBVd in Costa Rica that would give due consideration to this spontaneous germination;
- f. In reaching a generalized conclusion on spontaneous germination, without considering in the assessment of the elements and factors of the probability analysis the differences in the edaphoclimatic conditions in the various regions of the country and the different situations in which a seed could be discarded (for example, on a farm, in a garden or at a waste disposal site), Reports ARP-002-2017 and ARP-006-2016 overestimated the probability of spontaneous germination occurring in the entire PRA area. There is also a failure to take into account the edaphoclimatic conditions conducive to the development of the avocado tree after germination, which affects the assessment of the availability of host plants, and thus the probability of spread of ASBVd;
- g. Assigning risk values, whether high, medium, or low, with their respective numerical values (3, 2, or 1), to the various factors and elements, on several occasions without the necessary scientific basis, without sufficient reasoned explanations by the risk assessor, and without considering the multiplicative relationship that exists between the conditions and events necessary for the entry of ASBVd, cannot be considered an objectively justifiable qualitative assessment of the likelihood of entry of ASBVd in Costa Rica's territory;

- h. Assigning risk values, whether high, medium, or low, with their respective numerical values (3, 2, or 1), to the various factors, on several occasions without the necessary scientific basis, without sufficient reasoned explanations by the risk assessor, without attaching sufficient weight to the rate of reproduction and spread of ASBVd, and without considering the multiplicative relationship that exists between the conditions and events necessary for the establishment of ASBVd, cannot be considered an objectively justifiable qualitative assessment of the likelihood of establishment of ASBVd in Costa Rica's territory;
- i. Assigning risk values, whether high, medium, or low, with their respective numerical values (3, 2, or 1), to the various factors, on several occasions without the necessary scientific basis, without sufficient reasoned explanations by the risk assessor, and without attaching any weight to the rate of reproduction and spread of ASBVd, cannot be considered an objectively justifiable qualitative assessment of the likelihood of spread of ASBVd in Costa Rica's territory;
- j. Reports ARP-002-2017 and ARP-006-2016 refer to economic effects and biological consequences without explanation or justification, and there are statements about economic effects that refer to two sources and contain quantitative data, but these data are extrapolated to the case of Costa Rica with no explanation of how they are applicable to Costa Rica's circumstances. Thus, there has been no evaluation of the associated potential biological and economic consequences, and this constitutes a flaw in the risk assessment in Reports ARP-002-2017 and ARP-006-2016;
- k. While most of the scientific evidence in Reports ARP-002-2017 and ARP-006-2016 comes from respected sources, can accordingly be seen as legitimate in itself, and includes evidence that may be considered relevant and sufficiently specific, the lack of analysis on the quality of the evidence constitutes a flaw in the risk assessor's reasoning;
- l. The calculation of probabilities in Reports ARP-002-2017 and ARP-006-2016 was affected by the failure to identify and sufficiently document the situations of uncertainty and the uncertainties associated with the probabilities, and this constitutes a flaw in the risk assessment in Reports ARP-002-2017 and ARP-006-2016;
- m. In view of the conclusions in subparagraphs (c) to (l), Costa Rica's risk assessment contained in Reports ARP-002-2017 and ARP-006-2016 does not comply with the second step suggested by the Appellate Body based on the definition of "risk assessment" in paragraph 4 of Annex A to the SPS Agreement;
- n. While Reports ARP-002-2017 and ARP-006-2016 mention the inspection at entry points, they fail to mention or analyse other potential risk management measures. The reports include recommendations for three alternative measures, as well as general recommendations, without providing an explanation of why they were chosen or how they relate to the risk management options in Manual NR-ARP-PO-01_M-01, should such a relationship exist. The reports simply set out the recommendations on measures to be applied, without explaining which other measures could be applied. In other words, they do not identify or ponder the measures that could be applied. As a result, Reports ARP-002-2017 and ARP-006-2016 fail to evaluate the likelihood of entry, establishment or spread according to the SPS measures that might be applied, which means that the risk assessment does not comply with the third step suggested by the Appellate Body based on the definition of "risk assessment" in paragraph 4 of Annex A to the SPS Agreement;
- o. In the course of its analysis of the evaluation of the likelihood of entry, establishment or spread, the Panel found flaws with regard to the consideration in Reports ARP-002-2017 and ARP-006-2016 of the circumstances relevant to the risk assessment, including those relating to ASBVd, avocado fruit, Costa Rica's climatic conditions, its cultural practices, the status of ASBVd in Costa Rican territory, the presence of ASBVd in Mexico, and the potential economic and biological consequences. Given the flaws found in relation to the consideration of these circumstances that are relevant to Costa Rica's risk assessment, the risk assessment in Reports ARP-002-2017 and ARP-006-2016 cannot be considered a

risk assessment *appropriate to the circumstances* within the meaning of Article 5.1 of the SPS Agreement;

- p. ISPM Nos. 2 and 11 are risk assessment techniques developed by one of the relevant international organizations that Costa Rica should have taken into account when conducting its risk assessment, and Costa Rica did take into account ISPM Nos. 2 and 11 when conducting its risk assessment. ISPM Nos. 4 and 6 are not risk assessment techniques for the purposes of Article 5.1 of the SPS Agreement;
- q. In its risk assessment, Costa Rica did not take into account the available scientific evidence or the prevalence of specific diseases or pests. Therefore, Costa Rica has acted inconsistently with Article 5.2 of the SPS Agreement by failing to take into account the factors under that Article in its assessment of risks;
- r. In its risk assessment, Costa Rica did not take into account the potential damage in terms of loss of production or sales in the event of the entry, establishment or spread of ASBVd; the costs of control or eradication in the territory of Costa Rica; or the relative cost-effectiveness of alternative approaches to limiting risks. Therefore, Costa Rica has acted inconsistently with Article 5.3 of the SPS Agreement by failing to take into account the relevant economic factors listed in that Article in its assessment of the risk in question.

7.1688. Given the flaws identified in this section, the Panel concludes that Costa Rica's risk assessment contained in Reports ARP-002-2017 and ARP-006-2016 is not an assessment, as appropriate to the circumstances, of the risks to plant life or health, within the meaning of paragraph 4 of Annex A to the SPS Agreement and Article 5.1 of the SPS Agreement; and that Costa Rica failed to take into account, in the risk assessment, the factors listed in Articles 5.2 and 5.3 of the SPS Agreement.

7.4.6 Whether Costa Rica's SPS measures are based on the risk assessment

7.1689. **Mexico** submits that Costa Rica's phytosanitary measures are not based on a risk assessment, as appropriate to the circumstances, of the likelihood of entry, establishment and spread of ASBVd, because of the lack of specific scientific evidence and the lack of consistency between the analysis conducted by Costa Rica and the measures applied.²⁷³⁸

7.1690. For Mexico, a comprehensive analysis of the PRA reveals that the assessment is inconsistent with Article 5.1, as it relies upon central arguments that lack a scientific basis and, given that it fails to take into account relevant factors as regards the risk posed by the pathway of avocados imported for consumption in terms of the probability of entry, establishment and spread of ASBVd, it is not specific to this risk. Mexico adds that the assessment appears to assume that there is a high risk associated with the pathway under analysis, without actually considering the risk arising from the diversion from intended use.²⁷³⁹

7.1691. Mexico submits a table that incorporates a number of assertions made by Costa Rica in the PRA, which Mexico considers to be central aspects of the assessment and which it considers lack a sufficient scientific basis. Mexico states that each of these assertions reveals certain inconsistencies that collectively contribute to the fact that the assessment conducted is deficient and, as a result, not appropriate to the circumstances. Mexico notes that most of the arguments are based on a socio-economic census prepared by a consulting firm whose competence is questionable; and that neither Costa Rica's PRA nor the census present evidence indicating that this firm is a respected source that may be used as a basis in the risk analysis, since information is not provided on the firm's area of expertise, its experience in preparing this type of study, and the experience of the individuals that conducted this study in relation to the avocado industry.²⁷⁴⁰

7.1692. Mexico notes that its analysis reflected in the table reveals the following inconsistencies in the PRAs:

²⁷³⁸ Mexico's second written submission, para. 187.

²⁷³⁹ Mexico's first written submission, para. 416.

²⁷⁴⁰ Mexico's first written submission, para. 417.

- a. It cannot be deduced from CONSULSANTOS (2010) and CONSULSANTOS (2017) that producers use the seeds of Hass avocados imported for consumption from Mexico as rootstock in their own orchards, and there is no other scientific evidence in the PRAs to support this assertion.
- b. Costa Rica fails to demonstrate with scientific evidence that its climatic conditions are conducive to the germination of the seeds imported for consumption from Mexico, and there is no evidence in CONSULSANTOS (2010) and CONSULSANTOS (2017) proving this assertion.
- c. Costa Rica fails to demonstrate that its territory is a PFA, and Mexico has submitted information from which it can properly be inferred that ASBVd and its disease are present in Costa Rica.
- d. CONSULSANTOS (2010) and CONSULSANTOS (2017) do not support Costa Rica's conclusions that the use of seeds from fresh avocados imported from Mexico is a risk factor for the introduction of ASBVd and its disease, or the argument that it is specifically the seeds of fresh avocados imported for consumption from Mexico or any other country that are used as rootstock for planting avocado plantations.
- e. The scientific evidence does not establish the diversion from intended use arising from the consumption of fresh food as a high-risk factor that can be considered as justification for imposing a maximum level of protection.
- f. The probability of ASBVd entering Costa Rica's territory through the importation of fresh avocados for consumption is negligible.
- g. Costa Rica does not explain in any section of the PRAs why the alleged findings support the measures.
- h. The PRAs conducted by Costa Rica are not supported by scientific evidence indicating that fresh avocados for consumption imported from Mexico are a pathway for the entry of ASBVd and its disease, or substantiating its conclusions regarding the high probability of entry, establishment and spread of ASBVd and its disease through the pathway of fresh avocados imported for consumption from Mexico.
- i. From the statements made by Costa Rica in the PRAs, it would appear that the phytosanitary authority considers that 100% of the fresh avocados for consumption imported from Mexico are infected with asymptomatic ASBVd.²⁷⁴¹

7.1693. Mexico submits that, based on these inconsistencies, the identifiable risk does not rationally support the restriction of imports of fresh avocados for consumption from Mexico.²⁷⁴² For Mexico, there is a lack of specificity in the risk assessed by Costa Rica, because the central risk stems from the diversion from intended use of the avocados imported for consumption, yet this is not examined, and, on the contrary, it is assumed that there is a risk of ASBVd entering through the importation *per se* of avocados and a *per se* risk of diversion from intended use.²⁷⁴³

7.1694. Mexico states that, since there is no consistency between the risk analysis carried out by Costa Rica and the measures imposed, there is no objective relationship between the PRAs and the measures imposed by Costa Rica on the importation of fresh avocados for consumption.²⁷⁴⁴

7.1695. Mexico adds that the measures applied by Costa Rica are not based on the risk assessment, because:

²⁷⁴¹ Mexico's first written submission, para. 418 (referring to CONSULSANTOS (2010), (Exhibit MEX-119); and CONSULSANTOS (2017), (Exhibit MEX-118)).

²⁷⁴² Mexico's first written submission, para. 419.

²⁷⁴³ Mexico's first written submission, paras. 421-423.

²⁷⁴⁴ Mexico's first written submission, para. 424.

- a. The analyst's reasoning mostly relies upon mere assertions and *petitiones principii* that lack a scientific basis and rigour, so the conclusions reached are not objective and consistent with real-world experience;
- b. The facts and evidence submitted by Mexico differ from the facts put forward by Costa Rica in its risk assessment;
- c. The assessments lack scientific support to demonstrate that the spontaneous germination of the discarded pits of imported avocados is a risk of entry, establishment and spread of ASBVd;
- d. The risk assessments are not justified by scientific evidence supporting a diversion from intended use of the pits of avocados imported for consumption; and
- e. The obvious lack of a scientific, technical and statistical basis became clear when Costa Rica provided *ad hoc* evidence, prepared *ex professo*, to respond to Mexico's first written submission and to the Panel's questions.²⁷⁴⁵

7.1696. **Costa Rica** submits that Mexico has failed to establish that Costa Rica's measures are not based on the risk assessment, since it has failed to demonstrate how the phytosanitary requirements imposed do not flow or result from Costa Rica's risk analysis, when this is clearly the case.²⁷⁴⁶ Costa Rica adds that it was incumbent upon Mexico to demonstrate that the measures eventually adopted have no rational relationship with the risk assessment, and it failed to do so.²⁷⁴⁷

7.1697. Costa Rica states that, taking into account the scientific evidence available for the evaluation of the likelihood of entry, establishment and spread of ASBVd and its potential biological and economic consequences, Costa Rica concluded that there was a cumulative risk score of 39.67/51, and high-risk status was granted, although technically the risk was situated between medium and high. Costa Rica adds that, given that the risk was medium or high, the adoption of measures was justified to ensure Costa Rica's phytosanitary status as ASBVd-free.²⁷⁴⁸

7.1698. Costa Rica adds that this section is based on the hypothesis that the measure under analysis is the phytosanitary requirements imposed by Costa Rica, which are contained in Resolutions DSFE-002-2018 and DSFE-003-2018, but notes that Mexico identified the PRAs as the only instruments relevant to its claim under Article 5.1 of the SPS Agreement, which does not impose an obligation that a risk assessment be based on a risk assessment.²⁷⁴⁹

7.1699. Costa Rica contends that Mexico has failed to demonstrate that the requirements lack a technical and scientific basis in the risk assessment and, therefore, that there is no rational relationship between the two. For Costa Rica, the scientific evidence and empirical studies confirm that there is a risk associated with avocado fruit infected with asymptomatic ASBVd, and that it has been found that: (i) the viroid is systemic in the tissues of the avocado plant, including the fruit and its seed²⁷⁵⁰; (ii) there are symptomless fruits, in which it is impossible to detect ASBVd through inspection²⁷⁵¹; (iii) the seeds of imported avocados remain viable during transport and storage²⁷⁵²; (iv) Costa Rica's climatic conditions are suitable for the natural germination of avocado seeds²⁷⁵³; (v) the practice of diversion from intended use increases the risk that seeds of unknown origin that

²⁷⁴⁵ Mexico's second written submission, para. 184.

²⁷⁴⁶ Costa Rica's second written submission, para. 3.53.

²⁷⁴⁷ Costa Rica's first written submission, paras. 5.169-5.170.

²⁷⁴⁸ Costa Rica's first written submission, para. 5.171.

²⁷⁴⁹ Costa Rica's second written submission, para. 3.54.

²⁷⁵⁰ Costa Rica's second written submission, para. 3.55 (citing Ploetz *et al.* (2011), (Exhibit MEX-56),

p. 5).

²⁷⁵¹ Costa Rica's second written submission, para. 3.55 (citing Mohamed and Thomas (1980), (Exhibit CRI-125); Desjardins (1987), (Exhibit CRI-101); Schnell *et al.* (2001), (Exhibit CRI-131); and Schnell *et al.* (1997), (Exhibit MEX-68)).

²⁷⁵² Costa Rica's second written submission, para. 3.55 (citing Wutscher and Maxwell (1969), (Exhibit MEX-132); and Spalding *et al.* (1976), (Exhibit MEX-133)).

²⁷⁵³ Costa Rica's second written submission, para. 3.55 (citing Holdridge (1982), (Exhibit CRI-122); Galindo Tovar *et al.* (2008), (Exhibit MEX-22); CONSULSANTOS (2010), (Exhibit MEX-119), p. 15; and "Agronomists rescue the best varieties of criollo avocado", *ucr.ac.cr* (2019), (Exhibit CRI-58)).

are infected with ASBVd will germinate²⁷⁵⁴; (vi) there is a very high probability, close to 100%, that the germination of seeds of symptomless infected fruits will transmit the viroid to the new tree²⁷⁵⁵; (vii) the spread of the viroid, once introduced, occurs mainly through grafting and the use of contaminated material²⁷⁵⁶; (viii) there is no cure for ASBVd and the only solution is to eradicate infected trees²⁷⁵⁷; and (ix) ASBVd has very significant economic consequences.²⁷⁵⁸

7.1700. Costa Rica states that, on this basis, it implemented phytosanitary requirements aimed at ensuring the absence of ASBVd in symptomless fruit. The exporting country can choose between three equally acceptable alternatives, and Costa Rica, for its part, will verify the pest freedom certification at the entry point through sampling and laboratory testing (RT-PCR). In Costa Rica's view, this measure has a clear rational relationship with the conclusions reached in the risk assessment. Costa Rica adds that the measure has a technical and scientific basis, even if the qualitative rating of the risk as medium or high is contested, since what is crucial is that the risk exists and that ASBVd is a quarantine pest in Costa Rica, which means that the least that should be applied to address this risk is a requirement for a consignment to be certified as free of ASBVd, together with verification upon arrival.²⁷⁵⁹

7.1701. Costa Rica submits that it protects its plant health system through controls at the entry points of goods, which involve a thorough examination of the documentation accompanying consignments of plant products and the subsequent inspection and verification of compliance with the phytosanitary requirements established for each product. Costa Rica states that it implemented an innovative detection test for ASBVd at the border, which, within a very short period of time and using molecular biology techniques, establishes with the required certainty that the consignment is free of ASBVd. Costa Rica points out that domestic measures alone are insufficient to ensure that its ASBVd-free status is maintained.²⁷⁶⁰

7.1702. With respect to the second aspect of the analysis of Article 5.1, i.e. that the SPS measure be based on the risk assessment, the **Panel** notes that the expression "based on" refers to an objective relationship between two elements, that is to say, to an objective situation that persists and is observable between an SPS measure and a risk assessment.²⁷⁶¹

7.1703. As has been mentioned above, a panel's task under Article 5.1 is linked to the provisions of Article 2.2. In *EC – Hormones*, the Appellate Body considered that Article 5.1, when contextually read, in conjunction with and as informed by Article 2.2 of the SPS Agreement, "requires that the results of the risk assessment must sufficiently warrant – that is to say, reasonably support – the SPS measure at stake."²⁷⁶² According to the Appellate Body, the requirement that an SPS measure be "based on" a risk assessment is "a substantive requirement that there be a rational relationship between the measure and the risk assessment".²⁷⁶³

7.1704. The panel in *EC – Approval and Marketing of Biotech Products* also highlighted that the requirement in Article 5.1 to base an SPS measure on a risk assessment "is plainly a substantive

²⁷⁵⁴ Costa Rica's second written submission, para. 3.55 (citing CONSULSANTOS (2017), (Exhibit MEX-118); CONSULSANTOS (2010), (Exhibit MEX-119); Cultural practices in sowing and managing avocado seeds in Costa Rica (2019), (Exhibit CRI-44), p. 12; and Manual for Nurseries (2017), (Exhibit CRI-43), p. 20).

²⁷⁵⁵ Costa Rica's second written submission, para. 3.55 (citing Vargas *et al.* (1991), (Exhibit CRI-137); Hadidi *et al.* (2003), (Exhibit CRI-121); and Ochoa Ascencio (2013), (Exhibit CRI-128)).

²⁷⁵⁶ Costa Rica's second written submission, para. 3.55 (citing Hadidi *et al.* (2003), (Exhibit CRI-121)).

²⁷⁵⁷ Costa Rica's second written submission, para. 3.55 (citing Coit (1928), (Exhibit CRI-9); Hadidi *et al.* (2003), (Exhibit CRI-121); and Suarez *et al.* (2005), (Exhibit CRI-136)).

²⁷⁵⁸ Costa Rica's second written submission, para. 3.55 (citing Saucedo Carabez *et al.* (2014), (Exhibit MEX-45); Mohamed and Thomas (1980), (Exhibit CRI-125); Desjardins *et al.* (1980), (Exhibit CRI-116); and Hadidi *et al.* (2003), (Exhibit CRI-121)).

²⁷⁵⁹ Costa Rica's second written submission, para. 3.56.

²⁷⁶⁰ Costa Rica's opening statement at the first meeting of the Panel, paras. 15-21.

²⁷⁶¹ Appellate Body Report, *India – Agricultural Products*, para. 5.16 (citing Appellate Body Report, *EC – Hormones*, para. 189).

²⁷⁶² Appellate Body Report, *EC – Hormones*, para. 193. See also Panel Report, *US – Poultry (China)*, para. 7.180; and Appellate Body Report, *India – Agricultural Products*, para. 5.16.

²⁷⁶³ Appellate Body Report, *EC – Hormones*, para. 193. See also Appellate Body Report, *India – Agricultural Products*, para. 5.16.

requirement, and not simply a formal requirement to accompany an SPS measure by a risk assessment".²⁷⁶⁴

7.1705. The Panel has already concluded that Costa Rica's risk assessment contained in Reports ARP-002-2017 and ARP-006-2016 is not an assessment, as appropriate to the circumstances, of the risks to plant life or health within the meaning of Annex A(4) to SPS Agreement and Article 5.1 of that Agreement; and that Costa Rica failed to take into account in the risk assessment the factors listed in Articles 5.2 and 5.3 of the SPS Agreement. The fact that Costa Rica's risk assessment does not comply with this means that it cannot be concluded that the phytosanitary measures, i.e. Resolutions DSFE-002-2018 and DSFE-003-2018, which contain the phytosanitary requirements, are based on a risk assessment in accordance with Article 5.1 of the SPS Agreement. In this case, no objective or rational relationship can be established between the measure and the risk assessment, given that the risk assessment itself cannot be objectively justified.

7.1706. The Panel therefore concludes that Costa Rica has acted inconsistently with Article 5.1 of the SPS Agreement by failing to ensure that its phytosanitary measures, i.e. Resolutions DSFE-002-2018 and DSFE-003-2018, which contain the phytosanitary requirements, are based on an assessment, as appropriate to the circumstances, of the risks to plant life or health.

7.4.7 Whether the factors listed in Article 5.3 of the SPS Agreement were taken into account in determining the measure to be applied

7.1707. **Mexico** claims that Costa Rica violated Article 5.3 of the SPS Agreement by failing to take into account the relevant economic factors in determining its measures.²⁷⁶⁵

7.1708. With regard to the potential damage in terms of loss of production or sales in the event of the entry, establishment or spread of a pest or disease, Mexico submits that Resolutions DSFE-002-2018 and DSFE-003-2018 do not transcribe, either in monetary terms or in any other quantitative manner, the calculation of the potential damage in terms of loss of production or sales, and how this relates to the measures that were determined to apply to imports of fresh avocados for consumption from Mexico.²⁷⁶⁶ Mexico asserts that a consistent argument in both resolutions is that ASBVd can lead to a decline in avocado production, but at no point is a quantitative or qualitative analysis carried out in which the economic impacts of this are specified.²⁷⁶⁷

7.1709. Turning to the costs of control or eradication in the territory of the importing Member, Mexico notes that the resolutions ignore this economic factor because, for example, there is no mention of what would be the cost to the public purse or to avocado producers in order to prevent the spread of ASBVd in avocado orchards, or to eradicate the pest.²⁷⁶⁸

7.1710. On the relative cost-effectiveness of alternative approaches to limiting risks, Mexico submits that the resolutions give no reasoning or explanation of the alternatives considered and of the relative cost-effectiveness of methods other than the requirement for a phytosanitary certificate, the declaration of a PFA or the application of a systems approach to limit the alleged risks associated with the entry and establishment of ASBVd.²⁷⁶⁹ Mexico states that, in order to analyse this economic factor, the SFE should have taken into consideration at least the possibility of establishing measures such as those aimed at preventing diversion from intended use, and set forth the reasons why it was not a suitable option in this case.²⁷⁷⁰

7.1711. **Costa Rica** contends that Mexico puts forward the same arguments with respect to Resolutions DSFE-002-2018 and DSFE-003-2018 containing the phytosanitary requirements adopted by Costa Rica, i.e. the lack of consideration of losses of production and sales, of the costs of control or eradication, and of the relative cost-effectiveness of alternative measures. Costa Rica notes, however, that the obligation to take into account relevant economic factors when determining the measure to be applied arises in the context of complying with other obligations, such as those

²⁷⁶⁴ Panel Report, *EC – Approval and Marketing of Biotech Products*, para. 7.3067.

²⁷⁶⁵ Mexico's first written submission, p. 123.

²⁷⁶⁶ Mexico's first written submission, para. 499.

²⁷⁶⁷ Mexico's first written submission, para. 500.

²⁷⁶⁸ Mexico's first written submission, para. 501.

²⁷⁶⁹ Mexico's first written submission, para. 502.

²⁷⁷⁰ Mexico's first written submission, para. 503.

pursuant to Articles 2.2 and 5.6 of the SPS Agreement.²⁷⁷¹ Costa Rica adds that, while it has already responded to these arguments under Article 5.1 of the SPS Agreement, it will address them again in the context of Mexico's claim under Article 5.6 of the SPS Agreement.²⁷⁷²

7.1712. Costa Rica points out that, when one speaks of "potential" economic damage, the costs of control or eradication of a pest that does not yet exist, and the cost-effectiveness of "potential" risk mitigation measures, one is speaking of hypothetical or potential scenarios that could occur if the pest existed in the national territory and produced effects, and that this intellectual exercise may be overly complex.²⁷⁷³ Costa Rica adds that, despite the potential complexity of this assessment, it did its utmost to consider the possible adverse effects of the establishment and spread of the viroid and the possible costs of eradication in the event of its spread, and that the relative cost-effectiveness of alternative approaches to limiting risks was considered and discussed at length.²⁷⁷⁴

7.1713. The **European Union** considers, as a third party, that the relevant economic factors listed in Article 5.3 may be relevant for Articles 5.4 and 5.6. For example, the potential damage in terms of loss of production or sales in the event of the entry, establishment or spread of a pest or disease can be relevant when deciding the trade-restrictiveness of the SPS measure. The European Union recalls that Articles 5.4 and 5.6 of the SPS Agreement are particularly relevant to the risk management decision, and are part of the context in which a Member is required to take into account the relevant economic factors listed in Article 5.3 of the SPS Agreement when determining the measure it will apply to achieve its ALOP.²⁷⁷⁵

7.1714. **Canada**, as a third party, is of the view that Articles 5.4 and 5.6 apply to the second situation set out in Article 5.3 – i.e. determining the measure to be applied for achieving the Member's ALOP.²⁷⁷⁶ Canada adds that, in complying with Articles 5.4 and 5.6, the Member is required to take into account the relevant economic factors listed in Article 5.3 when determining whether the SPS measure it establishes or maintains will achieve its ALOP.²⁷⁷⁷ Canada also notes that Article 5.4 does not contain an obligation, but presents a "discipline" that Members must respect when deciding on their ALOP and take into account in the interpretation of other SPS Agreement provisions, including Articles 5.3 and 5.6.²⁷⁷⁸

7.1715. **El Salvador** is of the view, as a third party, that, in order to comply with the provisions of Articles 5.4 and 5.6 of the SPS Agreement, a Member must take into account the relevant economic factors referred to in Article 5.3 so as to adopt an appropriate risk analysis and level of protection.²⁷⁷⁹

7.1716. The **Panel** recalls that Article 5.3 sets forth the obligation of taking into account the relevant economic factors listed therein in two different situations: (i) in assessing the risk to animal or plant life and health; and (ii) in determining the measure to be applied to achieve the ALOP.²⁷⁸⁰ Mexico claims that Costa Rica violated Article 5.3 of the SPS Agreement by failing to take into account the factors in Article 5.3 in both situations.²⁷⁸¹ With regard to the first situation, the Panel concluded in section 7.4.5.8 above that Costa Rica failed to take into account the relevant economic factors under Article 5.3 in its assessment of the risk in question.

7.1717. With respect to the second situation, the panel in *Russia – Pigs (EU)* considered that the relevant economic factors listed in Article 5.3 shall be taken into account in the context of complying with Articles 2.2, 5.4, and 5.6 of the SPS Agreement.²⁷⁸²

²⁷⁷¹ Costa Rica's first written submission, para. 5.191 (citing Panel Report, *Russia – Pigs (EU)*, para. 7.771).

²⁷⁷² Costa Rica's first written submission, para. 5.191.

²⁷⁷³ Costa Rica's response to Panel question No. 56, para. 1.

²⁷⁷⁴ Costa Rica's response to Panel question No. 56, paras. 2-3.

²⁷⁷⁵ European Union's response to Panel question No. 8, paras. 34-37.

²⁷⁷⁶ Canada's response to Panel question No. 8(d), para. 28.

²⁷⁷⁷ Canada's response to Panel question No. 8(d), para. 29.

²⁷⁷⁸ Canada's response to Panel question No. 8(d), para. 30 (citing Panel Reports, *US – Animals*, para. 7.399; *EC – Hormones (Canada)*, para. 8.169; and *EC – Hormones (US)*, para. 8.166; and Appellate Body Report, *US – Continued Suspension*, fn 1088).

²⁷⁷⁹ El Salvador's response to Panel question No. 8(d).

²⁷⁸⁰ Panel Report, *Russia – Pigs (EU)*, para. 7.769.

²⁷⁸¹ Mexico's first written submission, p. 123.

²⁷⁸² Panel Report, *Russia – Pigs (EU)*, para. 7.771.

7.1718. In this Panel's view, the analysis of the relevant economic factors in Article 5.3 may be relevant to Articles 5.4 and 5.6 of the SPS Agreement, and particularly to Article 5.6 addressing the establishment of a measure, because these economic factors, and in particular the relative cost-effectiveness of alternative approaches to limiting risks, can be considered in the analysis of the negative trade effects (Article 5.4) or trade-restrictiveness (in Article 5.6).

7.1719. However, the Panel considers that a complainant may claim that the relevant economic factors were not taken into account in determining the measure to be applied for achieving the ALOP, without having to refer to its claims of inconsistency with Article 5.4 or Article 5.6 of the SPS Agreement, or to its claims of inconsistency with Article 2.2 of the SPS Agreement.

7.1720. In the circumstances of the case at hand, the Panel considers that its finding that Costa Rica failed to take into account the relevant economic factors in Article 5.3 when assessing the risk in question is an indication that these relevant economic factors were not taken into account when determining the measure to be applied.

7.1721. Costa Rica indicates that the relative cost-effectiveness of alternative approaches to limiting risks was considered and discussed at length in a technical working group of the SFE, and that, in light of what was on the record at the time the PRA was finalized, the risk management section contains the three possible measures that were acceptable to Costa Rica.²⁷⁸³

7.1722. The Panel notes that Costa Rica itself refers to its PRA to assert that it has conducted an analysis of the relative cost-effectiveness of alternative approaches to limiting risks. Costa Rica does not provide explanations or additional evidence on how it considered the relative cost-effectiveness of alternative approaches to limiting risks or any of the other factors in Article 5.3, but instead refers to its arguments in response to Mexico's claims under Articles 5.1 and 5.6 of the SPS Agreement. The Panel considers that there is no indication that Costa Rica has considered the relevant economic factors at a time other than during the preparation of the PRAs. Resolutions DSFE-002-2018 and DSFE-003-2018 do not contain any information in this respect.

7.1723. In light of the foregoing, the Panel concludes that, in determining the measure to be applied for achieving its ALOP, Costa Rica failed to take into account the potential damage in terms of loss of production or sales in the event of the entry, establishment or spread of ASBVd; the costs of control or eradication in Costa Rican territory; and the relative cost-effectiveness of alternative approaches to limiting risks. The Panel therefore concludes that Costa Rica has acted inconsistently with Article 5.3 of the SPS Agreement because it failed to take into account the relevant economic factors listed in this Article when determining its phytosanitary measures.

7.4.7.1 Whether Costa Rica has acted inconsistently with Article 2.2 of the SPS Agreement

7.1724. **Mexico** claims that Costa Rica's phytosanitary measures are inconsistent with Article 2.2 of the SPS Agreement.²⁷⁸⁴ Mexico contends that, since it can be presumed that a violation of Article 5.1 of the SPS Agreement results in a violation of Article 2.2, Costa Rica's measures are also contrary to Article 2.2 because they are not based on scientific principles and are maintained without sufficient scientific evidence.²⁷⁸⁵

7.1725. Mexico submits that, as is clear from the section in which Articles 5.1 and 5.2 of the SPS Agreement were analysed, the risk assessment conducted by Costa Rica is based on assertions that are not supported by scientific evidence and that are central to its reasoning for determining the risk and the phytosanitary measures applied. With respect to these assertions and arguments, Mexico states that:

- a. CONSULSANTOS (2010) does not mention that there is a high tendency among producers to use for sowing the seeds of avocados imported for consumption, and therefore does not

²⁷⁸³ Costa Rica's response to Panel question No. 56, para. 3.

²⁷⁸⁴ Mexico's first written submission, para. 510.

²⁷⁸⁵ Mexico's second written submission, para. 208.

prove a practice of diversion from intended use. The PRA recognizes that there are no statistics on the amount of fruit imported from which the seed is extracted.

- b. CONSULSANTOS (2010) does not provide scientific evidence that seeds that fall on the ground germinate by themselves without human assistance, which is an assertion that seeks to increase the risk of intentional or unintentional diversion from intended use.
- c. CONSULSANTOS (2010) presents no evidence on the climatic conditions specific to avocado cultivation, instead it refers to coffee growing. For Mexico, although the PRA does address the practically spontaneous germination of the seeds, it does not present evidence of how the dry season is taken into account in the risk posed by imports of avocados for consumption, and Costa Rica appears to assume a high import risk throughout the year.
- d. Costa Rica assumes that there is a high import risk without calculating the probability that the imported avocados contain asymptomatic ASBVd, and assumes a high probability of diversion from intended use without demonstrating the link between imports and the probability that each seed will be used for a purpose other than consumption. Therefore, although Costa Rica's central concern is based on diversion from intended use, the risk assessment is not specific to this risk.
- e. The high probabilities determined by Costa Rica in relation to the introduction, establishment and spread of ASBVd cannot be reconciled with the assertion that ASBVd is not present in its territory. This is because Costa Rica states that a practice of diversion from intended use exists and assumes that there is a high risk arising from the volume of avocados imported from Mexico, the main exporter to Costa Rica for a number of years. In addition, other countries where ASBVd is present have exported avocados for consumption to Costa Rica for many years.
- f. Costa Rica has failed to carry out an assessment according to the measures that might be applied.
- g. The flaws in the reasoning in the PRA mean that there is no rational relationship between the scientific evidence and the risk assessment, and between the measures seeking to address the risk identified by Costa Rica and the risk assessment, since they are not sufficiently supported by scientific evidence.
- h. CONSULSANTOS (2010) and CONSULSANTOS (2017) do not support Costa Rica's conclusions that the use of seeds from fresh avocados imported from Mexico is a risk factor for the transmission of ASBVd, or the argument that it is specifically the seeds of fresh avocados imported for consumption that are used as rootstock for sowing avocado plantations.
- i. The PRAs are not supported with scientific evidence indicating that fresh avocados for consumption imported from Mexico are a pathway for the transmission of ASBVd, or with scientific evidence that supports its conclusions with regard to the high probability of entry, establishment and spread of ASBVd through fresh avocados imported for consumption from Mexico.²⁷⁸⁶

7.1726. Mexico concludes that, in light of the foregoing, the PRA and the evidence provided therein do not constitute sufficient scientific evidence to prove the specific risk that the seeds of avocados imported for consumption will be used for propagation purposes, thereby spreading ASBVd. There is no relationship between the risk, the evidence and the assessment in the analysis. Therefore, the measures have been maintained without sufficient scientific evidence and, in this regard, it cannot be stated that they are based on scientific principles.²⁷⁸⁷

7.1727. **Costa Rica** submits that Mexico has failed to prove that Costa Rica's measures are inconsistent with Article 2.2 of the SPS Agreement.²⁷⁸⁸ Costa Rica states that Mexico repeats the

²⁷⁸⁶ Mexico's first written submission, para. 514.

²⁷⁸⁷ Mexico's first written submission, para. 515.

²⁷⁸⁸ Costa Rica's first written submission, p. 71.

arguments that it already put forward under Articles 5.1 and 5.2 of the SPS Agreement, and that Mexico failed to demonstrate that Costa Rica has acted inconsistently with Articles 5.1, 5.2, and 5.3, which means that Mexico also failed to demonstrate that Costa Rica has acted inconsistently with Article 2.2 of the SPS Agreement.²⁷⁸⁹

7.1728. The **Panel** recalls that Article 2.2 establishes the following:

Members shall ensure that any sanitary or phytosanitary measure is applied only to the extent necessary to protect human, animal or plant life or health, is based on scientific principles and is not maintained without sufficient scientific evidence, except as provided for in paragraph 7 of Article 5.

7.1729. The Panel also recalls that the Appellate Body in *Australia – Apples* explained that Article 2.2 "focuses on the need for an SPS measure to be based on scientific principles and sufficient scientific evidence".²⁷⁹⁰ Moreover, the Appellate Body in *India – Agricultural Products* stated that a panel's task under Article 2.2, as under Articles 5.1 and 5.2, encompasses a scrutiny of the scientific basis underlying a risk assessment and the SPS measure at issue.²⁷⁹¹

7.1730. Regarding the sufficiency of the scientific evidence, the Appellate Body in *Japan – Agricultural Products II* considered that the ordinary meaning of "sufficient" is "of a quantity, extent, or scope adequate to a certain purpose or object", and that, from this, it can be concluded that "sufficiency" is a relational concept that requires the existence of a sufficient or adequate relationship between two elements, *in casu*, between the SPS measure and the scientific evidence.²⁷⁹² The Appellate Body noted that the obligation under Article 2.2 that an SPS measure not be maintained without sufficient scientific evidence requires that there be a rational or objective relationship between the SPS measure and the scientific evidence.²⁷⁹³

7.1731. In accordance with the foregoing, a panel's task under Article 2.2 encompasses a scrutiny of the scientific basis underlying a risk assessment and the measure at issue, and the obligation that an SPS measure not be maintained without sufficient scientific evidence requires that there be a rational or objective relationship between the SPS measure and the scientific evidence.

7.1732. The Panel recalls that, when analysing the claims under Articles 5.1, 5.2, and 5.3 of the SPS Agreement, the Panel found flaws in Reports ARP-002-2017 and ARP-006-2016 relating to the scientific basis of the risk assessment, including the lack of sufficient evidence related to certain significant aspects of this assessment, and also with respect to the risk analyst's reasoning. The Panel considered that these flaws are sufficient to conclude that Costa Rica's risk assessment contained in Reports ARP-002-2017 and ARP-006-2016 is not an assessment, as appropriate to the circumstances, of the risks to plant life or health within the meaning of Annex A(4) to the SPS Agreement and Article 5.1 of that Agreement; and that Costa Rica failed to take into account in the risk assessment the factors listed in Articles 5.2 and 5.3 of the SPS Agreement.

7.1733. The Appellate Body in *India – Agricultural Products* explained that an SPS measure found to be inconsistent with Articles 5.1 and 5.2 can be presumed, more generally, to be inconsistent with Article 2.2.²⁷⁹⁴ In other words, a finding of inconsistency with Articles 5.1 and 5.2 gives rise to a presumption of inconsistency with Article 2.2. Although the Appellate Body warned that the presumption of inconsistency is rebuttable, it also recognized that establishing that there exists a rational or objective relationship between the SPS measure and the scientific evidence for the purposes of Article 2.2 would, in most cases, be difficult without a Member demonstrating that such a measure is based on an assessment of the risks, as appropriate to the circumstances.²⁷⁹⁵

²⁷⁸⁹ Costa Rica's first written submission, paras. 5.194-5.195.

²⁷⁹⁰ Appellate Body Report, *Australia – Apples*, para. 209.

²⁷⁹¹ Appellate Body Report, *India – Agricultural Products*, para. 5.22.

²⁷⁹² Appellate Body Report, *Japan – Agricultural Products II*, para. 73.

²⁷⁹³ Appellate Body Report, *Japan – Agricultural Products II*, para. 84 (citing Panel Report, *Japan – Agricultural Products II*, paras. 8.29 and 8.42).

²⁷⁹⁴ Appellate Body Report, *India – Agricultural Products*, para. 5.23 (citing Appellate Body Reports, *Australia – Salmon*, para. 138; and *Australia – Apples*, para. 340).

²⁷⁹⁵ Appellate Body Report, *India – Agricultural Products*, para. 5.29 and fn 305.

7.1734. This Panel considers that its conclusions that Costa Rica has acted inconsistently with Article 5.1 of the SPS Agreement because it failed to ensure that its phytosanitary measures, i.e. Resolutions DSFE-002-2018 and DSFE-003-2018, which contain the phytosanitary requirements, are based on a risk assessment, as appropriate to the circumstances, of the risks to plant life or health, and with Article 5.2 of the SPS Agreement because it failed to take into account the relevant factors in this Article in assessing the risks, are sufficient to conclude that Costa Rica has acted inconsistently with the obligation under Article 2.2 of the SPS Agreement to ensure that any SPS measure is based on scientific principles and is not maintained without sufficient scientific evidence. This is because of the flaws relating to the scientific basis and the risk analyst's reasoning, which mean it cannot be concluded that there is a rational or objective relationship between the SPS measure and the scientific evidence for the purposes of Article 2.2.²⁷⁹⁶

7.1735. In light of the foregoing, the Panel concludes that Costa Rica has acted inconsistently with Article 2.2 of the SPS Agreement, by failing to ensure that its phytosanitary measures, i.e. Resolutions DSFE-002-2018 and DSFE-003-2018, which contain the phytosanitary requirements, are based on scientific principles and are not maintained without sufficient scientific evidence.

7.4.8 Overall conclusion of the section on Mexico's claims concerning the risk assessment

7.1736. The Panel concludes that:

- a. Costa Rica has acted inconsistently with Article 5.1 of the SPS Agreement, by failing to ensure that its phytosanitary measures, i.e. Resolutions DSFE-002-2018 and DSFE-003-2018, which contain the phytosanitary requirements, are based on an assessment, as appropriate to the circumstances, of the risks to plant life or health.
- b. Costa Rica has acted inconsistently with Article 5.2 of the SPS Agreement, because, in the assessment of risks, it failed to take into account available scientific evidence and the prevalence of specific diseases or pests.
- c. Costa Rica has acted inconsistently with Article 5.3 of the SPS Agreement, because, in assessing the risk to plant life or health and determining the measure to be applied for achieving the appropriate level of phytosanitary protection from such risk, it failed to take into account as relevant economic factors: the potential damage in terms of loss of production or sales in the event of the entry, establishment or spread of a pest or disease; the costs of control or eradication in the territory of the importing Member; and the relative cost-effectiveness of alternative approaches to limiting risks.
- d. Costa Rica has acted inconsistently with Article 2.2 of the SPS Agreement, by failing to ensure that its phytosanitary measures, i.e. Resolutions DSFE-002-2018 and DSFE-003-2018, which contain the phytosanitary requirements, are based on scientific principles and are not maintained without sufficient scientific evidence.

7.5 Mexico's claims regarding the obligations of the SPS Agreement concerning trade restrictiveness

7.5.1 General introduction

7.1737. Mexico asserts that, in order to determine whether the proposed alternative measure would achieve the appropriate level of protection (ALOP), the first consideration to identify is the ALOP set by the importing Member.²⁷⁹⁷ Mexico notes that Costa Rica has not defined its ALOP with sufficient precision, and that Costa Rica's "maximum" ALOP is not consistent with an objective assessment of the facts.²⁷⁹⁸

7.1738. Mexico submits that there are alternative measures to those adopted in Resolutions DSFE-003-2018 and DSFE-002-2018, and notes that the following measures are

²⁷⁹⁶ The Panel also observes that Costa Rica has failed to submit specific arguments to rebut the presumption of inconsistency arising from the finding of inconsistency with Articles 5.1 and 5.2 of the SPS Agreement in the present case.

²⁷⁹⁷ Mexico's first written submission, para. 559.

²⁷⁹⁸ Mexico's second written submission, pp. 60-61.

reasonably available to Costa Rica, considering their technical and economic feasibility: (i) regulation to prevent diversion from intended use of the seed of fresh avocados for consumption as a propagation method for new plants; and (ii) ASBVd symptom-free certification of shipments.²⁷⁹⁹

7.1739. Costa Rica notes that its ALOP is to make every reasonable effort to prevent the entry of ASBVd into its territory and thus maintain its current ASBVd-free phytosanitary status²⁸⁰⁰, and it does not consider that the qualitative definition of its ALOP should be challenged as vague or equivocal.²⁸⁰¹

7.1740. Costa Rica submits that Mexico has failed to demonstrate that there is another measure, reasonably available taking into account technical and economic feasibility, that achieves Costa Rica's ALOP and that is, at the same time, significantly less restrictive to trade.²⁸⁰² For Costa Rica, Mexico has failed to establish that the alternative measures meet the three requirements of Article 5.6 of the SPS Agreement.²⁸⁰³

7.1741. In this section, the Panel will first address the subject of Costa Rica's ALOP, which will be relevant to its analysis of Mexico's claims under Articles 5.5 and 5.6 of the SPS Agreement. The Panel will then analyse whether, by identifying alternative measures that meet the requirements of Article 5.6 of the SPS Agreement, Mexico has demonstrated that Costa Rica has acted inconsistently with that Article.

7.1742. To this end, the Panel will first identify the legal provisions that are relevant to both matters, and will then outline the legal standard and carry out the analysis for each matter, that is, first with respect to the ALOP and then regarding whether Mexico has substantiated its claim under Article 5.6 of the SPS Agreement.

7.5.2 The relevant legal provisions

7.1743. Article 5.6 of the SPS Agreement states as follows:

Without prejudice to paragraph 2 of Article 3, when establishing or maintaining sanitary or phytosanitary measures to achieve the appropriate level of sanitary or phytosanitary protection, Members shall ensure that such measures are not more trade-restrictive than required to achieve their appropriate level of sanitary or phytosanitary protection, taking into account technical and economic feasibility.^[3]

³ For purposes of paragraph 6 of Article 5, a measure is not more trade-restrictive than required unless there is another measure, reasonably available taking into account technical and economic feasibility, that achieves the appropriate level of sanitary or phytosanitary protection and is significantly less restrictive to trade.

7.1744. Paragraph 5 of Annex A to the SPS Agreement defines "appropriate level of sanitary or phytosanitary protection" as "[t]he level of protection deemed appropriate by the Member establishing a sanitary or phytosanitary measure to protect human, animal or plant life or health within its territory". The note to this paragraph states that many Members otherwise refer to this concept as the "acceptable level of risk".

7.5.3 Legal standard for determining the ALOP

7.1745. In this section, the Panel will describe how other panels and the Appellate Body have interpreted the legal standard for determining a Member's ALOP. The Panel will be guided by these interpretations to the extent that they are relevant to its analysis.

²⁷⁹⁹ Mexico's first written submission, para. 549.

²⁸⁰⁰ Costa Rica's first written submission, para. 5.216.

²⁸⁰¹ Costa Rica's first written submission, para. 5.233 (citing Panel Report, *Korea – Radionuclides*, para. 7.247).

²⁸⁰² Costa Rica's first written submission, para. 5.216.

²⁸⁰³ Costa Rica's first written submission, para. 5.225.

7.1746. The Appellate Body has made it clear in a number of disputes that WTO Members have the "prerogative" to set their own ALOP.²⁸⁰⁴

7.1747. In this regard, in the context of its analysis under Article 5.6 of the SPS Agreement, the Appellate Body in *Australia – Salmon* noted that neither the DSU nor the SPS Agreement entitled the panel or the Appellate Body to substitute its own reasoning about the implied level of protection for that expressed consistently by the respondent in that case (*Australia*).²⁸⁰⁵ The Appellate Body observed that the respondent in that case had determined its ALOP with "sufficient precision" to apply Article 5.6.^{2806, 2807}

7.1748. In the same *Australia – Salmon* case, the Appellate Body made a distinction between the ALOP, which is an *objective*, and the SPS measure, which is an *instrument* chosen to attain or implement that objective.²⁸⁰⁸ On the basis of the wording of Article 5.6 of the SPS Agreement, the Appellate Body noted that "the determination of the level of protection is an element in the decision-making process which logically *precedes* and is *separate* from the establishment or maintenance of the SPS measure."²⁸⁰⁹ The Appellate Body added that it is the ALOP which determines the SPS measure to be introduced or maintained, not the SPS measure introduced or maintained which determines the ALOP.²⁸¹⁰ Hence, for the Appellate Body, to imply the ALOP from the existing SPS measure would be to assume that the measure always achieves the ALOP determined by the Member. That cannot be the case.²⁸¹¹

7.1749. Also, the Appellate Body noted in *India – Agricultural Products* that identifying the responding Member's ALOP on the basis of the SPS measure at issue is not desirable because it may lead to a circular analysis, even if it may be necessary to adopt such an approach in certain circumstances, in particular, where a Member does not determine its ALOP, or does so with insufficient precision.²⁸¹²

7.1750. The Appellate Body in *Australia – Salmon* recognized that the SPS Agreement does not contain an explicit provision that obliges Members to determine the ALOP²⁸¹³, but it considered that the SPS Agreement contains an implicit obligation to determine the ALOP.²⁸¹⁴ While a Member is not required to determine the ALOP in quantitative terms, a Member is not free to determine its level of protection with such vagueness or equivocation that the application of the relevant provisions of the SPS Agreement becomes impossible.²⁸¹⁵

7.1751. In this regard, the panel in *Australia – Apples* noted that Members should not be allowed to hide behind a generically stated ALOP.²⁸¹⁶ The panel explained that, otherwise, obligations under Article 5.5 of the SPS Agreement would be diminished.²⁸¹⁷ The panel in *India – Agricultural Products* considered that an ALOP will express a certain threshold that denotes the position of the relevant

²⁸⁰⁴ Appellate Body Reports, *Korea – Radionuclides*, para. 5.23; *India – Agricultural Products*, para. 5.205; *Australia – Apples*, para. 342; and *Australia – Salmon*, para. 199.

²⁸⁰⁵ Appellate Body Report, *Australia – Salmon*, para. 199.

²⁸⁰⁶ Appellate Body Report, *Australia – Salmon*, para. 207.

²⁸⁰⁷ It should be noted that, with regard to compliance, the panel observed, parenthetically, that a more explicit and in particular a quantitative expression of a Member's ALOP would greatly facilitate the consideration of compliance with not only Article 5.6 but with other provisions of the SPS Agreement as well. (Panel Report, *Australia – Salmon (Article 21.5 – Canada)*, para. 7.129).

²⁸⁰⁸ Appellate Body Report, *Australia – Salmon*, para. 200.

²⁸⁰⁹ Appellate Body Report, *Australia – Salmon*, para. 203. (emphasis original) See also Appellate Body Reports, *US/Canada – Continued Suspension*, para. 523.

²⁸¹⁰ Appellate Body Report, *Australia – Salmon*, para. 203.

²⁸¹¹ Appellate Body Report, *Australia – Salmon*, para. 203. See also Appellate Body Report, *India – Agricultural Products*, para. 5.205.

²⁸¹² Appellate Body Report, *India – Agricultural Products*, para. 5.226. See also Panel Report, *Korea – Radionuclides*, para. 7.159 (citing Appellate Body Report, *India – Agricultural Products*, para. 5.226).

²⁸¹³ Appellate Body Report, *Australia – Salmon*, para. 205.

²⁸¹⁴ Appellate Body Reports, *Australia – Salmon*, para. 206; *US/Canada – Continued Suspension*, para. 523; *Australia – Apples*, para. 343; and *India – Agricultural Products*, para. 5.221.

²⁸¹⁵ Appellate Body Report, *Australia – Salmon*, para. 206. See also Appellate Body Reports *Korea – Radionuclides*, para. 5.23 (citing Appellate Body Report, *Australia – Apples*, para. 343, in turn referring to Appellate Body Report, *Australia – Salmon*, para. 206); and *US/Canada – Continued Suspension*, para. 523.

²⁸¹⁶ Panel Report, *Australia – Apples*, para. 7.970. See also Panel Report, *Korea – Radionuclides*, para. 7.158.

²⁸¹⁷ Panel Report, *Australia – Apples*, para. 7.970.

Member in relation to the intensity, extent, or relative amount of protection or risk that the Member deems to be tolerable or suitable.²⁸¹⁸

7.1752. In *Korea – Radionuclides*, the Appellate Body reaffirmed that Members adopting SPS measures must determine their ALOP with sufficient precision to enable the application of the relevant provisions of the SPS Agreement.²⁸¹⁹

7.1753. In *Australia – Salmon*, the Appellate Body noted that, in cases where a Member does not determine its ALOP, or does so with insufficient precision, the ALOP may be established by panels on the basis of the level of protection reflected in the SPS measure actually applied.²⁸²⁰

7.1754. The Appellate Body noted in *India – Agricultural Products*, and reiterated in *Korea – Radionuclides*, that typically a panel would be expected to accord weight to the respondent's articulation of its ALOP, particularly where that ALOP was specified in advance of the adoption of the SPS measure, where the ALOP is specified with sufficient precision, and where it has been consistently expressed by the responding Member.²⁸²¹ However, the Appellate Body added that a panel is not required to defer completely to a respondent's articulation of its own ALOP, particularly where the respondent has not expressed its ALOP with sufficient precision.²⁸²²

7.1755. According to the Appellate Body, a panel must ascertain the respondent's ALOP on the basis of the totality of the arguments and evidence on the record²⁸²³, which may include the level of protection reflected in the SPS measure actually applied.²⁸²⁴ The Appellate Body in *India – Agricultural Products* noted that this duty applies equally when a claimant contends that the ALOP expressed or identified by the respondent for purposes of WTO dispute settlement proceedings does not genuinely reflect that Member's ALOP.²⁸²⁵

7.1756. In short, as stated by other panels and the Appellate Body, Members have the prerogative to set their own ALOP, although they must determine their ALOP with sufficient precision to enable the application of the relevant provisions of the SPS Agreement. As noted, it is not desirable to identify the responding Member's ALOP on the basis of the SPS measure at issue, although this approach may be adopted where a Member does not determine its ALOP, or does so with insufficient precision. Although the panel is expected to accord weight to the articulation of an ALOP specified in advance of the adoption of the measure, with sufficient precision and consistently expressed, the panel is not required to defer completely to the respondent's characterization of its own ALOP, and it must ascertain the respondent's ALOP on the basis of the totality of the arguments and evidence on the record, which may include the level of protection reflected in the SPS measure actually applied.

7.5.4 The Panel's analysis of Costa Rica's appropriate level of protection (ALOP)

7.1757. **Mexico** submits that, in order to determine whether the proposed alternative measure would achieve the ALOP, the first consideration to identify is the ALOP set by the importing Member.²⁸²⁶ Mexico states that consideration should be given to: (i) whether Costa Rica determined an ALOP; (ii) whether that determination was made with sufficient precision; and (iii) whether, if the

²⁸¹⁸ Panel Report, *India – Agricultural Products*, para. 7.562.

²⁸¹⁹ Appellate Body Report, *Korea – Radionuclides*, para. 5.23 (citing Appellate Body Report, *India – Agricultural Products*, para. 5.205, in turn referring to Appellate Body Reports, *Australia – Apples*, para. 343; and *Australia – Salmon*, paras. 205-206).

²⁸²⁰ Appellate Body Report, *Australia – Salmon*, para. 207. See also Panel Reports, *US – Poultry (China)*, para. 7.220; and *Korea – Radionuclides*, para. 7.159.

²⁸²¹ Appellate Body Reports, *India – Agricultural Products*, para. 5.221; and *Korea – Radionuclides*, para. 5.24 (citing Appellate Body Report, *India – Agricultural Products*, para. 5.221).

²⁸²² Appellate Body Reports, *India – Agricultural Products*, para. 5.221; and *Korea – Radionuclides*, para. 5.24.

²⁸²³ Appellate Body Reports, *India – Agricultural Products*, para. 5.221; and *Korea – Radionuclides*, para. 5.24.

²⁸²⁴ Appellate Body Report, *Korea – Radionuclides*, para. 5.24.

²⁸²⁵ Appellate Body Report, *India – Agricultural Products*, para. 5.221.

²⁸²⁶ Mexico's first written submission, para. 559.

first two requirements were met, the measure does not determine the ALOP in vague or equivocal terms.²⁸²⁷

7.1758. Mexico indicates that in Reports ARP-002-2017 and ARP-006-2016 Costa Rica defines its ALOP as the "maximum level of phytosanitary protection" and that, accordingly, Costa Rica defines its ALOP or its acceptable level of risk in a vague, uncertain, and confusing manner.²⁸²⁸

7.1759. Mexico states that Costa Rica determined the maximum level of phytosanitary protection without sufficient precision²⁸²⁹; that Costa Rica's risk analysis does not indicate anywhere what is meant by "maximum level of phytosanitary protection"; and that the reference to it is not sufficient to determine the objective of applying the measures in question.²⁸³⁰ Mexico adds that, in the absence of clarity with respect to the ALOP, this determination is expressed in vague or equivocal terms.²⁸³¹

7.1760. According to Mexico, the Panel can deduce Costa Rica's ALOP from the measures at issue, as it was not clearly stated and there is a discrepancy between what Costa Rica asserts and the specific facts.²⁸³²

7.1761. Mexico notes that, from Costa Rica's clarification of its ALOP, it understands that the latter adopts an approach that is not limited to seeking the least trade-restrictive measure, as the objective of "making every reasonable effort" is contrary to seeking what is necessary to achieve the purpose that Costa Rica is presumably pursuing.²⁸³³

7.1762. Mexico submits that, neither the PRAs nor Costa Rica's supposed clarification of its ALOP in its first written submission, allow possible alternative measures to be identified, particularly considering that the definition of its ALOP is based on one of the grounds giving rise to this dispute: the supposed absence of ASBVd in Costa Rican territory.²⁸³⁴ Mexico further asserts that the clarification of the ALOP was subsequent to Costa Rica's adoption of the measures, contrary to the aim of the determination of the ALOP. Mexico adds that Costa Rica introduces another interpretation of its ALOP in its responses to the Panel's questions, namely, "the maximum level of protection means taking the necessary measures that *minimize to the greatest extent the risk of entry* of the quarantine pest concerned".²⁸³⁵ According to Mexico, from the many clarifications of the ALOP, it is clear that Costa Rica has adopted a "moving target" strategy, which shows that Costa Rica justified its measures *ex post facto*.²⁸³⁶

7.1763. Mexico asserts that, as a result of Costa Rica's lack of precision in establishing unequivocally its ALOP, it is impossible to identify alternative measures with precision, and it had difficulties in identifying alternative measures, although it considers that the measures it has proposed achieve Costa Rica's vague ALOP.²⁸³⁷

7.1764. Mexico submits that at the outset it assumed that the maximum level of phytosanitary protection implied an acceptable level of risk close to zero, which is impossible to set. Therefore, Mexico adds, in recognition of WTO Members' right to adopt measures that seek to do what is necessary to protect their plants from the entry, establishment and spread of pests, that it assumed that Costa Rica's maximum ALOP was to significantly reduce the risk of entry, establishment and spread of ASBVd involved in the trade in fresh avocados for consumption.²⁸³⁸

7.1765. Furthermore, in its first written submission, Mexico stated that, assuming for the sake of argument that a maximum level of phytosanitary protection means that ASBVd is not introduced into Costa Rican territory, the adoption of this ALOP was not consistent with Costa Rica's failure to

²⁸²⁷ Mexico's first written submission, para. 560.

²⁸²⁸ Mexico's first written submission, para. 561.

²⁸²⁹ Mexico's first written submission, para. 562; second written submission, para. 257.

²⁸³⁰ Mexico's first written submission, para. 562; second written submission, para. 259; response to Panel question No. 91, paras. 92, and 94.

²⁸³¹ Mexico's first written submission, para. 562.

²⁸³² Mexico's second written submission, paras. 257-258.

²⁸³³ Mexico's second written submission, para. 260.

²⁸³⁴ Mexico's second written submission, para. 261.

²⁸³⁵ Mexico's second written submission, paras. 261-262. (emphasis original)

²⁸³⁶ Mexico's second written submission, para. 263; response to Panel question No. 91, paras. 98-99.

²⁸³⁷ Mexico's response to Panel question No. 91, para. 94; second written submission, para. 264.

²⁸³⁸ Mexico's response to Panel question No. 91, para. 96; second written submission, para. 265.

produce a domestic regulation that would prevent the establishment and spread of ASBVd. Mexico asserted that, as of the date of its first written submission, there was no regulation in force that held producers responsible for ensuring that marketed avocados were free of ASBVd.²⁸³⁹ Mexico noted that there were affidavits from Costa Rican producers corroborating that there was no regulation concerning the marketing of avocados in the domestic market.²⁸⁴⁰

7.1766. Mexico submits that the SFE did not consider that zero risk is impossible to achieve, as the decrease in the supply of avocados caused by Costa Rica's *de facto* ban on imports of fresh avocados for consumption from Mexico has led to an increase in imports from other origins, including countries where ASBVd is also present, such as Peru.²⁸⁴¹

7.1767. Mexico states that the measures introduced by the SFE in Resolutions DSFE-003-2018 and DSFE-002-2018 would appear to stem from the fact that the ALOP set by Costa Rica through the regulation of fresh avocado fruit is to prevent the introduction of ASBVd through the seeds of fresh fruit for consumption. According to Mexico, if Costa Rica had acted in a manner consistent with the ALOP set out in the PRAs, it would have implemented measures that prevented the spread of ASBVd in the event of its introduction.²⁸⁴²

7.1768. Mexico further submits that an objective assessment of the facts does not suggest that fresh avocados for consumption are, by themselves, a probable pathway for the entry, establishment and spread of ASBVd.²⁸⁴³ For Mexico, Costa Rica's maximum ALOP is not consistent with an objective assessment of the facts, therefore the Panel should infer that maximum ALOP.²⁸⁴⁴ Mexico adds that there is a discrepancy between the facts and Costa Rica's assertions, mainly with regard to the risk posed by fresh avocados for consumption as a proven pathway for the introduction, establishment and spread of ASBVd, and Costa Rica's status as free of ASBVd.²⁸⁴⁵

7.1769. Mexico asserts that Costa Rica should have determined its ALOP by considering that the subject to be regulated is seeds for propagation and not fresh fruit for consumption, and should have based its ALOP, as well as its measures, on that. For Mexico, it is not clear how the "maximum" ALOP adopted is consistent with the fact that Costa Rica continues to import fresh avocados for consumption from countries that have reported the presence of ASBVd, especially when Costa Rica has recognized that fruit with ASBVd have been detected in consignments from these countries.²⁸⁴⁶

7.1770. **Costa Rica** submits that its ALOP is to make every reasonable effort to prevent the entry of ASBVd into its territory and thus maintain its current ASBVd-free phytosanitary status.²⁸⁴⁷

7.1771. Costa Rica asserts that the determination of the ALOP is a prerogative of the respondent, not of a panel or the Appellate Body, and can be done in qualitative or quantitative terms. Costa Rica argues that its ALOP has been defined qualitatively as the "maximum level of phytosanitary protection", and is to prevent as much as possible the entry of ASBVd into Costa Rican territory in order to maintain the ASBVd-free phytosanitary status of the country.²⁸⁴⁸ Costa Rica adds that the definition of its ALOP is comparable to the definition of Korea's ALOP in *Korea – Radionuclides*, in which the qualitative component of Korea's ALOP was that radiation exposure levels should be "as low as reasonably achievable", and that, similarly, it does not consider that the qualitative definition of its ALOP should be challenged as vague or equivocal.²⁸⁴⁹

²⁸³⁹ Mexico's first written submission, para. 563.

²⁸⁴⁰ Mexico's first written submission, para. 564 (citing Affidavit of Jesús Alberto Salas Sanabria (2019), (Exhibit MEX-93); Affidavit of Eduardo Ramírez Castro (2019), (Exhibit MEX-94); Affidavit of Manrique Loáiciga González (2019), (Exhibit MEX-95); and Affidavit of Randall Benavides Rivera (2019), (Exhibit MEX-96)).

²⁸⁴¹ Mexico's first written submission, para. 564.

²⁸⁴² Mexico's first written submission, para. 565.

²⁸⁴³ Mexico's second written submission, para. 264.

²⁸⁴⁴ Mexico's second written submission, p. 61.

²⁸⁴⁵ Mexico's second written submission, para. 265.

²⁸⁴⁶ Mexico's response to Panel question No. 91, para. 100.

²⁸⁴⁷ Costa Rica's first written submission, para. 5.216.

²⁸⁴⁸ Costa Rica's first written submission, para. 5.233.

²⁸⁴⁹ Costa Rica's first written submission, para. 5.233 (citing Panel Report, *Korea – Radionuclides*, para. 7.247).

7.1772. Costa Rica considers Mexico's argument that the maximum ALOP is not consistent with Costa Rica's failure to produce domestic regulation that prevents the establishment and spread of ASBVd to be incorrect. Costa Rica points out that it has adopted domestic measures that, together with the phytosanitary requirements for the importation of avocados, seek to mitigate the risk of entry of ASBVd. Costa Rica adds that work is under way to train producers to implement and obtain a certification in good agricultural practices; that Technical Standards for the Certification of Avocado (*Persea americana* Mill.) Seeds, Buds and Nursery Plants were adopted in October 2017; and that, following the recommendation of the risk assessment to regulate the use of seeds of imported avocados for consumption for propagation, as at the date of delivery of its first written submission, it was in the process of issuing a decree to regulate the use of avocado (*Persea americana* Mill.) seed for propagation, the origin of which is fresh fruit for consumption, imported from countries where ASBVd is present.²⁸⁵⁰

7.1773. Costa Rica submits that the maximum level of protection is not the equivalent of zero risk, and that there will never be zero phytosanitary risk in international trade in plants. Costa Rica asserts that the maximum level of protection means taking the necessary measures to minimize to the greatest extent the risk of entry of the quarantine pest concerned.²⁸⁵¹

7.1774. Costa Rica notes that Costa Rica's measures with regard to ASBVd are those that minimize the risk of entry of the pest, also taking account of the obligation not to restrict international trade more than required.²⁸⁵² Costa Rica adds that its measures minimize to the greatest extent possible the risk of entry of ASBVd, while allowing the trade in avocados with countries where ASBVd is present to continue. Costa Rica notes that its phytosanitary requirements and border checks through laboratory analysis, together with the regulation prohibiting diversion from intended use, achieve the highest possible level of protection, without disrupting international trade.²⁸⁵³ Costa Rica asserts that it achieves its ALOP through the imposition of domestic and border measures.²⁸⁵⁴

7.1775. Costa Rica further notes that its ALOP is not based solely on diversion from intended use but mainly on the considerations that ASBVd is absent in Costa Rica and that it is a pest of economic importance for which control measures do not exist. Costa Rica asserts that even if the probability of entry, establishment and spread was considered low, the risk would continue to be high because of the importance of the protected good (status of absence and protection of natural resources), the nature of the pest (quarantine pest without control measures) and Costa Rica's special environmental characteristics.²⁸⁵⁵ Costa Rica adds that its ALOP also stems from the considerations that Costa Rica is a centre of origin for avocados, that there are challenges with respect to waste management and the cultural practice of seed exchange and sowing (diversion from intended use) which, for Costa Rica, increase the potential entry of ASBVd and its spread.²⁸⁵⁶

7.1776. The **Panel** notes that Costa Rica articulated its ALOP in its risk assessment for ASBVd as the "maximum level of phytosanitary protection". Reports ARP-002-2017 and ARP-006-2016, in stage 3 on pest risk management, state as follows:

On the basis of the information arising from the risk analysis, the application of specific phytosanitary measures is recommended. Costa Rica is free of the pest ASBVd and should therefore adopt the necessary phytosanitary measures to prevent its entry into Costa Rican territory. In this regard, the measures adopted should achieve the *maximum level of phytosanitary protection*.²⁸⁵⁷

²⁸⁵⁰ Costa Rica's first written submission, para. 5.234 (citing Technical standards for seeds (2017), (Exhibit CRI-33); and Draft decree governing the use of avocado seeds (2019), (Exhibit CRI-34)). The Panel notes that Costa Rica adopted the Regulation governing the use of avocado seeds of 23 September 2019, published in Official Journal No. 196 of 16 October 2019. (See Regulation governing the use of avocado seeds (2019), (Exhibits MEX-174 and CRI-53)).

²⁸⁵¹ Costa Rica's response to Panel question No. 84, para. 1.

²⁸⁵² Costa Rica's response to Panel question No. 84, para. 2; response to Panel question No. 86, para. 1.

²⁸⁵³ Costa Rica's response to Panel question No. 84, para. 2.

²⁸⁵⁴ Costa Rica's response to Panel question No. 86, para. 2.

²⁸⁵⁵ Costa Rica's response to Panel question No. 89, para. 2.

²⁸⁵⁶ Costa Rica's response to Panel question No. 89, para. 3.

²⁸⁵⁷ ARP-002-2017, (Exhibit MEX-84), p. 42; ARP-006-2016, (Exhibit MEX-84), p. 23. (emphasis added)

7.1777. As stated above, paragraph 5 of Annex A to the SPS Agreement defines the ALOP as "[t]he level of protection deemed appropriate by the Member establishing a sanitary or phytosanitary measure to protect human, animal or plant life or health within its territory".²⁸⁵⁸

7.1778. As noted by the Appellate Body, WTO Members have the "prerogative" to set their own ALOP.²⁸⁵⁹ The Appellate Body in *Australia – Salmon* noted that neither the DSU nor the SPS Agreement entitled the panel or the Appellate Body to substitute its own reasoning about the implied level of protection for that expressed consistently by the respondent in that case²⁸⁶⁰, and that the respondent had determined its ALOP with "sufficient precision".²⁸⁶¹

7.1779. This Panel agrees that it is the prerogative of Costa Rica to set the ALOP it deems appropriate. In principle, the Panel is not authorized to substitute its own reasoning for Costa Rica's reasoning with respect to the level of protection. However, the Panel also notes that the SPS Agreement tacitly imposes an obligation on Costa Rica to determine its ALOP and to express it with sufficient precision to enable the application of the relevant provisions of the SPS Agreement.

7.1780. As stated above, the Appellate Body in *Australia – Salmon* noted that, while a Member is not required to set the ALOP in quantitative terms, it cannot establish its level of protection with such vagueness or equivocation that the application of the relevant provisions of the SPS Agreement becomes impossible.²⁸⁶²

7.1781. In this regard, the panel in *Australia – Apples* noted that Members should not be allowed to hide behind a generically stated ALOP²⁸⁶³; the panel in *India – Agricultural Products* considered that an ALOP will express a certain threshold that denotes the position of the relevant Member in relation to the intensity, extent, or relative amount of protection or risk that the Member deems to be tolerable or suitable²⁸⁶⁴; and the Appellate Body in *Korea – Radionuclides* reaffirmed that Members adopting SPS measures must determine their ALOP with sufficient precision to enable the application of the relevant provisions of the SPS Agreement.²⁸⁶⁵

7.1782. Furthermore, the Appellate Body noted in *India – Agricultural Products*, and reiterated in *Korea – Radionuclides*, that typically a panel would be expected to accord weight to the respondent's articulation of its ALOP, particularly where that ALOP was specified in advance of the adoption of the SPS measure, where the ALOP is specified with sufficient precision, and where it has been consistently expressed by the responding Member.²⁸⁶⁶

7.1783. As stated above, Costa Rica indicated in its Reports ARP-002-2017 and ARP-006-2016 that ASBVd is absent in its territory, that it should therefore adopt the necessary phytosanitary measures to prevent its entry into Costa Rican territory, and that its measures should accordingly achieve the "maximum level of phytosanitary protection".

7.1784. Throughout these proceedings, Costa Rica has clarified that this "maximum level of phytosanitary protection" is to make every reasonable effort to prevent, or prevent as much as possible, the entry of ASBVd into its territory and thus maintain its current ASBVd-free phytosanitary status.²⁸⁶⁷ Costa Rica has also pointed out that the maximum level of protection means taking the

²⁸⁵⁸ The note to para. 5 of Annex A indicates that many Members otherwise refer to this concept as the "acceptable level of risk".

²⁸⁵⁹ Appellate Body Reports, *Korea – Radionuclides*, para. 5.23; *India – Agricultural Products*, para. 5.205; *Australia – Apples*, para. 342; and *Australia – Salmon*, para. 199.

²⁸⁶⁰ Appellate Body Report, *Australia – Salmon*, para. 199.

²⁸⁶¹ Appellate Body Report, *Australia – Salmon*, para. 207.

²⁸⁶² Appellate Body Report, *Australia – Salmon*, para. 206. See also Appellate Body Reports, *Korea – Radionuclides*, para. 5.23 (citing Appellate Body Report, *Australia – Apples*, para. 343, in turn referring to Appellate Body Reports, *Australia – Salmon*, para. 206; and *US/Canada – Continued Suspension*, para. 523).

²⁸⁶³ Panel Report, *Australia – Apples*, para. 7.970. See also Panel Report, *Korea – Radionuclides*, para. 7.158.

²⁸⁶⁴ Panel Report, *India – Agricultural Products*, para. 7.562.

²⁸⁶⁵ Appellate Body Reports, *Korea – Radionuclides*, para. 5.23 (citing Appellate Body Report, *India – Agricultural Products*, para. 5.205, in turn referring to Appellate Body Reports, *Australia – Apples*, para. 343; and *Australia – Salmon*, paras. 205-206).

²⁸⁶⁶ Appellate Body Reports, *India – Agricultural Products*, para. 5.221; and *Korea – Radionuclides*, para. 5.24 (citing Appellate Body Report, *India – Agricultural Products*, para. 5.221).

²⁸⁶⁷ Costa Rica's first written submission, paras. 5.216 and 5.233.

necessary measures to minimize to the greatest extent the risk of entry of the quarantine pest concerned²⁸⁶⁸, and notes that Costa Rica's measures with regard to ASBVd are those that minimize to the greatest extent the risk of entry of the pest, also taking into account the obligation not to restrict international trade more than required.²⁸⁶⁹

7.1785. Mexico states that Costa Rica did not provide sufficient precision as to what is meant by the "maximum" level of phytosanitary protection²⁸⁷⁰; and that from the many clarifications of the ALOP, it is clear that Costa Rica has adopted a "moving target" strategy, which shows that Costa Rica justified its measures *ex post facto*.²⁸⁷¹

7.1786. The Panel observes that other panels and the Appellate Body have accepted as sufficiently precise the following formulations of an ALOP: a level "providing a high level of sanitary and phytosanitary protection aimed at reducing risk to a very low level, but not to zero"²⁸⁷²; "a high or 'very conservative' level of sanitary protection aimed at reducing risk to 'very low levels', while 'not ... a zero-risk approach'"²⁸⁷³; "levels ... as low as reasonably achievable" or exposure "as low as reasonably achievable"²⁸⁷⁴; "to prevent the introduction or dissemination of foot-and-mouth disease within the United States"²⁸⁷⁵; "very high or very conservative"²⁸⁷⁶; or "high or conservative".²⁸⁷⁷

7.1787. The Panel understands that Costa Rica has set a "maximum level of phytosanitary protection", as indicated in Reports ARP-002-2017 and ARP-006-2016, which, in Costa Rica's view, means making every reasonable effort to prevent the entry of ASBVd into its territory or taking the necessary measures to minimize to the greatest extent the risk of entry of the pest, and thus maintain the ASBVd-free phytosanitary status that Costa Rica claims to have.

7.1788. In light of all of the foregoing, the Panel considers that Costa Rica defined its ALOP in respect of ASBVd in qualitative terms prior to the adoption of Resolutions DSFE-002-2018 and DSFE-003-2018, which contain its phytosanitary requirements for ASBVd, and that this ALOP, defined as the "maximum level of phytosanitary protection", could be considered to be sufficiently precise and not expressed in vague or equivocal terms. In particular, the Panel considers that Costa Rica's ALOP has been defined with sufficient precision to enable the application of the Articles relating to the ALOP, namely Articles 5.5 and 5.6 of the SPS Agreement.

7.1789. In addition, the Panel is of the view that Costa Rica's clarifications throughout these proceedings regarding its ALOP in respect of ASBVd are consistent with the manner in which Costa Rica articulated its ALOP in Reports ARP-002-2017 and ARP-006-2016. The Panel also notes the point made by Costa Rica that, when it comes to quarantine pests, for Costa Rica, measures that minimize to the greatest extent the risk of entry of these pests are always adopted, while seeking to minimize negative trade effects.²⁸⁷⁸ The Panel therefore considers that Costa Rica has consistently expressed its ALOP.

7.1790. Mexico further submits that Costa Rica's maximum ALOP is not consistent with an objective assessment of the facts and that therefore the Panel should infer it.²⁸⁷⁹ In its first written submission, Mexico argued that the adoption of Costa Rica's ALOP was not consistent with Costa Rica's failure to produce a domestic regulation that would prevent the establishment and spread of ASBVd.²⁸⁸⁰ Mexico notes that there is a discrepancy between the facts and Costa Rica's assertions, mainly

²⁸⁶⁸ Costa Rica's response to Panel question No. 84, para. 1.

²⁸⁶⁹ Costa Rica's response to Panel question No. 84, para. 2; response to Panel question No. 86, para. 1.

²⁸⁷⁰ Mexico's first written submission, para. 562; second written submission, paras. 257 and 259; response to Panel question No. 91, paras. 92 and 94.

²⁸⁷¹ Mexico's second written submission, para. 263; response to Panel question No. 91, paras. 98-99.

²⁸⁷² Panel Report, *Australia – Apples*, paras. 7.963, 7.1252 and 7.1329.

²⁸⁷³ Appellate Body Report, *Australia – Salmon*, paras. 197, 207 and 231.

²⁸⁷⁴ Panel Report, *Korea – Radionuclides*, paras. 7.162 and 7.172; and Appellate Body Report, *Korea – Radionuclides*, paras. 5.35 and 5.38.

²⁸⁷⁵ Panel Report, *US – Animals*, paras. 7.378 and 7.387.

²⁸⁷⁶ Panel Report, *India – Agricultural Products*, paras. 7.751 and 7.575.

²⁸⁷⁷ Panel Report, *Russia – Pigs (EU)*, para. 7.752.

²⁸⁷⁸ Costa Rica's response to Panel question No. 85, para. 1.

²⁸⁷⁹ Mexico's second written submission, p. 61.

²⁸⁸⁰ Mexico's first written submission, para. 563.

regarding the risk posed by fresh avocados for consumption as a proven pathway for the introduction, establishment and spread of ASBVd, and Costa Rica's status as free of ASBVd.²⁸⁸¹

7.1791. In the Panel's view, Mexico's arguments that Costa Rica's "maximum" ALOP is not consistent with an objective assessment of the facts, and that therefore the Panel should infer it, implies that the Panel would substitute its own reasoning for the reasoning expressed consistently by Costa Rica regarding the level of protection, which would go beyond the limits of the Panel's task. In addition, although the Panel found flaws in Costa Rica's risk assessment, including in its determination of absence of ASBVd²⁸⁸², which forms part of Costa Rica's reasoning with respect to its ALOP and the application thereof, Mexico has failed to explain how these flaws affect the determination of Costa Rica's ALOP.

7.1792. In light of all of the foregoing, the Panel accepts the ALOP as defined by Costa Rica, namely as the "maximum level of phytosanitary protection", given that Costa Rica specified this ALOP prior to the adoption of the SPS measures, with sufficient precision, and has expressed it consistently.

7.5.5 Legal standard of Article 5.6 of the SPS Agreement

7.1793. In this section, the Panel will explain how other panels and the Appellate Body have interpreted Article 5.6 of the SPS Agreement. The Panel will be guided by these interpretations to the extent that they are relevant to its analysis.

7.1794. Article 5.6 of the SPS Agreement requires Members to ensure that their SPS measures are not more trade-restrictive than required to achieve their appropriate level of sanitary or phytosanitary protection, taking into account technical and economic feasibility. The footnote to Article 5.6 states that for purposes of paragraph 6 of Article 5, a measure is not more trade-restrictive than required unless there is another measure, reasonably available taking into account technical and economic feasibility, that achieves the appropriate level of sanitary or phytosanitary protection and is significantly less restrictive to trade.

7.1795. The Appellate Body in *Australia – Apples* considered that Article 5.6 seeks to ensure that appropriate limits are placed on the trade-restrictiveness of a Member's SPS measure.²⁸⁸³

7.1796. In *Korea – Radionuclides*, the Appellate Body upheld its legal standard under Article 5.6, stating that in order to demonstrate inconsistency of a measure with Article 5.6, a complainant must establish that an alternative measure: (i) is reasonably available taking into account technical and economic feasibility; (ii) achieves the Member's ALOP; and (iii) is significantly less restrictive to trade than the contested SPS measure.²⁸⁸⁴ With respect to the burden of proof, the Appellate Body in *Japan – Agricultural Products II* noted that it is for the complainant to establish a *prima facie* case that there is an alternative measure that meets all three elements under Article 5.6.²⁸⁸⁵

7.1797. With respect to this three-pronged test, the Appellate Body in *Australia – Salmon* considered the three elements to be cumulative in the sense that, to establish inconsistency with Article 5.6, all of them have to be met.²⁸⁸⁶ Therefore, according to the Appellate Body, if any of these elements is not fulfilled, the measure in dispute would be consistent with Article 5.6.²⁸⁸⁷

7.1798. The panel in *Korea – Radionuclides* observed that, as the three elements of Article 5.6 are cumulative, they may be addressed in any order.²⁸⁸⁸ The same panel noted that in most prior SPS

²⁸⁸¹ Mexico's second written submission, para. 265.

²⁸⁸² The Panel recalls that the premise that ASBVd is absent in Costa Rica's territory has been challenged by Mexico. In section 7.4.5.1.3 above, the Panel concluded that the determination of absence of ASBVd in Costa Rica lacks sufficient reliability, and therefore cannot be considered as legitimately scientific.

²⁸⁸³ Appellate Body Report, *Australia – Apples*, para. 341.

²⁸⁸⁴ Appellate Body Report, *Korea – Radionuclides*, para. 5.21 (citing Appellate Body Reports, *India – Agricultural Products*, para. 5.203; and *Australia – Salmon*, para. 194). See also Panel Report, *US – Poultry (China)*, para. 7.331.

²⁸⁸⁵ Appellate Body Report, *Japan – Agricultural Products II*, para. 126. See Panel Report, *US – Poultry (China)*, para. 7.332 (citing Appellate Body Report, *Japan – Agricultural Products II*, para. 126).

²⁸⁸⁶ Appellate Body Report, *Australia – Salmon*, para. 194.

²⁸⁸⁷ Appellate Body Report, *Australia – Salmon*, para. 194.

²⁸⁸⁸ Panel Report, *Korea – Radionuclides*, para. 7.118.

disputes, the main point of contention between the parties has been whether the measure achieves the ALOP, and prior panels have begun their analysis by looking at this element.²⁸⁸⁹ However, that panel began its analysis with the first and third elements, in view of the fact that the respondent adduced that, in the case of one of the measures at issue, the alternative measure proposed by the complainant was not significantly less trade-restrictive than its regime.²⁸⁹⁰

7.1799. In the same dispute, the respondent argued that the alternative measure proposed by the complainant did not constitute "another measure" within the meaning of Article 5.6 of the SPS Agreement, because Korea was already conducting the proposed tests.²⁸⁹¹ The panel considered that if the complainant's proposal could be a substitute for the respondent's regime and comply with the three requirements of footnote 3 to Article 5.6, this would constitute "another measure" within the meaning of Article 5.6.²⁸⁹² In this sense, the panel stated that a measure cannot be rejected *a priori* because it contains some elements of the original measure, but only after a full evaluation of all the factors in footnote 3 and Article 5.6.²⁸⁹³

7.1800. In short, as indicated by other panels and the Appellate Body, to demonstrate that the SPS measure at issue is more trade-restrictive than required, the complainant must prove that there is a measure that meets the three cumulative requirements of the note to Article 5.6. That is to say, the proposed alternative measure must be reasonably available taking into account technical and economic feasibility, achieve the respondent's ALOP, and be significantly less restrictive to trade than the contested SPS measure.

7.1801. With respect to the first element of Article 5.6 of the SPS Agreement, regarding technical and economic feasibility of the proposed alternatives, the panel in *Korea – Radionuclides* referred to the panel's statement in *India – Agricultural Products* that a panel should assess whether the alternative measure would constitute an option reasonably available taking into account technical and economic feasibility in the real world, including the risk of incorrect enforcement.²⁸⁹⁴ The panel stated that the respondent's existing use of a proposed alternative, even if in a different context, weighs in favour of a finding of feasibility.²⁸⁹⁵

7.1802. Moreover, according to the panels in *Korea – Radionuclides* and *India – Agricultural Products*, the additional administrative burden imposed by an alternative measure does not *per se* render the measure infeasible.²⁸⁹⁶ The panel in *India – Agricultural Products* noted that if a WTO Member could justify an import ban on the basis that it is less administratively burdensome than an alternative measure and therefore the alternative measure is not feasible, this would render the requirement in Article 5.6 meaningless.^{2897, 2898}

7.1803. According to the second element, an alternative measure has to achieve the Member's ALOP. The Appellate Body in *Australia – Salmon* considered that in order to be able to examine whether any of the alternative SPS measures identified would achieve the Member's ALOP, it would be necessary to know, first of all, what level of protection could be achieved by each of these alternative SPS measures.²⁸⁹⁹ In this regard, the Appellate Body noted in subsequent disputes that

²⁸⁸⁹ Panel Report, *Korea – Radionuclides*, para. 7.118.

²⁸⁹⁰ Panel Report, *Korea – Radionuclides*, para. 7.118.

²⁸⁹¹ Panel Report, *Korea – Radionuclides*, para. 7.122.

²⁸⁹² Panel Report, *Korea – Radionuclides*, para. 7.127.

²⁸⁹³ Panel Report, *Korea – Radionuclides*, para. 7.127.

²⁸⁹⁴ Panel Report, *Korea – Radionuclides*, para. 7.144 (citing Panel Report, *India – Agricultural products*, para. 7.540, in turn referring to Panel Reports, *Japan – Apples (Article 21.5 – US)*, para. 8.171; and *Australia – Apples*, para. 7.1334).

²⁸⁹⁵ Panel Report, *Korea – Radionuclides*, para. 7.144 (citing Panel Reports, *India – Agricultural Products*, paras. 7.541-7.542; and *Japan – Apples (Article 21.5 – US)*, para. 8.187).

²⁸⁹⁶ Panel Report, *Korea – Radionuclides*, para. 7.144 (citing Panel Report, *India – Agricultural Products*, para. 7.543).

²⁸⁹⁷ Panel Report, *India – Agricultural Products*, para. 7.543.

²⁸⁹⁸ The panel in *India – Agricultural Products* rejected India's argument that reliance on the exporting country's veterinary certificates was not technically and economically feasible because India did not have the capacity to handle the volume of imports that would result if it did not restrict imports during an active outbreak of the disease in question. (Panel Report, *India – Agricultural Products*, para. 7.543).

²⁸⁹⁹ Appellate Body Report, *Australia – Salmon*, para. 208.

a panel must identify the level of protection of the Member whose SPS measure has been contested and the level of protection of the alternative measure proposed by the complainant.²⁹⁰⁰

7.1804. The Appellate Body in *Australia – Apples* explained that, after having identified these two levels of protection, a panel will be able to make the requisite comparison between the level of protection that would be achieved by the alternative measure and the importing Member's ALOP, and that if the level of protection achieved by the proposed alternative meets or exceeds the ALOP, then (assuming that the other two conditions in Article 5.6 are met) the importing Member's SPS measure is more trade-restrictive than necessary to achieve its desired level of protection.²⁹⁰¹

7.1805. In *Australia – Apples*, the Appellate Body stated that alternative measures "are mere conceptual tools" for the purpose of the Article 5.6 analysis.²⁹⁰² Consequently, a demonstration that an alternative measure meets the three criteria of Article 5.6 suffices to prove that the measure at issue is more trade-restrictive than necessary. Yet this does not imply that the importing Member must adopt that alternative measure or that the alternative measure is the only option that would achieve the desired level of protection.²⁹⁰³

7.1806. The Appellate Body also noted that it could not conceive of how a complainant could satisfy its burden of demonstrating that its proposed alternative measure would meet the ALOP under Article 5.6 without relying on evidence that is scientific in nature.²⁹⁰⁴ Nevertheless, the Appellate Body concluded that a panel's assessment of whether this burden has been met is a matter of legal characterization and not a scientific assessment of risk that must conform to the first three paragraphs of Article 5.²⁹⁰⁵

7.1807. Regarding the third element of Article 5.6, namely, is significantly less restrictive to trade, the panel in *Korea – Radionuclides* noted that, as most of the challenged measures in previous cases had been import bans, the degree of reduction in trade restrictiveness to achieve the level of "significance" required by the footnote in Article 5.6 had not been dealt with by panels or the Appellate Body in the context of SPS disputes.²⁹⁰⁶

7.1808. That panel referred to the Appellate Body's interpretation of the term "significance" in the context of the Agreement on Subsidies and Countervailing Measures (SCM Agreement), according to which the term connotes something that can be characterized as "important, notable or consequential".²⁹⁰⁷ The panel noted that other panels, also in the context of the SCM Agreement, have expressed the view that significance must be determined on a case-by-case basis depending on the factual circumstances; should be of sufficient magnitude or degree, seen in the context of the particular product at issue, to be able to meaningfully affect suppliers; and that panels should not depend solely on a given level of numeric significance, as other considerations, including the nature of the same market and the product under consideration, may also enter into such an assessment, as appropriate in a given case.²⁹⁰⁸

²⁹⁰⁰ Appellate Body Reports, *Australia – Apples*, para. 344; *India – Agricultural Products*, para. 5.220; *Korea – Radionuclides*, para. 5.24 (citing Appellate Body Reports, *Australia – Apples*, para. 344; and *India – Agricultural Products*, para. 5.220).

²⁹⁰¹ Appellate Body Reports, *Australia – Apples*, para. 344; *India – Agricultural Products*, para. 5.206; and Panel Report, *Korea – Radionuclides*, para. 7.119 (citing Appellate Body Report, *Australia – Apples*, paras. 344 and 368).

²⁹⁰² Appellate Body Report, *Australia – Apples*, para. 363. See also Appellate Body Reports, *Korea – Radionuclides*, para. 5.21; and *India – Agricultural Products*, para. 5.203.

²⁹⁰³ Appellate Body Report, *Australia – Apples*, para. 363. See also Appellate Body Reports, *Korea – Radionuclides*, para. 5.21 and fn 88; and *India – Agricultural Products*, para. 5.203.

²⁹⁰⁴ Appellate Body Report, *Australia – Apples*, para. 364.

²⁹⁰⁵ Appellate Body Report, *Australia – Apples*, para. 366.

²⁹⁰⁶ Panel Report, *Korea – Radionuclides*, paras. 7.152-7.153.

²⁹⁰⁷ Panel Report, *Korea – Radionuclides*, para. 7.153 (citing Appellate Body Report, *US – Upland Cotton*, para. 426).

²⁹⁰⁸ Panel Report, *Korea – Radionuclides*, para. 7.153 (citing Panel Reports, *Korea – Commercial Vessels*, para. 7.571; *Indonesia – Autos*, para. 14.254; and *US – Upland Cotton*, paras. 7.1329-7.1330).

7.5.6 The Panel's analysis

7.1809. As mentioned above, the Appellate Body in *Korea – Radionuclides* confirmed that, in order to demonstrate the inconsistency of a measure with Article 5.6 of the SPS Agreement, a complainant must establish that an alternative measure: (i) is reasonably available taking into account technical and economic feasibility; (ii) achieves the Member's ALOP; and (iii) is significantly less restrictive to trade than the contested SPS measure.²⁹⁰⁹

7.1810. Mexico submits that there are alternative measures to those adopted in Resolutions DSFE-003-2018 and DSFE-002-2018, and points out that the following measures are reasonably available to Costa Rica, considering their technical and economic feasibility: (i) regulation to prevent diversion from intended use of the seed of fresh avocados for consumption as a propagation method for new plants; and (ii) ASBVd symptom-free certification of shipments.²⁹¹⁰ Mexico asserts that the proposed alternatives achieve Costa Rica's ALOP.²⁹¹¹

7.1811. As explained above with respect to the three-pronged test for the alternative measures proposed by the complainant, the three elements are cumulative in the sense that, to establish inconsistency with Article 5.6, all of them have to be met.²⁹¹² Consequently, if any of these elements is not fulfilled, the measure in dispute would be consistent with Article 5.6.²⁹¹³ Furthermore, as the panel in *Korea – Radionuclides* found, since the three elements of Article 5.6 are cumulative, they may be addressed in any order; and, given that, in most prior SPS disputes, the main point of contention between the parties has been whether the measure achieves the ALOP, prior panels have begun their analysis by looking at this element.²⁹¹⁴

7.1812. This Panel observes that, in this dispute, Costa Rica considers that, for the first alternative measure, the key point is that Mexico has failed to establish that this measure, by itself, achieves Costa Rica's ALOP.²⁹¹⁵ Costa Rica submits that neither of the two alternatives proposed by Mexico achieves the level of protection that Costa Rica deems appropriate in this situation.²⁹¹⁶

7.1813. In the Panel's view, that the alternative measures proposed by Mexico achieve Costa Rica's ALOP is a key point of contention in this dispute, so it is appropriate for the Panel to begin its analysis under Article 5.6 with the second element, i.e. whether the alternative measures proposed by Mexico achieve Costa Rica's ALOP. Given the cumulative nature of the three criteria in the footnote to Article 5.6 of the SPS Agreement, should the Panel determine that the alternative measures would not achieve Costa Rica's ALOP, it will not have to examine the two other elements in that footnote.

7.1814. The Panel will analyse below whether any of the alternative measures proposed by Mexico achieve Costa Rica's ALOP.

7.5.6.1 Whether any of the alternative measures proposed by Mexico achieve Costa Rica's ALOP

7.5.6.1.1 Whether domestic regulation that prevents diversion from intended use achieves Costa Rica's ALOP

7.1815. **Mexico** submits that regulation to prevent diversion from intended use of the seed of fresh avocados for consumption as a propagation method for new plants achieves Costa Rica's level of phytosanitary protection.²⁹¹⁷

²⁹⁰⁹ Appellate Body Report, *Korea – Radionuclides*, para. 5.21 (citing Appellate Body Reports, *India – Agricultural Products*, para. 5.203; and *Australia – Salmon*, para. 194). See also Panel Report, *US – Poultry (China)*, para. 7.331.

²⁹¹⁰ Mexico's first written submission, para. 549.

²⁹¹¹ Mexico's first written submission, para. 582.

²⁹¹² Appellate Body Report, *Australia – Salmon*, para. 194.

²⁹¹³ Appellate Body Report, *Australia – Salmon*, para. 194.

²⁹¹⁴ Panel Report, *Korea – Radionuclides*, para. 7.118.

²⁹¹⁵ Costa Rica's first written submission, para. 5.232.

²⁹¹⁶ Costa Rica's second written submission, para. 3.68.

²⁹¹⁷ Mexico's first written submission, p. 141.

7.1816. Mexico adduces that Chile's Exempt Resolution No. 8182, as a model alternative measure, is consistent with the ALOP established by the SFE by regulating the diversion from intended use of seeds of fresh avocados for consumption as the only pathway through which ASBVd may be introduced, established and spread in Costa Rican territory.²⁹¹⁸

7.1817. Mexico notes that the ALOP of the alternative measure can be determined from the experience of measures applied by other Members, particularly Chile, a Member whose territory is free of ASBVd; and that the importation of fresh avocado fruit for consumption can be considered an acceptable risk without even distinguishing whether the avocados exhibit ASBVd symptoms or not, but by preventing the diversion of the avocado seeds for sowing purposes.²⁹¹⁹ Mexico states that, while Chile does not quantitatively measure the level of risk that it can accept, it admits that there cannot be zero risk. In other words, it is not feasible to claim that no symptomless fruit potentially infected with ASBVd enters its territory. Mexico adds that planting seeds from fresh avocado fruit is prohibited because Chile correctly identifies that the entry pathway represented by fresh avocados for consumption does not merit a trade restriction.²⁹²⁰

7.1818. Mexico also asserts that the SFE itself recognizes in the PRAs at issue in this dispute that the spread of ASBVd is not caused simply by the entry of fresh fruits for consumption, but rather that the seeds need to be sowed.²⁹²¹ Mexico submits that the PRAs identify that it is the diversion from intended use that can cause ASBVd to spread, thereby risking plant life or health. For Mexico, an acceptable level of risk for an area free of ASBVd would be to accept the introduction of fresh avocados for human consumption sold in places such as supermarkets or retail stores. Mexico notes that, given that not all of Costa Rican territory can be considered as free of ASBVd, the ALOP would have to: (i) be adjusted for specific areas in which it is established with scientific evidence that ASBVd is not present; and/or (ii) be much lower than or equal to the level of risk already accepted by Chile.²⁹²²

7.1819. Mexico adds that if the Panel were to determine that the ALOP adopted by Costa Rica is based on the premise that all or part of Costa Rican territory is free of ASBVd, this ALOP could not exceed that established by Chile through Exempt Resolution No. 8182. For Mexico, it would have to be considered that the acceptable level of risk means accepting the presence of imported fresh avocados in Costa Rican territory, inasmuch as they are intended only for human consumption, and the measure consistent with this ALOP would have to be focused on preventing diversion for sowing purposes of the seeds of fresh avocados for human consumption.²⁹²³

7.1820. Mexico argues that the measure established by Chile through Exempt Resolution No. 8182 is consistent with the ALOP applied by Costa Rica, since there is no basis for Costa Rica to substantiate the existence of zero risk or a maximum level of phytosanitary protection with respect to the risk associated with the entry, establishment and spread of ASBVd through fresh fruit imported for consumption.²⁹²⁴

7.1821. Mexico considers that, if it had assessed the functioning of the recommendation in the PRA to regulate the use for propagation purposes of seeds of avocados imported for consumption, as well as the way in which this alternative measure would reduce the risk of entry, establishment and spread of ASBVd in its territory, Costa Rica would have concluded, as Chile does, that this measure was sufficient to address the negligible risk of ASBVd being transmitted through a fresh avocado imported for consumption.²⁹²⁵

7.1822. Mexico also contends that this measure is not complementary, since regulating the diversion from intended use of fresh avocados for consumption would be enough to mitigate a risk that, in itself, is negligible. Mexico adds that imposing, as complementary measures, the measures covered by the Resolutions and the domestic measures on diversion from intended use produces absurd and contradictory outcomes. For example, if the ALOP is maximum and ASBVd is unwanted,

²⁹¹⁸ Mexico's first written submission, para. 566 (referring to Resolución 8182 EXENTA 8182, (Exhibit MEX-113)).

²⁹¹⁹ Mexico's first written submission, paras. 567-568.

²⁹²⁰ Mexico's first written submission, para. 568.

²⁹²¹ Mexico's first written submission, para. 569.

²⁹²² Mexico's first written submission, para. 570.

²⁹²³ Mexico's first written submission, para. 571.

²⁹²⁴ Mexico's first written submission, para. 572.

²⁹²⁵ Mexico's opening statement at the first meeting of the Panel, para. 54.

Mexico asks why there would be diversion from intended use if, from the moment of importation, the entry of fruits allegedly infected with ASBVd is restricted.²⁹²⁶

7.1823. Mexico submits that there is no scientific evidence to demonstrate that fresh avocado for consumption is a pathway for the introduction of ASBVd, but that there is evidence of the low prevalence of symptomless avocados exported by Mexico, so the risk of entry through diversion from intended use is negligible or even zero, and the regulation seeking to prevent the diversion from intended use of imported avocados as a means of propagation achieves, by itself, Costa Rica's ALOP.²⁹²⁷

7.1824. Mexico indicates that Costa Rica implemented Decree No. 41995-MAG in 2019, and that this domestic regulation addresses its main concern, i.e. the diversion from intended use of fresh avocados imported for consumption. For Mexico, the phytosanitary measures at issue in this dispute are therefore more trade-restrictive than necessary to mitigate the risk associated with the introduction, establishment and spread of ASBVd through trade in fresh avocados for consumption.²⁹²⁸

7.1825. Mexico states that this regulation is similar in content and scope to Exempt Resolution No. 8182 adopted by Chile, and could ensure Costa Rica's ALOP because it controls the origin of the seeds for planting and establishes penalties.²⁹²⁹

7.1826. **Costa Rica** submits that Mexico has failed to establish that the first alternative measure, by itself, achieves Costa Rica's ALOP.²⁹³⁰

7.1827. Costa Rica states that the regulation on diversion from intended use of the seeds is not a measure that can replace the phytosanitary import requirements for avocados, since it is a domestic measure that has already been considered and adopted by Costa Rica. Costa Rica indicates that both measures are complementary, which is why Mexico's first alternative measure is not a replacement for the challenged phytosanitary requirements.²⁹³¹

7.1828. Costa Rica indicates that all the measures that it has adopted are, together, focused on preventing as far as possible the entry of ASBVd into Costa Rican territory, in order to maintain the country's phytosanitary status as free of ASBVd. According to Costa Rica, the domestic regulation that prohibits the use of imported seeds for sowing avocados is a measure that is complementary to the phytosanitary import requirements imposed, and it is not an alternative replacement measure because, by itself, it would not achieve Costa Rica's ALOP.²⁹³²

7.1829. Costa Rica considers that Mexico's arguments, according to which Costa Rican territory cannot be considered as free of ASBVd and the ALOP should thus be adjusted and be much lower than or equal to that of Chile, should be rejected. Costa Rica states that ASBVd is absent in its territory, and that Mexico has failed to prove otherwise. Costa Rica adds that it has the sovereign authority to determine the ALOP, completely independent of the ALOP determined by Chile or any other country.²⁹³³

7.1830. Costa Rica submits that the reference to Chile's ALOP is irrelevant, and that the assumption that all Members whose territory is free of a pest must have the same ALOP ignores the importance of the specific conditions of each Member, including the probability of entry of the pest according to the pathways of access, the climatic conditions for its establishment and spread, or the economic and biological consequences that could arise in each Member State, and it contradicts Members' right to adopt the level of protection they deem appropriate.²⁹³⁴

²⁹²⁶ Mexico's response to Panel question No. 92, para. 102.

²⁹²⁷ Mexico's second written submission, para. 267.

²⁹²⁸ Mexico's second written submission, para. 268 (citing Regulation governing the use of avocado seeds (2019), (Exhibits MEX-174 and CRI-53)).

²⁹²⁹ Mexico's response to Panel question No. 175, paras. 162-163.

²⁹³⁰ Costa Rica's first written submission, paras. 5.232 and 5.237.

²⁹³¹ Costa Rica's first written submission, para. 5.227; second written submission, para. 3.69.

²⁹³² Costa Rica's first written submission, para. 5.234.

²⁹³³ Costa Rica's first written submission, para. 5.235.

²⁹³⁴ Costa Rica's first written submission, para. 5.236.

7.1831. Costa Rica indicates that the domestic regulation suggested by Mexico already exists, and that the 2019 regulation governing the use of avocado seeds implements one of the general recommendations in Costa Rica's PRA, and is not significantly different to Chile's Exempt Resolution No. 8182 proposed by Mexico as an alternative measure. Costa Rica notes, however, that such a regulation is, by itself, insufficient to achieve its ALOP with respect to the risk of introduction of ASBVd, since it does not address the risks arising from the natural germination of infected seeds, which, according to Costa Rica, without border measures to ensure that infected avocados are not introduced, would seriously jeopardize the integrity of Costa Rica's phytosanitary status as free of the pest.²⁹³⁵

7.1832. Costa Rica asserts that, although diversion from intended use is a risk factor for the introduction of the pest, it is not the only one. Costa Rica contends that, in the case of symptomless fruit infected with ASBVd, the seed has a very high ability to transmit ASBVd and, due to Costa Rica's favourable climatic conditions and because the avocado seed remains viable for several days after its removal from the fruit, it has been found that the seeds may germinate without human assistance. Costa Rica considers that every seed discarded in fields or household compost, and any fruit thrown away or discarded on waste ground, has the potential to germinate and become an avocado tree infected with ASBVd, and no regulation prohibiting the intentional diversion from intended use of seeds would be effective against the risk posed by the spontaneous germination of seeds as natural waste from avocado fruit.²⁹³⁶

7.1833. Costa Rica also submits that, despite the fact that the general ban on sowing seeds of fresh avocados for consumption imported from countries with ASBVd, established in the 2019 regulation governing the use of avocado seeds, formally applies to all persons in Costa Rica, no phytosanitary authority would reasonably expect consumers to have the same knowledge of the regulation as nursery workers and producers. Costa Rica states that, although it is expected that nursery workers and producers are familiar with the regulation and comply with the obligations established therein, it is more difficult for consumers (rural or urban) to always be certain of the origin of the fruit consumed or to be aware of the ban on sowing the seed of this fruit. Costa Rica adds that its authorities' ability to monitor all consumers' compliance with the regulation is far more limited than that of nursery workers and producers, who are duly registered.²⁹³⁷ Costa Rica states that the domestic regulation would not, by itself, fulfil Costa Rica's ALOP, since the obligation would fall entirely upon the consumer, and it would be extremely difficult for the State to verify compliance with the regulation.²⁹³⁸

7.1834. Costa Rica notes that, while it is not disputed that the 2019 regulation governing the use of avocado seeds contributes to reducing the risk of introduction of ASBVd and, therefore, complements the phytosanitary import requirements for fresh avocados, it cannot be concluded that it is an alternative measure that, by itself, achieves Costa Rica's ALOP. In Costa Rica's view, if it were to apply only the domestic regulation that prohibits diversion from intended use, it would simply be a matter of time before ASBVd were introduced into Costa Rican territory, which is why Costa Rica indicates that it has opted to implement, together with the regulation, border measures similar to those adopted by other countries such as New Zealand, Panama or New Caledonia.²⁹³⁹

7.1835. Costa Rica adds that the 2019 regulation governing the use of avocado seeds is a measure that was already recommended in Costa Rica's PRA and that was implemented together with other measures, so the domestic regulation prohibiting the use for sowing of seeds of imported avocado would, by itself, be insufficient to fulfil Costa Rica's ALOP and, in addition, is not an alternative measure within the meaning of Article 5.6 of the SPS Agreement.²⁹⁴⁰

²⁹³⁵ Costa Rica's opening statement at the first meeting of the Panel, para. 32 (citing Regulation governing the use of avocado seeds (2019), (Exhibits MEX-174 and CRI-53)); response to Panel question No. 94, paras. 1-2; second written submission, para. 3.69 (citing Regulation governing the use of avocado seeds (2019), (Exhibits MEX-174 and CRI-53)).

²⁹³⁶ Costa Rica's second written submission, para. 3.70; opening statement at the first meeting of the Panel, para. 32; response to Panel question No. 94.

²⁹³⁷ Costa Rica's response to Panel question No. 93; second written submission, para. 3.71.

²⁹³⁸ Costa Rica's response to Panel question No. 175, para. 1.

²⁹³⁹ Costa Rica's second written submission, para. 3.72.

²⁹⁴⁰ Costa Rica's response to Panel question No. 175, para. 2.

7.1836. The **Panel** will examine below whether the first alternative measure proposed by Mexico, i.e. the domestic regulation that prevents diversion from intended use, achieves Costa Rica's ALOP.

7.1837. As explained, in order to examine whether the complainant has identified an alternative measure that achieves the ALOP of the respondent, a panel must identify the level of protection of the Member whose SPS measure is challenged and the level of protection of the alternative measure proposed by the complainant.²⁹⁴¹ Once these two elements have been identified, a panel must compare them, and the second element required for an alternative measure to comply with Article 5.6 is only demonstrated if the level of protection achieved by the alternative measure meets or exceeds the Member's ALOP.²⁹⁴²

7.1838. Accordingly, in this dispute, the Panel must identify Costa Rica's level of protection and the level of protection of the alternative measure proposed by Mexico and, once these two elements have been identified, the Panel must compare them to determine whether the level of protection achieved by the alternative measure meets or exceeds Costa Rica's ALOP.

7.1839. With regard to the domestic regulation proposed by Mexico, the Panel observes that, in 2019, Costa Rica issued the regulation governing the use of avocado seeds, to which both parties refer.²⁹⁴³ Costa Rica indicates that this regulation is not, therefore, an alternative measure within the meaning of Article 5.6 of the SPS Agreement.²⁹⁴⁴ The parties agree on the similarity between Costa Rica's regulation and Exempt Resolution No. 8182 adopted by Chile, which Mexico presents as a model of the first alternative measure that it proposes.²⁹⁴⁵

7.1840. As regards whether a measure that is already in place can constitute an alternative measure, as explained, the panel in *Korea – Radionuclides* considered that if the complainant's proposal could substitute for the respondent's regime and fulfil the three requirements in footnote 3 to Article 5.6 then it will be "another measure" within the meaning of this Article.²⁹⁴⁶ In this sense, the panel indicated that a measure cannot be rejected *a priori* because it contains some elements of the original measure, but only after a full evaluation of all the factors in footnote 3 and Article 5.6.²⁹⁴⁷

7.1841. In light of the foregoing, although the domestic regulation on the use for propagation purposes of seeds of avocados imported for consumption was recommended in Costa Rica's reports²⁹⁴⁸ and subsequently issued, this measure cannot be rejected *a priori*, but there must be an evaluation of whether it fulfils the criteria in footnote 3 to Article 5.6 of the SPS Agreement. Consequently, and considering that Costa Rica has already issued a domestic regulation that seeks to prevent diversion from intended use, as Mexico's proposed alternative measure does, the Panel's analysis will consist of a determination of whether this domestic regulation on diversion from intended use is, by itself, sufficient to achieve Costa Rica's "maximum" ALOP.

7.1842. Before beginning the analysis of whether the domestic regulation on diversion from intended use is, by itself, sufficient to achieve Costa Rica's "maximum" ALOP, the Panel notes that Report ARP-002-2017 identifies fresh avocados (*Persea americana* Mill.) for consumption from Mexico as the pathway under analysis²⁹⁴⁹, and that Report ARP-006-2016 also includes the analysis

²⁹⁴¹ Appellate Body Reports, *Australia – Apples*, para. 344; *India – Agricultural Products*, para. 5.220; *Korea – Radionuclides*, para. 5.24 (citing Appellate Body Reports, *Australia – Apples*, para. 344; and *India – Agricultural Products*, para. 5.220).

²⁹⁴² Appellate Body Reports, *Australia – Apples*, para. 344; *India – Agricultural Products*, para. 5.206; and Panel Report, *Korea – Radionuclides*, para. 7.119 (citing Appellate Body Report, *Australia – Apples*, paras. 344 and 368).

²⁹⁴³ Regulation governing the use of avocado seeds (2019), (Exhibits MEX-174 and CRI-53).

²⁹⁴⁴ Costa Rica's response to Panel question No. 175, para. 2.

²⁹⁴⁵ Mexico states that this regulation is similar in content and scope to Exempt Resolution No. 8182 adopted by Chile. (Mexico's response to Panel question No. 175, paras. 162-163). Costa Rica indicates that the 2019 regulation governing the use of avocado seeds is not significantly different from Chile's Exempt Resolution No. 8182, which Mexico proposes as an alternative measure. (Costa Rica's opening statement at the first meeting of the Panel, para. 32 (citing Regulation governing the use of avocado seeds (2019), (Exhibits MEX-174 and CRI-53)); response to Panel question No. 94, para. 1).

²⁹⁴⁶ Panel Report, *Korea – Radionuclides*, para. 7.127.

²⁹⁴⁷ Panel Report, *Korea – Radionuclides*, para. 7.127.

²⁹⁴⁸ ARP-002-2017, (Exhibit MEX-84), p. 43; ARP-006-2016, (Exhibit MEX-85), p. 24.

²⁹⁴⁹ ARP-002-2017, (Exhibit MEX-84), pp. 3 and 15.

of the pathway of fresh avocados for consumption from countries where the pest, Avocado sunblotch viroid (ASBVd), is present.²⁹⁵⁰

7.1843. As noted in section 7.5.4 above, it is Costa Rica's prerogative to set the ALOP that it deems appropriate, and the Panel understands that Costa Rica has set a "maximum level of phytosanitary protection", which, in Costa Rica's view, means making every reasonable effort to prevent the entry of ASBVd into its territory or taking the necessary measures that minimize to the greatest extent the risk of entry of the pest, and thus maintain the ASBVd-free phytosanitary status that Costa Rica claims to have. Costa Rica has accepted that a maximum level of protection is not equivalent to zero risk.²⁹⁵¹

7.1844. Based on Costa Rica's clarifications, the Panel notes that the country's "maximum" ALOP is focused on the maximum prevention of the entry of ASBVd into its territory, relying upon the premise maintained by Costa Rica that ASBVd is absent in its territory.²⁹⁵² Considering that ASBVd is present in symptomless fruits and that specific tests are needed to detect it²⁹⁵³, Costa Rica has implemented the phytosanitary requirements at issue in this dispute²⁹⁵⁴ and the border checks through laboratory testing. In the Panel's view, these measures are aimed at preventing the entry of ASBVd into Costa Rica under the premise that it is absent in its territory.

7.1845. Mexico states that, given that not all Costa Rican territory can be considered as free of ASBVd, the ALOP would have to: (i) be adjusted for specific areas in which it is established with scientific evidence that ASBVd is not present; and/or (ii) be much lower than or equal to the level of risk already accepted by Chile.²⁹⁵⁵

7.1846. The Panel notes that the premise that ASBVd is absent from Costa Rica's territory has been questioned by Mexico throughout the dispute. In section 7.4.5.1.3 above, the Panel concluded that the determination of the absence of ASBVd from Costa Rica lacks sufficient reliability and, therefore, cannot be considered as legitimately scientific.

7.1847. The Panel is of the opinion that the lack of a legitimately scientific determination of Costa Rica's phytosanitary status with respect to ASBVd complicates Mexico's burden of finding an alternative measure that could achieve Costa Rica's ALOP, as well as the Panel's analysis of the matter, because the presence or absence of ASBVd in Costa Rica could have a bearing on the issue of whether an alternative measure is sufficient to achieve Costa Rica's ALOP. However, the burden of proof in relation to such an alternative measure falls upon Mexico, and Mexico must demonstrate that the alternative measure achieves Costa Rica's ALOP. If Mexico considered that, in order to evaluate whether the alternative measure achieves Costa Rica's ALOP, the Panel should have taken into account in its analysis that ASBVd is present in Costa Rica, Mexico should have demonstrated that this is the case, which it failed to do.

7.1848. Mexico also notes that if the Panel were to determine that the ALOP adopted by Costa Rica is based on the premise that all or part of Costa Rican territory is free of ASBVd, this ALOP could not exceed that established by Chile through Exempt Resolution No. 8182. For Mexico, it would have to be considered that the acceptable level of risk means accepting the presence of imported fresh avocados in Costa Rican territory, inasmuch as they are intended only for human consumption.²⁹⁵⁶

7.1849. The Panel reiterates that it is Costa Rica's prerogative to set its ALOP, and Mexico appears to suggest with its arguments that Costa Rica should modify its level of acceptable risk, that is to say, its ALOP. The Panel considers that Costa Rica has the right to set the ALOP that it deems appropriate and to adopt SPS measures to achieve it, provided that these measures are not inconsistent with the SPS Agreement. The issue before the Panel is not whether Costa Rica's ALOP

²⁹⁵⁰ ARP-006-2016, (Exhibit MEX-85), pp. 3 and 14.

²⁹⁵¹ Costa Rica's response to Panel question No. 84, para. 1.

²⁹⁵² See Costa Rica's first written submission, paras. 5.216 and 5.233.

²⁹⁵³ ARP-002-2017, (Exhibit MEX-84), p. 42; ARP-006-2016, (Exhibit MEX-85), p. 23.

²⁹⁵⁴ In other words, the ASBVd-free phytosanitary certificate or the ASBVd-free place of production certificate or a systems approach.

²⁹⁵⁵ Mexico's first written submission, para. 570.

²⁹⁵⁶ Mexico's first written submission, para. 571.

should be different, but rather, whether the measure proposed by Mexico as an alternative would achieve the ALOP established by Costa Rica.

7.1850. Mexico also states that there is no scientific evidence to demonstrate that fresh avocados for consumption are a pathway for the introduction of ASBVd, that the risk of entry through diversion from intended use is negligible or even zero, and that the regulation seeking to prevent diversion from intended use of imported avocados as a means of propagation achieves, by itself, Costa Rica's ALOP.²⁹⁵⁷

7.1851. The expert Robert Griffin points out that it is not reasonable to conclude that there is no risk of entry and establishment because there is a demonstrated pathway with a biological probability.²⁹⁵⁸

7.1852. In section 7.4.5.3.4.1 above, the Panel has found flaws in Costa Rica's risk assessment that had an impact on the high risk of entry rating. The Panel notes that these flaws may mean that the risk of entry of fresh fruits for consumption potentially infected with ASBVd is lower than that indicated in Costa Rica's risk assessment, although fresh fruit for consumption is a pathway with biological probability.

7.1853. The Panel is of the opinion that the lack of a risk assessment consistent with the provisions of the SPS Agreement complicates Mexico's burden of finding an alternative measure that could achieve Costa Rica's ALOP, as well as the Panel's analysis of the matter, because the risk of entry could have a bearing on the question of whether an alternative measure is sufficient to achieve Costa Rica's ALOP. However, the burden of proof in relation to such an alternative measure falls upon Mexico, and Mexico must demonstrate that the alternative measure achieves Costa Rica's ALOP. Mexico's argument suggests that, when assessing whether the alternative measure achieves Costa Rica's ALOP, the Panel should have taken into account in its analysis that the risk of entry of ASBVd is negligible or zero. However, the Panel recalls that, as noted in paragraph 7.1252 above, its task is not to impose a definitive scientific conclusion with respect to the likelihood of entry, establishment and spread, or with respect to the associated biological consequences, as suggested by Mexico.

7.1854. Mexico contends that the proposed alternative is not a complementary measure, since regulating diversion from intended use of fresh avocados for consumption would be enough to mitigate a risk that, in itself, is negligible.²⁹⁵⁹ Mexico also asserts that the SFE itself recognizes in the PRAs at issue in this dispute that the spread of ASBVd is not caused simply by the entry of fresh fruits for consumption, but rather that the seeds need to be sowed.²⁹⁶⁰

7.1855. For its part, Costa Rica indicates that all the measures that it has adopted are, together, focused on preventing as far as possible the entry of ASBVd into Costa Rican territory, in order to maintain the country's ASBVd-free phytosanitary status, and that the domestic regulation that prohibits the use of imported seeds for sowing avocados is a measure that is complementary to the phytosanitary import requirements imposed.²⁹⁶¹

7.1856. The experts Fernando Pliego Alfaro and Ricardo Flores Pedauy  express agreement with Costa Rica's statement that the phytosanitary requirements and the domestic regulation are complementary measures.²⁹⁶² The expert Robert Griffin is also of the view that they could be considered complementary measures, and states that the adoption of domestic measures and the adoption of phytosanitary border requirements are not mutually exclusive in terms of risk because they are both used for mitigating the risk, but in terms of implementation they are independent.²⁹⁶³

7.1857. In light of the foregoing, the Panel considers that Costa Rica's domestic and border measures are aimed at contributing jointly to preventing the risk of entry, establishment and spread of ASBVd in Costa Rica, under the premise that ASBVd is absent in its territory and based on the

²⁹⁵⁷ Mexico's second written submission, para. 267.

²⁹⁵⁸ Robert Griffin's response to Panel question No. 52 for the experts.

²⁹⁵⁹ Mexico's response to Panel question No. 92, para. 102.

²⁹⁶⁰ Mexico's first written submission, para. 569.

²⁹⁶¹ Costa Rica's first written submission, para. 5.234.

²⁹⁶² Responses of Fernando Pliego Alfaro and Ricardo Flores Pedauy  to Panel question No. 116 for the experts.

²⁹⁶³ Robert Griffin, transcript of the Panel's meeting with the parties and the experts, day 4, p. 18.

high final risk calculated for the entry, establishment and spread of ASBVd and its associated biological and economic consequences, which Costa Rica maintains exists. The Panel notes that the domestic regulation seeking to prevent diversion from intended use addresses the concern regarding the establishment and spread of ASBVd through the pathway of fresh avocados imported for consumption, and the phytosanitary requirements address the risk of entry through the importation of potentially infected fruit.

7.1858. Costa Rica submits that it is expected that nursery workers and producers are familiar with the regulation governing the use of avocado seeds and that they comply with the obligations established therein, but that it is more difficult for consumers (rural or urban) to always be certain of the origin of the fruit consumed, or to be aware of the ban on sowing the seed of this consumed fruit.²⁹⁶⁴ Costa Rica states that the domestic regulation would not, by itself, fulfil its ALOP, since the obligation would fall entirely upon the consumer, and it would be extremely difficult for the State to verify compliance with the regulation.²⁹⁶⁵

7.1859. The expert Robert Griffin points out that the exporting country should consider measures it can implement to reduce or eliminate the risks associated with diversion, but that, since diversion occurs in the importing country, it is outside the authority of the exporting country to impose measures following entry of the product, and that post-entry measures are the responsibility of the importing country.²⁹⁶⁶

7.1860. Taking the foregoing into account, in the view of this Panel, the regulation on diversion from intended use cannot be ruled out on the grounds that not all persons would be aware of it, that the obligation would fall entirely upon the consumer, or that it would be extremely difficult for the State to verify compliance with the regulation.

7.1861. The Panel considers that, depending on the status of ASBVd in Costa Rica, the risk of entry of ASBVd into the country and the occurrence and magnitude of diversion from intended use and spontaneous germination in Costa Rica, in relation to which there is uncertainty due to the flaws in Costa Rica's risk assessment, the regulation on diversion from intended use may or may not be sufficient to prevent the diversion from intended use of infected seeds that could have entered into Costa Rica if there were no border measures, thereby preventing the introduction and spread of ASBVd in Costa Rica.

7.1862. In light of the foregoing and in this Panel's view, in the particular circumstances of this case, there are difficulties in conducting its examination consisting of the comparison between the ALOP established by Costa Rica and the ALOP of the domestic regulation on diversion from intended use proposed by Mexico as an alternative measure. For the Panel, although Costa Rica's ALOP has been specified with sufficient precision, it is difficult to determine whether the domestic regulation on diversion from intended use would, by itself, achieve Costa Rica's ALOP, given the flaws found by the Panel in the assessment of this risk, and given its conclusion that the determination of the absence of ASBVd from Costa Rica, which the country includes as a premise for its ALOP, is not legitimately scientific.

7.1863. However, the Panel reiterates that Mexico bears the burden of demonstrating that the alternative measure achieves Costa Rica's ALOP, and Mexico has limited its arguments to pointing out that Costa Rica should modify its acceptable level of risk, i.e. its ALOP; that ASBVd is present in Costa Rica; and that the risk of entry is negligible or zero. As has been mentioned, Costa Rica has the right to set its own ALOP, Mexico has failed to demonstrate that ASBVd is present in Costa Rica, and it is not the Panel's task to impose a definitive scientific conclusion with respect to the likelihood of entry, establishment and spread, or with respect to the associated biological consequences, as suggested by Mexico.

7.1864. In view of the foregoing, in the particular circumstances of this case, the Panel is of the opinion that Mexico has failed to demonstrate that the phytosanitary requirements together with the border checks and the regulation governing the use of avocado seeds are alternative measures, or

²⁹⁶⁴ Costa Rica's response to Panel question No. 93, para. 6; second written submission, para. 3.71.

²⁹⁶⁵ Costa Rica's response to Panel question No. 175, para. 1.

²⁹⁶⁶ Robert Griffin's response to Panel question No. 95 for the experts.

that a domestic regulation such as Costa Rica's regulation, by itself, achieves a level of protection that is at least equivalent to Costa Rica's maximum ALOP.

7.1865. The Panel therefore finds that Mexico has failed to demonstrate that the first alternative proposed, consisting of the domestic regulation that prevents diversion from intended use, achieves, by itself, Costa Rica's ALOP.

7.5.6.1.2 Whether the ASBVd symptom-free certification of shipments achieves Costa Rica's ALOP

7.1866. **Mexico** submits that the ASBVd symptom-free certification of shipments achieves Costa Rica's level of protection.²⁹⁶⁷

7.1867. Mexico indicates that, considering that Mexico and Costa Rica traded in the product at issue in the dispute for over 20 years, and that Costa Rica never detected or reported a single consignment with symptoms of ASBVd and its disease, it can be asserted that the symptom-free certification of shipments would achieve the ALOP sought by Costa Rica.²⁹⁶⁸

7.1868. Mexico asserts that assuming, for the sake of the argument, that Costa Rica's assertion on the alleged absence of ASBVd in its territory were true, this would mean that the risk from the importation of fresh fruits for consumption and their diversion from intended use has been minimal, if not zero. For Mexico, this means that trade could be re-established merely through the certification and shipment of ASBVd symptom-free fruit, as used to occur before Costa Rica imposed its restrictive measures.²⁹⁶⁹

7.1869. Mexico adds that the ASBVd symptom-free certification of shipments helps to almost completely mitigate the alleged risk posed by trade in fresh avocados for consumption as a possible pathway for the entry, establishment and spread of ASBVd.²⁹⁷⁰ For Mexico, if it is considered that, within a full consignment of avocados for export, it is possible to find healthy, symptomatic and symptomless fruit, the symptom-free certification of shipments lowers the risk of entry, establishment and spread of ASBVd by reducing the proportion of infected fruit in a consignment, even in the unlikely event that a pit of these fruits is used as propagation material, germinates and produces infected fruit.²⁹⁷¹

7.1870. Mexico notes that the ASBVd symptom-free certification of shipments seeks to address Costa Rica's concern and manage the risk associated with avocados showing symptoms of ASBVd by preventing the presence of this type of fruit in the consignments from Mexico. Mexico adds that the sampling survey of consignments carried out by the Mexican industry proved that the risk associated with symptomless avocados is negligible, if not zero, which is due in large part to the certification and inspection programmes for orchards, transporters and packing facilities specialized in the export of fresh fruit, which have an impact on the safety, health and quality of the exported fruit. According to Mexico, the symptom-free certification of shipments therefore satisfies Costa Rica's ALOP.²⁹⁷²

7.1871. **Costa Rica** submits that Mexico has failed to establish that the second alternative measure (the ASBVd symptom-free certification of shipments) is an alternative that achieves Costa Rica's ALOP.²⁹⁷³

²⁹⁶⁷ Mexico's first written submission, p. 142.

²⁹⁶⁸ Mexico's first written submission, para. 573.

²⁹⁶⁹ Mexico's first written submission, para. 574.

²⁹⁷⁰ Mexico's response to Panel question No. 95, para. 104.

²⁹⁷¹ Mexico's response to Panel question No. 95, para. 105.

²⁹⁷² Mexico's second written submission, para. 266 (citing APEAM, Preliminary report of sampling survey of consignments (2020), (Exhibit MEX-223)) and para. 269.

²⁹⁷³ Costa Rica's first written submission, para. 5.247.

7.1872. Costa Rica indicates that the ASBVd symptom-free certification of shipments would not achieve its ALOP²⁹⁷⁴ because it is a measure that, by definition, is not fit for managing the risk posed by symptomless avocados infected with ASBVd.²⁹⁷⁵

7.1873. Costa Rica asserts that ASBVd often causes no symptoms in the fruit, which means that, even if post-harvest visual inspections are carried out and it is ensured that no symptomatic fruits are exported, the fruits infected with ASBVd that do not exhibit symptoms will continue to be present in shipments. Costa Rica adds that the infection rate in the seeds obtained from symptomless trees and fruit is 100%, while it is only a maximum of 5% in those from symptomatic trees. For Costa Rica, this proves that merely certifying and shipping ASBVd symptom-free fruit would be insufficient to achieve its ALOP.²⁹⁷⁶

7.1874. Costa Rica states that Mexico's second alternative is a simple quality standard that Mexico already applies to its exports, which is ultimately the same as not having any phytosanitary measures and leaves Costa Rica totally exposed to the risk of ASBVd being introduced into its territory through symptomless fruit. For Costa Rica, it is evident that avocados with blotches or cracks are not of the quality required for sale and, therefore, are discarded in Mexico prior to exportation, but it is specifically the symptomless avocados that are of concern to the Costa Rican phytosanitary authority. Costa Rica contends that, faced with the risk posed by these avocados, symptom-free certification is useless and in no way achieves the country's ALOP.²⁹⁷⁷

7.1875. Costa Rica also states that the need to impose and maintain phytosanitary requirements according to which the exporting country certifies that the shipments are ASBVd-free (or come from an ASBVd-free place of production), and Costa Rica verifies compliance with this requirement upon importation, as opposed to certifying that the shipment is symptom-free, has been confirmed in practice, since Costa Rica has detected the presence of ASBVd in a number of consignments of avocados from countries that fulfil the requirement for the ASBVd-free certification of shipments, such as Peru.²⁹⁷⁸

7.1876. The **Panel** will examine below whether the second alternative proposed by Mexico, i.e. the ASBVd symptom-free certification of shipments, achieves Costa Rica's ALOP.

7.1877. As indicated above, to that end, the Panel must identify Costa Rica's level of protection and the level of protection of the alternative measure proposed by Mexico; and, once these two elements have been identified, the Panel must compare them to determine whether the level of protection achieved by the alternative measure meets or exceeds Costa Rica's ALOP.

7.1878. The Panel reiterates its understanding that Costa Rica has set a "maximum level of phytosanitary protection", which, in Costa Rica's view, means making every reasonable effort to prevent the entry of ASBVd into its territory or taking the necessary measures that minimize to the greatest extent the risk of entry of the pest, and thus maintain the ASBVd-free phytosanitary status that Costa Rica claims to have.

7.1879. The Panel notes that symptomless fruit seem to be Costa Rica's main concern, since Costa Rica itself states that it is specifically symptomless avocados that are of concern to the Costa Rican phytosanitary authority.²⁹⁷⁹ Moreover, Reports ARP-002-2017 and ARP-006-2016 indicate that inspections carried out at entry points are not considered sufficient to ensure phytosanitary security,

²⁹⁷⁴ Costa Rica's opening statement at the first meeting of the Panel, para. 33.

²⁹⁷⁵ Costa Rica's second written submission, para. 3.73.

²⁹⁷⁶ Costa Rica's first written submission, para. 5.248 (citing Cambrón Crisantos (2011), (Exhibit CRI-10), p. 17); opening statement at the first meeting of the Panel, para. 33 (citing Cambrón Crisantos (2011), (Exhibit CRI-10), p. 17); second written submission, para. 3.73 (citing Hadidi et al. (2003), (Exhibit CRI-121); and Ochoa Ascencio (2013), (Exhibit CRI-128)).

²⁹⁷⁷ Costa Rica's second written submission, para. 3.73.

²⁹⁷⁸ Costa Rica's first written submission, para. 5.249 (citing Servicio Fitosanitario del Estado del Ministerio de Agricultura y Ganadería de Costa Rica, "Formularios de notificaciones de incumplimiento de requisitos fitosanitarios", NR-CIN-PO-03_F-01, del 16 de julio de 2018 al 11 de julio de 2019, (Exhibit CRI-40)).

²⁹⁷⁹ Costa Rica's second written submission, para. 3.73.

given that this viroid in particular is asymptomatic in fruits and that specific tests are needed to detect it.²⁹⁸⁰

7.1880. For Mexico, if it is considered that, within a full consignment of avocados for export, it is possible to find healthy, symptomatic and symptomless fruit, the symptom-free certification of shipments lowers the risk of entry, establishment and spread of ASBVd by reducing the proportion of infected fruit in a consignment.²⁹⁸¹ Mexico adds that the ASBVd symptom-free certification of shipments seeks to address Costa Rica's concern and manage the risk associated with avocados showing symptoms of ASBVd by preventing the presence of this type of fruit in consignments from Mexico.²⁹⁸²

7.1881. The expert Fernando Pliego Alfaro is of the view that measures based on observing symptoms are insufficient, because the symptomatic fruit is not of exportable quality, and the problem lies in the symptomless fruits, which are also those that most transmit the disease because the majority of the seeds of symptomless fruit are infected.²⁹⁸³ The expert Robert Griffin agrees with Mr Pliego Alfaro, and adds that it is not logical to base measures on detection of symptoms if symptoms are not detectable, and it is not logical to use inspection to detect fruit that is not symptomatic.²⁹⁸⁴

7.1882. In the Panel's view, the symptom-free certification of shipments involves the visual inspection of the shipment to verify the absence of ASBVd symptoms in the avocado fruit in that shipment. The Panel agrees that such an inspection of the shipment would eliminate the symptomatic fruit and protect against the risk of entry of ASBVd, which could be present in its symptomatic form. However, Costa Rica's main concern is the entry of symptomless fruits.

7.1883. Mexico itself does not dispute the existence of an asymptomatic strain of ASBVd. As described in section 2.3.2.2 above, there are at least three variants of ASBVd, categorized according to the symptoms they produce: ASBVd-B (which produces bleaching); ASBVd-V (which produces variegation) and ASBVd-Sc (which does not produce visible symptoms).²⁹⁸⁵ Diagnosis based on symptoms is not reliable, so other sensitive diagnostic techniques are necessary to determine the health status of the tree.²⁹⁸⁶

7.1884. Given that some avocados infected with ASBVd do not show visible symptoms and molecular techniques are required to detect ASBVd, the ASBVd symptom-free certification of shipments through visual inspection does not allow for symptomless fruits to be detected and discarded.

7.1885. The Panel therefore considers that a simple visual inspection cannot, by itself, address the full risk of concern to Costa Rica, given the asymptomatic nature of ASBVd.

7.1886. As part of its arguments, Mexico reiterates its argument that trade in avocados took place between Mexico and Costa Rica for over 20 years without a single consignment with symptoms of ASBVd and its disease being detected.²⁹⁸⁷ Mexico adds that the sampling survey of consignments carried out by the Mexican industry proved that the risk associated with symptomless avocados is negligible, if not zero, which is due in large part to the certification and inspection programmes for orchards, transporters and packing facilities specialized in the export of fresh fruit, which have an impact on the safety, health and quality of the exported fruit.²⁹⁸⁸

7.1887. In this connection, Mexico submits the Preliminary report of sampling survey of consignments (2020) by the Association of Mexican avocado producers, packers and exporters

²⁹⁸⁰ ARP-002-2017, (Exhibit MEX-84), p. 42; ARP-006-2016, (Exhibit MEX-85), p. 23.

²⁹⁸¹ Mexico's response to Panel question No. 95, para. 105.

²⁹⁸² Mexico's second written submission, para. 269.

²⁹⁸³ Fernando Pliego Alfaro, transcript of the Panel's meeting with the parties and the experts, day 1, p. 38.

²⁹⁸⁴ Robert Griffin, transcript of the Panel's meeting with the parties and the experts, day 1, pp. 38-39.

²⁹⁸⁵ Semancik and Szychowski (1994), (Exhibit MEX-52), p. 1543; and Ncango *et al.* (2014), (Exhibit CRI-8), p. 69.

²⁹⁸⁶ Saucedo Carabez *et al.* (2019), (Exhibit MEX-175), p. 8.

²⁹⁸⁷ Mexico's first written submission, para. 573.

²⁹⁸⁸ Mexico's second written submission, para. 266 (citing APEAM, Preliminary report of sampling survey of consignments (2020), (Exhibit MEX-223)) and para. 269.

(APEAM)²⁹⁸⁹ and, subsequently, the Final report of sampling survey of consignments (2020).²⁹⁹⁰ The final report indicates that the sampling was carried out on an exceptional basis on fruit for consumption that had already undergone the selection process for fruits for export. The report indicates that a total of 100 samples were taken from the crates of fresh fruit free of symptoms similar to those of ASBVd, and that the preliminary results indicate that, of the 100 samples analysed, none tested positive for ASBVd. It is also stated that, in the orchards, the producers identify and remove trees suspected of having any disease, the indirect effect of which is that the fruit arriving at the packing facilities comes mainly from healthy trees.²⁹⁹¹

7.1888. The Panel does not consider that the sampling of 100 avocados carried out by APEAM and Mexico's unsubstantiated claim that trees suspected of having any disease are removed from orchards prove that the risk associated with symptomless avocados is negligible or zero, or that the consignment checks to ensure that it is symptom-free are sufficient to achieve the protection implied by Costa Rica's maximum ALOP.

7.1889. Bearing in mind that the ALOP represents the level of risk acceptable to the Member, that the objective sought by the application of Costa Rica's ALOP is to protect as much as possible against the entry of ASBVd, and that visual inspections do not detect the asymptomatic strain of ASBVd, in the circumstances of this case, the ASBVd symptom-free certification of shipments could not be an alternative to Costa Rica's phytosanitary measures.

7.1890. In light of the foregoing, the Panel considers that Mexico has failed to demonstrate that the ASBVd symptom-free certification of shipments achieves, by itself, a level of protection that is at least equivalent to Costa Rica's maximum ALOP, in accordance with which Costa Rica applies its phytosanitary measures contained in Resolutions DSFE-002-2018 and DSFE-003-2018.

7.1891. The Panel thus finds that Mexico has failed to demonstrate that the second alternative measure proposed, consisting of the ASBVd symptom-free certification of shipments, achieves, by itself, Costa Rica's ALOP.

7.5.6.2 Conclusion on whether any of the alternative measures proposed by Mexico achieve Costa Rica's ALOP

7.1892. The Panel concludes that Mexico has failed to demonstrate that the first alternative measure, consisting of the domestic regulation that prevents diversion from intended use, or the second alternative measure, consisting of the ASBVd symptom-free certification of shipments, by themselves, achieve Costa Rica's ALOP.

7.1893. Since the Panel has concluded that Mexico has failed to demonstrate that either of the two alternative measures proposed achieve Costa Rica's ALOP, there would be no need to assess whether these alternative measures are also reasonably available taking into account technical and economic feasibility, or whether they are significantly less restrictive to trade than the phytosanitary requirements set forth in Resolutions DSFE-003-2018 and DSFE-002-2018.

7.1894. However, in order to be exhaustive in its analysis, the Panel will address the questions of whether any of the alternative measures proposed are reasonably available taking into account technical and economic feasibility, and whether any of the alternative measures proposed by Mexico are significantly less restrictive to trade than the phytosanitary requirements set forth in Resolutions DSFE-003-2018 and DSFE-002-2018.

²⁹⁸⁹ APEAM, Preliminary report of sampling survey of consignments (2020), (Exhibit MEX-223).

²⁹⁹⁰ Asociación de Productores, Empacadores y Exportadores de Aguacate de México, A.C. (APEAM), "Informe final de resultados del muestreo para detectar ASBVd en aguacates frescos para consumo destinados a la exportación", marzo de 2020 (APEAM, Final report of sampling survey of consignments (2020)), (Exhibit MEX-263).

²⁹⁹¹ APEAM, Final report of sampling survey of consignments (2020), (Exhibit MEX-263), pp. 3 and 9-10.

7.5.6.3 Whether any of the alternative measures proposed are reasonably available taking into account technical and economic feasibility

7.5.6.3.1 Whether the domestic regulation that prevents diversion from intended use is reasonably available taking into account technical and economic feasibility

7.1895. **Mexico** submits that the regulation that prevents diversion from intended use is reasonably available to Costa Rica.²⁹⁹²

7.1896. Mexico notes that an example of a phytosanitary measure reasonably available to Costa Rica, considering their technical and economic feasibility, is the adoption of a domestic regulation, applicable to both imported and domestic products, which prevents diversion from intended use of the seed of fresh avocados for consumption as a propagation method for new avocado plants. According to Mexico, Chile's Exempt Resolution No. 8182 meets all these requirements.²⁹⁹³

7.1897. Mexico indicates that Chile's measure seeks to prevent diversion from intended use of the seed of fresh avocados for consumption from places where ASBVd is present, through the regulation of the use for propagation purposes of avocado seeds, in accordance with ISPM No. 11, which constitutes proof of the existence of an alternative phytosanitary regulation to the measures adopted by Costa Rica.²⁹⁹⁴

7.1898. Mexico states that such a measure is reasonably available to Costa Rica because it is a measure previously adopted by another WTO Member with a similar level of development that has demonstrated that it is free of ASBVd on the basis of the relevant ISPMs, therefore it is not an alternative that is merely theoretical in nature. Mexico adds that the regulation of the use for propagation purposes of seeds of avocados imported for consumption was considered in Costa Rica's PRAs, from which it is clear that Costa Rica could have adopted this measure without its implementation being a disproportionate burden.²⁹⁹⁵

7.1899. Mexico adds that, after the preparation of Mexico's first written submission, Costa Rica decided to implement this very measure through Decree No. 41995-MAG, which prohibits the use for propagation purposes of seeds extracted from fresh avocado fruit imported for consumption from countries where ASBVd is present. According to Mexico, the implementation of this alternative measure is reasonably available to Costa Rica because the decree is already in force and is applied by the SFE. Mexico reiterates that this measure had already been recommended, although not evaluated, by Costa Rica in its PRAs.²⁹⁹⁶ Mexico states that, because Costa Rica has already implemented this measure, Mexico has satisfied the burden of demonstrating that its first alternative is reasonably available to Costa Rica.²⁹⁹⁷

7.1900. **Costa Rica** states that Mexico has failed to establish that the first alternative proposed, i.e. regulation to prevent diversion from intended use of the seed of fresh avocados for consumption as a propagation method for new plants, meets the requirements of Article 5.6 of the SPS Agreement.²⁹⁹⁸

7.1901. Costa Rica states that the burden of demonstrating that the first alternative measure meets all the requirements of Article 5.6 of the SPS Agreement falls upon Mexico, and Mexico has failed to submit any valid arguments with regard to the alternative measure being reasonably available taking into account technical and economic feasibility.²⁹⁹⁹

7.1902. Costa Rica considers that Mexico's argument that Chile has previously adopted this regulation is irrelevant, because the technical and economic feasibility of an alternative measure must be analysed based on Costa Rica's situation, and not from the perspective of Chile or any other

²⁹⁹² Mexico's second written submission, p. 58.

²⁹⁹³ Mexico's first written submission, para. 550.

²⁹⁹⁴ Mexico's first written submission, para. 551.

²⁹⁹⁵ Mexico's first written submission, para. 552.

²⁹⁹⁶ Mexico's second written submission, para. 251 (referring to Regulation governing the use of avocado seeds (2019), (Exhibits MEX-174 and CRI-53)).

²⁹⁹⁷ Mexico's second written submission, paras. 252-253.

²⁹⁹⁸ Costa Rica's first written submission, para. 5.226.

²⁹⁹⁹ Costa Rica's first written submission, para. 5.228.

WTO Member.³⁰⁰⁰ For Costa Rica, it is also irrelevant that the measure adopted by Chile is applied in accordance with ISPM No. 11, which concerns the PRA for quarantine pests.³⁰⁰¹

7.1903. With regard to the first alternative proposed by Mexico, consisting of the domestic regulation that prevents diversion from intended use, the **Panel** observes that Reports ARP-002-2017 and ARP-006-2016 by Costa Rica recommended regulating the use for propagation purposes of seeds of avocado imported for consumption.³⁰⁰² Moreover, Costa Rica issued the Regulation governing the use of avocado seeds (2019).³⁰⁰³

7.1904. In the Panel's view, the foregoing means that Costa Rica itself considers that the domestic regulation seeking to prevent diversion from intended use could be a measure reasonably available taking into account technical and economic feasibility, although the analysis of the measure is not reflected in Reports ARP-002-2017 and ARP-006-2016. Furthermore, the Panel observes that the panel in *Korea – Radionuclides* indicated that the respondent's existing use of a proposed alternative, even if in a different context, weighs in favour of a finding of feasibility.³⁰⁰⁴

7.1905. In light of the foregoing, the Panel finds that the first alternative proposed by Mexico, consisting of the domestic regulation that prevents diversion from intended use, is reasonably available to Costa Rica taking into account technical and economic feasibility.

7.5.6.3.2 Whether the ASBVd symptom-free certification of shipments is reasonably available taking into account technical and economic feasibility

7.1906. **Mexico** submits that the ASBVd symptom-free certification of shipments is reasonably available to Costa Rica.³⁰⁰⁵

7.1907. Mexico submits that, in May 2015, the head of SENASICA's Directorate General of Plant Health made an offer to the Executive Director of the SFE to add to the certification of consignments the declaration that they will be free of fruit with ASBVd symptoms and that shipment contains only certified consignments, and to deny this certification to those shipments that do not meet this precautionary measure. Mexico considers that any consignment containing fruit with visible sunblotch symptoms would be discarded or rejected as a result of the strengthening of Mexican inspection and phytosanitary certification systems.³⁰⁰⁶

7.1908. Given that it is not an alternative that imposes an undue or highly onerous burden, Mexico notes that this measure is reasonably available to Costa Rica because it does not require any action from Costa Rica, and the burden of certifying that the fresh avocado fruit are free of visible ASBVd symptoms would fall upon the Mexican authorities.³⁰⁰⁷

7.1909. Mexico adds that, because the safety requirements observed by packing facilities meet the highest standards, including manual selection to reject fruit with defects or symptoms, the symptom-free certification of shipments is an alternative reasonably available to Mexico. Mexico also states that, in light of the sampling carried out on the consignments that it exports, it is confirmed that the avocados from Mexico are not asymptomatic, which is an additional guarantee for Costa Rica.³⁰⁰⁸

7.1910. For its part, **Costa Rica** indicates that this alternative proposed by Mexico is a simple quality standard that Mexico already applies to its exports, and that it is ultimately the same as not having any phytosanitary measures.³⁰⁰⁹

³⁰⁰⁰ Costa Rica's first written submission, para. 5.229.

³⁰⁰¹ Costa Rica's first written submission, para. 5.230.

³⁰⁰² ARP-002-2017, (Exhibit MEX-84), p. 43; ARP-006-2016, (Exhibit MEX-85), p. 24.

³⁰⁰³ Regulation governing the use of avocado seeds (2019), (Exhibits MEX-174 and CRI-53).

³⁰⁰⁴ Panel Report, *Korea – Radionuclides*, para. 7.144 (citing Panel Reports, *India – Agricultural Products*, paras. 7.541-7.542; and *Japan – Apples (Article 21.5 – US)*, para. 8.187).

³⁰⁰⁵ Mexico's first written submission, para. 556; second written submission, p. 59.

³⁰⁰⁶ Mexico's first written submission, para. 554; second written submission, para. 255.

³⁰⁰⁷ Mexico's first written submission, para. 555.

³⁰⁰⁸ Mexico's second written submission, para. 255.

³⁰⁰⁹ Costa Rica's second written submission, para. 3.73.

7.1911. The **Panel** notes that both parties have referred to the quality control of avocados for export in Mexico³⁰¹⁰, and that the second alternative proposed by Mexico consists of the issuance of a certificate declaring that the shipment does not contain fruit with visible ASBVd symptoms following the process, already in place, of selecting fruit for export.

7.1912. The Panel notes that it is Mexico that is proposing as an alternative measure the certification of fresh fruit as free of visible ASBVd symptoms, and the burden of this measure would fall upon the Mexican authorities; and Costa Rica does not seem to specifically dispute the feasibility of the measure.

7.1913. In the Panel's view, the foregoing is sufficient to find that the second alternative proposed by Mexico, consisting of the symptom-free certification of shipments, is reasonably available to Costa Rica taking into account technical and economic feasibility.

7.5.6.4 Whether any of the alternative measures proposed by Mexico are significantly less restrictive to trade than Resolutions DSFE-003-2018 and DSFE-002-2018

7.5.6.4.1 Whether the regulation on diversion from intended use or ASBVd symptom-free certification are measures that are significantly less restrictive to trade than Resolutions DSFE-003-2018 and DSFE-002-2018

7.1914. **Mexico** states that the alternative consisting of domestic regulation on diversion from intended use is significantly less restrictive to trade than the measures found in Resolutions DSFE-002-2018 and DSFE-003-2018, because it does not imply an import restriction, nor does it impose an obligation on the export product and the exporting Member, but rather recognizes the responsibility of the importing country to ensure plant protection in its territory.³⁰¹¹

7.1915. Mexico submits that Costa Rica's measures constitute *de facto* import restrictions, as they establish extremely onerous requirements for Mexican producers with which it is technically impossible to comply.³⁰¹² Mexico asserts that:

- a. The first option established by the resolutions (phytosanitary certificate) constitutes a *de facto* ban, because the exporter cannot guarantee that all avocado fruit are free of ASBVd; and in order to guarantee that a consignment is completely free of ASBVd, individual laboratory tests are required to then be able to obtain an official phytosanitary certificate from SENASICA in accordance with Resolutions DSFE-002-2018 and DSFE-003-2018. In Mexico's view, this is extremely onerous for Mexican avocado producers, as it increases storage and logistical costs, as avocado producers must wait for the laboratory results to be ready in order to export these perishable products, and an individual laboratory test to detect ASBVd costs approximately USD 60. Mexico notes that this certification process discourages the export of fresh avocados, as sampling fresh fruits affects their export quality because of the incisions that must be made in the avocados for laboratory testing.³⁰¹³
- b. The second option (ASBVd-free place of production previously recognized by the SFE) also constitutes a *de facto* ban because: (i) declaring an area free of ASBVd takes several years and is a very costly process for producers, as it requires constant monitoring and specific laboratory tests over an extended period; and (ii) certifying ASBVd-free places of production is extremely costly for avocado producers. According to Mexico, this requires laboratory tests that prove a fruit tree is free of ASBVd, and this process is as costly as individual avocado tests, because each study costs approximately USD 60. Mexico points out that, in order to guarantee that an area is free of ASBVd, new plantations must be established to be able to obtain official certifications. Mexico adds that guaranteeing that the area is free of ASBVd would require constant monitoring through individual laboratory tests, or even satellite detection, which discourages exports as exporting and importing become more onerous. Satellite detection costs approximately USD 1,250 per 64km² of

³⁰¹⁰ Mexico's second written submission, para. 116; Costa Rica's second written submission, para. 3.73.

³⁰¹¹ Mexico's first written submission, para. 578.

³⁰¹² Mexico's first written submission, para. 579.

³⁰¹³ Mexico's first written submission, para. 579 (citing Affidavit of Manrique Loáiciga González (2019), (Exhibit MEX-95); and Factura del diagnóstico fitosanitario, (Exhibit MEX-143)).

planted land, in addition to extra staff and infrastructure costs for the analysis of the images.³⁰¹⁴

7.1916. Mexico submits that any other measure that is less costly for producers is significantly less restrictive to trade than a *de facto* restriction. Mexico notes that Exempt Resolution No. 8.182 adopted by Chile does not seek to impose import requirements, and while the ASBVd symptom-free certification of shipments is a more burdensome alternative than Exempt Resolution No. 8.182, it is still less restrictive than phytosanitary certificates declaring that the fruit is completely free of ASBVd.³⁰¹⁵

7.1917. Mexico points out that, without the phytosanitary certificates imposed by Costa Rica, imports of fresh avocados from Mexico to Costa Rica were greater. Mexico asserts that complying with any of the options established by Costa Rica in its resolutions requires laboratory tests that are disproportionately expensive compared to the risk associated with the entry, establishment and spread of ASBVd through the trade in fresh avocados for consumption, therefore replacing the requirements with either of the two alternatives proposed by Mexico would be less restrictive to trade.³⁰¹⁶

7.1918. **Costa Rica** submits that Mexico has failed to establish that the first alternative measure is significantly less restrictive to trade than the phytosanitary measure challenged.³⁰¹⁷

7.1919. Costa Rica asserts that Mexico never explains why the challenged measures constitute import restrictions, and instead argues that Costa Rica's requirements are *de facto* bans. According to Costa Rica, Mexico appears to misunderstand the concept of a trade "restriction", and the imposition of import requirements, even more so when linked to the protection of plant health, does not necessarily result in a restriction. Costa Rica submits that Mexico has failed to demonstrate that the phytosanitary requirements imposed by Costa Rica restrict imports. For Costa Rica, these are formalities allowed under Article VIII of the GATT 1994 and cannot be assumed *a priori* to impose restrictions. Costa Rica notes that the mere fact that the first alternative measure does not impose import requirements, whereas the challenged phytosanitary measures do, is not sufficient to prove that this alternative is significantly less restrictive to trade than the challenged phytosanitary measures.³⁰¹⁸

7.1920. Costa Rica also submits that, even assuming that its phytosanitary requirements involve some restriction, it is the least possible restriction. According to Costa Rica, its phytosanitary measure offers the exporting country all the flexibility to choose the method it deems most appropriate to ensure that the exported avocado fruit are free of ASBVd. Costa Rica notes that any of its three alternatives is acceptable, and all meet its ALOP to prevent as much as possible the entry of ASBVd, in order to maintain the country's phytosanitary status as free of ASBVd. Costa Rica adds that it adopted alternative requirements in order to minimize negative trade effects, pursuant to Article 5.4 of the SPS Agreement. Costa Rica states that, if a bilateral system approach has not been agreed or if it is inconvenient to certify pest free places of production, shipments can be certified as free of ASBVd.³⁰¹⁹

7.1921. Costa Rica contends that Mexico's arguments that Costa Rica's phytosanitary requirements are impossible to comply with and are *de facto* bans have no possible merit. According to Costa Rica, its market is entirely open to imports of fresh avocados for consumption, and all that is asked is that those imports arrive free of ASBVd. Costa Rica submits that its phytosanitary measure, far from being the insurmountable barrier that Mexico suggests, can be met normally if the will to export is there.³⁰²⁰

7.1922. Costa Rica further submits that, if it were in fact impossible to comply with Costa Rica's requirements, no avocados would be imported into Costa Rica from countries where ASBVd is

³⁰¹⁴ Mexico's first written submission, para. 580.

³⁰¹⁵ Mexico's first written submission, para. 581.

³⁰¹⁶ Mexico's second written submission, para. 270.

³⁰¹⁷ Costa Rica's first written submission, para. 5.238.

³⁰¹⁸ Costa Rica's first written submission, para. 5.239.

³⁰¹⁹ Costa Rica's second written submission, para. 3.65. See also Costa Rica's response to Panel question No. 84, para. 2; response to Panel question No. 87, para. 2.

³⁰²⁰ Costa Rica's second written submission, para. 3.64.

present, which is not the case, given that Costa Rica imports avocados from Peru, Guatemala and the United States, countries where ASBVd is present. Costa Rica adds that Mexico only refers to two of the three alternatives provided for in Resolutions DSFE-002-2018 and DSFE-003-2018, and the flexibility of Costa Rica's phytosanitary measures lies in the fact that there is a choice between three options. Costa Rica states that Mexico fails to put forward any argument to explain why the first alternative measure is significantly less restrictive to trade than complying, for example, with a bilaterally-established systems approach programme.³⁰²¹

7.1923. With respect to Mexico's argument that the option of submitting a phytosanitary certificate that the avocado fruit are free of ASBVd constitutes a *de facto* import ban, Costa Rica notes the following:

- a. Nothing in Resolutions DSFE-002-2018 and DSFE-003-2018 requires Mexico to carry out individual laboratory tests, nor do they impose specific ways to comply with the alternative phytosanitary requirements set forth therein. According to Costa Rica, each exporting country determines the most appropriate manner in which to proceed with sanitary or phytosanitary certifications, and each importing country, regardless of the cooperation and mutual trust between NPPOs, has the right to verify the entry of goods. Costa Rica points out that nothing prevents Mexico from dispensing with the ASBVd-free certification of shipments and choosing to certify ASBVd-free places of production. Costa Rica adds that Mexico asserts that laboratory tests for ASBVd are expensive, and the only evidence it submits in support of this argument is Exhibit MEX-143, which should correspond to a ASBVd molecular detection invoice from the *Colegio de Postgraduados*, but it makes no reference to a molecular diagnostic test or to ASBVd and, therefore, has no probative value.³⁰²²
- b. Despite the alleged *de facto* ban, Mexico sent to Costa Rica a consignment of fresh avocados for consumption certified as free of ASBVd in 2018, which, in Costa Rica's view, shows that Mexico is in a position to comply with the phytosanitary requirement, if it so wishes.³⁰²³

7.1924. Costa Rica asserts that requesting that a shipment arrive free from a quarantine pest is the minimum requirement that an importing country may ask of the exporting counterpart, which is what is suggested by ISPM No. 12 on phytosanitary certificates.³⁰²⁴

7.1925. Costa Rica adds that Mexico itself maintains phytosanitary measures of this type for potatoes, and presumably does not consider them to constitute a ban or unnecessary restrictions, as Mexico requires certification that shipments of potatoes for consumption are free of certain quarantine pests. According to Costa Rica, this is the measure that Mexico imposes with respect to low-risk quarantine pests, which confirms that it is a requirement that Mexico itself considers to be minimal, including in lower risk situations.³⁰²⁵

7.1926. With respect to Mexico's argument that the option of exporting avocado fruit from ASBVd-free places of production also constitutes a *de facto* ban, Costa Rica notes that:

³⁰²¹ Costa Rica's first written submission, para. 5.240; second written submission, para. 3.64.

³⁰²² Costa Rica's first written submission, para. 5.241.

³⁰²³ Costa Rica's first written submission, para. 5.242 (citing Servicio Nacional de Sanidad, Inocuidad y Calidad Agroalimentaria (SENASICA), Certificado fitosanitario internacional No. 2484576 relativo a la exportación de aguacate fresco variedad Hass de México a Costa Rica, 23 de abril de 2018, (Exhibit CRI-38)); second written submission, para. 3.64. Costa Rica asserts that it was Mexico itself who, a few months before submitting its panel request in this dispute, requested that the aforementioned consignment of avocados be rejected by Costa Rica because the certificate signatory was not duly authorized by the Mexican NPPO. (Costa Rica's first written submission, fn 595 (citing Servicio Nacional de Sanidad, Inocuidad y Calidad Agroalimentaria (SENASICA), Oficio B.00.01.01.-04461/2018, 7 de mayo de 2018, (Exhibit CRI-39))).

³⁰²⁴ Costa Rica's second written submission, para. 3.66.

³⁰²⁵ Costa Rica's second written submission, para. 3.67 (citing Requisitos de México para plagas cuarentenarias de riesgo bajo, (Exhibit CRI-107)).

- a. Regarding the argument that laboratory testing is "costly", the only exhibit submitted by Mexico in that respect, Exhibit MEX-143, has no probative value, as it does not specify the type of diagnostic test, nor does it make reference to ASBVd.³⁰²⁶
- b. Mexico's argument that the option of certifying ASBVd-free places of production also constitutes a *de facto* ban appears to arise from its confusion between "areas" and "places of production" free of ASBVd. Costa Rica asserts that Resolutions DSFE-003-2018 and DSFE-002-2018 refer to ASBVd-free places of production and not to ASBVd-free areas.³⁰²⁷ Costa Rica notes that: (i) the requirements for the establishment of pest free places of production are set out in ISPM No. 10; and the requirements for the establishment of pest free places of production in ISPM No. 4; (ii) a pest free area is much larger and includes many places of production, which implies greater demand for NPPO resources in order to establish, maintain and recognize it; and, conversely, a pest free place of production is easier to establish, given that it may be a farm where management systems are in place that allow it to be kept pest free; (iii) if the pest is found in a pest free area, the status of the whole area is called into question and considerable effort and resources are needed to restore its pest free status; and, conversely, if the pest is found in a pest free place of production, that place loses its status but other places that operate under the same system are not directly affected.³⁰²⁸ Costa Rica contends that, because Mexico's arguments focus on ASBVd-free areas, Mexico has failed to establish that the first alternative measure is significantly less restrictive to trade than complying with the requirement to present a phytosanitary certificate that the avocado fruit come from ASBVd-free places of production.³⁰²⁹

7.1927. Costa Rica further contends that Mexico has failed to establish that its second alternative measure is significantly less restrictive to trade than the optional phytosanitary requirements provided for in Resolutions DSFE-002-2018 and DSFE-003-2018; and fails to explain why symptom-free certification would be significantly less restrictive than certifying that avocado fruit come from ASBVd-free places of production or complying with a bilaterally-established systems approach.³⁰³⁰

7.1928. The **Panel** notes that according to the third criterion in footnote 3 to Article 5.6, the complainant must demonstrate that the proposed alternative measure is "significantly" less restrictive to trade than the challenged measure.

7.1929. The *Diccionario de la lengua española* of the Real Academia Española defines "*significativo*" ("significant") as something "*que tiene importancia por representar o significar algo*" ("that is important because it represents or means something").³⁰³¹ As mentioned, the panel in *Korea – Radionuclides* noted that the Appellate Body had understood "significance" in the context of the SCM Agreement to connote something that can be characterized as "important, notable or consequential".³⁰³² This Panel will be guided by these interpretations in its analysis of whether the regulation on diversion from intended use and ASBVd symptom-free certification are significantly less restrictive to trade than the phytosanitary requirements for ASBVd set forth in Resolutions DSFE-003-2018 and DSFE-002-2018.

7.1930. While both parties set out detailed arguments about the cost and level of restriction of Costa Rica's phytosanitary requirements for ASBVd, the Panel does not consider it necessary to address these specific arguments in order to determine whether the degree of restrictiveness of the alternative measures proposed by Mexico is *significantly* less compared to that of the phytosanitary requirements.

7.1931. The Panel notes that, in order to comply with Costa Rica's phytosanitary requirements set forth in Resolutions DSFE-003-2018 and DSFE-002-2018, it is necessary to comply with either one

³⁰²⁶ Costa Rica's first written submission, para. 5.243.

³⁰²⁷ Costa Rica's first written submission, para. 5.243.

³⁰²⁸ Costa Rica's first written submission, para. 5.244.

³⁰²⁹ Costa Rica's first written submission, para. 5.245.

³⁰³⁰ Costa Rica's first written submission, para. 5.250.

³⁰³¹ *Diccionario de la lengua española*, Real Academia Española, accessed 30 November 2021, <https://dle.rae.es/significativo>.

³⁰³² Panel Report, *Korea – Radionuclides*, para. 7.153 (citing Appellate Body Report, *US – Upland Cotton*, para. 426).

of two certificates, or a systems approach³⁰³³, which requires an effort by the exporting country to ensure that its avocado fruit for export to Costa Rica are free of ASBVd, which in turn would require adjustments to avocado production and marketing. This undoubtedly affects trade.

7.1932. The Panel notes, in contrast, that the first alternative measure proposed by Mexico, consisting of domestic regulation that prevents diversion from intended use, is a measure of general application in Costa Rica that prohibits the use for propagation purposes of seeds extracted from fresh fruit imported for consumption. As such, and as Mexico points out, this measure does not imply an import restriction. Therefore, the Panel considers that domestic regulation that prevents diversion from intended use is a measure that can be described as significantly or considerably less restrictive to trade, compared to the restrictiveness of Costa Rica's phytosanitary requirements, even when taking into account the possibility to choose the requirement with which to comply.

7.1933. With regard to the second alternative measure proposed by Mexico, consisting of ASBVd symptom-free certification of shipments, the Panel recalls that this is a certification following quality control whereby fruit with ASBVd symptoms would be removed. The Panel considers that, given that this is a visual and routine check that does not involve laboratory or other tests, ASBVd symptom-free certification of shipments is a measure whose trade restrictiveness can be described as significantly or considerably less, compared to the restrictiveness of Costa Rica's phytosanitary requirements, even when taking into account the possibility to choose the requirement with which to comply.

7.1934. In light of the foregoing, the Panel finds that both of the alternative measures proposed by Mexico, domestic regulation that prevents diversion from intended use and ASBVd symptom-free certification of shipments, are significantly less restrictive to trade than the phytosanitary requirements set forth in Resolutions DSFE-003-2018 and DSFE-002-2018.

7.5.7 Overall conclusion of this section

7.1935. The Panel has concluded that Mexico has failed to demonstrate that the first alternative measure, consisting of domestic regulation that prevents the diversion from intended use, or the second alternative measure, consisting of ASBVd symptom-free certification of shipments, achieve, by themselves, the ALOP set by Costa Rica.

7.1936. In order to be exhaustive in its analysis, the Panel has also found that both of the alternative measures proposed by Mexico, domestic regulation that prevents diversion from intended use and ASBVd symptom-free certification of shipments, are reasonably available to Costa Rica taking into account technical and economic feasibility, and are significantly less restrictive to trade than the phytosanitary requirements set forth in Resolutions DSFE-003-2018 and DSFE-002-2018.

7.1937. Because the three criteria in the footnote to Article 5.6 of the SPS Agreement are cumulative, the Panel's conclusion that Mexico has failed to meet one of these criteria is sufficient to conclude that Mexico has failed to demonstrate that there is an alternative measure that is reasonably available taking into account technical and economic feasibility, that achieves Costa Rica's ALOP and is significantly less restrictive to trade.

7.1938. Since neither of the two alternative measures proposed by Mexico achieves Costa Rica's ALOP, the Panel concludes that Mexico has failed to demonstrate that Costa Rica's phytosanitary measures, i.e. Resolutions DSFE-002-2018 and DSFE-003-2018, which contain the phytosanitary requirements, are more trade-restrictive than required to achieve its appropriate level of phytosanitary protection, taking into account technical and economic feasibility. The Panel therefore

³⁰³³ With respect to the systems approach, Costa Rica itself notes that this alternative consists of integrating phytosanitary measures applied from before the crop is planted (including packing facilities, transport and exit points) until the entry point and post-entry. Costa Rica also notes that the system approach programme requires two independent measures with a cumulative effect, agreed between the exporting country and Costa Rica in order to fulfil Costa Rica's ALOP. (Costa Rica's response to Panel question No. 53). This would imply adjustments to the production and marketing of avocados, as well as efforts by the exporting country to implement an independent measure which Costa Rica itself accepts that, together with the other independent measure, achieves its "maximum" ALOP. Costa Rica indicates that this would not be achieved with the alternative measures proposed by Mexico.

concludes that Mexico has failed to demonstrate that Costa Rica has acted inconsistently with Article 5.6 of the SPS Agreement.³⁰³⁴

7.6 Mexico's claims with respect to the obligations pertaining to arbitrary or unjustifiable discrimination or disguised trade restrictions

7.6.1 General introduction

7.1939. Mexico claims that Costa Rica has adopted arbitrary and unjustifiable levels of protection, in a manner inconsistent with Article 5.5 of the SPS Agreement.³⁰³⁵

7.1940. Mexico contends that Costa Rica adopted different levels of phytosanitary protection in at least three different but comparable situations:

- a. Fresh avocados imported for consumption from countries where ASBVd is present *vis-à-vis* domestic Costa Rican avocados in which ASBVd is likely to be present.³⁰³⁶
- b. Fresh avocados imported from Mexico *vis-à-vis* avocados imported from certificate-issuing countries where ASBVd is present.³⁰³⁷
- c. Fresh avocados imported for consumption in which ASBVd is present *vis-à-vis* avocado plants for planting.³⁰³⁸

7.1941. Costa Rica states that Mexico's claims are unfounded, because, as the situations are not comparable, there is no discrimination.³⁰³⁹

7.1942. Costa Rica asserts that Mexico's claim under Articles 5.5 and 2.3 of the SPS Agreement is based entirely on the premise that ASBVd is present in Costa Rica, a premise that Costa Rica considers to be factually incorrect. In Costa Rica's view, the situations in Mexico and in Costa Rica are not comparable, as ASBVd is present in Mexico and it is not in Costa Rica, and that is why it is not required to extend the same treatment to different situations.³⁰⁴⁰

7.1943. The Panel will examine below whether Mexico has demonstrated that Costa Rica has acted inconsistently with Article 5.5 of the SPS Agreement. To that end, the Panel will examine whether there are arbitrary or unjustifiable distinctions in the levels of protection that Costa Rica considers appropriate in different situations. If it determines that such distinctions exist, the Panel will examine whether these distinctions result in discrimination or a disguised restriction on international trade.

7.1944. The Panel will then analyse whether Mexico has demonstrated that Costa Rica has acted inconsistently with Article 2.3 of the SPS Agreement, because its SPS measures arbitrarily or unjustifiably discriminate between Members where identical or similar conditions prevail, including between its own territory or that of other Members, or are applied in a manner which would constitute a disguised restriction on international trade.

7.1945. To that end, the Panel will set forth the relevant legal provisions and the legal standard, and will subsequently conduct the necessary analysis, first in respect of Article 5.5 and then in respect of Article 2.3.

³⁰³⁴ Mexico considers that a finding of a violation of Article 5.6 would result in a finding of a consequential violation of Article 2.2 of the SPS Agreement. (Mexico's response to Panel question No. 98, para. 112). However, the Panel concluded that Mexico has failed to demonstrate that Costa Rica's measures are inconsistent with Article 5.6 of the SPS Agreement.

³⁰³⁵ Mexico's first written submission, p. 132.

³⁰³⁶ Mexico's second written submission, para. 216.

³⁰³⁷ Mexico's second written submission, para. 217.

³⁰³⁸ Mexico's second written submission, para. 218.

³⁰³⁹ Costa Rica's first written submission, para. 5.197.

³⁰⁴⁰ Costa Rica's first written submission, para. 5.206; second written submission, paras. 3.75 and 3.83.

7.6.2 The relevant legal provisions

7.1946. Article 5.5 of the SPS Agreement stipulates, in relevant part, as follows:

With the objective of achieving consistency in the application of the concept of appropriate level of sanitary or phytosanitary protection against risks to human life or health, or to animal and plant life or health, each Member shall avoid arbitrary or unjustifiable distinctions in the levels it considers to be appropriate in different situations, if such distinctions result in discrimination or a disguised restriction on international trade.

7.1947. Article 2.3 stipulates that:

Members shall ensure that their sanitary and phytosanitary measures do not arbitrarily or unjustifiably discriminate between Members where identical or similar conditions prevail, including between their own territory and that of other Members. Sanitary and phytosanitary measures shall not be applied in a manner which would constitute a disguised restriction on international trade.

7.6.3 Legal standard under Article 5.5 of the SPS Agreement

7.1948. In this section, the Panel will explain how other panels and the Appellate Body have interpreted Article 5.5 of the SPS Agreement. The Panel will be guided by these interpretations to the extent that they are relevant to its analysis.

7.1949. The preamble to the SPS Agreement reaffirms the right of Members to adopt and enforce SPS measures, "subject to the requirement that these measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between Members where the same conditions prevail or a disguised restriction on international trade". Articles 2.3 and 5.5 of the SPS Agreement express what is reflected in the preamble.

7.1950. Article 5.5 of the SPS Agreement requires Members to avoid arbitrary or unjustifiable distinctions in their ALOPs in different situations, if such distinctions result in discrimination or a disguised restriction on international trade.

7.1951. The Appellate Body in *EC – Hormones* stated that the objective of Article 5.5 of the SPS Agreement is to achieve consistency in the application of the concept of appropriate level of sanitary or phytosanitary protection, which is a goal to be achieved in the future, and that the statement of that goal does not establish a legal obligation of consistency of appropriate levels of protection.³⁰⁴¹ The Appellate Body clarified that the goal set is not absolute or perfect consistency, rather it is only arbitrary or unjustifiable inconsistencies that are to be avoided.³⁰⁴²

7.1952. The panel in *US – Poultry (China)* explained that Article 5.5. embodies a non-discrimination principle in respect of the application of the appropriate level of sanitary or phytosanitary protection.³⁰⁴³ The same panel noted that the analysis under Article 5.5 is with respect to determining whether the Member is applying different ALOPs to the same risk.³⁰⁴⁴

7.1953. The Appellate Body in *EC – Hormones* established the three elements the presence of which must be shown for there to be a violation of Article 5.5: (i) that the Member imposing the measure complained of has adopted its own appropriate levels of protection in several different situations; (ii) that those levels of protection exhibit arbitrary or unjustifiable differences ("distinctions" in the language of Article 5.5) in their treatment of different situations; and (iii) that the arbitrary or unjustifiable differences result in discrimination or a disguised restriction of international trade.³⁰⁴⁵ According to the Appellate Body, these elements are cumulative in nature.³⁰⁴⁶ However, the

³⁰⁴¹ Appellate Body Report, *EC – Hormones*, para. 213.

³⁰⁴² Appellate Body Report, *EC – Hormones*, para. 213.

³⁰⁴³ Panel Report, *US – Poultry (China)*, para. 7.218.

³⁰⁴⁴ Panel Report, *US – Poultry (China)*, para. 7.333.

³⁰⁴⁵ Appellate Body Report, *EC – Hormones*, para. 214.

³⁰⁴⁶ Appellate Body Report, *EC – Hormones*, para. 215.

Appellate Body noted that all three elements of Article 5.5 need to be distinguished and addressed separately.³⁰⁴⁷

7.1954. The first element implies that a Member has established different levels of protection which it regards as appropriate for itself in differing situations.³⁰⁴⁸ The panel in *US – Poultry (China)* was of the view that this element appears to have two, closely related aspects: (i) the existence of different situations; and (ii) the existence of different ALOPs in such situations.³⁰⁴⁹

7.1955. With respect to the first aspect of the first element, the Appellate Body in *EC – Hormones* noted that the situations exhibiting differing levels of protection cannot be compared unless they are comparable, that is, unless they present some common element or elements sufficient to render them comparable.³⁰⁵⁰ The Appellate Body considered that situations which are "totally different from one another" would not be "rationally comparable".³⁰⁵¹

7.1956. For example, in *EC – Hormones*, the panel considered that, for the purposes of that dispute, "different" but comparable situations in the sense of Article 5.5 were those where the same substance or the same adverse health effect was involved.³⁰⁵² The panel in *US – Poultry (China)* concluded that the importation of Chinese poultry products was a different yet comparable situation to that of poultry products from other WTO Members.³⁰⁵³

7.1957. The Appellate Body in *Australia – Salmon* noted that situations which involve a risk of entry, establishment or spread of the same or a similar disease have some common elements sufficient to render them comparable under Article 5.5. Likewise, situations with a risk of the same or similar associated potential biological and economic consequences also have some common elements sufficient to render them comparable under Article 5.5.³⁰⁵⁴ Therefore, the Appellate Body concurred with the panel in that dispute that the situations can be compared under Article 5.5 if these situations involve either a risk of entry, establishment or spread of the same or a similar disease, or a risk of the same or similar associated potential biological and economic consequences.³⁰⁵⁵ The WTO Committee on Sanitary and Phytosanitary Measures affirmed this in its Guidelines to Further the Practical Implementation of Article 5.5.³⁰⁵⁶

7.1958. With regard to the second aspect of the first element of Article 5.5, according to the panel in *US – Poultry (China)*, this refers to the existence of different ALOPs being applied in different but comparable situations.³⁰⁵⁷ With regard to the distinction in the appropriate levels of protection, in *EC – Hormones*, the Appellate Body pointed out that "[c]learly, comparison of several levels of sanitary protection deemed appropriate by a Member is necessary" if a panel's inquiry under Article 5.5. is to proceed at all.³⁰⁵⁸

7.1959. The panel in *Australia – Salmon* noted that to have a specific level of protection, there was no need to first complete a risk assessment, in the sense that a risk analysis was not required for the other products compared under Article 5.5.³⁰⁵⁹ The same panel considered that its task was to compare for different situations the related levels of protection as they were considered to be

³⁰⁴⁷ Appellate Body Report, *EC – Hormones*, para. 238. See also Panel Report, *US – Poultry (China)*, para. 7.222.

³⁰⁴⁸ Appellate Body Report, *EC – Hormones*, para. 216.

³⁰⁴⁹ Panel Report, *US – Poultry (China)*, para. 7.225.

³⁰⁵⁰ Appellate Body Report, *EC – Hormones*, para. 217.

³⁰⁵¹ Appellate Body Report, *EC – Hormones*, para. 217. (emphasis original) See also Panel Report, *US – Poultry (China)*, para. 7.226.

³⁰⁵² Panel Reports, *EC – Hormones (United States)*, para. 8.176; and *EC – Hormones (Canada)*, para. 8.179.

³⁰⁵³ Panel Report, *US – Poultry (China)*, para. 7.237.

³⁰⁵⁴ Appellate Body Report, *Australia – Salmon*, para. 146.

³⁰⁵⁵ Appellate Body Report, *Australia – Salmon*, para. 146.

³⁰⁵⁶ Comité de Medidas Sanitarias y Fitosanitarias, Directrices para fomentar la aplicación práctica del párrafo 5 del artículo 5 del Acuerdo MSF, G/SPS/15 (18 de julio de 2000) (G/SPS/15), (Exhibit MEX-163), para. A.2, p. 3. The Panel notes that Article 5.5 states that "Members shall cooperate in the Committee ... to develop guidelines to further the practical implementation" of this provision.

³⁰⁵⁷ Panel Report, *US – Poultry (China)*, para. 7.238.

³⁰⁵⁸ Appellate Body Report, *EC – Hormones*, para. 217. (emphasis original) See also Panel Report, *US – Poultry (China)*, para. 7.239.

³⁰⁵⁹ Panel Report, *Australia – Salmon*, para. 8.125.

appropriate at the time by the respondent, and this whether or not the sanitary measures enacted to achieve that level were based on a risk assessment.³⁰⁶⁰

7.1960. The panel in *Australia – Apples* noted that the dispute had specific circumstances in that the complainant contested alleged differences in the level of protection achieved in practice by the measures applied in comparable situations, despite the stated ALOP. For this reason, the panel refrained from analysing the first element of Article 5.5 and proceeded with the second element.³⁰⁶¹ The panel explained that if its analysis under the second element showed that there were arbitrary or unjustifiable distinctions in the *de facto* ALOP, there would be distinctions in the ALOPs achieved by the measures applied by the respondent in the comparable situations.³⁰⁶² Alternatively, if the complainant had failed to demonstrate the second element, there would be no need to complete the analysis of the first element.³⁰⁶³

7.1961. The second element of Article 5.5 refers to the existence of arbitrary or unjustifiable differences in the treatment of the different but comparable situations.³⁰⁶⁴

7.1962. In its analysis of the second element of Article 5.5, the panel in *US – Poultry (China)* referred to the ordinary meaning in English of the terms "arbitrary", defined as "based on mere opinion or preference as opp. to the real nature of things, capricious, unpredictable, inconsistent", and "unjustifiable", defined as "not justifiable, indefensible", with "justifiable" meaning "[c]apable of being legally or morally justified, or shown to be just, righteous, or innocent; defensible" and "[c]apable of being maintained, defended, or made good".³⁰⁶⁵

7.1963. In addition, the same panel was guided by the interpretation based on the ordinary meaning of "arbitrary or unjustifiable" from the *chapeau* of Article XX of the GATT 1994, which the Appellate Body had considered relevant when interpreting the same phrase in Article 2.3 of the SPS Agreement. The panel considered that it must focus "on the justification for the distinction and whether that justification bears a rational relationship to the objective of the measures".³⁰⁶⁶

7.1964. The panel in *Australia – Salmon* pointed out that the distinction in the levels of protection that effectively banned the import of certain salmon products but allowed the import of other fish products might be expected to have some justification, such as a higher risk related to imports of the salmon products concerned, or, if not, these distinctions could be considered to be "arbitrary or unjustifiable" in the sense of the second element of Article 5.5.³⁰⁶⁷

7.1965. The panel in *US – Poultry (China)* noted that, given that the SPS measures must necessarily be based on scientific principles and not maintained without sufficient scientific evidence, the scientific support, or lack thereof, for the difference between the ALOPs the measures seek to achieve should have a bearing on an analysis of whether such a difference is arbitrary or unjustifiable.³⁰⁶⁸

7.1966. The Appellate Body in *EC – Hormones* noted that the presence of the second element of analysis – the arbitrary or unjustifiable character of differences in levels of protection considered by a Member as appropriate in differing situations – may in practical effect operate as a warning signal that the implementing measure in its application might be a discriminatory measure or might be a restriction on international trade disguised as an SPS measure. Nevertheless, according to the Appellate Body, the measure itself needs to be examined and appraised and, in the context of the differing levels of protection, shown to result in discrimination or a disguised restriction on international trade.³⁰⁶⁹

³⁰⁶⁰ Panel Report, *Australia – Salmon*, para. 8.126.

³⁰⁶¹ Panel Report, *Australia – Apples*, para. 7.985.

³⁰⁶² Panel Report, *Australia – Apples*, para. 7.987.

³⁰⁶³ Panel Report, *Australia – Apples*, para. 7.987.

³⁰⁶⁴ Appellate Body Report, *EC – Hormones*, para. 214. See also Panel Report, *US – Poultry (China)*, para. 7.255.

³⁰⁶⁵ Panel Report, *US – Poultry (China)*, para. 7.259.

³⁰⁶⁶ Panel Report, *US – Poultry (China)*, paras. 7.260-7.262.

³⁰⁶⁷ Panel Report, *Australia – Salmon*, para. 8.133. See also Panel Report, *US – Poultry (China)*, paras. 7.262-7.263.

³⁰⁶⁸ Panel Report, *US – Poultry (China)*, para. 7.263.

³⁰⁶⁹ Appellate Body Report, *EC – Hormones*, para. 215.

7.1967. The third element requires that the arbitrary or unjustifiable differences result in discrimination or a disguised restriction on international trade.³⁰⁷⁰

7.1968. The Appellate Body in *EC – Hormones* understood this last element to be referring to the measure embodying or implementing a particular level of protection as resulting, in its application, in discrimination or a disguised restriction on international trade.³⁰⁷¹

7.1969. Similarly, according to the Appellate Body in *EC – Hormones*, the degree of difference, or the extent of the discrepancy, in the levels of protection, is only one kind of factor which, along with others, may cumulatively lead to the conclusion that discrimination or a disguised restriction on international trade in fact results from the application of a measure or measures embodying one or more of those different levels of protection.³⁰⁷² The Appellate Body pointed out that the difference in levels of protection that is characterizable as arbitrary or unjustifiable is only an element of indirect proof that a Member may actually be applying an SPS measure in a manner that discriminates between Members or constitutes a disguised restriction on international trade.³⁰⁷³

7.1970. The Appellate Body added that, in order to determine whether arbitrary or unjustifiable differences or distinctions in levels of protection established by a Member do in fact result in discrimination or a disguised restriction on international trade, a panel must analyse the circumstances of each individual case.³⁰⁷⁴

7.1971. In *Australia – Salmon*, the panel identified three "warning signals" that the measure may constitute a disguised restriction on international trade, as well as three "factors more substantial in nature" ("additional factors") that are derived from the architecture and structure of the measures at issue in that dispute. On the basis of those signals and factors, "considered cumulatively", the panel found that the respondent had violated Article 5.5 of the SPS Agreement.³⁰⁷⁵

7.1972. The Appellate Body upheld the findings of the panel with regard to the three "warning signals".³⁰⁷⁶ The three signals identified were:

- a. The arbitrary or unjustifiable character of differences in levels of protection³⁰⁷⁷;
- b. The rather substantial difference in levels of protection³⁰⁷⁸; and
- c. The inconsistency of the SPS measure at issue with Articles 5.1 and 2.2 of the SPS Agreement.³⁰⁷⁹

7.1973. The Appellate Body was in agreement with the second warning signal, noting that, in that dispute, the degree of difference in the levels of protection (prohibition versus tolerance) was indeed "rather substantial".³⁰⁸⁰ With respect to the third warning signal, the Appellate Body noted that a finding that an SPS measure is not based on an assessment of the risks to human, animal or plant life or health – either because there was no risk assessment at all or because there is an insufficient risk assessment – is a strong indication that this measure is not really concerned with the protection of human, animal or plant life or health but is instead a trade-restrictive measure taken in the guise of an SPS measure, i.e. a disguised restriction on international trade.³⁰⁸¹

³⁰⁷⁰ Appellate Body Report, *EC – Hormones*, para. 214.

³⁰⁷¹ Appellate Body Report, *EC – Hormones*, para. 214.

³⁰⁷² Appellate Body Report, *EC – Hormones*, para. 240.

³⁰⁷³ Appellate Body Report, *EC – Hormones*, para. 240.

³⁰⁷⁴ Appellate Body Report, *EC – Hormones*, para. 240.

³⁰⁷⁵ Panel Report, *Australia – Salmon*, para. 8.159. See also Panel Report, *US – Poultry (China)*, para. 7.277.

³⁰⁷⁶ Appellate Body Report, *Australia – Salmon*, paras. 177-178.

³⁰⁷⁷ Appellate Body Report, *Australia – Salmon*, para. 161 (citing Panel Report, *Australia – Salmon*, para. 8.149).

³⁰⁷⁸ Appellate Body Report, *Australia – Salmon*, para. 163 (citing Panel Report, *Australia – Salmon*, para. 8.150).

³⁰⁷⁹ Appellate Body Report, *Australia – Salmon*, para. 165 (citing Panel Report, *Australia – Salmon*, para. 8.151).

³⁰⁸⁰ Appellate Body Report, *Australia – Salmon*, para. 164.

³⁰⁸¹ Appellate Body Report, *Australia – Salmon*, para. 166.

7.1974. The Appellate Body in *Australia – Salmon* also upheld the panel's findings on two of the three "additional factors".³⁰⁸² Those two factors were: (i) "the substantial, but unexplained change" in conclusion between the 1995 Draft Report (which recommended allowing the importation of ocean-caught Pacific salmon under certain conditions) and the 1996 Final Report (which recommended continuing the import prohibition)³⁰⁸³; and (ii) the absence of controls on the internal movement of salmon products within Australia compared to the prohibition of the importation of ocean-caught Pacific salmon.³⁰⁸⁴

7.1975. The panel in *US – Poultry (China)* was of the opinion that the presence of all three warning signals would not necessarily support a conclusion that the measure results in discrimination or a disguised restriction on trade.³⁰⁸⁵ That panel found that the three warning signals and two additional factors arising from the review of the measure at issue were present, and added that the concept of "discrimination" referred "to results of the unjustified imposition of differentially disadvantageous treatment"³⁰⁸⁶, and that, therefore, a determination that discrimination exists would still rest on whether the different treatment applied was justified.³⁰⁸⁷

7.6.4 The Panel's analysis

7.6.4.1 Introduction

7.1976. As mentioned, the Appellate Body in *EC – Hormones* established that the presence of the following three elements must be shown for there to be a violation of Article 5.5 of the SPS Agreement: (i) that the Member imposing the measure complained of has adopted its own appropriate levels of protection in several different situations; (ii) that those levels of protection exhibit arbitrary or unjustifiable differences ("distinctions" in the language of Article 5.5) in their treatment of different situations; and (iii) that the arbitrary or unjustifiable differences result in discrimination or a disguised restriction on international trade.³⁰⁸⁸ The Appellate Body noted that these elements are cumulative in nature³⁰⁸⁹, but that all three elements of Article 5.5 need to be distinguished and addressed separately.³⁰⁹⁰

7.1977. In light of the above, this Panel deems it appropriate to consider these elements, as has been done by previous panels.

7.1978. Mexico submits that Costa Rica adopted different levels of phytosanitary protection in at least three different but comparable situations:

- a. Fresh avocados imported for consumption from countries where ASBVd is present *vis-à-vis* domestic Costa Rican avocados in which ASBVd is likely to be present.³⁰⁹¹
- b. Fresh avocados imported from Mexico *vis-à-vis* avocados imported from certificate-issuing countries where ASBVd is present.³⁰⁹²

³⁰⁸² Appellate Body Report, *Australia – Salmon*, paras. 177-178. The Appellate Body pointed out that the first "additional factor" was not different from the first warning signal, and should not be taken into account as a separate factor. (Appellate Body Report, *Australia – Salmon*, paras. 167-169).

³⁰⁸³ Appellate Body Report, *Australia – Salmon*, para. 170 (citing Panel Report, *Australia – Salmon*, para. 8.154).

³⁰⁸⁴ Appellate Body Report, *Australia – Salmon*, para. 174 (citing Panel Report, *Australia – Salmon*, para. 8.155).

³⁰⁸⁵ Panel Report, *US – Poultry (China)*, para. 7.282.

³⁰⁸⁶ Panel Report, *US – Poultry (China)*, para. 7.291 (citing Panel Report, *Canada – Pharmaceutical Patents*, para. 7.94).

³⁰⁸⁷ Panel Report, *US – Poultry (China)*, para. 7.291.

³⁰⁸⁸ Appellate Body Report, *EC – Hormones*, para. 214.

³⁰⁸⁹ Appellate Body Report, *EC – Hormones*, para. 215.

³⁰⁹⁰ Appellate Body Report, *EC – Hormones*, para. 238. See also Panel Report, *US – Poultry (China)*, para. 7.222.

³⁰⁹¹ Mexico's second written submission, para. 216.

³⁰⁹² Mexico's second written submission, para. 217.

- c. Fresh avocados imported for consumption in which ASBVd is present *vis-à-vis* avocado plants for planting.³⁰⁹³

7.1979. The Panel will address the three situations identified by Mexico by examining the three elements identified by the Appellate Body in *EC – Hormones*. Given that the elements are cumulative in nature, for the Panel to find an inconsistency with Article 5.5 of the SPS Agreement, it must examine whether Mexico has proved the presence of all these elements. Consequently, should the Panel find that Mexico has failed to prove any of these elements, Costa Rica will not be deemed to have acted inconsistently with Article 5.5.

7.1980. The Panel will now consider whether Costa Rica has adopted its own levels of protection in different situations.

7.6.4.1.1 Whether Costa Rica has adopted its own levels of protection in different situations

7.1981. With respect to the first two situations that it indicates as comparable, **Mexico** submits that the measures applied to avocados imported for consumption from countries where ASBVd is present *vis-à-vis* domestic avocados involve comparable situations because both carry the same high risk of entry, establishment and spread of ASBVd.³⁰⁹⁴

7.1982. Mexico states that the PRAs categorize ASBVd as a pest with a high probability of introduction, establishment, spread, economic consequences and risk in general, both for the symptomless strain and the symptomatic ones. Mexico asserts that the PRAs were not based on ISPM Nos. 6 and 4 since they failed to consider the guidelines for surveillance and the requirements for the establishment of PFAs. Therefore, according to Mexico, Costa Rica's declaration of absence of ASBVd lacks technical rigour and a scientific methodology, and is not based on the relevant international standards, guidelines and recommendations.³⁰⁹⁵

7.1983. Mexico further asserts that, although Costa Rica states in its PRAs that ASBVd is absent from its territory, a memorandum from the CIBCM of the UCR confirmed that ASBVd has been present since 2014.³⁰⁹⁶ Mexico submits that these conditions make it clear that the situations are comparable within the meaning of Article 5.5 of the SPS Agreement, since the absence of ASBVd and its disease has not been scientifically proved in either Costa Rica or Mexico; in other words, ASBVd and its disease are present in both. Mexico adds that, in this regard, the risk of establishment or spread of ASBVd through the pathway of diversion of the seed of a fresh avocado for consumption is the same whether the fruit is domestic or imported.³⁰⁹⁷

7.1984. Mexico transcribes the section of Reports ARP-002-2017 and ARP-006-2016 in which Costa Rica defines its ALOP³⁰⁹⁸, and argues that Costa Rica has adopted different levels of phytosanitary protection against the possible risks of ASBVd for avocado fruit from other countries and for those produced in Costa Rica. Mexico asserts that, in the PRAs, Costa Rica states that the level of protection it considers appropriate to adopt is the highest one, without there being any scientific justification for this ALOP, and that, despite this, the SFE imposed the requirements set out in Resolutions DSFE-002-2018 and DSFE-003-2018.³⁰⁹⁹

7.1985. Mexico contends that, nevertheless, Costa Rica has been remiss in issuing domestic regulations for national avocado producers to ensure that ASBVd does not spread in its territory. Mexico states that, at the time of filing its first written submission, there were no regulations aimed at avoiding the spread of ASBVd through avocado fruit produced in Costa Rica.³¹⁰⁰

³⁰⁹³ Mexico's second written submission, para. 218.

³⁰⁹⁴ Mexico's second written submission, para. 216.

³⁰⁹⁵ Mexico's first written submission, para. 525.

³⁰⁹⁶ Mexico's first written submission, para. 525.

³⁰⁹⁷ Mexico's first written submission, para. 525.

³⁰⁹⁸ Mexico's first written submission, para. 528 (citing ARP-002-2017, (Exhibit MEX-84), p. 14; ARP-006-2016, (Exhibit MEX-85), p. 11).

³⁰⁹⁹ Mexico's first written submission, paras. 528-529.

³¹⁰⁰ Mexico's first written submission, para. 530.

7.1986. According to Mexico, there is a connection between both situations and the resulting ALOPs, since at the extremes, on the one hand, there are regulations seeking to avoid the risk of introduction, establishment and spread of ASBVd stemming from the possibility that the seed of an avocado infected with ASBVd will be planted in a territory or area that is free from this pest, while on the other, there are no regulations aimed at preventing the establishment and spread of ASBVd.³¹⁰¹

7.1987. Mexico states that, to avoid the risk of spread, importers of fresh avocados for consumption from Mexico are obliged to meet phytosanitary requirements, and the products are subject to laboratory analysis upon entry into the country because, according to Costa Rica, they pose a high risk for the entry, establishment and spread of ASBVd in Costa Rican territory. Mexico asserts that this requirement is not imposed on local avocados and that there are therefore two ALOPs applied differently to two comparable situations.³¹⁰²

7.1988. Mexico adds that Costa Rica issued Decree No. 41995-MAG to regulate the use for propagation purposes of seeds extracted from fresh fruit imported for consumption from countries where ASBVd is present. Mexico contends that, in accordance with the foregoing, Costa Rica imposes regulations only on fruit that is imported on account of the risk allegedly posed by such products.³¹⁰³

7.1989. Mexico states that Costa Rica does not regulate the use of seeds extracted from domestic avocados, even though ASBVd is likely to be present in its avocados, an assumption that follows logically from three facts: (i) the more than 20 years of trade in avocados between countries where ASBVd is present; (ii) the high risk of entry, establishment and spread of ASBVd that, in Costa Rica's view, is posed by the importation of fresh avocados for consumption; and (iii) the cultural practices referred to by Costa Rica.³¹⁰⁴

7.1990. Mexico maintains that the ALOP applied by Costa Rica to avocados imported from countries where ASBVd is present is the highest level of phytosanitary protection, while the ALOP applied to avocados produced in its territory is non-existent; in other words, there is complete tolerance.³¹⁰⁵

7.1991. **Costa Rica** submits that Mexico has failed to substantiate its allegations of discrimination.³¹⁰⁶ Costa Rica asserts that Mexico's claims are unfounded, because, as the situations are not comparable, there is no discrimination.³¹⁰⁷

7.1992. Costa Rica states that Mexico's claim under Article 5.5 of the SPS Agreement is based entirely on the premise that ASBVd is present in Costa Rica, a premise that Costa Rica considers to be factually incorrect. In Costa Rica's view, the situations in Mexico and in Costa Rica are not comparable, as ASBVd is present in Mexico and it is not in Costa Rica.³¹⁰⁸ Costa Rica submits that this is why it is not required to extend the same treatment to different situations.³¹⁰⁹

7.1993. Costa Rica contends that the declaration of absence of ASBVd from Costa Rica was issued in accordance with the requirements applicable to this type of declaration; and that Mexico has provided no evidence to demonstrate that, contrary to what is reported by the widely recognized and most technically authoritative phytosanitary databases, CABI and EPPO, ASBVd is present in Costa Rica.³¹¹⁰

³¹⁰¹ Mexico's first written submission, para. 531.

³¹⁰² Mexico's first written submission, para. 532; second written submission, para. 214.

³¹⁰³ Mexico's second written submission, para. 214 (citing Regulation governing the use of avocado seeds (2019), (Exhibits MEX-174 and CRI-53)).

³¹⁰⁴ Mexico's second written submission, para. 215.

³¹⁰⁵ Mexico's second written submission, para. 221.

³¹⁰⁶ Costa Rica's first written submission, p. 72.

³¹⁰⁷ Costa Rica's first written submission, para. 5.197.

³¹⁰⁸ Costa Rica's first written submission, para. 5.206; response to Panel question No. 61, para. 2; second written submission, paras. 3.75 and 3.82-3.83.

³¹⁰⁹ Costa Rica's second written submission, para. 3.75.

³¹¹⁰ Costa Rica's first written submission, para. 5.207 (citing CABI (2019), (Exhibit CRI-14); EPPO Global Database, World distribution (2019), (Exhibit MEX-48); and EPPO Costa Rica (2019), (Exhibits CRI-41 and MEX-208)).

7.1994. Costa Rica states that, however much Mexico insists otherwise, to date, all laboratory tests have come back negative for the presence of ASBVd, which means that the phytosanitary situations with respect to ASBVd in Mexico and Costa Rica are not comparable.³¹¹¹

7.1995. Costa Rica submits that Mexico has failed to provide any evidence whatsoever that demonstrates that ASBVd is present in Costa Rica; and refers to its response to Panel question No. 26, in which it states that it refuted, one by one, the pieces of evidence presented by Mexico that allegedly prove that ASBVd is present in Costa Rica.³¹¹²

7.1996. Costa Rica asserts that none of the documents mentioned by Mexico constitutes evidence of the presence of ASBVd in Costa Rica, and that the NPPOs of each country are the authorities responsible for determining whether a pest is present or absent.³¹¹³ Costa Rica maintains that all this evidence is firmly at odds with the multiple samples and diagnostic tests carried out by Costa Rica, which have so far produced categorically negative results for the presence of ASBVd.³¹¹⁴

7.1997. Costa Rica adds that it described in detail its procedure for the surveillance and control of regulated pests and the sampling methodology followed; that it observed that there is a register of farms in Costa Rica and described how the geographical selection of sampling areas is made, ensuring the randomness and representativeness of the areas chosen, including backyards; that it addressed in detail the laboratory techniques that it uses to verify the presence or absence of ASBVd in the samples, and indicated that, since 2009, its laboratories have had the capacity to use RT-PCR, the best diagnostic technique for ASBVd in terms of cost-effectiveness and time; and that it set out how it took into account ISPM Nos. 6 and 8 in its surveillance work and when determining the country's phytosanitary status.³¹¹⁵

7.1998. Costa Rica contends that Mexico has provided nothing but mere speculation and conjecture, and that, in the circumstances, the Panel simply cannot accept Mexico's argument that ASBVd is present in Costa Rica, let alone find that the pest is indeed present in Costa Rican territory.³¹¹⁶

7.1999. Costa Rica submits that the phytosanitary situations in Mexico and Costa Rica with respect to ASBVd are not comparable, which is why Costa Rica's phytosanitary requirements apply only to avocado imports from countries where ASBVd is present.³¹¹⁷

7.2000. Costa Rica adds that, without prejudice to the fact that Mexico and Costa Rica are not in comparable situations with respect to ASBVd, to ensure that it maintains its phytosanitary status, Costa Rica has training programmes for farmers that seek to raise more awareness of good agricultural practices, and domestic regulations prohibiting the sowing of seeds from avocados imported from countries with ASBVd.³¹¹⁸ Costa Rica states that it has therefore taken all the necessary measures domestically to mitigate as much as possible the risk of losing its phytosanitary status as free of ASBVd.³¹¹⁹

7.2001. Costa Rica submits that, since ASBVd is present in Mexico and absent from Costa Rica, Mexico has failed to demonstrate that the situations in the two countries are comparable and has thus not substantiated its allegation that there are arbitrary or unjustifiable distinctions within the meaning of Article 5.5 of the SPS Agreement.³¹²⁰

7.2002. The **Panel** notes that Article 5.5 of the SPS Agreement refers to distinctions in the levels of sanitary or phytosanitary protection that a Member considers to be appropriate in different situations. In this regard, as mentioned above, the first element of Article 5.5 implies that a Member

³¹¹¹ Costa Rica's first written submission, para. 5.208.

³¹¹² Costa Rica's second written submission, para. 3.84.

³¹¹³ Costa Rica's response to Panel question No. 26, para. 1.

³¹¹⁴ Costa Rica's response to Panel question No. 26, para. 7.

³¹¹⁵ Costa Rica's second written submission, para. 3.85.

³¹¹⁶ Costa Rica's second written submission, para. 3.86.

³¹¹⁷ Costa Rica's first written submission, para. 5.208; second written submission, para. 3.87.

³¹¹⁸ Costa Rica's first written submission, para. 5.209; second written submission, para. 3.87.

³¹¹⁹ Costa Rica's second written submission, para. 3.87.

³¹²⁰ Costa Rica's first written submission, para. 5.212; second written submission, para. 3.88.

has established different levels of protection which it regards as appropriate for itself in differing situations.³¹²¹

7.2003. As noted by the Appellate Body in *EC – Hormones*, the situations exhibiting differing levels of protection cannot be compared unless they are comparable, that is, unless they present some common element or elements sufficient to render them comparable.³¹²²

7.2004. In light of the foregoing, the Panel will now examine whether the first two situations identified by Mexico are different but comparable, and whether Costa Rica has adopted different levels of protection in these different situations. The first two situations that Mexico considers to be different but comparable are fresh avocados imported for consumption from countries where ASBVd is present and domestic Costa Rican avocados.

7.2005. With regard to the existence of different but comparable situations, Mexico submits that the risk of the establishment or spread of ASBVd through the diversion of the seed of a fresh avocado for consumption is the same whether the fruit is domestic or imported.³¹²³ In Costa Rica's view, the situations in Mexico and in Costa Rica are not comparable, as ASBVd is present in Mexico and it is not in Costa Rica.³¹²⁴

7.2006. The Appellate Body in *Australia – Salmon* stated that situations can be compared under Article 5.5 if these situations involve either a risk of entry, establishment or spread of the same or a similar disease, or a risk of the same or similar associated potential biological and economic consequences.³¹²⁵

7.2007. The Panel observes that comparability is associated with the risk in question, and if the situations involve a risk of the same pest or disease, this could be considered sufficient to be able to compare them. The Panel notes that fresh avocados for consumption, whether imported from countries where ASBVd is present or produced in Costa Rica, may host ASBVd. Moreover, if it was present in an avocado, in the event of introduction, establishment or spread, ASBVd would have the same consequences regardless of its origin. Therefore, in the Panel's view, the first two situations can be considered as different but comparable.

7.2008. With regard to whether Costa Rica has adopted different levels of protection in these different but comparable situations, Mexico asserts that there are two ALOPs applied differently to two comparable situations.³¹²⁶ Mexico contends that Costa Rica imposes regulations only on fruit that is imported on account of the risk allegedly posed by such products³¹²⁷, and does not regulate the use of seeds extracted from domestic avocados, even though ASBVd is likely to be present in its avocados.³¹²⁸ Mexico maintains that the ALOP applied by Costa Rica to avocados imported from countries where ASBVd is present is the highest level of phytosanitary protection, while the ALOP applied to avocados produced in its territory is non-existent; in other words, there is complete tolerance.³¹²⁹

7.2009. Costa Rica submits that the phytosanitary situations in Mexico and Costa Rica with respect to ASBVd are not comparable, which is why Costa Rica's phytosanitary requirements apply only to avocado imports from countries where ASBVd is present.³¹³⁰ Costa Rica states that Mexico's claim

³¹²¹ Appellate Body Report, *EC – Hormones*, para. 216.

³¹²² Appellate Body Report, *EC – Hormones*, para. 217. See also Panel Report, *US – Poultry (China)*, para. 7.226.

³¹²³ Mexico's first written submission, para. 525.

³¹²⁴ Costa Rica's first written submission, para. 5.206; response to Panel question No. 61, para. 2; second written submission, paras. 3.75 and 3.83.

³¹²⁵ Appellate Body Report, *Australia – Salmon*, para. 146.

³¹²⁶ Mexico's first written submission, para. 532; second written submission, para. 214.

³¹²⁷ Mexico's second written submission, para. 214 (citing Regulation governing the use of avocado seeds (2019), (Exhibits MEX-174 and CRI-53)).

³¹²⁸ Mexico's second written submission, para. 215.

³¹²⁹ Mexico's second written submission, para. 221.

³¹³⁰ Costa Rica's first written submission, para. 5.208; second written submission, para. 3.87.

under Article 5.5 of the SPS Agreement is based entirely on the premise that ASBVd is present in Costa Rica, a premise that Costa Rica considers to be factually incorrect.³¹³¹

7.2010. With regard to the distinction in the ALOPs, in *EC – Hormones*, the Appellate Body pointed out that, clearly, comparison of several levels of protection deemed appropriate by a Member is necessary if a panel's inquiry under Article 5.5 is to proceed at all.³¹³²

7.2011. As noted in section 7.5.4 above, for fresh avocados imported for consumption, the Panel understands that, with respect to ASBVd, Costa Rica has set a "maximum level of phytosanitary protection", which, in Costa Rica's view, means making every reasonable effort to prevent the entry of ASBVd into its territory or taking the necessary measures that minimize to the greatest extent the risk of entry of the pest, and thus maintain the ASBVd-free phytosanitary status that Costa Rica claims to have.

7.2012. In the case of domestic Costa Rican avocados, Costa Rica states that, to ensure that it maintains its phytosanitary status, it has training programmes for farmers that seek to raise more awareness of good agricultural practices, and domestic regulations prohibiting the sowing of seeds from avocados imported from countries with ASBVd.³¹³³ Costa Rica states that it has therefore taken all the necessary measures domestically to mitigate as much as possible the risk of losing its phytosanitary status as free of ASBVd.³¹³⁴

7.2013. The Panel observes that the domestic regulations prohibiting the sowing of seeds concern only avocados imported from countries with ASBVd; in addition, Costa Rica refers only to training programmes for farmers. The Panel therefore considers that there are no regulations with respect to ASBVd that are directly applicable to avocados of Costa Rican origin, in contrast to the phytosanitary requirements imposed on avocados imported from countries where ASBVd is present. Accordingly, the Panel considers that there is a difference in the levels of protection that Costa Rica deems appropriate for fresh avocados imported for consumption from countries where ASBVd is present and for domestic Costa Rican avocados.

7.2014. Mexico links the comparability of the first two situations and the difference in the respective ALOPs with the presence or absence of ASBVd in Costa Rica, and states that Costa Rica's declaration of absence lacks technical rigour and a scientific methodology, and that ASBVd is present in Costa Rica. For its part, Costa Rica responds that the situations are not comparable because ASBVd is present in Mexico and absent from Costa Rica.

7.2015. In the Panel's view, this issue of the presence or absence of ASBVd in Costa Rica pertains to the second element of analysis under Article 5.5, i.e. the existence of *arbitrary or unjustifiable* distinctions in the levels that Costa Rica considers to be appropriate in different situations, rather than to the first element described above (namely, the existence of different levels of protection that Costa Rica considers to be appropriate in different but comparable situations).

7.2016. The Panel finds that the first two situations, i.e. fresh avocados imported for consumption from countries where ASBVd is present and domestic Costa Rican avocados, can be considered as different but comparable, and that there is a difference in the levels of protection that Costa Rica considers to be appropriate in these situations. The Panel will address the second element of analysis at a later stage.

7.2017. Regarding the second two situations that it indicates as comparable, i.e. fresh avocados imported from Mexico *vis-à-vis* avocados imported from certificate-issuing countries where ASBVd is present, **Mexico** states that another situation that is clearly comparable is the one that results from the risk arising between countries where ASBVd is present that export fresh avocados for consumption. More specifically, Mexico refers to fresh avocados for consumption from Mexico (which

³¹³¹ Costa Rica's first written submission, para. 5.206; response to Panel question No. 61, para. 2; second written submission, paras. 3.75 and 3.82-3.83.

³¹³² Appellate Body Report, *EC – Hormones*, para. 217. See also Panel Report, *US – Poultry (China)*, para. 7.239.

³¹³³ Costa Rica's first written submission, para. 5.209; second written submission, para. 3.87.

³¹³⁴ Costa Rica's second written submission, para. 3.87.

does not certify its exports as free of ASBVd) *vis-à-vis* fresh avocados for consumption from Peru and Guatemala (which do certify their exports as free of ASBVd).³¹³⁵

7.2018. Mexico submits that, while the ALOP applied to all imports of fresh avocados for consumption from countries where ASBVd is present appears to be the same, in reality it is not. Mexico asserts that, at the Panel's first meeting with the parties, it was revealed that consignments from countries where ASBVd is present that issue the certificates required by Costa Rica are subject only to an initial analysis of 10 consignments consisting of just 62 samples per consignment, and that a mere 40% of subsequent consignments of avocados from countries where ASBVd is present are analysed to verify that ASBVd is absent, since 4 out of every 10 consignments are verified (through the analysis of 62 fruits per consignment, presumably per container).³¹³⁶

7.2019. For Mexico, based on the above, it is clear that Costa Rica adopts an alleged maximum level of protection for imports of fresh avocados for consumption from countries where ASBVd is present that do not certify their consignments as free of ASBVd, whereas for countries where ASBVd is present that do issue such certificates, Costa Rica accepts a moderate level of protection that could even be classed as low. Mexico states that, although the alleged risk posed by imports of fresh avocados for consumption is the same for all countries where ASBVd is present, Costa Rica tolerates this risk when it comes to countries that certify their consignments as free of ASBVd, by allowing the entry of more than 1,000,000 units of fresh avocados and limiting the verification analysis to only 620 avocados in the first 10 consignments. Mexico adds that it can even be argued that Costa Rica accepts a still greater risk, having generated a phytosanitary record, by allowing the entry of 2,000,000 avocados and analysing just 248 of them.³¹³⁷

7.2020. **Costa Rica** states that Mexico is trying to compare the levels of protection deemed appropriate for fresh avocados imported from Mexico *vis-à-vis* avocados imported from certificate-issuing countries where ASBVd is present, which, in Costa Rica's view, is a fictitious situation that does not and could not exist.³¹³⁸

7.2021. Costa Rica asserts that if Mexico (or any other country where ASBVd is present) decides not to comply with Costa Rica's phytosanitary requirements, its avocados may not be imported into the national territory, and there would therefore be no "avocados imported from Mexico". For Costa Rica, it is untenable to claim that it applies a different level of protection to avocados imported from countries where ASBVd is present than it does for Mexico.³¹³⁹

7.2022. Costa Rica contends that the fact that Mexico does not wish to comply with the same requirements applicable to all countries where ASBVd is present does not mean that Costa Rica's levels of protection are different for imports of avocados from countries where ASBVd is present, or that, as Mexico argues, Costa Rica has imposed a *de facto* ban on Mexican avocados.³¹⁴⁰

7.2023. According to Costa Rica, Mexico seems to suggest that Costa Rica should impose a more restrictive certification and border verification system, while at the same time complaining, in relation to its claim under Article 5.6, about the extent to which this system restricts trade. Costa Rica asserts that its border sampling system, established under procedure CFI-PO-16 (consecutive at first and random thereafter), strikes the right balance between the rigour of border checks and the trust generated with respect to NPPOs that repeatedly certify consignments correctly. Costa Rica states that the fact that, in some cases, consignments with ASBVd are detected despite the imposition of certification requirements demonstrates the need for border checks and for the application of other measures such as regulations on diversion from intended use.³¹⁴¹

7.2024. As the **Panel** noted above, Article 5.5 of the SPS Agreement refers to distinctions in the levels of sanitary or phytosanitary protection that a Member considers to be appropriate in different situations; that the first element of Article 5.5 implies that a Member has established different levels

³¹³⁵ Mexico's second written submission, para. 217.

³¹³⁶ Mexico's second written submission, para. 222.

³¹³⁷ Mexico's second written submission, para. 223.

³¹³⁸ Costa Rica's response to Panel question No. 172, para. 210.

³¹³⁹ Costa Rica's response to Panel question No. 172, para. 210.

³¹⁴⁰ Costa Rica's response to Panel question No. 172, para. 211.

³¹⁴¹ Costa Rica's response to Panel question No. 172, para. 211 (referring to Document CFI-PO-16 (2018), (Exhibit CRI-91)).

of protection which it regards as appropriate for itself in differing situations³¹⁴²; and that situations exhibiting differing levels of protection cannot be compared unless they are comparable, that is, unless they present some common element or elements sufficient to render them comparable.³¹⁴³

7.2025. In light of the above, the Panel will now examine whether the second two situations identified by Mexico are different but comparable, and whether Costa Rica has adopted different levels of protection in these different situations. The second two situations that Mexico considers to be different but comparable are fresh avocados imported from Mexico (which does not certify its exports as free of ASBVd) and fresh avocados imported from certificate-issuing countries where ASBVd is present (Peru and Guatemala).

7.2026. The Panel observes that the only difference between the situations indicated is whether the imports come from a country that does not certify consignments of fresh avocados for consumption as free of ASBVd or from a country that does.

7.2027. As noted, regarding the existence of different but comparable situations, the Panel observes that comparability is associated with the risk in question, and if the situations involve a risk of the same pest or disease, this could be considered sufficient to be able to compare them. The Panel notes that fresh avocados for consumption, whether imported from certificate-issuing countries where ASBVd is present or from countries where ASBVd is present that do not issue certificates, may host ASBVd. Moreover, if it was present in an avocado, in the event of introduction or spread, ASBVd would have the same consequences regardless of its origin. Therefore, in the Panel's view, the second two situations can be considered as different but comparable.

7.2028. With regard to fresh avocado fruit imported for consumption, both in Report ARP-006-2016 for fresh avocado fruit for consumption and plants of the same species for planting, from countries where ASBVd is present, and in Report ARP-002-2017 for fresh avocado fruit for consumption from Mexico, the following statements are made:

On the basis of the information arising from this risk analysis, the application of specific phytosanitary measures is recommended. Costa Rica is free of the pest ASBVd, and should therefore adopt the necessary phytosanitary measures to prevent its entry into Costa Rican territory. In this regard, the measures adopted should achieve *the maximum level of phytosanitary protection*.³¹⁴⁴

7.2029. The two Reports ARP-002-2017 and ARP-006-2016 recommend the same phytosanitary measures for fresh avocado fruit imported for consumption.³¹⁴⁵

7.2030. Therefore, regarding the level of protection that Costa Rica applies in the second two situations identified by Mexico, the Panel notes that Costa Rica establishes the same ALOP that it regards as appropriate with respect to fresh avocado fruit imported for consumption from Mexico as it does for the other countries where ASBVd is present, including Peru and Guatemala.

7.2031. However, what Mexico disputes is the level of protection that is effectively achieved by the certificates issued by countries where ASBVd is present certifying their consignments as free of ASBVd. For Mexico, while the ALOP applied to all imports of fresh avocados for consumption from countries where ASBVd is present appears to be the same, in reality it is not.³¹⁴⁶ Mexico submits that, for countries where ASBVd is present that do issue such certificates, Costa Rica accepts a moderate level of protection that could even be classed as low.³¹⁴⁷

7.2032. The panel in the dispute *Australia – Apples* refrained from an analysis under the first element of Article 5.5 and proceeded under the second element, as the claimant contested alleged

³¹⁴² Appellate Body Report, *EC – Hormones*, para. 216.

³¹⁴³ Appellate Body Report, *EC – Hormones*, para. 217. See also Panel Report, *US – Poultry (China)*, para. 7.226.

³¹⁴⁴ ARP-002-2017, (Exhibit MEX-84), p. 42; ARP-006-2016, (Exhibit MEX-84), p. 23. (emphasis added)

³¹⁴⁵ ARP-002-2017, (Exhibit MEX-84), pp. 42-43; ARP-006-2016, (Exhibit MEX-84), pp. 23-24.

³¹⁴⁶ Mexico's second written submission, para. 222.

³¹⁴⁷ Mexico's second written submission, para. 223.

differences in the level of protection achieved in practice by the measures applied in comparable situations, despite the respondent's stated ALOP.³¹⁴⁸

7.2033. Although this Panel has observed that there do not appear to be distinctions in the ALOPs that Costa Rica regards as appropriate in the situations of fresh avocados imported from Mexico (which does not certify its exports as free of ASBVd) and fresh avocados imported from certificate-issuing countries where ASBVd is present (Peru and Guatemala), the Panel will also address Mexico's arguments regarding the alleged existence of arbitrary or unjustifiable differences in these second two situations later in its analysis.

7.2034. Concerning the third two situations that it indicates as comparable, **Mexico** submits that it is fresh avocados imported for consumption in which ASBVd is present *vis-à-vis* avocado plants for planting.³¹⁴⁹ Mexico states that Costa Rica recognizes that there is a comparable risk from fresh avocados imported for consumption from countries where ASBVd is present and avocado plants for planting. Mexico asserts that this circumstance therefore constitutes another comparable situation.³¹⁵⁰

7.2035. Mexico indicates that this comparable situation is due to the fact that, in its PRAs, Costa Rica wrongly stated that there is an identical risk, which it describes as high, from fresh avocados imported for consumption from countries where ASBVd is present and avocado plants for planting.³¹⁵¹

7.2036. Mexico asserts that this is because no distinction is made in terms of the scientific information used to justify the risk, even for different pathways.³¹⁵² Mexico states that the literature cited in Costa Rica's PRAs indicates that the movement of propagation material, meaning cuttings, shoots and seeds for propagation, is the main cause of the spread of the disease, not fresh fruit for consumption, and thus the former pathway should be attributed a higher risk.³¹⁵³ Mexico adds that Costa Rica uses the same criteria to evaluate the risk arising from both pathways.³¹⁵⁴

7.2037. Mexico also asserts that Costa Rica considers that fresh fruit imported for consumption and plants for planting pose the same high risk of entry, establishment and spread of ASBVd. Mexico contends that this situation is illogical, since an avocado imported for consumption cannot pose the same risk as a plant for planting, and the word "risk" informs the concept of an ALOP.³¹⁵⁵ Mexico refers to a "maximum" ALOP *vis-à-vis* a truly maximum ALOP.³¹⁵⁶

7.2038. Mexico adds that it is the ALOP that determines the SPS measure to be introduced or maintained, not the SPS measure introduced or maintained that determines the ALOP, yet Costa Rica appears to have done the opposite; and that the application of the ALOP is clear in this third comparable situation.³¹⁵⁷

7.2039. Mexico submits that, based on the foregoing, Costa Rica applies distinct ALOPs in respect of situations that are comparable to each other.³¹⁵⁸

7.2040. **Costa Rica** states that imports of fresh avocados for consumption and avocado plants for planting are two entry pathways for ASBVd and that the situations are therefore comparable.³¹⁵⁹ Costa Rica maintains that Mexico appears to claim that Costa Rica applies the same level of protection to fruit imported for consumption as it does to plants imported for planting, but the latter

³¹⁴⁸ Panel Report, *Australia – Apples*, paras. 7.985 and 7.987.

³¹⁴⁹ Mexico's second written submission, p. 52.

³¹⁵⁰ Mexico's second written submission, para. 218.

³¹⁵¹ Mexico's response to Panel question No. 173, para. 153.

³¹⁵² Mexico's response to Panel question No. 173, para. 154.

³¹⁵³ Mexico's response to Panel question No. 173, para. 155.

³¹⁵⁴ Mexico's response to Panel question No. 173, para. 156.

³¹⁵⁵ Mexico's second written submission, para. 224.

³¹⁵⁶ Mexico's second written submission, p. 53.

³¹⁵⁷ Mexico's second written submission, para. 225.

³¹⁵⁸ Mexico's second written submission, para. 226.

³¹⁵⁹ Costa Rica's response to Panel question No. 173, para. 213.

pose a greater phytosanitary risk, and Costa Rica's levels of protection in relation to fresh fruit and plants for planting are not identical.³¹⁶⁰

7.2041. Costa Rica states that the importation of plants for planting poses a greater risk than the importation of fresh fruit for consumption, which is clearly reflected in the measures recommended in Costa Rica's general PRA for pests. Costa Rica asserts that, in the case of avocados, the PRA recommends requiring certification that consignments are free of ASBVd or come from a place of production free of ASBVd, or compliance with a bilaterally-established systems approach programme, verifying the absence of the viroid at the entry point by sampling and testing. Costa Rica adds that, conversely, in the case of plants for planting, the recommended measures are far stricter, namely that the plants for planting must be certified as having been obtained from mother plants that are subject to indexing and analysis at least twice a year, and that the laboratory test results must be attached; and that the plants for planting are subject to post-entry quarantine for a period of up to six months, until tests have been carried out that indicate that they are free of ASBVd.³¹⁶¹

7.2042. Costa Rica contends that, as a result, Mexico's claim that there is no consistency between the levels of protection that Costa Rica deems appropriate for fresh avocados imported for consumption in which ASBVd is present *vis-à-vis* avocado plants for planting does not stand up.³¹⁶²

7.2043. The **Panel** reiterates that Article 5.5 of the SPS Agreement refers to distinctions in the levels of sanitary or phytosanitary protection that a Member considers to be appropriate in different situations; that the first element of Article 5.5 implies that a Member has established different levels of protection which it regards as appropriate for itself in differing situations³¹⁶³; and that situations exhibiting differing levels of protection cannot be compared unless they are comparable, that is, unless they present some common element or elements sufficient to render them comparable.³¹⁶⁴

7.2044. In light of the above, the Panel will now examine whether the third two situations identified by Mexico are different but comparable, and whether Costa Rica has adopted different levels of protection in these different situations. The third two situations that Mexico considers to be different but comparable are fresh avocados imported for consumption in which ASBVd is present and avocado plants for planting.

7.2045. As noted, regarding the existence of different but comparable situations, the Panel observes that comparability is associated with the risk in question, and if the situations involve a risk of the same pest or disease, this could be considered sufficient to be able to compare them.

7.2046. With regard to the pathways through which ASBVd may be introduced into a new territory, the expert Pablo Cortese states that the main pathways of introduction result from the transfer or entry into the new territory of plants or parts thereof that are infected with the viroid.³¹⁶⁵ The expert Ricardo Flores Pedauyé comments that the main pathway by some margin is the use of infected propagation material; in second place are pruning tools; in third place is natural root grafting; and in fourth place are seeds (or pollen).³¹⁶⁶ The expert Fernando Pliego Alfaro asserts that the introduction pathways are through infected seeds or through scions for grafting that are also infected.³¹⁶⁷

7.2047. The Panel notes that both fresh avocados for consumption and avocado plants for planting may host ASBVd and transmit it through an infected seed, although, in the case of fresh avocados for consumption, diversion from intended use or spontaneous germination would be required in order for transmission to occur. Costa Rica itself considers that imports of fresh avocado fruit for

³¹⁶⁰ Costa Rica's response to Panel question No. 172, para. 207.

³¹⁶¹ Costa Rica's response to Panel question No. 172, para. 207.

³¹⁶² Costa Rica's response to Panel question No. 172, para. 207.

³¹⁶³ Appellate Body Report, *EC – Hormones*, para. 216.

³¹⁶⁴ Appellate Body Report, *EC – Hormones*, para. 217. See also Panel Report, *US – Poultry (China)*, para. 7.226.

³¹⁶⁵ Pablo Cortese's response to Panel question No. 26 for the experts.

³¹⁶⁶ Ricardo Flores Pedauyé's response to Panel question No. 26 for the experts.

³¹⁶⁷ Fernando Pliego Alfaro's response to Panel question No. 26 for the experts.

consumption and avocado plants for planting are two entry pathways for ASBVd and that the situations are therefore comparable.³¹⁶⁸

7.2048. In light of the foregoing, and irrespective of the level of risk posed by fresh avocados imported for consumption in which ASBVd is present and avocado plants for planting, in the Panel's view, the third two situations can be considered as different but comparable.

7.2049. The Panel recalls that Article 5.5 assumes the existence of distinctions in the levels of protection that are considered to be appropriate in different but comparable situations. Mexico refers to the application by Costa Rica of distinct ALOPs in these third two situations, but its arguments appear to focus on Costa Rica having wrongly decided that these situations involve the same level of risk, and that the pathway of plants for planting should be attributed a higher risk, by which Mexico seems to suggest that the ALOP for fresh avocados for consumption in which ASBVd is present should be lower.

7.2050. Mexico considers it illogical and wrong for Costa Rica to have considered that fresh avocado fruit for consumption and avocado plants for planting pose the same high risk, and states that the word "risk" informs the concept of an ALOP, but does not explain how the higher risk arising from the pathway of plants for planting would imply the existence of distinctions in the levels of protection in different but comparable situations. Mexico also fails to explain what it means by a "maximum" ALOP *vis-à-vis* a "truly maximum" ALOP.

7.2051. Costa Rica, for its part, agrees that the importation of plants for planting poses a greater risk than the importation of fresh fruit for consumption, and submits that this is clearly reflected in the measures recommended in Costa Rica's general PRA for pests. According to Costa Rica, its levels of protection in relation to fresh fruit and plants for planting are not identical.³¹⁶⁹

7.2052. As noted in section 7.5.4 above, in the context of fresh fruit for consumption, the Panel understands that, with respect to ASBVd, Costa Rica has set a "maximum level of phytosanitary protection", which, in Costa Rica's view, means making every reasonable effort to prevent the entry of ASBVd into its territory or taking the necessary measures that minimize to the greatest extent the risk of entry of the pest, and thus maintain the ASBVd-free phytosanitary status that Costa Rica claims to have.

7.2053. With regard to avocado plants for planting, the Panel notes that Report ARP-006-2016 mentions only that phytosanitary measures should be applied to reduce the risk to acceptable levels³¹⁷⁰, but does not elaborate on these acceptable levels of risk.

7.2054. The Panel notes Costa Rica's assertion that it establishes its ALOP with respect to each specific pest and commodity on the basis of the factors that are present in each particular situation, and that, in the case of quarantine pests for Costa Rica, the approach is always to adopt the measures that minimize to the greatest extent the risk of entry of such pests in order to minimize negative trade effects.³¹⁷¹

7.2055. In respect of both fresh avocado fruit for consumption and avocado plants for planting, Costa Rica considers ASBVd to be a quarantine pest and adopts specific phytosanitary measures. Costa Rica adopts the following phytosanitary measures for the importation of regulated articles that are vectors of ASBVd, originating from any country in which the pest ASBVd is present:

- a. Fresh avocado fruit (*Persea americana* Mill.) for human consumption must meet one of the following requirements:
 - i. Consignments must be accompanied by an official phytosanitary certificate issued by the country of origin, which indicates, in the section for additional declarations, that the fruit is free of ASBVd.

³¹⁶⁸ Costa Rica's response to Panel question No. 172, para. 213.

³¹⁶⁹ Costa Rica's response to Panel question No. 172, para. 207.

³¹⁷⁰ ARP-006-2016, (Exhibit MEX-85), p. 33.

³¹⁷¹ Costa Rica's response to Panel question No. 85, para. 1.

- ii. Consignments must be accompanied by an official phytosanitary certificate issued by the country of origin, which indicates, in the section for additional declarations, that the fruit comes from a place of production free of ASBVd (previously recognized by the SFE).
 - iii. Consignments must adhere to a systems approach programme established bilaterally, and which may be implemented, for example, through a work plan.³¹⁷²
- b. Avocado (*Persea americana* Mill.) plants for planting:
- i. Consignments must be accompanied by an official phytosanitary certificate issued by the country of origin, which indicates, in the section for additional declarations, that the plants come from mother plants which are free of ASBVd and which are subject to indexing and sampling at least twice a year. Laboratory analysis results must be attached. After importation, consignments will be subject to post-entry quarantine for a period of up to six months.³¹⁷³

7.2056. The fact that Costa Rica has not explicitly indicated the ALOP that it considers appropriate for avocado plants for planting makes it difficult for the Panel to determine whether there are distinctions in the levels of protection that Costa Rica regards as appropriate in these third two situations that the Panel found can be considered as different but comparable. Despite the lack of clarity and the fact that Costa Rica has applied different measures for fresh avocado fruit for consumption and avocado plants for planting, in this Panel's view, Costa Rica appears to consider the same or very similar levels of protection to be appropriate in the two situations, as it considers ASBVd to be a quarantine pest. Mexico appears to accept the existence of the same or very similar levels of protection.

7.2057. Since Mexico seems to refer to arbitrary or unjustifiable discrimination owing to the existence of the same levels of protection for different risks, the Panel considers it necessary also to address Mexico's arguments concerning the second element of analysis, i.e. the existence of arbitrary or unjustifiable distinctions in the levels that Costa Rica deems appropriate in different situations. The Panel will address this second element of analysis later in its analysis under Article 5.5.

7.6.4.1.2 Whether Costa Rica's levels of protection exhibit arbitrary or unjustifiable distinctions in their treatment of different situations

7.2058. With respect to the first two situations that it indicates as comparable, i.e. fresh avocados imported for consumption from countries where ASBVd is present *vis-à-vis* domestic Costa Rican avocados, Mexico submits that there are significant differences in the levels of protection adopted by the SFE for fresh avocado fruit from Mexico and for avocados produced in Costa Rica, which may lead to the conclusion that this distinction results in arbitrary or unjustifiable discrimination.³¹⁷⁴

7.2059. Mexico states that the presence of ASBVd in Mexico and its supposed absence from Costa Rica does not justify the distinction in the ALOP that is reflected in the measures adopted. Mexico asserts that Costa Rica acted inconsistently in adopting measures that reflect different levels of protection for fresh avocado fruit from Mexico and locally produced fruit. Mexico considers that there is no justification for discriminating between these comparable situations, let alone one that is based on scientific evidence.³¹⁷⁵ For Mexico, the alleged maximum level of protection applied to fresh avocados imported for consumption from countries where ASBVd is present and the complete tolerance of risk in the level applied to Costa Rican avocados arising from a lack of regulation has no justification whatsoever.³¹⁷⁶

7.2060. Mexico asserts that, if one considers ASBVd to be present in both territories, distinctions in the regulations aimed at fruit from Mexico and the absence of regulation for Costa Rican avocado

³¹⁷² Resolution DSFE-002-2018, (Exhibit MEX-103), p. 4. See also Resolution DSFE-003-2018, (Exhibit MEX-4), p. 4.

³¹⁷³ Resolution DSFE-002-2018, (Exhibit MEX-103), p. 4.

³¹⁷⁴ Mexico's first written submission, para. 534.

³¹⁷⁵ Mexico's first written submission, para. 536.

³¹⁷⁶ Mexico's second written submission, para. 228.

producers point to unjustifiable or arbitrary differences. Mexico adds that Costa Rica's failure to issue a regulation to prevent the spread of ASBVd through fruit produced in Costa Rica is not consistent with the level of risk identified in the PRAs themselves. According to Mexico, the SFE states that the level of protection it considers appropriate to adopt is the highest one, which means that, as there is no regulation in Costa Rica, and taking into account that ASBVd is present in several countries around the world, there are arbitrary and unjustifiable differences between the levels of protection adopted by the SFE.³¹⁷⁷

7.2061. Mexico contends that, while Costa Rica has argued that its phytosanitary status is free of ASBVd and that it is thus unnecessary to apply any regulation to domestic avocados, the truth is that ASBVd is probably present in its territory owing to the high risk of entry, establishment and spread stemming from the more than 20 years of trade in avocados with Mexico, Peru, Guatemala and the United States. For Mexico, it was therefore necessary for Costa Rica to apply the same measures for imported avocados as for domestic ones.³¹⁷⁸

7.2062. Mexico asserts that it is revealing to note the words of Costa Rican producer Francisco Fallas Serrano, who stated that avocado farming initially developed using seeds of dubious provenance, including seeds obtained from wholesale markets where avocado fruit was sold.³¹⁷⁹ For Mexico, the fact of not knowing the origin of an avocado seed that may be used for sowing demonstrates that there is no justification whatsoever for imposing regulations only on imported avocados and not on domestic ones, bearing in mind that the risk posed by the two situations is comparable. Mexico submits that there is therefore discrimination in the level of protection applied with respect to these situations.³¹⁸⁰

7.2063. **Costa Rica** submits that Mexico has failed to substantiate its allegations of discrimination.³¹⁸¹ Costa Rica asserts that Mexico's claims are unfounded, because, as the situations are not comparable, there is no discrimination.³¹⁸²

7.2064. Costa Rica states that Mexico's claim under Article 5.5 of the SPS Agreement is based entirely on the premise that ASBVd is present in Costa Rica, a premise that Costa Rica considers to be factually incorrect. In Costa Rica's view, the situations in Mexico and in Costa Rica are not comparable, as ASBVd is present in Mexico and it is not in Costa Rica.³¹⁸³ Costa Rica submits that this is why it is not required to extend the same treatment to different situations.³¹⁸⁴

7.2065. Costa Rica contends that the phytosanitary situations in Mexico and Costa Rica with respect to ASBVd are not comparable, which is why Costa Rica's phytosanitary requirements apply only to avocado imports from countries where ASBVd is present.³¹⁸⁵

7.2066. Costa Rica adds that, without prejudice to the fact that Mexico and Costa Rica are not in comparable situations with respect to ASBVd, to ensure that it maintains its phytosanitary status, Costa Rica has training programmes for farmers that seek to raise more awareness of good agricultural practices, and domestic regulations prohibiting the sowing of seeds from avocados imported from countries with ASBVd.³¹⁸⁶ Costa Rica states that it has therefore taken all the necessary measures domestically to mitigate as much as possible the risk of losing its ASBVd-free phytosanitary status.³¹⁸⁷

7.2067. The **Panel** observes that Article 5.5 refers to *arbitrary or unjustifiable* distinctions in the levels that a Member considers to be appropriate in different situations. In this regard, as mentioned

³¹⁷⁷ Mexico's first written submission, para. 537.

³¹⁷⁸ Mexico's second written submission, para. 229.

³¹⁷⁹ Mexico's second written submission, para. 230 (citing Affidavit of Francisco Fallas Serrano (2019), (Exhibit CRI-46)).

³¹⁸⁰ Mexico's second written submission, para. 230.

³¹⁸¹ Costa Rica's first written submission, p. 72.

³¹⁸² Costa Rica's first written submission, para. 5.197.

³¹⁸³ Costa Rica's first written submission, para. 5.206; response to Panel question No. 61, para. 2; second written submission, paras. 3.75 and 3.82-3.83.

³¹⁸⁴ Costa Rica's second written submission, para. 3.75.

³¹⁸⁵ Costa Rica's first written submission, para. 5.208; second written submission, para. 3.87.

³¹⁸⁶ Costa Rica's first written submission, para. 5.209; second written submission, para. 3.87.

³¹⁸⁷ Costa Rica's second written submission, para. 3.87.

above, the second element of Article 5.5 implies the existence of arbitrary or unjustifiable differences in the treatment of the different but comparable situations.³¹⁸⁸

7.2068. The Panel will now examine whether there are arbitrary or unjustifiable differences in the treatment of the first two different but comparable situations, i.e. fresh avocados imported for consumption from countries where ASBVd is present and domestic Costa Rican avocados.

7.2069. According to the *Diccionario de la lengua española* of the Real Academia Española, the ordinary meaning of the term "*injustificable*" ("unjustifiable") is "*que no se puede justificar*" ("that cannot be justified")³¹⁸⁹, where "*justificar*" ("justify") is defined as "*probar algo con razones convincentes, testigos o documentos*" ("prove something with convincing reasons, witnesses or documents")³¹⁹⁰; and the ordinary meaning of the term "*arbitrario*" ("arbitrary") is "*sujeto a la libre voluntad o al capricho antes que a la ley o a la razón*" ("subject to free will or whim rather than to law or reason").³¹⁹¹

7.2070. This Panel agrees with the panel in *US – Poultry (China)*, which was guided by the interpretation based on the ordinary meaning of "arbitrary or unjustifiable" from the *chapeau* of Article XX of the GATT 1994, which the Appellate Body had considered relevant in interpreting the same terms in Article 2.3 of the SPS Agreement. In that dispute, the panel considered that, in its analysis of the second element of Article 5.5, it must focus "on the justification for the distinction and whether that justification bears a rational relationship to the objective of the measures".³¹⁹²

7.2071. As noted by the panel in *US – Poultry (China)*, given that the SPS measures must necessarily be based on scientific principles and not maintained without sufficient scientific evidence, the scientific support, or lack thereof, for the difference between the ALOPs the measures seek to achieve should have a bearing on an analysis of whether such a difference is arbitrary or unjustifiable.³¹⁹³

7.2072. The Panel also considers relevant the point made by the Appellate Body in *EC – Seal Products* in the context of Article XX of the GATT 1994 that one of the most important factors in the assessment of arbitrary or unjustifiable discrimination is the question of whether the discrimination can be reconciled with, or is rationally related to, the policy objective with respect to which the measure has been provisionally justified under one of the subparagraphs of Article XX.³¹⁹⁴

7.2073. In light of all the above, this Panel considers that its analysis should focus on the justification given for the distinction and on the reasonableness of this justification. In the Panel's view, in the context of Article 5.5 of the SPS Agreement, the justification for according different treatment, or for a distinction in the application of ALOPs in the words of Article 5.5, must be reconcilable with the objective of protecting against the risk in question, and must have a scientific basis.

7.2074. Costa Rica maintains that ASBVd is present in Mexico but not in Costa Rica, and that it is thus not required to extend the same treatment to different situations.³¹⁹⁵ Costa Rica adds that its phytosanitary requirements apply only to avocado imports from countries where ASBVd is present, because the phytosanitary situations in Mexico and Costa Rica with respect to ASBVd are not comparable.³¹⁹⁶

³¹⁸⁸ Appellate Body Report, *EC – Hormones*, para. 214. See also Panel Report, *US – Poultry (China)*, para. 7.255.

³¹⁸⁹ *Diccionario de la lengua española*, Real Academia Española, accessed 30 November 2021, <https://dle.rae.es/injustificable>.

³¹⁹⁰ *Diccionario de la lengua española*, Real Academia Española, accessed 30 November 2021, <https://dle.rae.es/justificar>.

³¹⁹¹ *Diccionario de la lengua española*, Real Academia Española, accessed 30 November 2021, <https://dle.rae.es/arbitrario>.

³¹⁹² Panel Report, *US – Poultry (China)*, paras. 7.260-7.262.

³¹⁹³ Panel Report, *US – Poultry (China)*, para. 7.263.

³¹⁹⁴ Appellate Body Report, *EC – Seal Products*, para. 5.306 (citing Appellate Body Reports, *US – Shrimp*, para. 165; and *Brazil – Retreaded Tyres*, paras. 227, 228 and 232).

³¹⁹⁵ Costa Rica's second written submission, para. 3.75.

³¹⁹⁶ Costa Rica's first written submission, para. 5.208; second written submission, para. 3.87.

7.2075. The Panel notes that, for Costa Rica, the justification for imposing the measures for avocados imported for consumption from countries where ASBVd is present is the difference in phytosanitary status that it claims exists, having declared itself as free of ASBVd. In particular, Costa Rica states that ASBVd is absent throughout its territory, with this being the main reason why it has adopted phytosanitary requirements to enable it to maintain this status.³¹⁹⁷

7.2076. Although Costa Rica states that it has taken all the necessary measures domestically to mitigate as much as possible the risk of losing its ASBVd-free phytosanitary status, the Panel reiterates its observation that the domestic regulations prohibiting the sowing of seeds concern only avocados imported from countries with ASBVd, which is why the Panel considers that there are no regulations with respect to ASBVd that are directly applicable to avocados of Costa Rican origin.

7.2077. Mexico considers that there is no justification for discriminating between these comparable situations, let alone a justification based on scientific evidence³¹⁹⁸, and bases its argument that there are unjustifiable or arbitrary distinctions on the premise that ASBVd is present in Costa Rica.

7.2078. As mentioned in the context of the first element of analysis under Article 5.5, Mexico states that Costa Rica's declaration of absence lacks technical rigour and a scientific methodology, and is not based on the relevant international standards, guidelines and recommendations³¹⁹⁹, and asserts that ASBVd is present in Costa Rica. According to Mexico, ASBVd and its disease are present in both Costa Rica and Mexico, and the risk of establishment or spread of ASBVd through the pathway of diversion of the seed of a fresh avocado for consumption is thus the same whether the fruit is domestic or imported.³²⁰⁰

7.2079. As the Panel explained, the burden of proof rests upon the party, whether complaining or defending, who asserts the affirmative of a particular claim or defence.³²⁰¹ In this case, Mexico has to provide sufficient evidence to prove its assertion that an arbitrary or unjustifiable distinction has been made between fresh Mexican and Costa Rican avocados, since they carry the same risk of ASBVd. In particular, Mexico bears the burden of proving that ASBVd is present in Costa Rica.

7.2080. The Panel concluded in paragraph 7.310 above that Mexico has failed to demonstrate that ASBVd is present in Costa Rica.

7.2081. However, Mexico also states that Costa Rica's declaration of absence lacks technical rigour and a scientific methodology, and is not based on the relevant international standards, guidelines and recommendations.

7.2082. In response to the Panel's question as to whether a WTO Member's surveillance system is of any relevance to its obligations under Article 5.5 of the SPS Agreement, Mexico states that it is relevant, and that a surveillance system makes it possible to confirm that the ALOP established by a Member is consistent with the level of verifiable risk using information obtained through the surveillance system.³²⁰²

7.2083. For Mexico, the absence of a clear, transparent and reliable surveillance system would result in arbitrary and unjustifiable measures and, by extension, in discriminatory practices or disguised restrictions on international trade, particularly if these measures were based on an unreliable freedom status.³²⁰³ Mexico adds that, if the surveillance system has errors or omissions that may vitiate the outcome of the monitoring, there can be no consistency between the ALOP and the risks that the Member is ostensibly seeking to avoid in order to protect, in this case, the health of avocado plantations, given that there would be an arbitrary and unjustifiable distinction made between similar situations.³²⁰⁴

³¹⁹⁷ Costa Rica's first written submission, para. 5.98.

³¹⁹⁸ Mexico's first written submission, para. 536.

³¹⁹⁹ Mexico's first written submission, para. 525.

³²⁰⁰ Mexico's first written submission, para. 525.

³²⁰¹ Appellate Body Report, *US – Wool Shirts and Blouses*, p. 14.

³²⁰² Mexico's response to Panel question No. 171, para. 150.

³²⁰³ Mexico's response to Panel question No. 171, para. 150.

³²⁰⁴ Mexico's response to Panel question No. 171, para. 151.

7.2084. Mexico contends that Costa Rica has implemented a surveillance system based on a series of specific surveys that lack representativeness, statistical and methodological rigour, specificity and clarity, and on general surveys that are outdated and taken out of context.³²⁰⁵

7.2085. Costa Rica, for its part, submits that a WTO Member's surveillance system has no legal relevance under Article 5.5 of the SPS Agreement, which contains no obligation or requirement in this respect, and that the surveillance system is, in any case, a factual prerequisite shared by all WTO Members.³²⁰⁶

7.2086. Costa Rica states that, in any case, the burden of proving an inconsistency with Article 5.5 is borne by the complainant, which, if it disagrees with the responding Member about the phytosanitary situation in the latter's territory, must provide credible evidence to substantiate its claims. Costa Rica adds that this evidence must demonstrate, for example, that the phytosanitary situation in the responding Member's territory is identical or similar to the phytosanitary situation in the territory of the complaining Member.³²⁰⁷ Costa Rica asserts that mere theoretical questions about a Member's surveillance system do not, however, constitute evidence of a pest's status in the Member's territory, and that under no circumstances can Mexico's arguments concerning alleged areas for improvement in Costa Rica's surveillance system constitute proof that ASBVd is present in Costa Rica.³²⁰⁸

7.2087. The Panel notes that in section 7.4.5.1.3 above, it concluded that Costa Rica's assertion in Reports ARP-002-2017 and ARP-006-2016 that it was determined that its territory is free of ASBVd lacks sufficient reliability, and, therefore, cannot be considered legitimately scientific. In the Panel's view, in the circumstances of this case, this finding is relevant to Costa Rica's non-discrimination obligation under Article 5.5 of the SPS Agreement, given that Costa Rica's justification for distinguishing between fresh avocados imported for consumption from countries where ASBVd is present and domestic Costa Rican avocados is the presence or absence of ASBVd in its territory and in the territories of importing countries.

7.2088. For Mexico, the absence of a clear, transparent and reliable surveillance system would result in arbitrary and unjustifiable measures and, by extension, in discriminatory practices or disguised restrictions on international trade, particularly if these measures were based on an unreliable freedom status.³²⁰⁹ Mexico states that if the surveillance system has errors or omissions that may vitiate the outcome of the monitoring, there can be no consistency between the ALOP and the risks that the Member is ostensibly seeking to avoid.³²¹⁰

7.2089. As the Panel noted, its analysis must focus on the justification given for the distinction and on the reasonableness of this justification, and the justification for according different treatment, or for a distinction in the application of ALOPs in the words of Article 5.5 of the SPS Agreement, must be reconcilable with the objective of protecting against the risk in question, and must have a scientific basis.

7.2090. The Panel observes that Costa Rica makes a distinction in the ALOPs in the two situations (fresh avocados imported for consumption from countries where ASBVd is present and domestic Costa Rican avocados) on the basis of an alleged difference in the risk in question stemming from a difference in the phytosanitary status of its territory compared to those of countries where ASBVd is present, a difference that Costa Rica claims exists, having declared itself as free of ASBVd. However, in the Panel's view, if Costa Rica's declaration of freedom from ASBVd lacks sufficient reliability, Costa Rica's justification cannot be considered to have a scientific basis. In other words, if the declaration of freedom from ASBVd cannot be considered legitimately scientific, the distinction between the two situations cannot be regarded as scientifically justified.

³²⁰⁵ Mexico's response to Panel question No. 171, para. 152.

³²⁰⁶ Costa Rica's response to Panel question No. 171, paras. 202-203.

³²⁰⁷ Costa Rica's response to Panel question No. 171, para. 204.

³²⁰⁸ Costa Rica's response to Panel question No. 171, para. 205.

³²⁰⁹ Mexico's response to Panel question No. 171, para. 150.

³²¹⁰ Mexico's response to Panel question No. 171, para. 151.

7.2091. Therefore, the Panel considers that there are arbitrary or unjustifiable distinctions in the treatment of the first two different but comparable situations, i.e. fresh avocados imported for consumption from countries where ASBVd is present and domestic Costa Rican avocados.

7.2092. With regard to the second two situations that it indicates as comparable, i.e. fresh avocados imported from Mexico *vis-à-vis* avocados imported from certificate-issuing countries where ASBVd is present, Mexico submits that there is also no justification whatsoever that explains in a coherent way why Costa Rica applies a maximum ALOP to fresh avocados imported from Mexico, while the ALOP applied to avocados imported from other countries where ASBVd is present that do issue certificates is moderate or low. Mexico asserts that not all consignments certified as ASBVd-free are, and that the percentage of consignments that have been tested and have proved positive for ASBVd is 26.6%. For Mexico, this means that Costa Rica has accepted the entry and thus the high risk of infected fresh avocados from countries where ASBVd is present, simply because they certify their consignments as ASBVd-free. Mexico states that, by contrast, avocados from Mexico, which has objected to issuing ASBVd-free certificates, have been prevented from entering the Costa Rican market, even though they pose the same risk as avocados from Peru, Guatemala and the United States.³²¹¹

7.2093. Mexico states that Costa Rica is not consistent in applying its ALOP, and the alleged maximum ALOP is not reflected in the facts. Mexico questions how one can justify Costa Rica's decision to adopt a random approach to the verification of consignments certified as free of ASBVd; and adds that the supposed balance referred to by Costa Rica – between the rigour of border checks and the trust generated with respect to NPPOs that certify consignments correctly – results in a discriminatory application whose purported justification lacks a rational connection between Costa Rica's ALOP and the trust it places in NPPOs with regard to their certifications.³²¹²

7.2094. Mexico submits that this situation has resulted in a large number of avocados entering Costa Rica without being analysed through laboratory tests. According to Mexico, Costa Rica tolerates the risk involved in the entry of potentially ASBVd-infected avocados that are part of the first 10 consignments that are not fully analysed, and has accepted the risk posed by the entry of the 60% of consignments that are not analysed once a phytosanitary record has been established for countries where ASBVd is present.³²¹³

7.2095. Mexico further submits that Costa Rica should verify that the area where a consignment of avocados comes from is indeed free of ASBVd.³²¹⁴ Mexico states that Peru acknowledges that ASBVd is present in its territory, and that, despite knowing this, Costa Rica did not verify that the areas from which Peruvian avocados are imported were actually free of ASBVd, since Peru does not consider it to be a sanitary risk.³²¹⁵ Mexico asserts that, accordingly, it should be emphasized that Costa Rica's measures are not in line with its ALOP, and that this results in a *de facto* ban on the importation of avocados from Mexico, a ban that it does not impose on imports from other Members in whose territory ASBVd is present.³²¹⁶

7.2096. **Costa Rica** contends that the fact that Mexico does not wish to comply with the same requirements applicable to all countries where ASBVd is present does not mean that Costa Rica's levels of protection are different for imports of avocados from countries where ASBVd is present, or that Costa Rica has imposed a *de facto* ban on Mexican avocados.³²¹⁷

7.2097. According to Costa Rica, Mexico seems to suggest that Costa Rica should impose a more restrictive certification and border verification system, while at the same time complaining, in relation to its claim under Article 5.6, about the extent to which this system restricts trade. Costa Rica asserts that its border sampling system, established under procedure CFI-PO-16 (consecutive at first and random thereafter), strikes the right balance between the rigour of border checks and the trust generated with respect to NPPOs that repeatedly certify consignments correctly. Costa Rica states that the fact that, in some cases, consignments with ASBVd are detected despite

³²¹¹ Mexico's second written submission, para. 231.

³²¹² Mexico's second written submission, para. 232.

³²¹³ Mexico's second written submission, para. 233.

³²¹⁴ Mexico's second written submission, para. 234.

³²¹⁵ Mexico's second written submission, paras. 235-236.

³²¹⁶ Mexico's second written submission, para. 236.

³²¹⁷ Costa Rica's response to Panel question No. 172, para. 211.

the imposition of certification requirements demonstrates the need for border checks and for the application of other measures such as regulations on diversion from intended use.³²¹⁸

7.2098. As the **Panel** noted above, Article 5.5 refers to *arbitrary or unjustifiable* distinctions in the levels that a Member considers to be appropriate in different situations. In this regard, as also mentioned above, the second element of Article 5.5 implies the existence of arbitrary or unjustifiable differences in the treatment of the different but comparable situations.³²¹⁹

7.2099. The Panel has observed that there do not appear to be distinctions in the ALOPs that Costa Rica regards as appropriate in the situations of fresh avocados imported from Mexico (which does not certify its exports as free of ASBVd) and fresh avocados imported from certificate-issuing countries where ASBVd is present (Peru and Guatemala). Nevertheless, in light of Mexico's argument that there are differences in the ALOPs achieved in practice, the Panel will address Mexico's arguments regarding whether there are arbitrary or unjustifiable differences in the treatment of the second two different but comparable situations, i.e. fresh avocados imported from Mexico (which does not certify its exports as free of ASBVd) and fresh avocados imported from certificate-issuing countries where ASBVd is present (Peru and Guatemala).

7.2100. As noted, this Panel considers that its analysis should focus on the justification given for the distinction and on the reasonableness of this justification. In the Panel's view, in the context of Article 5.5 of the SPS Agreement, the justification for according different treatment, or for a distinction in the application of ALOPs in the words of Article 5.5 of the SPS Agreement, must be reconcilable with the objective of protecting against the risk in question, and must have a scientific basis.

7.2101. The Panel considers that Costa Rica's justification for not allowing the entry of avocados from Mexico is the failure by Mexico to comply with Costa Rica's phytosanitary requirements. In other words, the distinctions alleged by Mexico are related to its own refusal to issue ASBVd-free consignment certificates.³²²⁰ As can be seen from Resolutions DSFE-002-2018 and DSFE-003-2018, Mexico is subject to the same measures, that is, the same import conditions, as Peru and Guatemala.³²²¹

7.2102. The difference between Mexico's situation and that of other countries where ASBVd is present with regard to importation flows in this case from the decision of these countries to issue ASBVd-free consignment certificates, and from Mexico's decision not to do so, rather than from the treatment accorded by Costa Rica to avocados from these countries and from Mexico. Therefore, the Panel does not consider that Costa Rica's measures create an arbitrary or unjustifiable distinction between consignments from countries where ASBVd is present, including Mexico, Peru and Guatemala.

7.2103. The Panel therefore finds that Mexico has failed to demonstrate that there are arbitrary or unjustifiable differences in the treatment of the second two different but comparable situations, i.e. fresh avocados imported from Mexico *vis-à-vis* avocados imported from certificate-issuing countries where ASBVd is present.

7.2104. As for the third two situations that it indicates as comparable, i.e. fresh avocados imported for consumption in which ASBVd is present *vis-à-vis* avocado plants for planting, **Mexico** contends that the application of the "maximum" ALOP to fresh avocados imported for consumption from countries where ASBVd is present and the application of the maximum ALOP to avocado plants for planting is arbitrary and unjustifiable. Mexico asserts that there is no technical or scientific reason that would explain why a similar ALOP is applied to two situations that involve clearly different risks. Mexico adds that ISPM No. 32 clearly states that the intended use may affect a commodity's pest

³²¹⁸ Costa Rica's response to Panel question No. 172, para. 211 (referring to Document CFI-PO-16 (2018), (Exhibit CRI-91)).

³²¹⁹ Appellate Body Report, *EC – Hormones*, para. 214. See also Panel Report, *US – Poultry (China)*, para. 7.255.

³²²⁰ Mexico submits that the certification required by Costa Rica is disproportionate, involves unnecessary costs, is economically unviable and does not ensure the mitigation of the risk that it supposedly faces. (Mexico's opening statement at the first meeting of the Panel, para. 55).

³²²¹ See Resolution DSFE-003-2018, (Exhibit MEX-4), p. 4; and Resolution DSFE-002-2018, (Exhibit MEX-103), p. 4.

risk, and that some intended uses of the commodity (e.g. planting) are associated with a higher probability of a regulated pest establishing than others.³²²²

7.2105. For Mexico, it is arbitrary and entirely unjustified for Costa Rica to apply a maximum ALOP to a situation that involves a negligible risk, not a risk similar to that posed by the importation of avocado plants for planting.³²²³

7.2106. As mentioned, **Costa Rica** states that the importation of plants for planting poses a greater risk than the importation of fresh fruit for consumption, which is clearly reflected in the measures recommended in Costa Rica's general PRA for pests. Costa Rica asserts that, in the case of avocado fruit, the PRA recommends requiring certification that the consignments are free of ASBVd or come from a place of production free of ASBVd, or compliance with a bilaterally-established systems approach programme, verifying the absence of the viroid at the entry point by sampling and testing. Costa Rica adds that, conversely, in the case of plants for planting, the recommended measures are far stricter, namely that the plants for planting must be certified as having been obtained from mother plants that are subject to indexing and analysis at least twice a year, and that the laboratory test results must be attached; and that the plants for planting are subject to post-entry quarantine for a period of up to six months, until tests have been carried out that indicate that they are free of ASBVd.³²²⁴

7.2107. As the **Panel** noted above, Article 5.5 refers to *arbitrary or unjustifiable* distinctions in the levels that a Member considers to be appropriate in different situations. In this regard, as mentioned above, the second element of Article 5.5 implies the existence of arbitrary or unjustifiable differences in the treatment of the different but comparable situations.³²²⁵

7.2108. The Panel observed that Costa Rica appears to consider the same or very similar levels of protection to be appropriate for fresh avocados imported for consumption and avocado plants for planting, as it considers ASBVd to be a quarantine pest, yet it applies different measures for fresh avocado fruit and avocado plants for planting. The Panel considered that, in the case of these two situations, it was necessary to address Mexico's arguments concerning the second element of analysis, i.e. the existence of arbitrary or unjustifiable distinctions in the levels that Costa Rica deems appropriate in different situations.

7.2109. As noted, this Panel considers that its analysis should focus on the justification given for the distinction and on the reasonableness of this justification. In the Panel's view, in the context of Article 5.5 of the SPS Agreement, the justification for according different treatment, or for a distinction in the application of ALOPs in the words of Article 5.5 of the SPS Agreement, must be reconcilable with the objective of protecting against the risk in question, and must have a scientific basis.

7.2110. As point out, in this case, Mexico claims that a *similar* (maximum) ALOP has been applied without technical or scientific reason or justification to two situations that, according to Mexico, involve *clearly different risks*, since the situation of fresh fruits for consumption is one of negligible risk.

7.2111. Costa Rica considers that both situations involve a high risk of entry, establishment and spread of ASBVd, and attributes a cumulative risk score of 39.63/51³²²⁶ to fresh avocado fruit for consumption³²²⁷ in its Report ARP-002-2017, and a cumulative risk score of 42.14/51³²²⁸ to avocado

³²²² Mexico's second written submission, para. 237.

³²²³ Mexico's second written submission, para. 238.

³²²⁴ Costa Rica's response to Panel question No. 172, para. 207.

³²²⁵ Appellate Body Report, *EC – Hormones*, para. 214. See also Panel Report, *US – Poultry (China)*, para. 7.255.

³²²⁶ This figure was corrected by Costa Rica, from (39.63/51) to (39.67/51), in Corrigenda ARP-002-2017 (2019), (Exhibit MEX-131). Costa Rica states that "in July 2019, corrigenda to the PRAs were issued, which correct certain numerical errors, but do not alter the substance of the original PRAs". (Costa Rica's first written submission, fns 62 and 211).

³²²⁷ ARP-002-2017, (Exhibit MEX-84), p. 42; ARP-006-2016, (Exhibit MEX-85), pp. 22-23.

³²²⁸ This figure was corrected by Costa Rica, from (42.14/51) to (41.5/51), in Corrigenda ARP-006-2016 (2019), (Exhibit MEX-123). Costa Rica states that "in July 2019, corrigenda to the PRAs were issued, which correct certain numerical errors, but do not alter the substance of the original PRAs". (Costa Rica's first written submission, fns 62 and 211).

plants for planting³²²⁹ in its Report ARP-006-2016. During the proceedings, Costa Rica has stated that the importation of plants for planting poses a greater risk than the importation of fresh fruit for consumption, which, in Costa Rica's view, is clearly reflected in the measures recommended in Costa Rica's general PRA for pests.³²³⁰

7.2112. The Panel considers that Article 5.5 does not prohibit countries from imposing the same ALOP for two different risks. The Panel recalls that it is the prerogative of the importing Member to establish its ALOP. However, depending on the level of risk that each situation involves, the measures to address the respective risks for the purpose of achieving the ALOP may differ. In other words, if the risk in a situation is higher, the measures may be stricter in order to achieve the given ALOP, and if the risk in the other situation is lower, the measures may be less stringent in order to achieve the same ALOP.

7.2113. The Panel notes that, although Costa Rica seems to agree that the importation of plants for planting poses a higher risk than the importation of fresh fruit for consumption, it assigns a similar risk to the importation of the two products, which is the focus of Mexico's argument. To the extent that Mexico's problem lies with the risk that Costa Rica assigned to fresh avocado fruit imported for consumption, the Panel has already addressed in detail Costa Rica's assessment of this risk. The Panel recalls that it has found flaws in Costa Rica's risk assessment for fresh avocado fruit for consumption that had an impact on the high-risk rating.

7.2114. With respect to the ALOPs, as mentioned, Costa Rica appears to consider the same or very similar levels of protection to be appropriate for fresh avocados imported for consumption and avocado plants for planting, which is not prohibited by Article 5.5, and although it assigns a similar risk to the two products, Costa Rica imposes stricter phytosanitary measures on plants for planting. The Panel therefore does not consider this to be a case of the situation envisaged in Article 5.5, i.e. different levels of protection for similar risks and arbitrary or unjustifiable distinctions in the treatment of similar risks.

7.2115. Accordingly, the Panel considers that Mexico has failed to explain the alleged lack of justification for the application of the ALOPs that Costa Rica considers appropriate in the third two situations, or the relevance of the difference in the risks of entry, establishment and spread of ASBVd posed by the importation of fresh avocado fruit for consumption and of avocado plants for planting to Costa Rica's obligation under Article 5.5 to avoid arbitrary or unjustifiable distinctions in the ALOPs in these situations.

7.2116. The Panel therefore finds that Mexico has failed to demonstrate that there are arbitrary or unjustifiable distinctions in the treatment of the third two different but comparable situations, i.e. fresh avocados imported for consumption in which ASBVd is present *vis-à-vis* avocado plants for planting.

7.6.4.1.3 Whether there is discrimination or a disguised restriction on international trade

7.2117. In the above analysis of the situations identified by Mexico as comparable, the Panel concluded that Mexico has failed to demonstrate that there are arbitrary or unjustifiable distinctions in the levels that Costa Rica regards as appropriate in different situations with respect to two of the three pairs of situations, i.e. fresh avocados for consumption from Mexico *vis-à-vis* fresh avocados for consumption from certificate-issuing countries; and fresh avocados for consumption *vis-à-vis* avocado plants for planting. Considering that the elements of the analysis under Article 5.5 of the SPS Agreement are cumulative, and that the Panel determined that Mexico has failed to demonstrate the first two elements, the Panel would not have to continue the analysis with regard to these two pairs of situations.

7.2118. However, the Panel concluded that there are unjustifiable differences in the treatment of the first two situations, i.e. fresh avocados imported for consumption from countries where ASBVd is present *vis-à-vis* domestic Costa Rican avocados, and the Panel will continue its analysis of these two situations by examining whether there is discrimination or a disguised restriction on international trade, which constitutes the third element of analysis under Article 5.5 of the SPS Agreement. Moreover, in order to be exhaustive in its analysis, the Panel will address Mexico's arguments

³²²⁹ ARP-006-2016, (Exhibit MEX-85), p. 33.

³²³⁰ Costa Rica's response to Panel question No. 172, para. 207.

concerning the existence of discrimination or a disguised restriction on international trade in relation to the other two pairs of situations, in particular its arguments with regard to the warning signals related to this element of the analysis under Article 5.5.

7.2119. **Mexico** submits that the arbitrary and unjustifiable differences between the levels of protection result in discrimination and a disguised restriction on international trade.³²³¹

7.2120. With respect to the first two situations that it indicates as comparable, i.e. fresh avocados imported for consumption from countries where ASBVd is present *vis-à-vis* domestic Costa Rican avocados, Mexico states that the level of protection established through the measures is discriminatory, since fresh avocados from Costa Rica are not subjected to the same treatment.³²³²

7.2121. Mexico asserts that the Costa Rican authorities did not develop the PRAs with sufficient scientific evidence to claim that their measures are based on an adequate risk assessment, which means that the measures are being applied in a manner that discriminates between two situations, without there being scientific evidence to justify the existence of a different ALOP.³²³³ Mexico adds that Costa Rica has used measures allegedly aimed at protecting plant life or health to unjustifiably restrict the trade in fresh avocado fruit in order to protect its domestic industry.³²³⁴

7.2122. Mexico contends that, in the three pairs of situations that it indicates as comparable, there is the presence of the three warning signals that indicate whether the application of distinctions in the appropriate levels of protection in different situations results in discrimination or a disguised restriction on international trade.³²³⁵

7.2123. Mexico refers to its arguments concerning the arbitrary and unjustifiable nature of the application of Costa Rica's ALOPs in the three different but comparable situations, and notes the presence of *the first warning signal*, which demonstrates that Costa Rica's measure constitutes a disguised restriction on international trade.³²³⁶

7.2124. Mexico submits that *the second warning signal* is also present, and points to the rather substantial difference in the levels of protection.

7.2125. Regarding the first two situations that it indicates as comparable, i.e. fresh avocados imported for consumption from countries where ASBVd is present *vis-à-vis* domestic Costa Rican avocados, Mexico argues that the ALOPs applied to fresh avocados imported for consumption from countries where ASBVd is present and to domestic Costa Rican avocados are, respectively, maximum and complete tolerance, and thus, according to Mexico, there is a huge difference between the two ALOPs.³²³⁷

7.2126. With respect to the second two situations that it indicates as comparable, i.e. fresh avocados imported from Mexico *vis-à-vis* avocados imported from certificate-issuing countries where ASBVd is present, Mexico submits that the extent of the discrepancy between the levels of protection is significant, since the application of a maximum ALOP and a moderate or low ALOP implies a considerable degree of difference. Mexico states that these ALOPs are reflected in the fact that, on the one hand, Costa Rica prevents the entry of fresh avocados imported for consumption from Mexico, and on the other, it allows the entry of fresh avocados for consumption from countries where ASBVd is present, subject merely to the issuance of a certificate that has been proved not to be correct and that allows the entry of 10 full containers of avocados, with the only limitation being that 620 of the avocados are analysed. For Mexico, if ASBVd is not detected in the fruit that is analysed, the situation is aggravated, because permission is given for the entry of 20 containers of avocados, with the analysis this time being limited to 496 avocados. Mexico asserts that this means that Costa Rica applies a moderate or low ALOP to avocados from countries with ASBVd that issue

³²³¹ Mexico's first written submission, p. 136; second written submission, p. 56.

³²³² Mexico's first written submission, para. 539.

³²³³ Mexico's first written submission, para. 539.

³²³⁴ Mexico's first written submission, para. 540.

³²³⁵ Mexico's second written submission, paras. 239-244.

³²³⁶ Mexico's second written submission, para. 240.

³²³⁷ Mexico's second written submission, para. 241.

ASBVd-free consignment certificates and a maximum ALOP to those that do not issue certificates, even though the risk in the two situations is the same.³²³⁸

7.2127. As for the third two situations that it indicates as comparable, i.e. fresh avocados imported for consumption in which ASBVd is present *vis-à-vis* avocado plants for planting, Mexico submits that the degree of difference, or the extent of the discrepancy, in the levels of protection is also considerable. Mexico asserts that, although Costa Rica's ALOP for fresh fruit imported for consumption from countries where ASBVd is present is the same as that for avocado plants for planting, there is ultimately an inconsistency. For Mexico, the risk posed by the importation of fresh fruit for consumption with regard to the entry, establishment and spread of ASBVd is negligible or even zero, while an avocado plant imported for the sole and unchanging purpose of planting carries a high risk of transmission of ASBVd. Mexico states that, despite the inconsistency in Costa Rica's risk rating, the two scenarios outlined would entail the application of different ALOPs, but this has not happened because Costa Rica appears to have determined its ALOP on the basis of the measures and not the other way around, as required by the regulations.³²³⁹

7.2128. Mexico further submits that Costa Rica's measures lack scientific justification and were not based on a risk assessment appropriate to the circumstances, rendering them inconsistent with Article 5.1 of the SPS Agreement. Mexico asserts that, therefore, the *third warning signal* is present and it can be seen that there is a disguised restriction on international trade.³²⁴⁰

7.2129. **Costa Rica** reiterates that Mexico has failed to demonstrate that Costa Rica is acting inconsistently with Article 5.5 of the SPS Agreement.³²⁴¹

7.2130. The **Panel** notes that the third element of the analysis under Article 5.5 involves examining whether the arbitrary or unjustifiable differences result in discrimination or a disguised restriction on international trade.³²⁴²

7.2131. In this regard, as mentioned, the Appellate Body in *EC – Hormones* understood this element to be referring to the measure embodying or implementing a particular level of protection as resulting, in its application, in discrimination or a disguised restriction on international trade³²⁴³, and that a panel must analyse the circumstances of each individual case.³²⁴⁴

7.2132. Mexico refers to the three "warning signals" that the measure may constitute a disguised restriction on international trade, as identified by the panel in *Australia – Salmon*.

7.2133. The three signals identified were:

- a. The arbitrary or unjustifiable character of differences in levels of protection³²⁴⁵;
- b. The rather substantial difference in levels of protection³²⁴⁶; and
- c. The inconsistency of the SPS measure at issue with Articles 5.1 and 2.2 of the SPS Agreement.³²⁴⁷

7.2134. With respect to the first warning signal, i.e. the arbitrary or unjustifiable character of differences in levels of protection, in the second and third pairs of situations, i.e. fresh avocados for consumption from Mexico *vis-à-vis* fresh avocados for consumption from certificate-issuing

³²³⁸ Mexico's second written submission, para. 242.

³²³⁹ Mexico's second written submission, para. 243.

³²⁴⁰ Mexico's second written submission, para. 244.

³²⁴¹ Costa Rica's response to Panel question No. 172, para. 212.

³²⁴² Appellate Body Report, *EC – Hormones*, para. 214.

³²⁴³ Appellate Body Report, *EC – Hormones*, para. 214.

³²⁴⁴ Appellate Body Report, *EC – Hormones*, para. 240.

³²⁴⁵ Appellate Body Report, *Australia – Salmon*, para. 161 (citing Panel Report, *Australia – Salmon*, para. 8.149).

³²⁴⁶ Appellate Body Report, *Australia – Salmon*, para. 163 (citing Panel Report, *Australia – Salmon*, para. 8.150).

³²⁴⁷ Appellate Body Report, *Australia – Salmon*, para. 165 (citing Panel Report, *Australia – Salmon*, para. 8.151).

countries, and fresh avocados for consumption *vis-à-vis* avocado plants for planting, the Panel concluded that Mexico has failed to demonstrate that there are arbitrary or unjustifiable distinctions in the levels that Costa Rica regards as appropriate in different situations.

7.2135. By contrast, with respect to the first two situations, i.e. fresh avocados imported for consumption from countries where ASBVd is present *vis-à-vis* domestic Costa Rican avocados, the Panel concluded that there are unjustifiable differences in the treatment of these situations, bearing in mind its conclusion that Costa Rica's determination of freedom from ASBVd is not legitimately scientific, which means that the distinction between the two situations cannot be regarded as scientifically justified.

7.2136. Regarding the second warning signal, i.e. the rather substantial difference in levels of protection, the Panel notes that the only two situations identified by Mexico in which there are rather substantial differences in levels of protection are the first two situations, i.e. fresh avocados imported for consumption from countries where ASBVd is present and domestic Costa Rican avocados. This is because there are no regulations with respect to ASBVd that are directly applicable to avocados of Costa Rican origin, in contrast to the phytosanitary requirements imposed on avocados imported from countries where ASBVd is present.

7.2137. With regard to the last warning signal, i.e. the inconsistency of the SPS measure at issue with Articles 5.1 and 2.2 of the SPS Agreement, this Panel notes that, in section 7.4.8 above, it concluded that Costa Rica has acted inconsistently with Articles 5.1, 5.2 and 5.3 of the SPS Agreement, by failing to ensure that its phytosanitary measures are based on an assessment, as appropriate to the circumstances, of the risks to plant life or health, and failing to take into account available scientific evidence and the prevalence of specific diseases or pests, or the relevant economic factors in Article 5.3. The Panel also concluded that Costa Rica has acted inconsistently with Article 2.2 of the SPS Agreement, by failing to ensure that its phytosanitary measures were based on scientific principles and were not maintained without sufficient scientific evidence.

7.2138. In light of the foregoing, the Panel is of the view that, in the first two situations, the three warning signals of a disguised restriction on international trade that were identified in *Australia – Salmon* can be detected.

7.2139. The foregoing is sufficient, under the circumstances of this dispute, for the Panel to find that, in respect of the first two situations that Mexico has indicated as comparable, i.e. fresh avocados imported for consumption from countries where ASBVd is present *vis-à-vis* domestic Costa Rican avocados in which ASBVd is likely to be present, there are arbitrary or unjustifiable distinctions in the levels of protection that Costa Rica considers to be appropriate in different situations, which result in discrimination or a disguised restriction on international trade, and that, therefore, Costa Rica has acted inconsistently with Article 5.5 of the SPS Agreement.

7.2140. With regard to the second and third two situations that Mexico has indicated as comparable, i.e. fresh avocados imported from Mexico *vis-à-vis* avocados imported from certificate-issuing countries where ASBVd is present, and fresh avocados imported for consumption in which ASBVd is present *vis-à-vis* avocado plants for planting, the Panel finds that Mexico has failed to demonstrate that there are arbitrary or unjustifiable distinctions in the levels of protection that Costa Rica considers to be appropriate in different situations, which result in discrimination or a disguised restriction on international trade.

7.6.4.2 Conclusion with respect to Article 5.5 of the SPS Agreement

7.2141. The Panel recalls that, in its analyses of the three situations identified by Mexico as comparable, it concluded that:

- a. In respect of the first two situations that Mexico has indicated as comparable, i.e. fresh avocados imported for consumption from countries where ASBVd is present *vis-à-vis* domestic Costa Rican avocados, there are arbitrary or unjustifiable distinctions in the levels of protection that Costa Rica considers to be appropriate in different situations, which result in discrimination or a disguised restriction on international trade. Therefore, Costa Rica has acted inconsistently with Article 5.5 of the SPS Agreement.

- b. With regard to the second two situations that Mexico has indicated as comparable, i.e. fresh avocados imported from Mexico *vis-à-vis* avocados imported from certificate-issuing countries where ASBVd is present, Mexico has failed to demonstrate that there are arbitrary or unjustifiable distinctions in the levels of protection that Costa Rica considers to be appropriate in different situations, which result in discrimination or a disguised restriction on international trade.
- c. In respect of the third two situations that Mexico has indicated as comparable, i.e. fresh avocados imported for consumption in which ASBVd is present *vis-à-vis* avocado plants for planting, Mexico has failed to demonstrate that there are arbitrary or unjustifiable distinctions in the levels of protection that Costa Rica considers to be appropriate in different situations, which result in discrimination or a disguised restriction on international trade.

7.6.5 Legal standard under Article 2.3 of the SPS Agreement

7.2142. In this section, the Panel will explain how other panels and the Appellate Body have interpreted Article 2.3 of the SPS Agreement. The Panel will be guided by these interpretations to the extent that they are relevant to its analysis.

7.2143. The panel in *Russia – Pigs (EU)* noted that Article 2.3 of the SPS Agreement contains two primary obligations set forth in each of the two sentences of that Article.³²⁴⁸

7.2144. The first sentence of Article 2.3 of the SPS Agreement requires Members to ensure that their sanitary and phytosanitary measures do not arbitrarily or unjustifiably discriminate between Members where identical or similar conditions prevail, including between their own territory and that of other Members. The second sentence of Article 2.3 requires that SPS measures shall not be applied in a manner which would constitute a disguised restriction on international trade.

7.2145. With regard to the first sentence of Article 2.3, the Appellate Body noted in *Australia – Salmon* that discrimination between Members, including their own territory and that of other Members within the meaning of Article 2.3, first sentence, can be established by following the complex and indirect route worked out and elaborated by Article 5.5. However, this route is not the only route leading to a finding that an SPS measure constitutes arbitrary or unjustifiable discrimination according to Article 2.3, first sentence.³²⁴⁹

7.2146. The Appellate Body noted in *India – Agricultural Products* and *Korea – Radionuclides* that a complainant bears the burden of establishing that a measure is inconsistent with Article 2.3, first sentence.³²⁵⁰

7.2147. Previous panels have pointed out that the obligation under the first sentence of Article 2.3 consists of three elements, namely: (i) the measure discriminates between the territories of Members other than the Member imposing the measure, or between the territory of the Member imposing the measure and that of another Member; (ii) the discrimination is arbitrary or unjustifiable; and (iii) identical or similar conditions prevail in the territory of the Members compared.³²⁵¹

7.2148. In *India – Agricultural Products*, the Appellate Body observed that the three elements identified in the first sentence of Article 2.3 inform each other, such that the analysis of each element cannot be undertaken in strict isolation from the analysis of the other two elements.³²⁵² The Appellate Body considered that the analytical approach adopted by a panel may vary as a function of, *inter alia*, the measure at issue, the nature of the alleged discrimination, and the particular circumstances of a case.³²⁵³ In that connection, the Appellate Body explained that identifying the

³²⁴⁸ Panel Reports, *Russia – Pigs (EU)*, para. 7.1296; and *India – Agricultural Products*, para. 7.388.

³²⁴⁹ Appellate Body Report, *Australia – Salmon*, para. 252.

³²⁵⁰ Appellate Body Reports, *India – Agricultural Products*, para.5.260; and *Korea – Radionuclides*, para. 5.58.

³²⁵¹ Panel Reports, *Russia – Pigs (EU)*, para. 7.1297; *India – Agricultural Products*, para. 7.389; *Australia – Salmon (Article 21.5 – Canada)*, para. 7.111; and *US – Poultry (China)*, para. 7.317.

³²⁵² Appellate Body Report, *India – Agricultural Products*, para. 5.261.

³²⁵³ Appellate Body Report, *India – Agricultural Products*, para. 5.261.

relevant conditions, and assessing whether they are identical or similar, will often provide a good starting point.³²⁵⁴

7.2149. The Appellate Body in *Korea – Radionuclides* pointed out that the relevant conditions under Article 2.3 must be identified subject to the particular nature of the measure and the specific circumstances of the case.³²⁵⁵ The Appellate Body noted that conditions relating to the particular objective pursued and risks addressed by the SPS measure in question are relevant for the analysis of whether identical or similar conditions prevail between Members.³²⁵⁶ The Appellate Body explained that the analysis under Article 2.3 entails consideration of all relevant conditions in different Members, including territorial conditions that may not yet have manifested in products but are relevant in light of the regulatory objective and specific SPS risks at issue.³²⁵⁷

7.2150. For example, in previous disputes, the presence or incidence of a disease in a Member's territory has been considered a relevant condition for the purposes of the analysis under the first sentence of Article 2.3 of the SPS Agreement.³²⁵⁸

7.2151. With regard to discrimination, the Appellate Body pointed out in *Australia – Salmon* that the first sentence of Article 2.3 of the SPS Agreement takes up obligations similar to those arising under Article I:1 and Article III:4 of the GATT 1994 and incorporates part of the *chapeau* to Article XX of the GATT 1994.³²⁵⁹

7.2152. The panel in *US – Animals* also considered that the *chapeau* of Article XX of the GATT 1994 provides a useful context for the interpretation of the terms of Article 2.3, noting a number of similarities between the *chapeau* of Article XX of the GATT 1994 and Article 2.3 of the SPS Agreement, and the reference in the preamble of the SPS Agreement to Article XX(b) of the GATT 1994.^{3260, 3261}

7.2153. Similarly, the panel in *Russia – Pigs (EU)* stated that it drew guidance, *inter alia*, for how the term "discrimination" had been interpreted in the *chapeau* of Article XX of the GATT 1994.³²⁶² With regard to whether discrimination is arbitrary or unjustifiable, that panel noted that, in *Brazil – Retreaded Tyres*, the Appellate Body focused its analysis on whether the measure at issue bore a "rational connection to" its stated objective of protecting human life or health under Article XX(b).³²⁶³ That panel added that this approach was adopted by the panels in *US – Poultry (China)*, *India – Agricultural Products* and *US – Animals* in their analysis under Article 2.3 of the SPS Agreement.³²⁶⁴

³²⁵⁴ Appellate Body Report, *India – Agricultural Products*, para. 5.261. See also Appellate Body Report, *Korea – Radionuclides*, para. 5.58.

³²⁵⁵ Appellate Body Report, *Korea – Radionuclides*, para. 5.59.

³²⁵⁶ Appellate Body Report, *Korea – Radionuclides*, para. 5.59.

³²⁵⁷ Appellate Body Report, *Korea – Radionuclides*, paras. 5.63-5.65.

³²⁵⁸ Expressing doubts as to whether "identical or similar conditions" prevail in the territories of the claimant and the respondent, the panel in *Australia – Salmon (Article 21.5 – Canada)* noted the substantial difference in the status of the diseases in question. (Panel Report, *Australia – Salmon (Article 21.5 – Canada)*, para. 7.113).

The panel in *India – Agricultural Products* considered that the relevant "conditions" for its analysis under Article 2.3 referred to the presence of notifiable avian influenza (NAI) in the respondent or another Member, because that was the relevant distinction that triggered the import prohibition in that case. (Panel Report, *India – Agricultural Products*, paras. 7.461-7.463).

The panel in *Russia – Pigs (EU)* agreed that the relevant conditions for the purposes of a given analysis in the first sentence of Article 2.3 may be the presence of a disease within a territory and the concomitant risk associated with that disease. (Panel Report, *Russia – Pigs (EU)*, para. 7.1311).

³²⁵⁹ Appellate Body Report, *Australia – Salmon*, paras. 250-251.

³²⁶⁰ The last recital of the preamble of the SPS Agreement states that the Members of the WTO desire to "elaborate rules for the application of the provisions of GATT 1994 which relate to the use of sanitary and phytosanitary measures, in particular the provisions of Article XX(b)", and the footnote to this recital specifies that "[i]n this Agreement, reference to Article XX(b) of includes also the *chapeau* of that Article".

³²⁶¹ Panel Report, *Russia – Pigs (EU)*, para. 7.1316 (citing Panel Report, *US – Animals*, para. 7.570).

³²⁶² Panel Report, *Russia – Pigs (EU)*, para. 7.1313.

³²⁶³ Panel Report, *Russia – Pigs (EU)*, para. 7.1321 (citing Appellate Body Report, *Brazil – Retreaded Tyres*, para. 227).

³²⁶⁴ Panel Report, *Russia – Pigs (EU)*, para. 7.1321 (citing Panel Reports, *US – Poultry (China)*, para. 7.261; and *India – Agricultural Products*, para. 7.429). See also Panel Report, *US – Animals*, para. 7.574.

7.2154. The panel in *US – Animals* considered applicable to the concept of discrimination in the context of Article 2.3 the reasoning of the Appellate Body in the context of Article 5.5 of the SPS Agreement, in the sense that one of the "warning signals" pointing to the existence of discrimination was the "rather substantial difference" between the import prohibition on the relevant products originating in the territory of one Member and the tolerance for imports of another product, presenting a similar level of risk, originating in the territory of another Member.³²⁶⁵ The panel in *Russia – Pigs (EU)* referred to the finding of the Appellate Body in the context of Article 5.5 that the measure at issue was arbitrarily and unjustifiably discriminatory because it treated differently two products that presented the same level of risk.³²⁶⁶

7.2155. Moreover, the Appellate Body in *India – Agricultural Products* and the panel in *Russia – Pigs (EU)* observed that, notwithstanding certain similarities between the language of Article 2.3 of the SPS Agreement and that of the *chapeau* of Article XX of the GATT 1994, these provisions are of a different legal character, given that Article 2.3 sets out an obligation and is not expressed in the form of an exception, and they require a different allocation in the applicable burden of proof.³²⁶⁷

7.2156. With respect to the obligation contained in the second sentence of Article 2.3, the panel in *India – Agricultural Products* referred to the Appellate Body's observations regarding what factors might indicate that a Member maintains a disguised restriction on international trade within the context of Article 5.5 of the SPS Agreement.³²⁶⁸

7.2157. The same panel observed that the Appellate Body had said, in the context of Article XX of the GATT 1994, that disguised restriction, whatever else it covers, may properly be read as embracing restrictions amounting to arbitrary or unjustifiable discrimination in international trade taken under the guise of a measure formally within the terms of an exception listed in Article XX.³²⁶⁹ Regarding the similarities between Article XX of the GATT 1994 and Article 2.3 of the SPS Agreement, the panel considered that "disguised restriction on international trade" may similarly be read to encompass measures that constitute arbitrary or unjustifiable discrimination.³²⁷⁰

7.2158. Turning to the relationship between Articles 2.3 and 5.5 of the SPS Agreement, the Appellate Body pointed out in *EC – Hormones* that Article 2.3 is an important part of the context of Article 5.5, and that, when read together with Article 2.3, Article 5.5 "may be seen to be marking out and elaborating a particular route leading to the same destination" set out in Article 2.3.³²⁷¹ The Appellate Body in *India – Agricultural Products* also emphasized the "close link" that exists between Articles 2.3 and 5.5 of the SPS Agreement.³²⁷²

7.2159. The Appellate Body pointed out in *Australia – Salmon* that a finding of violation of Article 5.5 will necessarily imply a violation of Article 2.3, first sentence, or Article 2.3, second sentence.³²⁷³ The panels in *US – Poultry (China)* and *India – Agricultural Products* followed the Appellate Body's assertion.³²⁷⁴ In *Australia – Salmon*, the Appellate Body noted, however, that a violation of Article 5.5 is not the only route leading to a finding that an SPS measure constitutes arbitrary or unjustifiable discrimination according to Article 2.3, first sentence.³²⁷⁵

³²⁶⁵ Panel Report, *US – Animals*, para. 7.585 (citing Appellate Body Report, *Australia – Salmon*, para. 163; and Panel Report, *US – Poultry (China)*, para. 7.285).

³²⁶⁶ Panel Report, *Russia – Pigs (EU)*, para. 7.1322 (citing Appellate Body Report, *Australia – Salmon*, para. 158).

³²⁶⁷ Panel Report, *Russia – Pigs (EU)*, para. 7.1319; and Appellate Body Report, *India – Agricultural Products*, para. 5.260.

³²⁶⁸ Panel Report, *India – Agricultural Products*, para. 7.475.

³²⁶⁹ Panel Report, *India – Agricultural Products*, para. 7.476 (citing Appellate Body Report, *US – Gasoline*, p. 25).

³²⁷⁰ Panel Report, *India – Agricultural Products*, para. 7.476.

³²⁷¹ Appellate Body Report, *EC – Hormones*, para. 212. See also Appellate Body Report, *EC – Hormones*, para. 238.

³²⁷² Appellate Body Report, *India – Agricultural Products*, para. 5.12 (citing Appellate Body Report, *EC – Hormones*, para. 212).

³²⁷³ Appellate Body Report, *Australia – Salmon*, para. 252.

³²⁷⁴ See Panel Reports, *US – Poultry (China)*, para. 7.319; and *India – Agricultural Products*, fn 888 (citing Panel Report, *Australia – Salmon*, para. 8.109; and Appellate Body Report, *Australia – Salmon*, para. 178).

³²⁷⁵ Appellate Body Report, *Australia – Salmon*, para. 252.

7.2160. Furthermore, the panel in *Russia – Pigs (EU)* pointed out that Article 2.3 is of a more general character than Article 5.5, and that a violation of Article 2.3. will not necessarily imply a violation of Article 5.5.³²⁷⁶

7.6.6 The Panel's analysis

7.2161. **Mexico** submits that Costa Rica's phytosanitary measures are inconsistent with Article 2.3 of the SPS Agreement.³²⁷⁷

7.2162. Mexico contends that WTO case law has determined that, by referring to disguised restrictions on international trade, Article 2.3 is very closely linked to Article 5.5 of the SPS Agreement. Mexico states that it has demonstrated convincingly that Costa Rica's measures constitute a violation of Article 5.5 of the SPS Agreement, which is the most complex route for demonstrating discrimination, signifying that Costa Rica's measures represent a disguised restriction on international trade within the meaning of Article 2.3 of the same Agreement and are inconsistent with it.³²⁷⁸

7.2163. Mexico adds that its claim under Article 2.3 refers to both sentences of the Article, and that in its panel request, which sets out the panel's terms of reference, Mexico pointed out that the measures at issue are inconsistent with Article 2.3 of the SPS Agreement, as Costa Rica's measures are applied in a manner that constitutes a disguised restriction on international trade and because they arbitrarily or unjustifiably discriminate between Costa Rica's own territory and that of Mexico.³²⁷⁹

7.2164. **Costa Rica** contends that Mexico has failed to substantiate its allegations of discrimination.³²⁸⁰ Costa Rica states that Mexico's claims under Article 2.3 are unfounded, because, as the situations are not comparable, there is no discrimination.³²⁸¹

7.2165. Costa Rica asserts that Mexico's claim under Article 2.3 of the SPS Agreement is based entirely on the premise that ASBVd is present in Costa Rica, a premise that Costa Rica considers to be factually incorrect. In Costa Rica's view, the situations in Mexico and in Costa Rica are not comparable, as ASBVd is present in Mexico and it is not in Costa Rica.³²⁸² Costa Rica submits that is why it is not required to extend the same treatment to different situations.³²⁸³ Costa Rica uses the same arguments that it presented under Article 5.5 on this matter.³²⁸⁴

7.2166. Costa Rica points out that Mexico's claim under Article 2.3 of the SPS Agreement is based only on the alleged violation of Article 5.5 of the same Agreement, and, given that Mexico has failed to establish a violation of Article 5.5 of the SPS Agreement, it has consequently failed to satisfy its burden of proof under Article 2.3 of the SPS Agreement. Costa Rica adds that, since ASBVd is present in Mexico and absent in Costa Rica, Mexico has failed to demonstrate that the situations in the two countries are comparable and has thus failed to substantiate its allegation that there are arbitrary or unjustifiable distinctions within the meaning of Article 5.5 of the SPS Agreement, and its consequential claim of discrimination under Article 2.3 of the SPS Agreement.³²⁸⁵

7.2167. The **Panel** recalls that Article 2.3 of the SPS Agreement contains two primary obligations set forth in each of the two sentences of that Article.³²⁸⁶ The first sentence of Article 2.3 of the SPS Agreement requires Members to ensure that their sanitary and phytosanitary measures do not

³²⁷⁶ Panel Report, *Russia – Pigs (EU)*, para. 7.1403 (citing Panel Report, *Australia – Salmon*, para. 8.109).

³²⁷⁷ Mexico's first written submission, p. 137; second written submission, p. 57.

³²⁷⁸ Mexico's first written submission, para. 545; second written submission, para. 247; response to Panel question No. 174, para. 159.

³²⁷⁹ Mexico's response to Panel question No. 174, para. 157.

³²⁸⁰ Costa Rica's first written submission, p. 72.

³²⁸¹ Costa Rica's first written submission, para. 5.197.

³²⁸² Costa Rica's first written submission, para. 5.206; response to Panel question No. 61, para. 2; second written submission, paras. 3.75 and 3.82-3.83.

³²⁸³ Costa Rica's second written submission, para. 3.75.

³²⁸⁴ Costa Rica's first written submission, paras. 5.207-5.209; second written submission, paras. 3.84-3.87.

³²⁸⁵ Costa Rica's first written submission, para. 5.211; second written submission, para. 3.88.

³²⁸⁶ Panel Reports, *Russia – Pigs (EU)*, para. 7.1296; and *India – Agricultural Products*, para. 7.388.

arbitrarily or unjustifiably discriminate between Members where identical or similar conditions prevail, including between their own territory and that of other Members. The second sentence of Article 2.3 requires that SPS measures shall not be applied in a manner which would constitute a disguised restriction on international trade.

7.2168. In the Panel's view, Mexico presents its claim under Article 2.3 of the SPS Agreement as consequential to Article 5.5 of the SPS Agreement, by noting that the demonstration of inconsistency with Article 5.5 implies an inconsistency with Article 2.3.

7.2169. The Appellate Body pointed out that Article 2.3 is an important part of the context of Article 5.5; that, when read together with Article 2.3, Article 5.5 "may be seen to be marking out and elaborating a particular route leading to the same destination" set out in Article 2.3³²⁸⁷; and that there is a "close link" between Articles 2.3 and 5.5 of the SPS Agreement.³²⁸⁸ The Appellate Body also observed that a finding of violation of Article 5.5 will necessarily imply a violation of Article 2.3, first sentence, or Article 2.3, second sentence.³²⁸⁹

7.2170. This Panel notes that Article 2 of the SPS Agreement, entitled "Basic Rights and Obligations", prohibits, through Article 2.3, SPS measures from arbitrarily or unjustifiably discriminating between Members and from constituting a disguised restriction on international trade, which has been developed in Article 5.5 of the SPS Agreement in the context of the application of the concept of appropriate level of sanitary or phytosanitary protection. In fact, in previous disputes, in their analyses of arbitrary or unjustifiable discrimination or a disguised restriction on trade, previous panels have referred to the Appellate Body's interpretations and reasoning in the context of Article 5.5.³²⁹⁰ Moreover, the Panel notes that Mexico has not presented new arguments under Article 2.3 of the SPS Agreement.

7.2171. The Panel has already found that, in respect of the first two situations that Mexico has indicated as comparable under Article 5.5, i.e. fresh avocados imported for consumption from countries where ASBVd is present *vis-à-vis* domestic Costa Rican avocados in which ASBVd is likely to be present, there are arbitrary or unjustifiable distinctions in the levels of protection that Costa Rica considers to be appropriate in different situations, which result in discrimination or a disguised restriction on international trade, and that, therefore, Costa Rica has acted inconsistently with Article 5.5 of the SPS Agreement.

7.2172. With regard to the second and third two situations that Mexico has indicated as comparable, i.e. fresh avocados imported from Mexico *vis-à-vis* avocados imported from certificate-issuing countries where ASBVd is present, and fresh avocados imported for consumption in which ASBVd is present *vis-à-vis* avocado plants for planting, the Panel has found that Mexico has failed to demonstrate that there are arbitrary or unjustifiable distinctions in the levels of protection that Costa Rica considers to be appropriate in different situations, which result in discrimination or a disguised restriction on international trade.

7.2173. Mexico points out that its claim under Article 2.3 of the SPS Agreement refers to both sentences of the Article. In its panel request, Mexico refers to the measures at issue as being inconsistent with Article 2.3 of the SPS Agreement, as those measures are applied in a manner that constitutes a disguised restriction on international trade and because they arbitrarily or unjustifiably discriminate between Costa Rica's own territory and that of Mexico. In the Panel's view, Mexico links the discrimination to the first two situations only, i.e. fresh avocados imported for consumption from countries where ASBVd is present *vis-à-vis* domestic Costa Rican avocados; and the disguised restriction on trade to all three pairs of comparable situations that it identifies, i.e. fresh avocados imported for consumption from countries where ASBVd is present *vis-à-vis* domestic Costa Rican avocados; fresh avocados imported from Mexico *vis-à-vis* avocados imported from certificate-issuing

³²⁸⁷ Appellate Body Report, *EC – Hormones*, para. 212. See also Appellate Body Report, *EC – Hormones*, para. 238.

³²⁸⁸ Appellate Body Report, *India – Agricultural Products*, para. 5.12 (citing Appellate Body Report, *EC – Hormones*, para. 212).

³²⁸⁹ Appellate Body Report, *Australia – Salmon*, para. 252.

³²⁹⁰ See Panel Reports, *US – Animals*, para. 7.585 (citing Appellate Body Report, *Australia – Salmon*, para. 163; and Panel Report, *US – Poultry (China)*, para. 7.285); *India – Agricultural Products*, para. 7.475; and *Russia – Pigs (EU)*, para. 7.1322 (citing Appellate Body Report, *Australia – Salmon*, para. 158).

countries where ASBVd is present; and fresh avocados imported for consumption in which ASBVd is present *vis-à-vis* avocado plants for planting.

7.2174. For the same reasons set out in its analysis of Mexico's claims under Article 5.5 of the SPS Agreement with respect to the first two comparable situations, the Panel considers that Costa Rica's phytosanitary measures arbitrarily or unjustifiably discriminate between its own territory and that of Mexico. In particular, the Panel reiterates that, given that Costa Rica's determination of freedom from ASBVd is not legitimately scientific, the rather substantial difference between the treatment of fresh avocados imported for consumption from countries where ASBVd is present and domestic Costa Rican avocados cannot be considered to be scientifically justified.

7.2175. The Panel also notes the panel's consideration in *India – Agricultural Products* in the sense that "disguised restriction on international trade" may similarly be read to encompass measures that constitute arbitrary or unjustifiable discrimination.³²⁹¹ In light of the foregoing and the reasons set out in its analysis of Mexico's claims under Article 5.5 of the SPS Agreement with respect to the first two comparable situations, the Panel also finds that Costa Rica's phytosanitary measures are applied in a manner which constitutes a disguised restriction on international trade, within the meaning of the second sentence of Article 2.3 of the SPS Agreement.

7.2176. Also for the same reasons set forth in its analysis of Mexico's claims under Article 5.5 of the SPS Agreement, the Panel considers that Mexico has failed to satisfy its burden of proof under Article 2.3 in respect of the other two pairs of situations that it has indicated as comparable, i.e. fresh avocados imported from Mexico *vis-à-vis* avocados imported from certificate-issuing countries where ASBVd is present, and fresh avocados imported for consumption in which ASBVd is present *vis-à-vis* avocado plants for planting.

7.2177. Therefore, the Panel concludes that Costa Rica's phytosanitary measures, i.e. Resolutions DSFE-002-2018 and DSFE-003-2018, which contain the phytosanitary requirements, arbitrarily or unjustifiably discriminate between Costa Rica's own territory and that of Mexico, and are applied in a manner which constitutes a disguised restriction on international trade. Thus, Costa Rica has acted inconsistently with the first and second sentences of Article 2.3 of the SPS Agreement.

7.6.7 Overall conclusion of this section

7.2178. The Panel concludes that, in respect of the first two situations that Mexico has indicated as comparable, i.e. fresh avocados imported for consumption from countries where ASBVd is present *vis-à-vis* domestic Costa Rican avocados in which ASBVd is likely to be present, there are arbitrary or unjustifiable distinctions in the levels of protection that Costa Rica considers to be appropriate in different situations, which result in discrimination or a disguised restriction on international trade. Therefore, Costa Rica has acted inconsistently with Article 5.5 of the SPS Agreement.

7.2179. The Panel also concludes that Costa Rica's phytosanitary measures, i.e. Resolutions DSFE-002-2018 and DSFE-003-2018, which contain the phytosanitary requirements, arbitrarily or unjustifiably discriminate between its own territory and that of Mexico, and are applied in a manner which constitutes a disguised restriction on international trade. Thus, Costa Rica has acted inconsistently with the first and second sentences of Article 2.3 of the SPS Agreement.

7.7 Mexico's claims with respect to the obligations under the SPS Agreement regarding adaptation to regional conditions

7.7.1 General introduction to the section

7.2180. Mexico claims that Costa Rica's measures are inconsistent with Article 6.1 of the SPS Agreement³²⁹², because Costa Rica's risk assessment failed to take into account the factors in the second sentence of Article 6.1, in particular, the level of prevalence of ASBVd in its territory and in that of the exporting countries, the existence of eradication or control programmes, and appropriate criteria or guidelines which may be developed by the relevant international organizations³²⁹³; and

³²⁹¹ Panel Report, *India – Agricultural Products*, para. 7.476.

³²⁹² Mexico's first written submission, p. 144 and para. 608.

³²⁹³ Mexico's first written submission, pp. 145-147.

Costa Rica failed to ensure that its measures were adapted to the phytosanitary characteristics of its territory and to those of the other avocado-producing countries.³²⁹⁴

7.2181. Costa Rica submits that Mexico's claim is unfounded and based entirely on the premise that ASBVd is present in Costa Rica, but that this premise is factually incorrect. Costa Rica asserts that it took into account the relevant factual information on the phytosanitary characteristics of its territory and, in light of this information, reached the conclusion that it did not need to adapt the phytosanitary measures to its territory because ASBVd is absent from Costa Rica.³²⁹⁵

7.2182. The Panel will examine below whether Mexico has demonstrated that Costa Rica has acted inconsistently with Article 6.1 of the SPS Agreement by failing to take into account the factors in the second sentence of this Article, and by failing to ensure that its measures are adapted to the phytosanitary characteristics of its territory.³²⁹⁶

7.2183. To that end, the Panel will first set forth the relevant legal provisions and the legal standard, and will then conduct the necessary analysis.

7.7.2 The relevant legal provisions

7.2184. Article 6.1 of the SPS Agreement provides:

Members shall ensure that their sanitary or phytosanitary measures are adapted to the sanitary or phytosanitary characteristics of the area — whether all of a country, part of a country, or all or parts of several countries — from which the product originated and to which the product is destined. In assessing the sanitary or phytosanitary characteristics of a region, Members shall take into account, *inter alia*, the level of prevalence of specific diseases or pests, the existence of eradication or control programmes, and appropriate criteria or guidelines which may be developed by the relevant international organizations.

7.7.3 Legal standard under Article 6.1 of the SPS Agreement

7.2185. In this section, the Panel will describe how other panels and the Appellate Body have interpreted Article 6.1 of the SPS Agreement. The Panel will be guided by these interpretations to the extent that they are relevant to its analysis.

7.2186. The first sentence of Article 6.1 requires WTO Members to ensure that their sanitary or phytosanitary measures are adapted to the sanitary or phytosanitary characteristics of the area from which the product originated and to which the product is destined.

7.2187. The Appellate Body in *India – Agricultural Products* defined the verb "ensure", in accordance with the ordinary meaning of the word, as "to make certain the occurrence of a situation or outcome" and "adapt" as "fit, adjust (to); make suitable (to or for)".³²⁹⁷ This Panel notes that, in this connection, the *Diccionario de la lengua española* of the Real Academia Española defines "asegurarse" ("ensure") as "*hacer que alguien o algo queden seguros o firmes*" ("make someone or something safe or secure") and "*hacer que algo quede seguro o garantizado*" ("make something certain or guaranteed"), and "adaptar" ("adapt") as "*acomodar, ajustar algo a otra cosa*" ("accommodate, adjust something to something else").³²⁹⁸

³²⁹⁴ Mexico's first written submission, p. 147.

³²⁹⁵ Costa Rica's first written submission, paras. 5.256 and 5.265; second written submission, paras. 3.82-3.83 and 3.88.

³²⁹⁶ On 18 December 2019, this Panel issued its preliminary ruling, in which it concluded that Mexico's claim under Article 6.1 of the SPS Agreement, regarding the alleged failure to adapt Costa Rica's measures to the phytosanitary characteristics of the area from which the product originated, fell outside of its terms of reference.

³²⁹⁷ Appellate Body Report, *India – Agricultural Products*, para. 5.132 (citing *Shorter Oxford English Dictionary*, 6th edn, A. Stevenson (ed.) (Oxford University Press, 2007), Vol. I, p. 24).

³²⁹⁸ *Diccionario de la lengua española*, Real Academia Española, accessed 30 November 2021, <https://dle.rae.es/asegurar>; *Diccionario de la lengua española*, Real Academia Española, accessed 30 November 2021, <https://dle.rae.es/adaptar>.

7.2188. The Appellate Body in *Russia – Pigs (EU)* indicated that the regional "characteristics" that are relevant for the adaptation of an SPS measure are those relating to the specific risk that such a measure seeks to address.³²⁹⁹

7.2189. The Appellate Body in *Russia – Pigs (EU)* noted that, in *India – Agricultural Products*, significance was attached to the fact that Article 6 does not specify any particular manner in which a Member must ensure adaptation of its SPS measures within the meaning of Article 6.1³³⁰⁰, and considered that this suggests that Members enjoy a degree of latitude in determining how to ensure adaptation of their SPS measures to regional conditions pursuant to Article 6.1.³³⁰¹ The Appellate Body in *India – Agricultural Products* considered that, accordingly, assessing whether or not a Member has complied with Article 6.1 will necessarily be a function of the nature of the claims raised by the complainant and the circumstances of each case.³³⁰²

7.2190. The Appellate Body in *India – Agricultural Products* considered that the obligation to ensure that a Member's SPS measures are "adapted" to the relevant areas is an ongoing obligation that applies upon adoption of an SPS measure as well as thereafter, which implies that such measures may need to be modified if the relevant SPS characteristics change.³³⁰³ The Appellate Body confirmed in *Russia – Pigs (EU)* that the fact that a WTO Member has adapted its measures to the SPS characteristics of an area at a specific point in time may not ensure that such adaptation remains adequate when the particular SPS characteristics of that area evolve.³³⁰⁴ Therefore, according to the Appellate Body, the obligation established under Article 6.1 of the SPS Agreement may require a Member to adjust such measures over time as the SPS characteristics of the relevant areas change.³³⁰⁵

7.2191. In the view of the panel in *US – Animals*, the "adaptation" obligation entails that the measure in question must be tailored or calibrated to the specific SPS characteristics of the area concerned.³³⁰⁶ The panel indicated that if, for instance, a particular area within the territory of an importing Member has a similar SPS status as the area of origin of a product (e.g. has the same level of prevalence of a given disease), that Member may be required to tailor its measure by relaxing the restrictions on imports into that area.³³⁰⁷

7.2192. The second sentence of Article 6.1 of the SPS Agreement refers to the obligation that, in assessing the sanitary or phytosanitary characteristics of a region, Members shall take into account, *inter alia*, the level of prevalence of specific diseases or pests, the existence of eradication or control programmes, and appropriate criteria or guidelines which may be developed by the relevant international organizations.

7.2193. Turning to the relationship between the first and second sentences of Article 6.1, the Appellate Body in *India – Agricultural Products* noted that the nature of the obligation under the first sentence is more general than under the second sentence, and that the second sentence indicates how a specific action is to be taken, specifying, in a non-exhaustive manner, the elements that Members must take into account in assessing the SPS characteristics of a region.³³⁰⁸

7.2194. The Appellate Body in *Russia – Pigs (EU)* noted that the second sentence of Article 6.1 indicates that a Member must evaluate all the evidence relevant to assessing the SPS characteristics of an area.³³⁰⁹ The Appellate Body considered that this assessment, in turn, provides the basis, and therefore constitutes a prerequisite, for the adaptation of that Member's measures to such SPS

³²⁹⁹ Appellate Body Report, *Russia – Pigs (EU)*, para. 5.57.

³³⁰⁰ Appellate Body Report, *Russia – Pigs (EU)*, para. 5.124 (citing Appellate Body Report, *India – Agricultural Products*, para. 5.136).

³³⁰¹ Appellate Body Report, *Russia – Pigs (EU)*, para. 5.124 (citing Appellate Body Report, *India – Agricultural Products*, para. 5.137).

³³⁰² Appellate Body Report, *India – Agricultural Products*, para. 5.137.

³³⁰³ Appellate Body Report, *India – Agricultural Products*, paras. 5.154 and 5.157.

³³⁰⁴ Appellate Body Report, *Russia – Pigs (EU)*, para. 5.33.

³³⁰⁵ Appellate Body Report, *Russia – Pigs (EU)*, para. 5.58 (citing Appellate Body Report, *India – Agricultural Products*, para. 5.132).

³³⁰⁶ Panel Report, *US – Animals*, para. 7.642.

³³⁰⁷ Panel Report, *US – Animals*, para. 7.642.

³³⁰⁸ Appellate Body Report, *India – Agricultural Products*, paras. 5.134-5.135.

³³⁰⁹ Appellate Body Report, *Russia – Pigs (EU)*, para. 5.59.

characteristics pursuant to the first sentence of Article 6.1 of the SPS Agreement.³³¹⁰ In this connection, the panel in *US – Animals* explained that once the SPS characteristics of the area have been assessed, the Member is required to adapt its SPS measure to such characteristics.³³¹¹

7.2195. The panel in *US – Animals* also indicated that the requirement to take into account a particular factor requires consideration of the factor and does not mandate a particular result or determination.³³¹²

7.2196. The Appellate Body in *Russia – Pigs (EU)* considered that certain parallels exist between the assessment of the SPS characteristics of an area and the assessment of risks pursuant to Articles 5.1 through 5.3 of the SPS Agreement, and explained that, as a result, the importing Member's assessment of the SPS characteristics of a relevant area may, in certain cases, be conducted as part of a Member's risk assessment pursuant to Articles 5.1 through 5.3.³³¹³

7.2197. In short, as noted by other panels and the Appellate Body, Members are required to ensure that their SPS measures are adapted (in other words, adjusted or tailored) to the relevant regional SPS characteristics, which is an ongoing obligation, and Members enjoy a degree of latitude in determining how to ensure the adaptation of their SPS measures to regional conditions.

7.2198. In order to assess these characteristics, Members must evaluate all the relevant evidence, taking into account, *inter alia*, the elements in the second sentence of Article 6.1.

7.7.4 The Panel's analysis

7.2199. The Panel will first analyse whether Mexico has demonstrated that Costa Rica has acted inconsistently with the second sentence of Article 6.1 of the SPS Agreement by failing to take into account, in assessing the sanitary or phytosanitary characteristics of its territory, the level of prevalence of specific diseases or pests, the existence of eradication or control programmes, and appropriate criteria or guidelines which may be developed by the relevant international organizations.

7.2200. The Panel will then turn to an analysis of whether Mexico has demonstrated that Costa Rica has acted inconsistently with the first sentence of Article 6.1 of the SPS Agreement by failing to ensure that its phytosanitary measures were adapted to the phytosanitary characteristics of the area to which fresh avocados for consumption from Mexico are destined (i.e. Costa Rican territory).

7.7.4.1 Whether Costa Rica has acted inconsistently with its obligation under the second sentence of Article 6.1 of the SPS Agreement

7.2201. Mexico states that Costa Rica's assessment failed to take into account the factors in the second sentence of Article 6.1, in particular, the level of prevalence of ASBVd in its territory and in that of the exporting countries, the existence of eradication or control programmes, and appropriate criteria or guidelines which may be developed by the relevant international organizations.³³¹⁴

7.2202. Costa Rica claims that it took into account all the evidence relevant to assessing the phytosanitary characteristics of its territory, and that none of Mexico's arguments demonstrate that Costa Rica has failed to take into account the factual aspects relevant to assessing the phytosanitary characteristics of its territory.³³¹⁵

7.2203. As explained, Costa Rica is required under the second sentence of Article 6.1, in assessing the sanitary or phytosanitary characteristics of a region, to take into account, *inter alia*, the level of prevalence of specific diseases or pests, the existence of eradication or control programmes, and appropriate criteria or guidelines which may be developed by the relevant international organizations. The purpose of doing so is to comply with the obligation under the first sentence of Article 6.1 to ensure that its sanitary or phytosanitary measures are adapted to the sanitary or

³³¹⁰ Appellate Body Report, *Russia – Pigs (EU)*, para. 5.59.

³³¹¹ Panel Report, *US – Animals*, para. 7.646.

³³¹² Panel Report, *US – Animals*, para. 7.644.

³³¹³ Appellate Body Report, *Russia – Pigs (EU)*, para. 5.59.

³³¹⁴ Mexico's first written submission, pp. 145-147.

³³¹⁵ Costa Rica's first written submission, paras. 5.260 and 5.265.

phytosanitary characteristics of the area from which the product originated and to which the product is destined.

7.2204. The Panel will analyse below whether Costa Rica took into account the level of prevalence of specific diseases or pests, the existence of eradication or control programmes, and appropriate criteria or guidelines that may be developed by the relevant international organizations.

7.7.4.1.1 Level of prevalence of specific diseases or pests

7.2205. **Mexico** states that Costa Rica did not take into account the level of prevalence of specific diseases or pests in its territory or in that of the exporting countries.³³¹⁶

7.2206. Mexico submits that Costa Rica should have taken into account the level of prevalence of ASBVd and its disease both in its territory and in the avocado-exporting territories, and have analysed this factor bearing in mind the size of the countries, the location of the production areas and the confirmed findings of the presence of ASBVd and its disease in avocado-producing countries.³³¹⁷

7.2207. Mexico notes that Manual NR-ARP-PO-01_M-01 establishes a generic approach for analysing the prevalence of pests in the source area, which does not require SFE officials to analyse in detail the specific areas in which the presence of a particular pest has been reported, but rather, the existence, or lack thereof, of reports or details on the distribution of a pest in the place of origin. According to Mexico, the officials may even rate the prevalence of a pest as high, even though the presence of a pest is reported without details of its distribution. Mexico considers that this type of assessment does not allow for the prevalence of a specific pest in a region to be properly judged, and, consequently, prevented SFE officials from assessing the prevalence level of ASBVd and its disease in Mexico and in other avocado-producing countries.³³¹⁸

7.2208. Referring to the assertions in Reports ARP-002-2017 and ARP-006-2016 on the absence of ASBVd in Costa Rica, Mexico notes that, in its complaints under Articles 5.1 and 3.1, it set forth the evidence that, for Mexico, demonstrates that Costa Rica has failed to base the declaration of absence of ASBVd from its territory on ISPM Nos. 6 and 8; and has not declared itself a PFA in accordance with ISPM No. 4, which would have been necessary to scientifically confirm this absence.³³¹⁹

7.2209. Mexico adds that there is scientific evidence from which it can be inferred that ASBVd is present in Costa Rica, particularly because the sampling surveys carried out to determine its absence lack rigour and a scientific methodology. For Mexico, given that Costa Rica did not contest any of the arguments that Mexico put forward, the Panel should find that Costa Rica failed to act on the basis of ISPM Nos. 6 and 8 in determining the absence of ASBVd.³³²⁰

7.2210. Mexico further notes that Costa Rica makes assertions relating to the presence of ASBVd in Mexico, from which it is also possible to infer other facts and omissions from Costa Rica. Mexico states that "evaluate" has antonyms such as overlook and ignore, and that Costa Rica overlooked the fact that ASBVd has only been detected, and confirmed with a laboratory analysis, in certain municipalities in the state of Michoacán; and the fact that the presence of ASBVd has not been confirmed in the rest of Mexico's avocado-producing states.³³²¹

7.2211. Mexico submits that, in Resolutions DSFE-002-2018 and DSFE-003-2018, Costa Rica did not consider the level of prevalence of ASBVd either in Mexico or in avocado-producing countries, and that the measures in Resolution DSFE-002-2018 are applied generically and without further scientific justification to any country where ASBVd is present. Mexico notes that Costa Rica should have carried out a risk assessment appropriate to the circumstances for each of the countries to

³³¹⁶ Mexico's first written submission, para. 595.

³³¹⁷ Mexico's first written submission, para. 590.

³³¹⁸ Mexico's first written submission, para. 591.

³³¹⁹ Mexico's first written submission, para. 592.

³³²⁰ Mexico's second written submission, para. 302.

³³²¹ Mexico's first written submission, para. 593.

which it applied the measures, and also in order to justify why it considered that ASBVd is present in certain countries and absent in others.³³²²

7.2212. **Costa Rica** submits that it has extensively discussed Mexico's conceptual error in invoking ISPM No. 4 in relation to the determination of absence of a pest in an area and that, in any event, ASBVd is absent from its territory and it has followed the relevant ISPMs with respect to the surveillance of its phytosanitary situation.³³²³

7.2213. Costa Rica also notes that there are not areas with a higher or lower prevalence of ASBVd in Costa Rica within the meaning of Article 6.1 of the SPS Agreement, because, according to Costa Rica, the pest is absent from the entire territory of Costa Rica.³³²⁴

7.2214. On 18 December 2019, this **Panel** issued its preliminary ruling, in which it concluded that Mexico's claim under Article 6.1 of the SPS Agreement, regarding Costa Rica's alleged failure to adapt its measures to the phytosanitary characteristics of the area from which the product originated, fell outside of the Panel's terms of reference. In view of the foregoing, Mexico's arguments in relation to Costa Rica's failure to take into account the level of prevalence of ASBVd in Mexico and in other avocado-exporting countries fall outside of the Panel's terms of reference and will not be addressed.

7.2215. With regard to Mexico's arguments that Costa Rica did not take into account the level of prevalence of ASBVd in Costa Rica, Mexico submits that, under Articles 5.1 and 3.1, it set forth the evidence that, for Mexico, demonstrates that Costa Rica has failed to base the declaration of absence of ASBVd from its territory on ISPM Nos. 6 and 8, and has not declared itself a PFA in accordance with ISPM No. 4, which would have been necessary to scientifically confirm this absence.³³²⁵

7.2216. As regards Mexico's argument on ISPM No. 4, the Panel notes that Mexico has indicated that it "agrees with the experts that Costa Rica was not required to establish a PFA within its territory."³³²⁶

7.2217. Turning to Mexico's argument that Costa Rica has failed to base the declaration of absence of ASBVd from its territory on ISPM Nos. 6 and 8, the Panel considers that, regardless of whether or not Costa Rica based its declaration on ISPM Nos. 6 and 8, Mexico has not explained how the fact that Costa Rica may have failed to base its declaration of absence of ASBVd from its territory on ISPM Nos. 6 and 8 would automatically lead to an inconsistency with Article 6.1 of the SPS Agreement relating to the level of prevalence of ASBVd. In other words, Mexico has failed to explain how its arguments that Costa Rica's declaration is not based on ISPM Nos. 6 and 8 fall under the standard of Article 6.1 of the SPS Agreement.

7.2218. This argument appears to be related to Mexico's assertion that ASBVd is present in Costa Rica. As the Panel explained, the burden of proof rests upon the party, whether complaining or defending, who asserts the affirmative of a particular claim or defence.³³²⁷ In this case, it is Mexico that bears the burden of proving its assertion that ASBVd and its disease are present in Costa Rica. As the Panel concluded in paragraph 7.310 above, Mexico has failed to demonstrate that ASBVd is present in Costa Rica.

7.2219. In view of the foregoing, the Panel concludes that Mexico has failed to demonstrate that Costa Rica did not take into account the level of prevalence of specific diseases or pests in assessing the sanitary or phytosanitary characteristics of a region.

³³²² Mexico's first written submission, para. 594.

³³²³ Costa Rica's first written submission, para. 5.261.

³³²⁴ Costa Rica's second written submission, para. 3.87.

³³²⁵ Mexico's first written submission, para. 592.

³³²⁶ Mexico's comments on the experts' responses to Panel questions Nos. 164, 165 and 167 for the experts; response to Panel question No. 129.

³³²⁷ Appellate Body Report, *US – Wool Shirts and Blouses*, p. 14.

7.7.4.1.2 The existence of eradication and control programmes

7.2220. **Mexico** submits that Costa Rica did not take into account the existence or not of eradication or control programmes for ASBVd and its disease.³³²⁸

7.2221. Mexico states that Costa Rica should have considered the existence of ASBVd eradication or control programmes implemented in avocado-exporting countries that consider ASBVd as a pest of quarantine significance, as well as the absence of eradication or control programmes in its territory and in that of the exporting countries.³³²⁹

7.2222. Mexico notes that Manual NR-ARP-PO-01_M-01 does not establish a criterion for assessing the existence of eradication or control programmes; that the PRAs make no reference to existing eradication and control programmes in exporting countries to eradicate the presence of ASBVd; and that Resolutions DSFE-002-2018 and DSFE-003-2018 do not refer to the existence or not of any eradication or control programme for ASBVd and its disease.³³³⁰

7.2223. Mexico contends that there is no mandatory national ASBVd eradication or control programme in Mexico, due to the fact that, since the confirmed detection in 2009 and to date, ASBVd has not been a significant problem as it has been adequately controlled through preventive measures such as the disinfection of pruning and cutting tools. Mexico adds that there is a voluntary field protocol for surveillance, alerts, monitoring, detection and control of ASBVd, because neither ASBVd nor its disease are considered quarantine pests with respect to fresh fruit for consumption.³³³¹

7.2224. Mexico adds that there is scientific evidence from which it can be inferred that ASBVd is present in Costa Rica, particularly because the sampling surveys carried out to determine its absence lack rigour and a scientific methodology. For Mexico, given that Costa Rica did not contest any of the arguments put forward by Mexico, the Panel should find that Costa Rica failed to take account of the existence of ASBVd eradication or control programmes.³³³²

7.2225. **Costa Rica** states that in conducting the risk assessment it considered the existence of ASBVd eradication and control programmes in Mexico, that it found that there are no such programmes, and that Mexico itself admits that in Mexico there is no mandatory programme for eradicating or controlling ASBVd at the national level.³³³³

7.2226. Costa Rica contends that there are no ASBVd eradication programmes in Costa Rica, since ASBVd is absent from the entire territory of Costa Rica. Costa Rica notes that what it has are training programmes for farmers, which seek to raise more awareness of good agricultural practices, as well as domestic regulations prohibiting the sowing of seeds from avocados imported from countries with ASBVd. Costa Rica states that it has therefore taken all the necessary measures domestically to mitigate as much as possible the risk of losing its ASBVd-free phytosanitary status.³³³⁴

7.2227. As stated above, on 18 December 2019, this **Panel** issued its preliminary ruling, in which it concluded that Mexico's claim under Article 6.1 of the SPS Agreement, regarding Costa Rica's alleged failure to adapt its measures to the phytosanitary characteristics of the area from which the product originated, fell outside of this Panel's terms of reference. In view of the foregoing, Mexico's arguments in relation to Costa Rica's failure to take into account the existence of ASBVd eradication and control programmes in Mexico and in other avocado-exporting countries fall outside of the Panel's terms of reference and will not be addressed.

7.2228. Mexico also mentions that Costa Rica should have considered the absence of eradication or control programmes in its territory, but does not provide any further explanation of its argument. In addition, this argument appears to relate to Mexico's assertion that ASBVd is present in Costa Rica since, if ASBVd does not exist in Costa Rica, it seems that the existence or not of ASBVd control or eradication programmes in Costa Rica would not be relevant. As the Panel explained, the burden of

³³²⁸ Mexico's first written submission, para. 599.

³³²⁹ Mexico's first written submission, para. 596.

³³³⁰ Mexico's first written submission, para. 597.

³³³¹ Mexico's first written submission, para. 598.

³³³² Mexico's second written submission, para. 302.

³³³³ Costa Rica's first written submission, para. 5.262.

³³³⁴ Costa Rica's first written submission, para. 5.262; second written submission, para. 3.87.

proof rests upon the party, whether complaining or defending, who asserts the affirmative of a particular claim or defence.³³³⁵ In this case, it is Mexico that bears the burden of proving its assertion that ASBVd and its disease are present in Costa Rica. As the Panel concluded in paragraph 7.310 above, Mexico has failed to demonstrate that ASBVd is present in Costa Rica.

7.2229. In view of the foregoing, the Panel concludes that Mexico has failed to demonstrate that Costa Rica did not take into account the existence or not of ASBVd eradication or control programmes in assessing the sanitary or phytosanitary characteristics of a region.

7.7.4.1.3 Appropriate criteria or guidelines developed by the relevant international organizations

7.2230. **Mexico** submits that Costa Rica did not take into account the appropriate criteria or guidelines developed by the relevant international organizations.³³³⁶

7.2231. Mexico asserts that Costa Rica should have taken into account the appropriate criteria and guidelines developed by the WTO, the IPPC and the other existing RPPOs.³³³⁷

7.2232. Mexico states that while neither the IPPC nor NAPPO has issued a specific criterion for ASBVd, the WTO SPS Committee has issued the Guidelines to Further the Practical Implementation of Article 6 of the Agreement on the Application of Sanitary and Phytosanitary Measures (G/SPS/48), which are intended to provide assistance to Members in the practical implementation of Article 6 of the SPS Agreement, by improving transparency, exchange of information, predictability, confidence and credibility between importing and exporting Members. Referring to paragraphs 8 and 9 of the guidelines, Mexico submits that Costa Rica should have applied these guidelines in its measures, by considering the strength and credibility of Mexico's phytosanitary infrastructure as well as any knowledge and experience of Mexico and other countries regarding ASBVd and its disease.³³³⁸

7.2233. Mexico submits that Manual NR-ARP-PO-01_M-01 does not include a subparagraph for SFE officials to take into account the existence of criteria and guidelines developed by the WTO, IPPC or other RPPOs, nor does it reflect a subparagraph that allows SFE officials to take into account the strength and credibility of the phytosanitary infrastructure in Mexico and other avocado-exporting countries, or any of their knowledge and experience. Mexico adds that Reports ARP-002-2017 and ARP-006-2017 do not mention the existence or not of a WTO, IPPC or other RPPO criterion or guideline.³³³⁹

7.2234. Mexico asserts that these measures also do not reflect that consideration was given at least to the phytosanitary structure of Mexico and other avocado-producing countries, and their knowledge and prior experience. According to Mexico, Costa Rica ignored the fact that production and yield in avocado orchards in Mexico has not decreased but, on the contrary, has increased annually, while up to 2015 Mexico had exported avocados to Costa Rica without keeping a register of ASBVd and its disease, and that the SFE had never recorded detecting ASBVd in Mexican consignments.³³⁴⁰

7.2235. **Costa Rica** notes that the Guidelines to Further the Practical Implementation of Article 6 of the Agreement on the Application of Sanitary and Phytosanitary Measures (G/SPS/48) relate to practical aspects for recognition of pest- or disease-free areas and areas of low pest or disease prevalence. Costa Rica asserts that because ASBVd is absent in its territory, the consideration of pest- or disease-free areas and areas of low pest or disease prevalence is irrelevant.³³⁴¹

³³³⁵ Appellate Body Report, *US – Wool Shirts and Blouses*, p. 14.

³³³⁶ Mexico's first written submission, p. 147.

³³³⁷ Mexico's first written submission, para. 600.

³³³⁸ Mexico's first written submission, para. 601 (citing Comité de Medidas Sanitarias y Fitosanitarias, Directrices para fomentar la aplicación práctica del artículo 6 del Acuerdo sobre la Aplicación de Medidas Sanitarias y Fitosanitarias, G/SPS/48 (16 de mayo de 2008) (G/SPS/48), (Exhibit MEX-151)); response to Panel question No. 172.

³³³⁹ Mexico's first written submission, para. 602.

³³⁴⁰ Mexico's first written submission, para. 603.

³³⁴¹ Costa Rica's first written submission, para. 5.263.

7.2236. The **Panel** observes that Mexico notes that Costa Rica should have taken into account the appropriate criteria and guidelines developed by the WTO, the IPPC and the other existing RPPOs, but only refers specifically to the Guidelines to Further the Practical Implementation of Article 6 of the Agreement on the Application of Sanitary and Phytosanitary Measures (G/SPS/48) adopted by the SPS Committee in April 2008.³³⁴²

7.2237. The Panel notes that these guidelines address the recognition of pest- or disease-free areas and areas of low pest or disease prevalence and applicable general processes. Neither Mexico nor Costa Rica has referred to the recognition of pest- or disease-free areas or areas of low pest or disease prevalence in this dispute, so the guidelines identified by Mexico are not relevant to the present dispute.

7.2238. In view of the foregoing, the Panel concludes that Mexico has failed to demonstrate that Costa Rica did not take into account the appropriate criteria and guidelines developed by the relevant international organizations in assessing the sanitary or phytosanitary characteristics of a region.

7.7.4.1.4 Conclusion with respect to the second sentence of Article 6.1 of the SPS Agreement

7.2239. In light of the foregoing, the Panel concludes that Mexico has failed to demonstrate that Costa Rica has acted inconsistently with its obligation under the second sentence of Article 6.1, in assessing the sanitary or phytosanitary characteristics of a region, to take into account, *inter alia*, the level of prevalence of specific diseases or pests, the existence of eradication or control programmes, and appropriate criteria or guidelines which may be developed by the relevant international organizations.

7.7.4.2 Whether Costa Rica has acted inconsistently with its obligation under the first sentence of Article 6.1 of the SPS Agreement

7.2240. **Mexico** claims that Costa Rica's measures are inconsistent with Article 6.1 of the SPS Agreement, because Costa Rica did not ensure that these measures were adapted to the phytosanitary characteristics of its territory and those of other avocado-producing countries.³³⁴³

7.2241. In Mexico's view, Costa Rica should have adjusted its SPS measures for Mexico and other avocado-producing countries that export to its territory in accordance with the phytosanitary status of ASBVd and its disease in Costa Rican territory, and the prevalence of ASBVd and its disease not only in Mexico and other avocado-producing countries but also in areas where the presence of ASBVd had been specifically recorded.³³⁴⁴

7.2242. Mexico argues that Costa Rica's measures would therefore have needed to be attenuated for the following reasons: (i) in the avocado-producing areas of Costa Rica's territory, signs have also been found of the presence of ASBVd; (ii) although Michoacán is the state with the highest avocado production in Mexico, not all avocados produced in Mexico are harvested in Michoacán, and other Mexican states could also produce the avocados challenged by Costa Rica. For Mexico, even assuming, as stated by Costa Rica, that Michoacán had an incidence of ASBVd in 14% of its orchards, Costa Rica should also have considered the possibility of examining whether it was feasible to import avocados from certain municipalities in that state and other Mexican states; and (iii) the presence of ASBVd has not been confirmed in any of the other 26 Mexican states that produce avocados.³³⁴⁵

7.2243. Mexico notes that there is scientific evidence from which it can be inferred that ASBVd is present in Costa Rica, particularly because the samples taken to determine its absence lack rigour and a scientific methodology. For Mexico, given that Costa Rica did not contest any of the arguments put forward by Mexico, the Panel should find that Costa Rica failed to ensure that its measures were adapted to the phytosanitary characteristics of its territory.³³⁴⁶

³³⁴² G/SPS/48, (Exhibit MEX-151).

³³⁴³ Mexico's first written submission, paras. 147 and 608; second written submission, para. 303.

³³⁴⁴ Mexico's first written submission, para. 606.

³³⁴⁵ Mexico's first written submission, para. 607.

³³⁴⁶ Mexico's second written submission, para. 302.

7.2244. **Costa Rica** submits that, in general, Mexico contends that Costa Rica has not adjusted the phytosanitary measures to the phytosanitary characteristics of its territory, but that Mexico's argument is untenable because ASBVd is absent from the entire territory of Costa Rica.³³⁴⁷ Costa Rica also asserts that it did not have to adapt the phytosanitary measures to its territory since ASBVd is absent in Costa Rica.³³⁴⁸

7.2245. Costa Rica points out that Mexico has failed to provide any evidence whatsoever that demonstrates that ASBVd is present in Costa Rica and refers to its response to Panel question No. 26, in which it states that it refuted, one by one, the pieces of evidence presented by Mexico that allegedly prove that ASBVd is present in Costa Rica.³³⁴⁹

7.2246. Costa Rica asserts that none of the documents mentioned by Mexico constitutes evidence of the presence of ASBVd in Costa Rica, and that the NPPOs of each country are the authorities responsible for determining whether a pest is present or absent.³³⁵⁰ Costa Rica maintains that all this evidence is firmly at odds with the multiple samples and diagnostic tests carried out by Costa Rica, which have so far produced categorically negative results for the presence of ASBVd.³³⁵¹

7.2247. Costa Rica adds that it set out in detail its procedure for the surveillance and control of regulated pests and the sampling methodology followed; that it observed that there is a register of farms in Costa Rica and described how the geographical selection of sampling areas is made, ensuring the randomness and representativeness of the areas chosen, including backyard; that it addressed in detail the laboratory techniques that it uses to verify the presence or absence of ASBVd in the samples, and indicated that, since 2009, its laboratories have had the capacity to use RT-PCR, the best diagnostic technique for ASBVd in terms of cost-effectiveness and time; and that it described how it took into account ISPM Nos. 6 and 8 in its surveillance work and when determining the country's phytosanitary status.³³⁵²

7.2248. Costa Rica contends that Mexico has provided nothing but mere speculation and conjecture, and that, in the circumstances, the Panel simply cannot accept Mexico's argument that ASBVd is present in Costa Rica, let alone find that the pest is indeed present in Costa Rican territory.³³⁵³

7.2249. As the **Panel** explained earlier, in accordance with the first sentence of Article 6.1, Costa Rica is obliged to ensure that its phytosanitary measures are adapted to the phytosanitary characteristics of the area from which fresh avocados for consumption originated and to which they are destined.

7.2250. As referred to above, on 18 December 2019, this Panel issued its preliminary ruling, in which it concluded that Mexico's claim under Article 6.1 of the SPS Agreement, regarding Costa Rica's alleged failure to adapt its measures to the phytosanitary characteristics of the area from which the product originated, fell outside of this Panel's terms of reference. In view of the foregoing, Mexico's arguments in relation to Costa Rica's failure to adapt its phytosanitary measures to the prevalence of ASBVd in Mexico and in other avocado-producing countries fall outside of the Panel's terms of reference and will not be addressed.

7.2251. Mexico also argues that Costa Rica should have adjusted its SPS measures in accordance with the phytosanitary status of ASBVd and its disease in Costa Rican territory, and that such measures would therefore have needed to be attenuated due to the fact that signs have also been found of the presence of ASBVd in avocado-producing areas of Costa Rican territory.³³⁵⁴

7.2252. The Panel notes that Mexico's argument is based on the premise that ASBVd is present in Costa Rica. As the Panel explained, the burden of proof rests upon the party, whether complaining

³³⁴⁷ Costa Rica's first written submission, para. 5.264.

³³⁴⁸ Costa Rica's first written submission, para. 5.265; second written submission, para. 3.75; opening statement at the first meeting of the Panel, para. 31.

³³⁴⁹ Costa Rica's second written submission, para. 3.84.

³³⁵⁰ Costa Rica's response to Panel question No. 26, para. 1.

³³⁵¹ Costa Rica's response to Panel question No. 26, para. 7.

³³⁵² Costa Rica's second written submission, para. 3.85.

³³⁵³ Costa Rica's second written submission, para. 3.86.

³³⁵⁴ Mexico's first written submission, para. 607.

or defending, who asserts the affirmative of a particular claim or defence.³³⁵⁵ In this case, it is Mexico that bears the burden of proving its assertion that ASBVd and its disease are present in Costa Rica. As the Panel concluded in paragraph 7.310 above, Mexico has failed to demonstrate that ASBVd is present in Costa Rica.

7.2253. The Panel notes that, in section 7.4.5.1.3 above, it concluded that Costa Rica's assertion in Reports ARP-002-2017 and ARP-006-2016 that it was determined that its territory is free of ASBVd lacks sufficient reliability and, therefore, cannot be considered legitimately scientific. Although this determination could be relevant to Costa Rica's obligation to adapt its phytosanitary measures to the phytosanitary characteristics of its territory, Mexico has made no such argument.

7.2254. In fact, in response to the Panel's question as to whether the surveillance system of a WTO Member is relevant to its obligations under Article 6.1 of the Agreement, Mexico does not elaborate on its arguments and simply notes that the relevance is that the surveillance system is a tool to achieve the objective of regionalization; that importing countries should be responsible for the circumstances within their own territory, so as to adapt to the sanitary or phytosanitary characteristics of the area from which the product originated and to which the product is destined without applying measures that are more restrictive than necessary to international trade; that it is possible, with the implementation of a surveillance system, to observe a particular pest and develop and maintain adequate and effective information on its status, while a measure is maintained over time and within a specific territory, in this case with respect to ASBVd in the territory of Costa Rica.³³⁵⁶

7.2255. For the above reasons, in this Panel's view, Mexico has failed to demonstrate that Costa Rica did not ensure that its phytosanitary measures are adapted to the phytosanitary characteristics of its territory and those of other avocado-producing countries.

7.2256. The Panel therefore concludes that Mexico has failed to demonstrate that Costa Rica has acted inconsistently with its obligation under the first sentence of Article 6.1 of the SPS Agreement to ensure that its sanitary or phytosanitary measures are adapted to the phytosanitary characteristics of the area to which the product is destined.

7.7.5 Overall conclusion of this section

7.2257. The Panel concludes that Mexico has failed to demonstrate that Costa Rica has acted inconsistently with its obligation under the first sentence of Article 6.1 of the SPS Agreement to ensure that its sanitary or phytosanitary measures are adapted to the phytosanitary characteristics of the area to which the product is destined.

7.2258. The Panel also concludes that Mexico has failed to demonstrate that Costa Rica has acted inconsistently with its obligation under the second sentence of Article 6.1, in assessing the sanitary or phytosanitary characteristics of a region, to take into account, *inter alia*, the level of prevalence of specific diseases or pests, the existence of eradication or control programmes, and appropriate criteria or guidelines which may be developed by the relevant international organizations.

7.8 Mexico's claims related to harmonization

7.8.1 General introduction to the section

7.2259. Mexico claims that Costa Rica has acted inconsistently with Article 3.1 of the SPS Agreement, as it failed to base its measures on ISPM Nos. 1, 2, 6, 8, 11 and 32, which are relevant to this case.³³⁵⁷ Mexico further contends that, even if Costa Rica claims that it has the right to maintain measures that imply a higher level of protection than would be achieved through the relevant standards, as its measures are inconsistent with other provisions of the SPS Agreement, they are inconsistent with Article 3.3 of the SPS Agreement.³³⁵⁸

³³⁵⁵ Appellate Body Report, *US – Wool Shirts and Blouses*, p. 14.

³³⁵⁶ Mexico's response to Panel question No. 176.

³³⁵⁷ Mexico's second written submission, paras. 282 and 286.

³³⁵⁸ Mexico's first written submission, para. 223.

7.2260. Costa Rica submits that Mexico's claims under Articles 3.1 and 3.3 of the SPS Agreement are unfounded.³³⁵⁹ Costa Rica contends that there are no international standards, guidelines or recommendations specific to ASBVd or avocados, and that, even if the ISPMs mentioned by Mexico were considered to be relevant international standards, guidelines or recommendations, Costa Rica's phytosanitary requirements are in fact based on them.³³⁶⁰

7.2261. The Panel will address below the claims in respect of Articles 3.1 and 3.3 of the SPS Agreement.

7.8.2 The Panel's analysis

7.2262. **Mexico** claims that Costa Rica has acted inconsistently with Article 3.1 of the SPS Agreement, as it failed to base its measures on ISPM Nos. 1, 2, 6, 8, 11 and 32, which are relevant to this case.³³⁶¹

7.2263. Mexico contends that those ISPMs are relevant because they all meet the definition of international standards, guidelines and recommendations given in paragraph 3 of Annex A, and that, as they were issued by the Secretariat of the IPPC, they are conceptual standards that apply to general aspects of plant diseases or pests that are relevant to the development of the measures at issue in this dispute.³³⁶²

7.2264. Mexico submits that the measures set forth in Resolutions DSFE-002-2018 and DSFE-003-2018 are not based on ISPM No. 1, because they are not based on the principles of necessity, managed risk, minimal impact, non-discrimination and technical justification.³³⁶³

7.2265. Mexico further submits that Reports ARP-006-2016 and ARP-002-2017 are not based on the sections relating to the definition of a PRA area in ISPM Nos. 2 and 11³³⁶⁴; that ARP-002-2017 contradicts ISPM No. 11, because it fails to identify clearly the initiation point of its analysis³³⁶⁵; that Reports ARP-006-2016 and ARP-002-2017 are not based on ISPM Nos. 2 and 11, because they fail to consider previous PRAs³³⁶⁶; and that Costa Rica's PRA contradicts ISPM Nos. 11 and 1 with regard to risk management.³³⁶⁷

7.2266. Mexico states that Costa Rica's measures contradict ISPM Nos. 11 and 32 with regard to the intended use of the commodity.³³⁶⁸

7.2267. According to Mexico, for Costa Rica's measures to be considered as being based on the ISPMs, the declaration of absence of ASBVd and its disease in Costa Rica's territory should have followed the steps outlined in ISPM Nos. 6 and 8, and Costa Rica's declaration of absence as part of the PRA is not based on the aforementioned ISPMs.³³⁶⁹

7.2268. Mexico adds that it cannot be concluded that the manual is based on ISPM Nos. 2 and 11, with regard to whether a pest is a quarantine pest, because it fails to take into consideration fundamental aspects of those ISPMs³³⁷⁰; that it cannot be said that the PRA manual was based on the relevant criteria set forth in ISPM No. 11 to evaluate objectively the probability of pest entry, establishment and spread³³⁷¹; and that Manual NR-ARP-PO-01_M-01 deviates fundamentally from ISPM No. 32, because the manual fails to distinguish between the different pathways that commodities may represent according to their pest risk.³³⁷²

³³⁵⁹ Costa Rica's first written submission, paras. 5.5-5.7.

³³⁶⁰ Costa Rica's first written submission, para. 5.16.

³³⁶¹ Mexico's second written submission, paras. 282 and 286.

³³⁶² Mexico's first written submission, para. 151; second written submission, para. 282.

³³⁶³ Mexico's first written submission, para. 155; second written submission, para. 287.

³³⁶⁴ Mexico's first written submission, para. 170.

³³⁶⁵ Mexico's first written submission, para. 173.

³³⁶⁶ Mexico's first written submission, para. 177.

³³⁶⁷ Mexico's first written submission, paras. 183-187.

³³⁶⁸ Mexico's first written submission, para. 194.

³³⁶⁹ Mexico's first written submission, paras. 196 and 204; second written submission, para. 298.

³³⁷⁰ Mexico's first written submission, para. 218.

³³⁷¹ Mexico's first written submission, para. 221.

³³⁷² Mexico's first written submission, para. 222.

7.2269. Mexico asserts that, even if Costa Rica claims that it has the right to maintain measures that imply a higher level of protection than would be achieved through the relevant standards, its level of protection has no scientific justification nor is it a consequence of the level of phytosanitary protection determined to be appropriate in accordance with Articles 5.1 through 5.8 of the SPS Agreement, therefore, as its measures are inconsistent with other provisions of the SPS Agreement, they are inconsistent with Article 3.3 of the SPS Agreement.³³⁷³

7.2270. **Costa Rica**, for its part, submits that, in the area of plant health, there would seem to be no relevant international standards that WTO Members can use as the basis for their phytosanitary requirements for specific pests or pathways, in accordance with Article 3.1 of the SPS Agreement.³³⁷⁴ Costa Rica asserts that the vast majority of the ISPMs contain procedures, and each country implements them according to their abilities and ALOP.³³⁷⁵

7.2271. Costa Rica does not consider that the risk assessment constitutes a measure subject to Article 3.1 of the SPS Agreement, in the sense that it should be based on relevant international standards.³³⁷⁶ Costa Rica submits that, as regards risk assessments, Article 5.1 of the SPS Agreement is the relevant provision (together with Articles 5.2 and 5.3), which expands on the obligation under Article 2.2 of the SPS Agreement to base SPS measures on scientific principles. Costa Rica asserts that Article 5.1 incorporates obligations with respect to the role that international standards play in a Member's risk assessment, by providing that, in assessing the risks, Members shall take into account risk assessment techniques developed by the relevant international organizations. Costa Rica contends that it is in that context that ISPM Nos. 2 and 11 are relevant.³³⁷⁷

7.2272. Costa Rica submits that it has already pointed out in the context of Article 5.1 that the PRAs were carried out in line with the manual, which is based on the ISPMs relating to PRAs, in particular ISPM No. 11, in accordance with the obligation under Article 5.1 of the SPS Agreement to take into account risk assessment techniques developed by the relevant international organizations.³³⁷⁸

7.2273. Costa Rica asserts that, even assuming that the aforementioned ISPMs were relevant, neither the PRAs nor the manual represent an effective level of protection, rather they are steps followed prior to the adoption of the measure imposed on imports of fresh avocados. In Costa Rica's view, any challenged measure must reflect a certain level of protection in order for it be compared with the level reflected in international standards and, therefore, neither the PRAs nor the manual are measures subject to Articles 3.1 and 3.3 of the SPS Agreement.³³⁷⁹

7.2274. Costa Rica submits that its phytosanitary requirements follow the general principles of ISPM No. 1, without contradicting them, and would therefore be based on that ISPM.³³⁸⁰ Costa Rica contends that, in its claim with respect to ISPM No. 1, Mexico refers to Articles 5.6 and 2.2 of the SPS Agreement, and Costa Rica has substantiated in the sections concerning Article 5.6 of the SPS Agreement and Article XI:1 of the GATT 1994 that its measures are flexible, and that Mexico has failed to demonstrate that another, less restrictive measure is available with which Costa Rica would achieve its ALOP.³³⁸¹ Costa Rica adds that, on the principle of non-discrimination, Mexico refers to its claims under Articles 2.3 and 5.5 of the SPS Agreement and III:4 of the GATT 1994, and that Costa Rica has substantiated in the sections on those Articles that no arbitrary or unjustifiable distinction is made.³³⁸²

7.2275. With regard to ISPM Nos. 2 and 11, Costa Rica contends that all Mexico's arguments are resubmitted under Article 5.1 of the SPS Agreement, and that, in that context, Costa Rica has described in detail how it explicitly defined the area considered for the PRAs, how it analysed exactly and on the basis of scientific evidence the potential biological and economic consequences from the entry of ASBVd into Costa Rica, and how it clearly identified the pest and the relevant pathways.³³⁸³

³³⁷³ Mexico's first written submission, para. 223.

³³⁷⁴ Costa Rica's first written submission, para. 5.21.

³³⁷⁵ Costa Rica's second written submission, para. 3.6.

³³⁷⁶ Costa Rica's opening statement at the first meeting of the Panel, para. 28.

³³⁷⁷ Costa Rica's first written submission, para. 5.36.

³³⁷⁸ Costa Rica's first written submission, para. 5.42.

³³⁷⁹ Costa Rica's second written submission, para. 3.10.

³³⁸⁰ Costa Rica's second written submission, para. 3.11.

³³⁸¹ Costa Rica's first written submission, para. 5.30.

³³⁸² Costa Rica's first written submission, para. 5.31.

³³⁸³ Costa Rica's first written submission, para. 5.38.

Costa Rica adds that in the context of Article 5.1 of the SPS Agreement it has described how it took into account other risk analyses and regulations adopted by other countries, how Mexico confuses the concepts of PFA and "pest status in an area", how possible measures to be taken were considered during the risk management stage, and how the choice of the measures recommended was based on an assessment of their efficacy and on discarding less appropriate options.³³⁸⁴

7.2276. With regard to ISPM Nos. 6, 8, 11 and 32, Costa Rica states that Mexico repeats the same arguments as those raised under Article 5.1 of the SPS Agreement when it expresses its disagreement with the content of Costa Rica's risk assessment. Costa Rica asserts that this is where it has addressed in detail the factor of diversion from intended use and has described how Mexico confuses the concepts addressed by ISPM Nos. 6 and 8 (pest status in an area) and by ISPM No. 4 (the establishment of pest free areas).³³⁸⁵

7.2277. Costa Rica also submits that the manual and the PRAs follow the relevant procedural ISPMs (ISPM Nos. 2, 11 and 32), without contradicting them, therefore they would be based on these ISPMs.³³⁸⁶

7.2278. With regard to Manual NR-ARP-PO-01_M-01, Costa Rica asserts that one only has to refer to the manual to confirm that it is based on the ISPMs relating to the preparation of a risk analysis. Costa Rica contends that the manual is not an exact copy of the ISPMs, nor is there an obligation for it to be, since WTO Members are not required to adopt the ISPMs as internal manuals or to adopt a manual for the preparation of risk analyses, but they are required to base their measures on a risk assessment that is appropriate and in accordance with paragraph 4 of Annex A to the SPS Agreement. Costa Rica adds that the fact that a manual was adopted to guide the preparation of that risk assessment reflects a genuine intention to ensure that all risk assessments performed by the Member comply with the SPS Agreement.³³⁸⁷ Costa Rica also asserts that a risk analysis manual does not have to reproduce the ISPMs in their entirety to be based on them, rather it may adopt some, not necessarily all, of the elements.³³⁸⁸ Costa Rica submits that the manual is a guide establishing the processes for the PRA, prepared in light of both ISPM No. 2 and ISPM No. 11.³³⁸⁹

7.2279. Costa Rica submits that, in light of a comparison between Manual NR-ARP-PO-01_M-01 and the relevant sections of ISPM No. 11, it is difficult to maintain that the manual is not "based on" the recommendations of ISPM No. 11. For Costa Rica, all essential factors of ISPM No. 11 are directly referred to in the manual.³³⁹⁰

7.2280. Costa Rica asserts that, although the language used in ISPM No. 32 and in the manual is different, the concept covered in both documents is the same.³³⁹¹

7.2281. Costa Rica states that it has no intention of claiming that its measures are based on levels of protection higher than those of the ISPMs, therefore Mexico's claim of violation under Article 3.3 of the SPS Agreement has no merit.³³⁹²

7.2282. This **Panel** recalls that, as the Appellate Body has explained, nothing in Article 11 of the DSU requires a panel to examine all legal claims made by the complaining party, and that previous panels have addressed only those issues that they considered necessary for the resolution of the matter between the parties.³³⁹³

7.2283. The Panel notes that Mexico repeats its arguments raised under Article 3.1 in its claims on risk assessment, and Costa Rica refers to its arguments regarding the claims on risk assessment. The Panel has addressed these arguments at length in its analysis of the claims under Articles 5.1, 5.2, 5.3 and 2.2 of the SPS Agreement. In that analysis, the Panel has examined in detail Costa

³³⁸⁴ Costa Rica's first written submission, para. 5.39.

³³⁸⁵ Costa Rica's first written submission, para. 5.40.

³³⁸⁶ Costa Rica's second written submission, para. 3.11.

³³⁸⁷ Costa Rica's first written submission, para. 5.45.

³³⁸⁸ Costa Rica's first written submission, para. 5.46 (citing Appellate Body Report, *EC – Hormones*, para. 171).

³³⁸⁹ Costa Rica's first written submission, para. 5.47.

³³⁹⁰ Costa Rica's first written submission, para. 5.50.

³³⁹¹ Costa Rica's first written submission, para. 5.53.

³³⁹² Costa Rica's first written submission, para. 5.56.

³³⁹³ Appellate Body Report, *US – Wool Shirts and Blouses*, pp. 17-20.

Rica's risk assessments set forth in Reports ARP-006-2016 and ARP-002-2017, including a detailed analysis of each element and each factor, and of the issues of diversion from intended use, spontaneous germination and the determination of absence of ASBVd in Costa Rica. The Panel has referred in its analysis to ISPM Nos. 2 and 11 as risk assessment techniques within the meaning of Article 5.1 of the SPS Agreement. The Panel has also referred to ISPM Nos. 6 and 8 as illustrative tools for the inputs of a risk assessment related to the determination of pest status in a territory.

7.2284. Mexico repeats its arguments related to managed risk and minimal impact raised under Article 3.1 in its claims under Articles 5.6, 5.5 and 2.3 of the SPS Agreement concerning trade restrictiveness, and arbitrary or unjustifiable discrimination and disguised restriction on trade. Costa Rica also refers to its arguments under Articles 5.6, 5.5 and 2.3 of the SPS Agreement. The Panel has already analysed the claims concerning those provisions of the SPS Agreement.

7.2285. The Panel does not consider it necessary to also make findings under Articles 3.1 and 3.3 of the SPS Agreement to resolve the matter between the parties.³³⁹⁴ In light of the foregoing, the Panel considers it appropriate to exercise judicial economy with regard to Mexico's claims under Articles 3.1 and 3.3 of the SPS Agreement.

7.8.3 Overall conclusion of this section

7.2286. The Panel exercises judicial economy with regard to Mexico's claims under Articles 3.1 and 3.3 of the SPS Agreement.

7.9 Mexico's claims relating to general conformity with the SPS Agreement

7.9.1 General introduction to the section

7.2287. Mexico claims that the measures adopted by Costa Rica are inconsistent with the second sentence of Article 1.1 and with Article 2.1 of the SPS Agreement, because said measures are inconsistent with the provisions of the SPS Agreement that Mexico cites as having been violated.³³⁹⁵

7.2288. Costa Rica asserts that its phytosanitary requirements have been developed and applied in accordance with the provisions of the SPS Agreement, and that Mexico has failed to demonstrate that the measures are inconsistent with the provisions of the SPS Agreement, therefore the Panel should reject Mexico's claims under Articles 1.1 and 2.1 of the SPS Agreement.³³⁹⁶

7.2289. The Panel will examine below whether Mexico has demonstrated that Costa Rica has acted inconsistently with Articles 1.1 and 2.1 of the SPS Agreement. To that end, the Panel will first set forth the relevant legal provisions and the legal standard, and will then conduct the necessary analysis.

7.9.2 The relevant legal provisions

7.2290. Article 1.1 of the SPS Agreement states:

This Agreement applies to all sanitary and phytosanitary measures which may, directly or indirectly, affect international trade. Such measures shall be developed and applied in accordance with the provisions of this Agreement.

7.2291. Article 2.1 of the SPS Agreement provides:

³³⁹⁴ The Panel observes that in *Australia – Salmon*, the panel concluded that, having found that the measure in dispute was inconsistent with Articles 5.1, 5.5 and 5.6 of the SPS Agreement, and was, on that ground, also inconsistent with Articles 2.2 and 2.3, it saw no need to further examine the complainant's claims under Article 3. (Panel Report, *Australia – Salmon*, para. 8.184).

³³⁹⁵ Mexico's first written submission, pp. 148-149; and second written submission, paras. 6 and 329.

³³⁹⁶ Costa Rica's first written submission, para. 5.270.

Members have the right to take sanitary and phytosanitary measures necessary for the protection of human, animal or plant life or health, provided that such measures are not inconsistent with the provisions of this Agreement.

7.9.3 Legal standard under Articles 1.1 and 2.1 of the SPS Agreement

7.2292. The second sentence of Article 1.1 of the SPS Agreement requires that all SPS measures covered by the SPS Agreement be developed and applied in accordance with the provisions of that Agreement.

7.2293. The panel in *US – Animals* observed that there are provisions in other covered agreements that are not dissimilar from the language in Article 1.1 of the SPS Agreement, such as Article 1 of the Anti-Dumping Agreement and Article 10 of the SCM Agreement, which also call for all measures taken under each respective agreement to be consistent with the terms of that agreement.³³⁹⁷ The panel explained that panels regularly make findings of consequential violation of these provisions when complainants include them in their claims.³³⁹⁸

7.2294. In this regard, if a panel finds that the respondent has acted inconsistently with any provision of the SPS Agreement, and the complainant has included Article 1.1 in its claims, that panel could also find an inconsistency with Article 1.1.³³⁹⁹

7.2295. Article 2.1 provides that Members have the right to take SPS measures, provided that such measures are not inconsistent with the provisions of the SPS Agreement.

7.2296. The Appellate Body in *India – Agricultural Products* explained that Article 2.1 of the SPS Agreement makes explicit the principle that Members must ensure that their SPS measures comply with all of the obligations set out in all provisions of the SPS Agreement.³⁴⁰⁰

7.2297. As in the case of Article 1.1, if a panel finds that the respondent has acted inconsistently with any provision of the SPS Agreement, and the complainant has included Article 2.1 in its claims, that panel could also find an inconsistency with Article 2.1.

7.9.4 The Panel's analysis

7.2298. **Mexico** claims that the phytosanitary measures adopted by Costa Rica are inconsistent with the second sentence of Article 1.1 of the SPS Agreement.³⁴⁰¹

7.2299. Mexico submits that it has demonstrated that the measures adopted by Costa Rica were not developed and applied in accordance with the provisions of the SPS Agreement, in particular because (i) they are not based on international standards, guidelines or recommendations; (ii) they are not based on scientific evidence; (iii) they are maintained without sufficient scientific evidence; (iv) they are not based on an assessment, as appropriate to the circumstances, of the risk to the life or health of avocado plants in its territory; (v) they are more restrictive than required to achieve its ALOP; (vi) they arbitrarily or unjustifiably discriminate; and (vii) they are not adapted to regional conditions.³⁴⁰²

7.2300. Mexico also claims that Costa Rica's phytosanitary measures are inconsistent with Article 2.1 of the SPS Agreement.³⁴⁰³

7.2301. Mexico submits that Article 2.1 of the SPS Agreement shows that, although Members retain their right to impose SPS measures, these must be applied within the framework established by the Agreement itself, and should just one of the obligations under the SPS Agreement not be met that

³³⁹⁷ Panel Report, *US – Animals*, para. 7.718.

³³⁹⁸ Panel Report, *US – Animals*, para. 7.718 (citing Panel Reports, *China – Broiler Products*, paras. 7.512-7.613; and *China – GOES*, para. 7.681).

³³⁹⁹ See, for example, Panel Report, *US – Animals*, para. 7.719.

³⁴⁰⁰ Appellate Body Report, *India – Agricultural Products*, para. 5.21.

³⁴⁰¹ Mexico's first written submission, p. 148.

³⁴⁰² Mexico's first written submission, para. 611.

³⁴⁰³ Mexico's first written submission, p. 149.

is enough to consider that Article 2.1 of the Agreement has been violated.³⁴⁰⁴ Mexico submits that it has demonstrated *prima facie* that the measures adopted by Costa Rica are not consistent with the provisions of the SPS Agreement alleged to have been violated and, therefore, the measures violate Article 2.1 of the SPS Agreement.³⁴⁰⁵

7.2302. **Costa Rica** states that its phytosanitary requirements have been developed and applied in accordance with the provisions of the SPS Agreement, and that Mexico has failed to demonstrate that those measures are inconsistent with the provisions of the SPS Agreement, the Panel should therefore reject Mexico's claims under Articles 1.1 and 2.1 of the SPS Agreement.³⁴⁰⁶

7.2303. As this **Panel** explained above, if a panel finds that the respondent has acted inconsistently with any provision of the SPS Agreement, and the complainant has included Article 1.1 or Article 2.1 in its claims, that panel could also find an inconsistency with those Articles.

7.2304. The Panel has found that Costa Rica has acted inconsistently with Articles 2.2, 5.1, 5.2, 5.3 and 5.5 of the SPS Agreement, and Mexico has included Articles 1.1 and 2.1 of the SPS Agreement within its claims. As a consequence of the fact that Costa Rica has acted inconsistently with Articles 2.2, 5.1, 5.2, 5.3 and 5.5 of the SPS Agreement, the Panel also finds that Costa Rica has acted inconsistently with Articles 1.1 and 2.1 of the SPS Agreement.

7.9.5 Overall conclusion of this section

7.2305. The Panel concludes that Costa Rica has acted inconsistently with Article 1.1 of the SPS Agreement, by failing to develop and apply its phytosanitary measures, i.e. Resolutions DSFE-002-2018 and DSFE-003-2018, which contain the phytosanitary requirements, in accordance with the provisions of the SPS Agreement.

7.2306. The Panel also concludes that Costa Rica has acted inconsistently with Article 2.1 of the SPS Agreement, by adopting phytosanitary measures, i.e. Resolutions DSFE-002-2018 and DSFE-003-2018, which contain the phytosanitary requirements, that are inconsistent with the provisions of the SPS Agreement.

7.10 Mexico's claims and Costa Rica's defence under the GATT 1994

7.10.1 General introduction to the section

7.2307. Mexico claims that Costa Rica's measures are inconsistent with Articles III:4 and XI:1 of the GATT 1994.³⁴⁰⁷

7.2308. Costa Rica submits that Mexico has failed to demonstrate that its phytosanitary requirements are inconsistent with Articles III:4 and XI:1 of the GATT 1994, and that, in any event, its measures are justified by Article XX(b) of the GATT 1994.³⁴⁰⁸

7.2309. The Panel will address below the claims under the GATT 1994.

7.10.2 The Panel's analysis

7.2310. **Mexico** submits that Resolutions DSFE-002-2018 and DSFE-003-2018 fall within the scope of Article XI:1 of the GATT 1994³⁴⁰⁹, and constitute import and export restrictions on fresh avocado fruit, therefore they are inconsistent with Article IX:1 of the GATT 1994.³⁴¹⁰

³⁴⁰⁴ Mexico's first written submission, para. 613 (citing Appellate Body Report, *India – Agricultural Products*, para. 5.21.)

³⁴⁰⁵ Mexico's first written submission, para. 614.

³⁴⁰⁶ Costa Rica's first written submission, para. 5.270.

³⁴⁰⁷ Mexico's first written submission, para. 144.

³⁴⁰⁸ Costa Rica's first written submission, paras. 6.13, 6.33-6.34 and 6.45.

³⁴⁰⁹ Mexico's first written submission, para. 625.

³⁴¹⁰ Mexico's first written submission, para. 629.

7.2311. Mexico contends that Mexican and Costa Rican avocados are like products within the meaning of Article III:4 of the GATT 1994³⁴¹¹; that Resolutions DSFE-002-2018 and DSFE-003-2018 are "laws, regulations and requirements" within the meaning of Article III:4 of the GATT 1994³⁴¹²; and that said resolutions affect the internal sale and offering for sale of avocados and accord less favourable treatment to imported avocados than that accorded to the like product of national origin, consequently they are inconsistent with Article III:4 of the GATT 1994.³⁴¹³

7.2312. **Costa Rica**, for its part, submits that Mexico has failed to demonstrate that its measures are inconsistent with the SPS Agreement, and that any phytosanitary measure adopted by a Member in accordance with the SPS Agreement should be considered consistent with the general disciplines of the GATT 1994, without the need for an evaluation to be carried out under the GATT 1994.³⁴¹⁴

7.2313. Costa Rica contends that its phytosanitary requirements are phytosanitary formalities inherent to the import process which are permitted under Article VIII of the GATT 1994³⁴¹⁵, and that Mexico has failed to demonstrate that the measures are excessively onerous such that they constitute a restriction of such a magnitude that they limit imports within the meaning of Article XI:1 of the GATT 1994.³⁴¹⁶

7.2314. Costa Rica submits that its phytosanitary requirements are applied at the border to imported avocados, they therefore fall within the scope of Article XI:1 of the GATT 1994³⁴¹⁷, and are not covered by Article III:4 of the GATT 1994.³⁴¹⁸ Costa Rica adds that, even if the Panel were to consider that the phytosanitary requirements are covered by Article III:4 of the GATT, Mexico has failed to meet the burden of proof with respect to the likeness between the products and the alleged less favourable treatment of imported products.³⁴¹⁹

7.2315. Costa Rica also maintains that, should the Panel consider that there is any inconsistency with the GATT 1994, the measures under consideration are covered by Article XX(b) of the GATT 1994, because these measures seek to protect plant health in Costa Rica and are necessary to achieving that goal, and because there is no indication that, by applying them, Costa Rica discriminates arbitrarily between countries where the same conditions prevail or that they constitute a disguised restriction on international trade.³⁴²⁰

7.2316. This **Panel** notes that the Appellate Body has explained that nothing in Article 11 of the DSU requires a panel to examine all legal claims made by the complaining party, and that previous panels have addressed only those issues that they considered necessary for the resolution of the matter between the parties.³⁴²¹

7.2317. With respect to disputes where claims are raised under the GATT 1994 and the SPS Agreement, panels often decide that it is not necessary to make findings under the GATT 1994, after having found an inconsistency with any of the provisions of the SPS Agreement.³⁴²²

7.2318. The panel in *US – Animals*, for example, refers to the reasoning of the panel in *Australia – Salmon* in the sense that where any findings of inconsistency with GATT 1994 provisions would also require an examination of whether the measure was justified under Article XX(b) of the GATT 1994, the panel would be led back to the SPS Agreement.³⁴²³ The panel in *US – Animals*

³⁴¹¹ Mexico's first written submission, para. 641.

³⁴¹² Mexico's first written submission, para. 646.

³⁴¹³ Mexico's first written submission, para. 656.

³⁴¹⁴ Costa Rica's first written submission, para. 6.1; second written submission, para. 4.1.

³⁴¹⁵ Costa Rica's first written submission, para. 6.10; second written submission, para. 4.8.

³⁴¹⁶ Costa Rica's first written submission, para. 6.12; second written submission, para. 4.8.

³⁴¹⁷ Costa Rica's first written submission, para. 6.22; second written submission, para. 4.7.

³⁴¹⁸ Costa Rica's first written submission, para. 6.23; second written submission, para. 4.7.

³⁴¹⁹ Costa Rica's first written submission, para. 6.24.

³⁴²⁰ Costa Rica's first written submission, para. 6.34; second written submission, paras. 4.10-4.11.

³⁴²¹ Appellate Body Report, *US – Wool Shirts and Blouses*, pp. 17-20.

³⁴²² See, for example, Panel Reports, *EC – Hormones (US)*, para. 8.272; *EC – Hormones (Canada)*, para. 8.275; *Australia – Salmon*, para. 8.185; *Japan – Apples*, para. 8.328; *EC – Approval and Marketing of Biotech Products*, paras. 7.3422 and 7.3429; *India – Agricultural Products*, para. 7.803; and *US – Animals*, para. 7.732.

³⁴²³ Panel Report, *US – Animals*, para. 7.730 (citing Panel Reports, *Australia – Salmon*, para. 7.19; and *US – Poultry (China)*, para. 7.481).

considered that such a conclusion would be bolstered by Article 2.4 of the SPS Agreement, which states that SPS measures which conform to the relevant provisions of the SPS Agreement shall be presumed to be in accordance with the obligations under the GATT 1994 which relate to the use of SPS measures, in particular Article XX(b).³⁴²⁴

7.2319. The Panel has found that Costa Rica has acted inconsistently with Articles 2.2, 5.1, 5.2, 5.3 and 5.5 of the SPS Agreement. The Panel does not consider it necessary to make findings under the GATT 1994 to resolve the matter between the parties.³⁴²⁵ In light of the foregoing, the Panel considers it appropriate to exercise judicial economy with regard to Mexico's claims under Articles III:4 and XI:1 of the GATT 1994, and to Costa Rica's defence under Article XX(b) of the GATT 1994.

7.10.3 Overall conclusion of this section

7.2320. The Panel exercises judicial economy with regard to Mexico's claims under Articles III:4 and XI:1 of the GATT 1994, and to Costa Rica's defence under Article XX(b) of the GATT 1994.

8 CONCLUSIONS AND RECOMMENDATIONS

8.1. In light of the foregoing findings, the Panel has reached the following conclusions:

- a. Regarding the scope of the SPS Agreement:
 - i. Mexico has demonstrated that Resolutions DSFE-002-2018 and DSFE-003-2018, which contain the phytosanitary requirements, individually constitute phytosanitary measures subject to the SPS Agreement.
 - ii. Mexico has failed to demonstrate that Reports ARP-002-2017 and ARP-006-2016 and Manual NR-ARP-PO-01_M-01 individually constitute phytosanitary measures subject to the SPS Agreement.
 - iii. Mexico has failed to demonstrate the existence of one phytosanitary measure consisting of the five measures identified by Mexico taken as a whole. However, in order to analyse the claims put forward by Mexico, this Panel decided that it would read Resolutions DSFE-002-2018 and DSFE-003-2018, which contain the phytosanitary requirements, together with Reports ARP-002-2017 and ARP-006-2016 and Manual NR-ARP-PO-01_M-01, and would make any necessary findings and recommendations in relation to those instruments, with a view to securing a positive solution to the dispute.
- b. Regarding Mexico's claims on risk assessment:
 - i. Costa Rica has acted inconsistently with Article 5.1 of the SPS Agreement, by failing to ensure that its phytosanitary measures are based on an assessment, as appropriate to the circumstances, of the risks to plant life or health.
 - ii. Costa Rica has acted inconsistently with Article 5.2 of the SPS Agreement, because, in the assessment of risks, it failed to take into account available scientific evidence and the prevalence of specific disease or pests.
 - iii. Costa Rica has acted inconsistently with Article 5.3 of the SPS Agreement, because, in assessing the risk to plant life or health and determining the measure to be applied for achieving the appropriate level of phytosanitary protection from such risk, it failed to take into account as relevant economic factors: the potential damage in terms of loss of production or sales in the event of the entry, establishment or spread of ASBVd; the

³⁴²⁴ Panel Report, *US – Animals*, para. 7.730.

³⁴²⁵ The Panel observes that Mexico's claims under the GATT 1994 pertain only to the consistency with the GATT 1994 of Resolutions DSFE-002-2018 and DSFE-003-2018, which contain the phytosanitary requirements. The Panel has found that those measures are inconsistent with certain provisions of the SPS Agreement.

costs of control or eradication in Costa Rica's territory; and the relative cost-effectiveness of alternative approaches to limiting risks.

- iv. Costa Rica has acted inconsistently with Article 2.2 of the SPS Agreement, by failing to ensure that its phytosanitary measures, i.e. Resolutions DSFE-002-2018 and DSFE-003-2018, which contain the phytosanitary requirements, are based on scientific principles and are not maintained without sufficient scientific evidence.
- c. Regarding Mexico's claims on discrimination:
- i. In respect of the first two situations that Mexico has indicated as comparable, i.e. fresh avocados imported for consumption from countries where ASBVd is present *vis-à-vis* domestic Costa Rican avocados in which ASBVd is likely to be present, there are arbitrary or unjustifiable distinctions in the levels of protection that Costa Rica considers to be appropriate in different situations, which result in discrimination or a disguised restriction on international trade. Therefore, Costa Rica has acted inconsistently with Article 5.5 of the SPS Agreement.
 - ii. Costa Rica's phytosanitary measures, i.e. Resolutions DSFE-002-2018 and DSFE-003-2018, which contain the phytosanitary requirements, arbitrarily or unjustifiably discriminate between its own territory and that of Mexico, and are applied in a manner which constitutes a disguised restriction on international trade. Thus, Costa Rica has acted inconsistently with the first and second sentences of Article 2.3 of the SPS Agreement.
- d. Regarding Mexico's claim on trade restrictiveness, Mexico has failed to demonstrate that Costa Rica's phytosanitary measures, i.e. Resolutions DSFE-002-2018 and DSFE-003-2018, which contain the phytosanitary requirements, are more trade-restrictive than required to achieve its appropriate level of phytosanitary protection, taking into account technical and economic feasibility. Therefore, Mexico has failed to demonstrate that Costa Rica has acted inconsistently with Article 5.6 of the SPS Agreement.
- e. Regarding the claims concerning adaptation to regional conditions:
- i. Mexico has failed to demonstrate that Costa Rica has acted inconsistently with its obligation under the first sentence of Article 6.1 of the SPS Agreement to ensure that its sanitary or phytosanitary measures are adapted to the phytosanitary characteristics of the area to which the product is destined.
 - ii. Mexico has failed to demonstrate that Costa Rica has acted inconsistently with its obligation under the second sentence of Article 6.1, in assessing the sanitary or phytosanitary characteristics of a region, to take into account, *inter alia*, the level of prevalence of specific diseases or pests, the existence of eradication or control programmes, and appropriate criteria or guidelines which may be developed by the relevant international organizations.
- f. Regarding Mexico's claims on harmonization, the Panel exercises judicial economy with regard to Mexico's claims under Articles 3.1 and 3.3 of the SPS Agreement.
- g. Regarding Mexico's claims relating to general conformity with the SPS Agreement:
- i. Costa Rica has acted inconsistently with Article 1.1 of the SPS Agreement, by failing to develop and apply its phytosanitary measures, i.e. Resolutions DSFE-002-2018 and DSFE-003-2018, which contain the phytosanitary requirements, in accordance with the provisions of the SPS Agreement.
 - ii. Costa Rica has acted inconsistently with Article 2.1 of the SPS Agreement, by adopting phytosanitary measures, i.e. Resolutions DSFE-002-2018 and DSFE-003-2018, which contain the phytosanitary requirements, that are inconsistent with the provisions of the SPS Agreement.

- h. Regarding Mexico's claims and Costa Rica's defence under the GATT 1994, the Panel exercises judicial economy with regard to Mexico's claims under Articles III:4 and XI:1 of the GATT 1994, and to Costa Rica's defence under Article XX(b) of the GATT 1994.

8.2. Pursuant to Article 3.8 of the DSU, in cases where there is an infringement of the obligations assumed under a covered agreement, the action is considered *prima facie* to constitute a case of nullification or impairment of benefits accruing under that agreement. In view of the foregoing, the Panel concludes that, insofar as Costa Rica has acted inconsistently with the provisions of the SPS Agreement, it has nullified or impaired benefits accruing to Mexico under that Agreement.

8.3. Pursuant to Article 19.1 of the DSU, the Panel recommends to the DSB that Costa Rica be asked to bring its measures into conformity with its obligations under the SPS Agreement.
