PUBLIC VERSION

Before the Panel established pursuant to Chapter 31 (Dispute Settlement) of the Treaty between the United Mexican States, the United States of America and Canada (USMCA)

Mexico — Measures Concerning Genetically Engineered Corn

(MEX-USA-2023-31-01)

Rebuttal Submission of the United Mexican States

May 28, 2024

CONTENTS

TABLE OF ABBREVIATIONS

Short Name	Complete Name
DNA	Deoxyribonucleic acid
ANAM	National Customs Agency of Mexico
ATSDR	Agency for Disease Registry and Toxic Substances
SPS Agreement	Agreement on the Application of Sanitary and Phytosanitary Measures
ALOP	Adequate level of protection
Bt	Bacterium *Bacillus thuringiensis*
CAC	Codex Alimentarius Commission
CEC	Commission for Environmental Cooperation
CIBIOGEM	Interministerial Commission on Biosafety of Genetically Modified Organisms
CIMMYT	International Corn and Wheat Improvement Center
CINVESTAV	Center of Research and Advanced Studies
ADC	Apparent Domestic Consumption
CNBA	National Committee of Agricultural Biosafety
Codex	Codex Alimentarius
CODG	Center of Origin and Genetic Diversity
COFEPRIS	Federal Commission for the Protection against Sanitary Risks
Collectivity	Collectivity of Holders of the Human Right to a Healthy Environment for the Development and Welfare of Persons
CONABIO	National Commission for the Knowledge and Use of Biodiversity
CONAHCYT	National Council of Humanities, Sciences and Technologies
Constitution or CPEUM	Political Constitution of the United Mexican States
Vienna Convention	Vienna Convention on the Law of the Treaties, done in Vienna on March 23, 1969
Decree 2023 or Decree	Decree establishing various actions regarding glyphosate and genetically modified corn, published in the DOF on February 13, 2023
DOF	Official Gazette of the Federation.
United States or USA	United States of America
FAO	Food and Agriculture Organization of the United Nations
FSA	Food Standards Agency of the United Kingdom
GATT or GATT 1994	General Agreement on Tariffs and Trade 1994

GM	Genetically Modified
ARMG	Antibiotic Resistance Marker Genes
GBH	Glyphosate-based herbicides
HT	Herbicide tolerant crops
IARC	International Agency for Research on Cancer
IPN	National Polytechnic Institute
LBOGM or Law of Biosafety	Law of Biosafety of Genetically Modified Organisms
LIGIE	Law of General Taxes of Import and Export
MRL	Maximum Residue Limits
GM corn	Genetically Modified Corn
Mexico or Respondent	United Mexican States
SPS	Sanitary and Phytosanitary Measures
NASS	National Agricultural Statistics Service of the United States
NOAEL	No observed adverse effect Level
OECD	Organization for Economic Cooperation and Development
GMO	Genetically Modified Organisms
ILO	International Labour Organization
OMC	World Trade Organization
NGO	Non-Governmental Organization
Panel	Panel established pursuant to Article 31.6 (Establishment of a Panel) of the USMCA
Global Native Corn Project	Project to collect, generate, update and analyze information on the genetic diversity of corn and its wild relatives in Mexico
Regulations of the Law of Biosafety	Regulations of the Law of Biosafety of Genetically Modified Organisms
SADER	Ministry of Agriculture and Rural Development, formerly known as SAGARPA
SAGARPA	Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food, now known as SADER.
SCJN	Supreme Court of Justice of the Nation
SEMARNAT	Ministry of Environment and Natural Resources
SHCP	Ministry of Finance and Public Credit
SSA	Ministry of Health
GTB	Gastrointestinal tract bacteria

NAFTA	North American Free Trade Agreement
USMCA, Treaty	Agreement between the United States of America, the United Mexican States, and Canada
UNESCO	United Nations Educational, Scientific and Cultural Organization
USDA	United States Department of Agriculture
USTR	Office of the United States Trade Representative

I. INTRODUCTION

1. Mexico submits this Rebuttal Submission in response to the arguments raised by the United States in its Reply and by Canada in its Third-Party Submission in accordance with the provisions of the updated procedural calendar.

2. After analysing the United States' Reply Submission, it is clear that many of the arguments raised by Mexico in its Initial Written Submission were not refuted by the United States. In its Reply, the United States hides behind the idea that it is not challenging the entire 2023 Decree, however, by ignoring the central matters of the Decree and all the elements summarised therein, it reaches erroneous conclusions.

3. The United States ignores that the 2023 Decree is a legal instrument of public policy that serves multiple purposes. As Mexico explained in its Initial Submission, while it is arguable that a portion of the 2023 Decree could be characterised as an SPS measure, because it is intended to protect human health and native corn from risks arising from GM corn, the 2023 Decree was also designed to protect the environment, biodiversity, specifically corn, and provides for the protection of Mexico's cultural heritage (including the milpa, biocultural wealth, and gastronomic heritage), as well as the identity of indigenous and peasant communities in Mexico.[1]

4. In this regard, it is worth noting certain issues.

5. *First*, Mexico has demonstrated throughout this dispute that there are legitimate concerns related to risks to human health and native corn diversity from the consumption of GM corn and has presented the scientific basis for these concerns, which will be addressed in detail throughout this submission. Mexico is protecting its population, which basically subsists on corn, because it has a legal obligation to do so. The United States superficially analyses and criticises Mexico's evidence and risk assessment, but its criticisms do not present science-based arguments to support its position, but simply disqualify with adjectives.

6. *Second*, the necessity of the 2023 Decree for the protection of the environment and biodiversity is not a minor issue, since, as established in the Initial Written Submission,[2] and the

[1] Mexico's Initial Written Submission, ¶ 3.

[2] Mexico's Initial Written Submission, ¶¶ 20 and 43.

United States has not even made a statement on the issue, Mexico plays a central role in the preservation of several crops, especially corn, which is currently the most important food crop in the world. Mexico's status as one of the 12 megadiverse countries and the center of origin of cultivated plants, and in particular the center of origin, domestication and diversification of corn, makes it the most important gene pool in the world for this and many other crops, an issue that has implications not only for Mexico, but for the whole world.

7. *Third*, by issuing the 2023 Decree, Mexico is protecting this gene pool along with its cultural heritage, which includes traditional Mexican cuisine, which is recognized by UNESCO as a World Heritage Site, and safeguarding Mexico's indigenous and peasant communities, who maintain the gene pool, in a complex system of constant domestication, that faces the risks posed by GM corn.

8. It is for all of the above reasons that the Government of Mexico designed the 2023 Decree, taking into consideration the applicable regulatory framework and the large number of scientific documents that support it, generated over more than thirty years of debate on the subject.

9. In addition, the United States continues to erroneously refer to certain provisions of the 2023 Decree as the "*Tortilla Corn Ban*" and the "*Substitution Instruction*". In the interest of non-repetition, Mexico refers to its explanation in its Initial Written Submission, and merely notes that there is no ban at all, but rather an End Use Limitation on corn; and that no action has been taken to implement the Gradual Substitution instructions.

10. Furthermore, as explained by Mexico and addressed in this Submission, the challenged measures have not affected trade between both countries at all, since, among other issues, in 2024 there has been an increase in imports of white corn from the United States.

11. Mexico also notes that, on May 3, 2024, the date on which it was scheduled to submit comments to the NGE Written Views, the United States decided not to respond to them, as it did not submit any document. Perhaps this is due to the fact that, for the most part, the arguments made by the NGEs are compelling and emphasize that "there are significant concerns based on scientific facts and 'lessons learned' in an industry that has been very lightly regulated at best."[3]

[3] Comments of the United Mexican States to the Submission of WrittenViews by NGE, ¶ 3.

12. Regardless of the foregoing, the United States in its Rebuttal Submission purported to prepare a summary of observations to rebut the "extensive errors" and "misleading allegations" found in the evidence submitted with Mexico's Initial Brief, through Annexes I and II.[4] However, nothing could be further from the truth.

13. As it is evident from the reading of these documents, the comments of the United States are totally irrelevant, and they only disqualify with adjectives. It is truly astonishing that the United States makes a myriad of superficial, false, contradictory allegations, and, above all, that it does not present technical-scientific evidence on which its allegations are based — most likely because it does not exist. Evidently, to criticize without support is not to refute.

14. In this regard, for the benefit of the Panel, Mexico's Reply Submission is accompanied by the following:

- Appendix A, which refutes all of the criticisms asserted by the United States in its Annexes I, II and III.
- Appendix B, which notes the deficiencies in the new evidence presented by the United States in its Rebuttal Submission, which are basically the same as those presented in the evidence submitted by the United States in its Initial Written Submission.
- Expert report on toxicology, prepared by Dr. Michael Antoniou.
- Expert report on biodiversity and gene flow, prepared by Dr. Ana Laura Wegier Briuolo.
- Expert report on the importance of corn for indigenous peoples, developed by Dr. Eckart Boege Schmidt.
- Expert report on the cultural importance of corn in Mexico, prepared by Dr. Dulce Espinosa De la Mora.
- Exhibits **MEX-361** to **MEX-460**.

[4] U.S. Rebuttal Submission, ¶¶ 32, 45

15. In line with the above, Mexico's Written Reply is divided into two main sections.

16. *First*, in the Factual Section, Mexico explains that the United States has ignored the relevant information regarding the evidence presented by Mexico regarding the risks to human health, biodiversity, and corn diversity. Mexico correctly characterizes the 2023 Decree. It explains that, in fact, U.S. imports have not been affected by the 2023 Decree.

17. *Second*, Mexico refutes the alleged incompatibilities of the 2023 Decree with the USMCA and explains that, alternatively, the measures would be exempted under the treaty itself.

II. THE UNITED STATES DISREGARDS THE EVIDENCE PRESENTED BY MEXICO REGARDING THE RISKS TO HUMAN HEALTH, BIODIVERSITY, AND THE DIVERSITY OF NATIVE CORN

18. The United States alleges that Mexico "with no new science [...] adopted its [Decree]"[5] and states that "Mexico has put forward no coherent theory or rationale for why GE corn would be unsafe".[6] The United States disregards the scientific evidence presented by Mexico and merely identifies alleged "errors" in the factual section presented by Mexico in its Initial Written Submission.

19. Mexico has not abandoned any scientific approach; on the contrary, since the issuance of the Biosafety Law, research on corn diversity has been promoted, for example, through the Global Corn Project, and the National Biosafety Information System (SNIB) has been maintained, which organizes, updates and disseminates information on the biosafety of GMOs. This system and the "Scientific Record on glyphosate and GM crops" (2020) ("Record 2020") prepared by Conahcyt contain scientific information that clearly identifies and details the risks to human health, biodiversity and diversity of native corn varieties that were identified by the Mexican regulatory authorities and that led to the issuance of Decree 2023.

20. Rather than refuting the evidence presented by Mexico, the United States merely characterizes it as a "[s]harp turn away from legitimate science",[7] based on isolated statements,

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5 U.S. Rebuttal Submission, ¶ 1.

6 U.S. Rebuttal Submission, ¶¶ 2, 40, 150 and 163.

7 U.S. Rebuttal Submission, ¶ 29.

unfounded disqualifications and little relevant evidence. The truth is that the United States fails to refute that Mexico clearly identified the risks associated with GM corn and glyphosate. For the benefit of the Panel, the following clarifies the alleged errors or "misstatements" made by the United States in its Rebuttal Submission.[8]

21. *First*, the United States appears to argue that authorizations for GM corn events that have been previously issued by Cofepris and other authorities, such as the FDA and EPA, prevent Mexico from modifying its conclusions about the safety of GM corn consumption and the health risks associated with direct consumption, as well as the risks to biodiversity and corn diversity (which includes native varieties).[9] This is incorrect.

22. On the one hand, the United States emphasizes the safety assessments carried out by Cofepris between 2002 and 2003 (Exhibits USA-144 to USA-146) to argue that "Mexico has not offered any new analysis from Cofepris indicating a need to modify the original assesments".[10] These "original assessments" clearly state that the safety of GM corn events is based "on the knowledge existing to date", i.e., the information selected by the applicant at the time of filing its application for authorization in 2002 and 2003[11]. It is clear that the regulatory authorities did not have at that time the scientific information that formed the basis of Decree 2023, constituted by a scientific and technical corpus free of conflict of interest.

23. The United States cannot freeze the ability of Mexican authorities to protect its population from the risks posed by GM corn and glyphosate based solely on those authorizations. Such action would be tantamount to ignoring, without reasonable justification, the scientific evidence, free of conflict of interest and available to date, that was presented by Mexico in the "Scientific Record on Glyphosate and GM Crops" (2020), prepared by Conahcyt, and the collection of relevant studies in the National Biosafety Information System (SNIB) maintained by Cibiogem. Both the 2020 Dossier and the SNIB contain updated scientific evidence, produced subsequent to the conclusions presented by Cofepris in the evaluations submitted by the United States. They confirm

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8 U.S. Rebuttal Submission, ¶¶ 33-41.

9 U.S. Rebuttal Submission, ¶ 33.

10 U.S. Rebuttal Submission, ¶ 33.

11 *See* **USA-144**, p. 3, **USA-145**, p.3, **USA-146**, p. 3.

the risks associated with GM corn and glyphosate that were identified by Mexico in its Initial Written Submission.[12]

24. On the other hand, the FDA assessment identified by the United States in footnote 34 of its Rebuttal Submission were conducted, for the most part, between 1996 and 2002.[13] These assessments not only do not take into account the updated scientific evidence confirming the risks of GM corn identified by Mexico, but are part of voluntary consultation procedures that are based on information that is selected by the biotechnology developers themselves seeking authorization and do not contemplate an analysis of stacked events and their possible effects.[14]

25. In the same vein, the EPA's records[15] are summaries that do not provide relevant information on the results of the research cited or the methodology used.[16] Consequently, these results are inadequate to address Mexico's concerns regarding adverse health effects from the consumption of GM corn. For its part, the FDA's GMO regulation and processes have been criticized for lack of transparency, omissions and limited explanation.

26. Mexico cannot ignore the views expressed by the NGEs on EPA procedures. Specifically, *Friends of Earth* (FOE), which states that the assessments for corn events conducted by the agency "have not included levels of human exposure to the associated herbicides and Bt/VIP toxins, nor animal studies designed to detect adverse health impacts of any sort".[17] The *Center for Food Safety* (CFS) adds that, the "EPA has never established standardized allergenicity test protocols … for novel GE insecticidal proteins, but rather continues to rely on industry tests biased to achieve negative results" that, "[i]f conducted according to standardized protocols … testing of these newer Bt endotoxins would undoubtedly also raise red flags for allergenicity".[18]

27. In any case, the safety assessments made by regulatory authorities in the United States and other countries are irrelevant to the extent that they do not take into account the level of protection

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12 Mexico's Initial Written Submission, ¶¶ 160-186.

13 *See,* for example, **USA-187** a **USA-197.**

14 Center for Food Safety Written View, p. 3.

15 *See,* **USA-199; USA-203; USA-2014; USA-205; USA-224.**

16 **USA-205, p.27.** *e.g.,* "[b]ovine serum albumin was also tested as an internal check".

17 Friends of Earth Written View, p. 4.

18 Center for Food Safety Written View. p.6.

that Mexico has identified, nor do they take into account the high consumption of corn in the Mexican diet and traditional agricultural practices in Mexico.

28. *Second,* The United States makes claims regarding antibiotic resistance, nutritional deficiencies and the relationship of GM corn to ultra-processed foods. Mexico responds to these arguments below.

29. *Third,* The United States argues that "[t]here is absolutely no question that crop yields in the United States have increased as a result of GE crops";[19] however, as Mexico pointed out in its Initial Written Submission, there is a relationship between the increase in corn production and the increase in arable area.[20] The same U.S. evidence explains that yield increases are related to increases in crop monitoring technologies and increases in cultivable area.[21] In this sense, the increase in corn crop yields is due to a multiplicity of factors and not only to the use of GM seeds.[22] Moreover, although the United States argues that "[t]he leading countries that export corn—accounted for 73 percent (147 million metric tons) of globally traded corn", the United States fails to refute the fact that almost 82% of countries choose not to import GMOs and that only 14 countries plant GM corn.[23]

30. *Fourth,* the United States argues that "Mexico has provided no rebuttal (or risk assessment) in response to [the events that have been authorized by regulators around the world]", including

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19 U.S. Rebuttal Submission, ¶ 43.

20 Mexico's Initial Written Submission, ¶ 79.

21 Although the United States submitted an incomplete Exhibit USA-226 (it submitted 4 of 10 pages), the full document explains that there was an increase in the use of "precision farming systems", an increase in the "average amount applied per acre" of "nitrogen fertilizer" and an increase in the "the average acreage of farms planting corn" en un 45%, pasando de "501 acres in 1997 to 725 acres in 2017". See USDA ERS, "Innovations in Seed and Farming Technologies Drive Productivity Gains and Costs on Corn Farms" (Apr. 4, 2022), https://www.ers.usda.gov/amber-waves/2022/april/innovations-in-seedand-farming-technologies-drive-productivity-gains-and-costs-on-corn-farms/. **MEX-458** This article also mentions that "[a]pplications of herbicides and insecticides fluctuated, with herbicide use rising alongside adoption of herbicide-tolerant seed varieties".

22 The chart presented by the United States as Exhibit USA-225 simply shows an increase in U.S. corn crop yields but in no way relates this increase to the use of GM corn seed. USDA, National Agricultural Statistics Service, "Corn Yield by Year (U.S.)" (última actualización el 12 de enero de 2024) **USA-225**.

23 Mexico's Initial Written Wubmission, ¶ 85. See Dionglay, C., "Commercially Available Biotech Crops and Where to Find Them", 2022, ISAAA, pp. 1-2. **MEX-070.**

those authorized by their own regulatory authorities.[24] The United States ignores the fact that the Food and Agriculture Organization of the United Nations (FAO) itself has pointed out that "genetic modifications of plants are likely to be more complex perhaps involving multiple between-species transfers and this may lead to an increased chance of unintended effects … the possible implications of the differences with respect to health need to be considered".[25] This is a core part of the risks identified by Mexico.

31. As noted by Friends of the Earth in its Written Views, the U.S. National Academy of Sciences "has also noted the need for more rigorous food safety assessments of stacked varieties and has called for making compositional and expression data on all GE cultivars public". [26] However, "[u]nfortunately, the testing and food safety assessments called for in the 2000s by the FAO/WHO, NAS, and the EPA's Scientific Advisory Panel have not been acted upon in the case of any high-expression level, stacked corn variety". [27] Therefore, the evidence presented by the United States, based on records of the EPA or other regulatory authorities, is not useful to demonstrate the absence of risks with respect to adverse health effects from the consumption of GM corn.

32. *Fiftth*, the United States challenges Mexico's position based on (i) allegations against one of the authors cited by Mexico in its Initial Written Submission, Mr. Séralini and (ii) a publication of the Mexican Academy of Science (AMC).[28]

33. With respect to the first aspect, the United States decides to attack the credibility and reputation of the French scientist Gilles-Éric Séralini in its Rebultal Submission,[29] one of the

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24 U.S. Rebuttal Submission, ¶ 37.

25 FAO/WHO., *Report of a Joint FAO/WHO Expert Consultation on Foods Derived from Biotechnology*, 2000, pp. 8-9. **MEX-361**.See also, Friends of Earth Written View, p. 8.

26 Friends of Earth Written View, p. 8.

27 Friends of Earth Written View, p. 9.

28 The Mexican Academy of Science is an independent, non-profit civil association, made up of scientists [...], working in various institutions in Mexico and abroad. *See* AMC, About the AMC, 2024, **MEX-362**. [Emphasis added]. Poder/Alianza Written View, pp. 4-5 ("there is no certainty that this [publication] has been subjected to this type of review [*peer review*]. In addition, other scientists free of conflict of interest have questioned this compilation").

29 U.S. Rebuttal Submission, ¶ 39. It cannot be omitted to mention that Dr. Seralini is an internationally recognized researcher, an expert in the study of the effects of GMOs and pesticides who has

multiple authors that were cited by Mexico in its Initial Written Submission and in the Risk Assessment that led to the Decree 2023.

34. Mexico filed its Initial Submission accompanied by approximately 200 scientific articles, of which only 11 were co-authored by Gilles-Éric Séralini.[30] The United States decided to refute only one, without explaining the alleged errors in the methodology or conclusions of the scientific article.[31]

35. The article criticized by the United States was published in September 2012 by the journal *Food and Chemical Toxicology*. A few weeks after being published – even hours,[32] the article provoked numerous positive and negative reviews.[33] As a result, in November 2012, the co-authors published an article with responses to the criticisms and pointed out, *inter alia*, *i)* the relevance of the research, *ii)* the adherence to OECD guidelines for scientific publications, *iii)* the peer review of the article prior to publication, *iv)* clarified various criticisms related to the research methodology,[34] and *v)* stated that there was no conflict of interest. They also disclosed information related to the financing of the investigation.[35]

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faced defamation cases by the companies that manufacture these products. In the court cases against Monsanto, internal company documents were disclosed showing that the company played an important role in a campaign to discredit the results of Seralini's studies.

30 All research articles were co-authored by Gilles-Éric Séralini with several researchers.

31 The research article criticized by the U.S. is Séralini GE, Clair E, Mesnage R, Gress S, Defarge N, Malatesta M, Hennequin D, de Vendômois JS. Republished study: "*long-term toxicity of a Roundup herbicide and a Roundup-tolerant genetically modified corn*". Environ Sci Eur. 2014, **MEX-225**.

32 Séralini GE, Clair E, Mesnage R, Gress S, Defarge N, Malatesta M, Hennequin D, de Vendômois JS, "*Answers to critics: Why there is a long term toxicity due to a Roundup-tolerant genetically modified maize and to a Roundup herbicide"*, Food and Chemical Toxicology, Noviembre de 2012, p.1, **MEX-363**.

33 Séralini GE, Clair E, Mesnage R, Gress S, Defarge N, Malatesta M, Hennequin D, de Vendômois JS, "*Answers to critics: Why there is a long term toxicity due to a Roundup-tolerant genetically modified maize and to a Roundup herbicide"*, Food and Chemical Toxicology, Noviembre de 2012, p.1, **MEX-363**..

34 Séralini GE, Clair E, Mesnage R, Gress S, Defarge N, Malatesta M, Hennequin D, de Vendômois JS, "*Answers to critics: Why there is a long term toxicity due to a Roundup-tolerant genetically modified maize and to a Roundup herbicide"*, Food and Chemical Toxicology, Noviembre de 2012, pp. 3 and 477, **MEX-363**.

35 The research was financed by FPH, CERES, French Ministry of Research and CRIIGEN, Séralini GE, Clair E, Mesnage R, Gress S, Defarge N, Malatesta M, Hennequin D, de Vendômois JS., "*Answers to critics: Why there is a long term toxicity due to a Roundup-tolerant genetically modified maize and to a Roundup herbicide"*, Food and Chemical Toxicology, Noviembre de 2012, p.7, **MEX-363**.

36. Despite the co-authors' response to the criticisms, the editor of the journal *Food and Chemical Toxicology* decided to withdraw the publication in November 2013.[36] The notice of withdrawal of the publication expressly stated that "the Editor-in-Chief found no evidence of fraud or intentional misrepresentation of the data" and "the peer review decision ultimately weighed that the work [...] had merit".[37]

37. Despite the withdrawal of the publication, in March 2014, the German Publisher *Springer Science* decided to republish Dr. Séralini's research article.[38] For the editor of *Springer* "the only legitimate reason for retracting a published research article is when the research and/or publication of the study is found to involve fraud, plagiarism or other violation of ethical research standards", which did not happen with the research article in question.

38. Mexico, as well as *Springer's* editor-in-chief, considers that "[i]f subsequent research identifies problems with the analysis, then the appropriate response is not to call for a retraction but to publish a refinement or counter-argument."[39] The United States simply does not present any analysis to counter-argue Mexico's position and its scientific evidence.

39. In relation to the second aspect, the United States also omits that the AMC publication *i)* received a high number of negative reactions and opposition from other members of the scientific community, and *ii)* reflects the opinion of a limited number of members of this Academy. [40]

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[36] Retraction notice to *'Long term toxicity of a Roundup herbicide and a Roundup-tolerant genetically modified maize', [Food Chem. Toxicol. 50 (2012) 4221–4231]"*, Noviembre de 2014, **MEX-364**.

[37] Retraction notice to *'Long term toxicity of a Roundup herbicide and a Roundup-tolerant genetically modified maize', [Food Chem. Toxicol. 50 (2012) 4221–4231]"*, Noviembre de 2014, **MEX-364**.

[38] Letter from magazine editor Harvey S. James Jr. Published March 8, 2014, Springer Science+Business Media Dordrecht, 2014, **MEX-365**.

[39] Letter from magazine editor Harvey S. James Jr. Published March 8, 2014, Springer Science+Business Media Dordrecht, 2014, **MEX-365**.

[40] See Franco, L., Contralínea, "Transgenics, the danger coming from the United States to Mexico: Steve Mc Druker", January 14, 2024, Contralínea, **MEX-260**. La Jornada, "Lies in the defense of transgenic food", Julio Muñoz Rubio. April 28, 2018. **MEX-366**. La Jornada "Unfeasible that transgenic and native products coexist, say scientists". April 12, 2018. **MEX-367**. The AMC publication reflects the opinion of 17 members of the Academy. In contrast, the AMC is composed of 3047 scientists, which gives rise to a great diversity of opinions that differ among themselves and can hardly be consider as immutable and/or absolute.

A. Mexico has clearly identified the risks related to GM Corn and Glyphosate

40. For the Panel's clarity, the following sections discuss the risks to human health, biodiversity and corn biodiversity (including native varieties) that were identified by Mexico and have not been refuted by the United States.

1. The United States has not refuted the indissoluble relationship between GM corn and glyphosate

41. The United States argues that the damages arising from the application and general use of glyphosate are not relevant for this dispute.[41] This is incorrect, as Mexico explained in its Initial Submission, the challenged measures are part of, and contribute to the objectives contained in the Decree 2023, which are related to the use of glyphosate.

42. Mexico explained in its Initial Submission that there is a clear relationship between GM crops and the increase in the use of herbicides such as glyphosate and that, the main function of GM corn events imported into Mexico is to tolerate herbicides, specifically glyphosate. In addition, evidence was presented of the presence of glyphosate residues in foods made from highly consumed corn in Mexico that also contain traces of GM corn.[42] This means that the direct consumption of GM corn and the products that have it as an ingredient result in the consumption of a product that has been exposed to a greater amount of herbicide that has been scientifically proven to be the cause of serious health and enviromental effects.[43]

43. In the specific case of Mexico, from 1995 to 2024, 208 GMO authorizations have been aproved, 48% of which are for GM corn. Of the GM corn authorizations, 90% are for herbicide tolerance (HT) and insect resistance (Bt). Of the HT crops, 94% are tolerant of the herbicide glyphosate and glufosinate-ammonium. The United States has not refuted this clear relationship between GM corn and the consequences associated with glyphosate exposure and consumption.[44]

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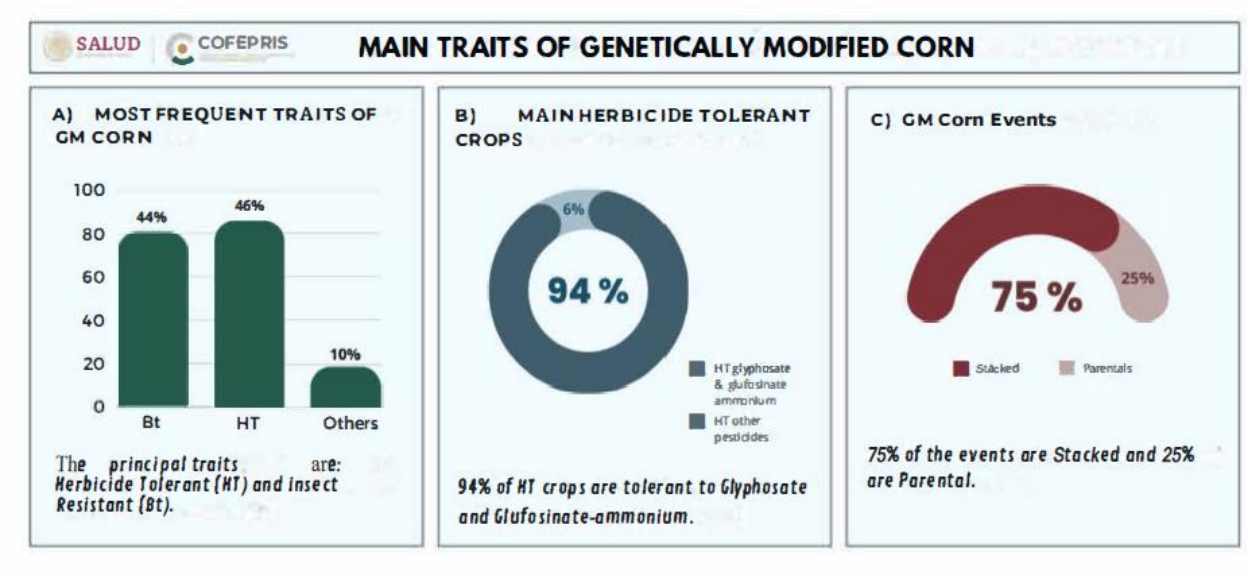
41 U.S. Rebuttal Submission, ¶ 3.

42 González-Ortega, E., Piñeyro-Nelson, A., Gómez-Hernández, E., Monterrubio-Vázquez, E., Arleo, M., Dávila-Velderrain, J., Martínez-Debat C. and Álvarez-Buylla E. R., "Pervasive presence of transgenes and glyphosate in maize-derived food in Mexico", (2017). **MEX-125**.

43 Mexico's Initial Written Submition, ¶¶ 161-162.

44 Mexico's Initial Written Submission, ¶ 162-163.

Image: Main traits of GM Corn



Source: Own elaboration based on Cofepris records.

44. Furthermore, at the international level, close to 50% of the global use of glyphosate in agriculture is destined for transgenic crops and the use of this pesticide has increased 1,500% since 1996 with the commercialization and planting of GM corn, cotton, and soybeans, which are tolerant to glyphosate.[45]

45. In light of the information on the characteristic consumption profile of corn in the Mexican population and the consequences on human and plant health of the use of glyphosate that was compiled in the SNIB database and in the Conahcyt GM Corn and Glyphosate Dossier, it is clear that the risks associated with the use and consumption of glyphosate are relevant to the challenged measures.

2. Risks to human health

46. In the factual section of the United States' Rebuttal Submission, the evidence presented by Mexico is described, in terms of health risks, as imprecise and ambiguous as if mere adjectives were sufficient to dismiss the scientific results presented by Mexico. These types of unfounded

[45] *See* **MEX-085**.

assertions fail to demonstrate the lack of scientific method in any of the cited articles and much less dismiss the conclusions presented by Mexico.

47. The United States argues that "Mexico's Factual Background contains extensive errors concerning the alleged adverse human health effects of consuming GE corn".[46] The United States fails to demonstrate what these errors are because they simply do not exist. In that sense, Mexico will continue to conduct itself as it has been doing, with up-to-date science that supports the risks derived from transgenic proteins and glyphosate residues.

48. Mexico will again set forth the risks to human health derived from the direct consumption of GM corn, which the United States did not rebut with the level of detail presented by Mexico in its Initial Written Submission. Notwithstanding the foregoing, Mexico responds in **Appendix A** to each of the specific observations made by the United States in Annexes I-III of its Rebuttal Submission.

a. Risks to human health derived from the direct consumption of GM Corn

49. Mexico presented more than a hundred scientific articles that provide evidence of the risks to health associated with the consumption of GM corn. The majority of these articles were superficially commented on by the United States in Annex I of its Rebuttal Submission, with a few exceptions.[47] This can be considered a tacit acceptance of the conclusions stated in these articles or a lack of evidence to counter Mexico's arguments.

50. One of the articles to which the United States did not respond is an article of Kiliçgün, *et al*., which points out the evidence of "adverse microscopic and molecular effects of some GM

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[46] U.S. Rebuttal Submission, ¶ 32.

[47] *See* Association of Lifetime Exposure to Glyphosate and Aminomethylphosphonic Acid (AMPA) with Liver Inflammation and Metabolic Syndrome at Young Adulthood: Findings from the CHAMACOS Study. Environ Health Perspect **MEX-195;** Gunier Gadotti, C., Oliveira, J., Bender, J., Lima, M., Taques, G.,Percio, S., Romano, M., Romano, R. 2023. Prepubertal to adulthood exposure to low doses of glyphosate-based herbicide increases the expression of the Havcr1 (Kim1) biomarker and causes mild kidney alterations. Toxicology and Applied Pharmacology **MEX-200;** Kiliçgün, H., C. Gürsul, M. Sunar & G. Gökşen. (2013). The Comparative Effects of Genetically Modified Maize and Conventional Maize on Rats. J Clin Anal Med **MEX-130;** Then, C. and Bauer-Panskus, A., "Possible health impacts of Bt toxins and residues from spraying with complementary herbicides in genetically engineered soybeans and risk assessment as performed by the European Food Safety Authority EFSA", 2017. **MEX-287**.

foods in different organs or tissues". Specifically those related to length and weight of organs and serum biochemical values.[48] Derived from the variations found, the researchers suggested the existence of renal function changes and a potential diabetic state, both effects induced by a *Bacillus thuringiensis* (*Bt*) corn diet.[49] The researchers also reiterated the position of the World Health Organization (WHO) that the database regarding the toxicological, nutritional and environmental health hazards of genetically modified crops is inadequate.[50]

51. Another of the articles to which the United States did not respond is an article of C. Then and A. Bauer-Panskusm, which is refered to by Mexico based on the citation made by Conahcyt in the "*Scientific Record on Glyphosate and GM Crops*".[51] Based on a literature review, this article highlights the potential health harms associated with GM soybeans.[52] However, the authors address the risks associated with the GM corn in their discussions of health hazards of *Bt* toxins and related pesticide residues, present in both GM soybeans and GM corn.[53] The authors also express their concern about the potential safety issue of mixing GM soybeans with GM corn in the diet.[54] They suggest that this would enhance the relevant immune system responses.[55]

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48 Mexico's Initial Written Submission, ¶ 132.

49 Kiliçgün, H., C. Gürsul, M. Sunar & G. Gökşen. (2013). "*The Comparative Effects of Genetically Modified Maize and Conventional Maize on Rats"*. J Clin Anal Med, p. 139, **MEX-130**.

50 Kiliçgün, H., C. Gürsul, M. Sunar & G. Gökşen. (2013). "*The Comparative Effects of Genetically Modified Maize and Conventional Maize on Rats"*. J Clin Anal Med, p. 138, **MEX-130**.

51 Mexico's Initial Written Submission, ¶ 314; Conahcyt, "*Scientific Record on Glyphosate and GM Crops*," 2020, p. 9. **MEX-085.**

52 Then, C. and Bauer-Panskus, A., "*Possible health impacts of Bt toxins and residues from spraying with complementary herbicides in genetically engineered soybeans and risk assessment as performed by the European Food Safety Authority EFSA*", 2017, p. 1. **MEX-287**.

53 Then, C. and Bauer-Panskus, A., "*Possible health impacts of Bt toxins and residues from spraying with complementary herbicides in genetically engineered soybeans and risk assessment as performed by the European Food Safety Authority EFSA*", 2017, pp. 5-7. **MEX-287**.

54 Then, C. and Bauer-Panskus, A., "*Possible health impacts of Bt toxins and residues from spraying with complementary herbicides in genetically engineered soybeans and risk assessment as performed by the European Food Safety Authority EFSA*", 2017, pp. 6-7. **MEX-287**.

55 It is emphisized that transgenic corn 'Smartstax' (MON89034 × 1507 × MON 88017 × 59122), "express up to six Bt toxins, resulting in a much higher concentration of the potentially immunogenic proteins". Then, C. and Bauer-Panskus, A., "*Possible health impacts of Bt toxins and residues from spraying with complementary herbicides in genetically engineered soybeans and risk assessment as performed by the European Food Safety Authority EFSA*", 2017, p. 6. **MEX-287**.

52. In addition and in relation with the combined effects of stacked toxic events, the authors conclude that the available data are not sufficient to reach conclusions on long-term or low-dose safety in humans.[56] To exemplify this issue, the authors refer to research on Cry protein.[57] In this sense, the absense of evidence confirming the safety of *Bt* corn is proven by the fact that the only evidence presented by the United States to prove the safety of this type of corn corresponds to a paragraph of the article "*The food and environmental safety of Bt crops*".[58] Beyond the quantitive aspect of the evidence, it is important to question its qualitative validity due to the evident conflict of interest of the authors, who belong to a biotechnology development company, and the conclusions presented in this article.

53. Now, with respect to the arguments presented by the United States in its Rebuttal Submission:

54. *First*, regarding the safety and innocuosness of *Bt corn*, Mexico presented more than a dozen[59] scientific studies showing adverse effects related to *Bt corn* and/or related proteins. Specifically, in relation with GM corn varieties (MON 810, NK 603, MON 863) the evidence presented by Mexico demonstrates the relevant effects of these varieties on major organs[60] and that these three corn varieties can induce a hepatorenal toxicity state.[61]

55. The United States responded with a series of safety consultations on *Bt* varieties, conducted by its regulatory agencies, arguing that the "Bt proteins have been used commercially as microbial

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[56] Then, C. and Bauer-Panskus, A., "*Possible health impacts of Bt toxins and residues from spraying with complementary herbicides in genetically engineered soybeans and risk assessment as performed by the European Food Safety Authority EFSA*", 2017, p. 2. **MEX-287**.

[57] Then, C. and Bauer-Panskus, A., "*Possible health impacts of Bt toxins and residues from spraying with complementary herbicides in genetically engineered soybeans and risk assessment as performed by the European Food Safety Authority EFSA*", 2017, p. 5. **MEX-287**.

[58] M. Koch et al., "*The Food and Environmental Safety of Bt Crops*," 6 FRONTIERS IN PLANT SCIENCE 1 (Apr. 2015), p.1. **USA-202.** For the Panel's convenience, Mexico provides the complete version of the study as Exhibit **MEX-368**.

[59] To mention a few, Mexico invites the Panel to analyse the following exhibits: **MEX-115**, **MEX-118-122**, **MEX-133-134**, **MEX-136**, **MEX-138**, **MEX-139-140**, **MEX-143** and **MEX-287**.

[60] De Vendômois JS, Roullier F, Cellier D, Séralini GE. *A comparison of the effects of three GM corn varieties on mammalian health*. Int J Biol Sci. 2009, p. 12. **MEX-127**.

[61] De Vendômois JS, Roullier F, Cellier D, Séralini GE. *A comparison of the effects of three GM corn varieties on mammalian health*. Int J Biol Sci. 2009, p. 13. **MEX-127**.

pesticides … since the early 1960s, which has resulted in a long history of safe exposure".[62] The United States concludes its argument with a reference to authorizations of *Bt* corn issued by Cofepris. The most recent evaluations identified by the United States in footnote 34 of its Rebutal Submission correspond to results from more than 22 years ago and therefore do not take into account the current scientific context.

56. On the other hand, the long presence of *Bt* proteins in the market is also not indicative of their innocuousness, much less when their allergenicity has been proven since 1999[63] and, over the years, evidence of the risks posed by the Bt proteins has only increased.

57. *Second,* in relation to the horizontal transfer of antibiotic resistance transgenes, the United States vaguely contends that Mexico [does] "not cite a single study showing stable integration of ingested DNA into the DNA of the organism consuming it".[64] That is not true. In Exhibit **MEX-156** Mexico presents studies with evidence that "unambiguously demonstrated the occurrence of DNA transfer of ARM [antibiotic resistance marker genes] (nptII and aadA) from GM plant diet to blood cells and enteric microfora".[65] In other words, contrary to the allegations of the United States, Mexico did provide evidence,[66] which the United States has simply been unable to refute.

58. *Third,* the United States contends that Mexico "does not cite to a single article that addresses nutritional deficiencies in GE corn"[67]. The United States overlooks the fact that Mexico presented as evidence exhibits MEX-044, MEX-049, MEX-068 and MEX-069, which, *inter alia,* determine that GM corn: *i)* has reduced levels of protein, fiber and antioxidants compared to native maize varieties, *ii)* has a lower amount of phenolic compounds and anthocyanins and, therefore, a

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62 U.S. Rebuttal Submission, ¶ 33.

63 Bernstein JA, Bernstein IL, Bucchini L, Goldman LR, Hamilton RG, Lehrer S, Rubin C, Sampson HA. *Clinical and laboratory investigation of allergy to genetically modified foods*. Environ Health Perspect. 2003, **MEX-221**.

64 U.S. Rebuttal Submission, ¶ 34.

65 Oraby, H.AS., Aboul-Maaty, N.AF., Al-Sharawi, H.A. et al. 2022. *Horizontal transfer of antibiotic resistance genes into microflora and blood cells in rats fed on GM-diet*. Bull Natl Res Cent 46, p.1. **MEX-156**.

66 *See* Exhibits **MEX- 152** through **MEX- 158**.

67 U.S. Rebuttal Submission, ¶ 35.

lower antioxidant capacity, and *iii)* that GM corn has lower levels of macronutrients, micronutrients and essential minerals than native varieties.[68]

59. Likewise, the United States mentions that "there are no substantial nutritional differences between GE corn events". In this regard, Mexico would like to remind the Panel that "the biological relevance of these data [substantial equivalence], or at least their value in predicting harmful events, is not clear."[69] Consequently, Mexico considers that claiming substantial equivalence is a limited approach, due to the characteristics that are used as a reference to establish the equivalence and the biological complexity that have to be considered. The analysis of the nutritional deficiency must be rigorous and conclusive, as Mexico has argued with the evidence provided,[70] and not as the United States tries to vaguely contend.

60. *Fourth*, again, the United States erroneously maintains that "the articles that Mexico cites in relation to alleged health effects from "ultra-processed foods" do not even address GE corn."[71] The evidence presented by Mexico does address GM corn. By way of example, Exhibit **MEX-068** establishes that "[m]ost of the soybean and corn crops grown today are genetically modified, and the majority of ultraprocessed foods sold in the United States contain GMO ingredients", and that "[f]amilies who wish to minimize GMO products can do so by focusing on a dietary pattern of primarily whole, plant-based foods while minimizing ultra-processed foods".[72]

61. Likewise, the FOE in its Written View presents evidence of the risks of ultra-processed food and corn:

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68 *See* Mexico's Initial Written Submission, ¶¶ 147-151. *See also*, Mesnage- Robin, Z-Sarah, et al., "An integrated multiomics analysis of the NK603 Roundup-tolerant GM maize reveals metabolism disturbances caused by the transformation process". 2016. **MEX-135**. This article provided scientific evidence revealing the shortcoming of the substantial equivalence approach.

69 Benevenuto, R. F., H. J. Venter, C. B. Zanatta, R. O. Nodari & S. Z. Agapito-Tenfen. (2022). *Alterations in genetically modified crops assessed by omics studies: Systematic review and meta-analysis*. Trends in Food Science & Technology, pp. 332-334. **MEX-146**.

70 *See* Exhibits **MEX-152** to **MEX-158**.

71 U.S. Rebuttal Submission, ¶ 36.

72 Steven A. Abrams, Jaclyn Lewis Albin, Philip J. Landrigan. Committee on nutrition, council on environmental health and climate change. (2023). *Use of Genetically Modified Organism (GMO)-Containing Food Products in Children*. Pediatrics, pp. 1, 3, 6-8. **MEX-068**.

> A global study of trends in ultra-processed food (UPf) sales from 2006 to 2024 reported a 38% and 32% increase in UPf and UP beverage sales in Latin America and the Caribbean. Chronic diseases trigger ~60% of deaths in Mexico, and account for 71% of disability-adjusted life years. The prevalence of overweight and obesity is among the best indicators of likely future health care costs. The rate of overweight and obesity among males over 20 years of age in Mexico increased from 29% in 1980 to 66.8% in 2013, and from 33% to 71.4% among females. Diabetes rose from 5.7% to 9.1% of the population from 2000 to 2012, or 60%.Four chronic diseases linked to food quality and dietary choices account for an estimated 88% of total chronic disease health-care expenditures in Mexico. Chronic kidney disease is the most expensive, leading to ~$9,000 in treatment costs per case. In 2012, arterial hypertension and gastritis were the two most common chronic problems, accounting for 32% and 22% of cases respectively.[73]

62. In this sense, the United States has failed to disprove: *i)* that many ultra-processed foods contain ingredients deriving from GM crops, and particularly GM corn, and *ii)* that the GM corn and the ultra-processed foods cause adverse health effects. Moreover, the United States did not respond to the evidence presented by FOE, or to the evidence presented by Mexico.

63. Mexico is unable to understand what the United States requires to characterize a study as "reliable" and prefer it over others that meet the scientific requirements set forth in both the USMCA and the SPS Agreement.

64. In this sense, Mexico has already presented relevant evidence demonstrating the transfer of DNA from the GM diets to the enteric microflora and blood cells of the animals after 90 days on such diets.[74] As well as "adverse changes at a cellular level caused by some GM foods" and the "negative effects of genetically modified corn … on the tissues of vital organs".[75]

65. Likewise, the United States states that the rat feeding studies are "the least reliable information in assessing food safety"[76]. Again, these are general and arbitrary disqualifications, without the ability to substantiate their criteria or refute the results of investigations presented by

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[73] Friends of the Earth Written View, (demarche 15, 2024), p. 3.

[74] Oraby, H.AS., Aboul-Maaty, N.AF., Al-Sharawi, H.A. et al. 2022. *Horizontal transfer of antibiotic resistance genes into microflora and blood cells in rats fed on GM-diet*. Bull Natl Res Cent, p.2, **MEX-156**.

[75] Oraby, H.AS., Aboul-Maaty, N.AF., Al-Sharawi, H.A. et al. 2022. *Horizontal transfer of antibiotic resistance genes into microflora and blood cells in rats fed on GM-diet*. Bull Natl Res Cent, p.10, **MEX-156**.

[76] U.S. Rebuttal Submission, Annex I, p. 3.

Mexico in Exhibits **MEX-131** and **MEX-132**. Mexico does not understand why if, as the United States maintains, the studies are "less reliable" for evaluating food safety, there are numerous scientific studies with that objective that are carried out on rats. Moreover, it is contradictory to the statement made by the United States, in Annex I, that "[s]tudies that are used to evaluate potential genotoxicity in humans are established assays using mammalian systems".[77]

66. It is surprising that, in spite of criteria that establish which animals are adequate to evaluate food safety, the United States seeks to discredit the evidence presented by Mexico because they are not studies on humans. This is incorrect. For example, the case study on salmon is relevant because those animals are considered relevant objects of study due to the characteristics of their immune system, such as the reactions against pathogens, and the development of adaptive immune responses. These characteristics facilitate cooperative immunological studies with more developed organisms, such as mammals.[78]

67. In this sense, the studies on salmon that show that there are reactions of the organism to the harmful effects of GMOs,[79] such as intolerances and other inflammatory diseases, are relevant.[80] In any event, even if the evidence related to salmon is ignored, that would not be enough to ignore the rest of the evidence of GM corn effects in different organisms.[81]

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77 U.S. Rebuttal Submission, Annex I, p. 3. *See also,* Expert report Dr. Michael Antoniou, ¶ 43. "[I]ncluding the GMO industry's own tests submitted in support of regulatory authorisation of GM crops".

78 Pradipta R. Rauta, Bismita Nayak, Surajit Das, "*Immune system and immune responses in fish and their role in comparative immunity study: A model for higher organisms*", Inmunology letters, August 10, 2012 pp. 29-30, **MEX-369**.

79 Sagstad A., Sanden M, Haugland O, Hansen AC, Olsvik PA, Hemre GI. *Evaluation of stress- and immune-response biomarkers in Atlantic salmon, Salmo salar L., fed different levels of genetically modified maize (Bt maize), compared with its near-isogenic parental line and a commercial suprex maize*. J Fish Dis. 2007, p.10, **MEX-133**.

80 Gu J, Krogdahl Å, Sissener NH, Kortner TM, Gelencser E, Hemre GI, Bakke AM. *Effects of oral Bt-maize (MON810) exposure on growth and health parameters in normal and sensitised Atlantic salmon, Salmo salar L*. Br J Nutr, 2013, p.2, **MEX-134**.

81 Walsh MC, Buzoianu SG, Gardiner GE, Rea MC, Ross RP, Cassidy JP, Lawlor PG. *Effects of short-term feeding of Bt MON810 maize on growth performance, organ morphology and function in pigs*. Br J Nutr. 2012, **MEX-136**; Glöckner, G. & G-É. Séralini. (2016). *Pathology reports on the first cows fed with Bt176 maize* (1997–2002). Scholarly J. Agric. Sci., **MEX-138;**

68. Mexico considers that the experimental studies conducted in animal models that reveal health effects from the consumption of GM corn inform potential and possible risks to human health; Mexico reterates that it cannot expose its population to these risks, considering the Mexican diet and its high levels of corn consumption in minimally processed forms.

69. There are studies on animals fed with GM corn that have evidenced potential effects on male fertility;[82] immunological alterations;[83] renal and hepatic toxicity;[84] effects on the digestive system, liver and pancreas,[85] and biochemical alterations in blood.[86] Similarly, "Bt toxin protein circulating in the blood of pregnant and non-pregnant women and the blood supply to fetuses" has been found.[87]

b. Risks to human health derived from the indissoluble relationship between GM corn and glyphosate

70. As Mexico established in its Initial Written Submission, glyphosate is "the most widely used herbicide in the world […] the risks associated with its exposure are extremely high".[88] In this regard, the United States merely states that "neither of which is relevant to this dispute".[89] The United States does not refute the evidence presented by Mexico regarding the risks of GM corn exposed to this highly dangerous herbicide, or the evidence provided by Mexico to demonstrate the risk to human health derived from the consumption of GM corn and glyphosate.

71. The only attempt by the United States to refute the evidence presented by Mexico was a brief analysis made in Annexes I, II and III of its Rebuttal Submission. Mexico presents Appendix A in which it responds to the allegations of the United States, however, for Mexico, it is of utmost importance to emphasize the following:

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82 Expert report Dr. Michael Antoniou, ¶¶ 38-39.

83 Expert report Dr. Michael Antoniou, ¶¶ 40-42.

84 Expert report Dr. Michael Antoniou, ¶¶ 44-45.

85 Expert report Dr. Michael Antoniou, ¶¶ 47; 52-53.

86 Expert report Dr. Michael Antoniou, ¶¶ 59-60 and 69.

87 Expert report Dr. Michael Antoniou, ¶ 43.

88 Mexico's Initial Written Submission, ¶ 171.

89 U.S. Rebuttal Submission, ¶ 3.

72. *First*, the United States agrees that the studies with mammals are relevant to assess safety.[90] In this sense, the "Draft National Level Listed Species Biological Evaluation for Glyphosate" established that, of the 99 mammals studied, glyphosate may adversely affect 75 mammalian species. In addition, out of the 949 plant species tested, glyphosate could adversely affect 940. That is, 99.05 percent of the plants that were analyzed. Based on these data, Mexico maintains that glyphosate is a highly hazardous pesticide, and that is irrefutable.[91]

73. *Second*, the evidence shared by the United States[92] cites studies, for example, from IARC, that support the claim that glyphostate is found in food, air and water.

74. *Third*, the United States erroneously mentions that Exhibits MEX-219 and MEX-220 do not address the human risks from HBGs. However, these exhibits rightly highlight the toxicological effects on human cells derived from these herbicides.[93]

75. *Fourth*, the United States alleges that the ATSDR toxicological profile of glyphostate, which indicated that there was a strong correlation between glyphostate exposure and cancer and other pathologies, is not an assessment and merely refers to data from IARC and other agencies. In this regard, it is important to highlight that the ATSDR assessment has scientific rigor and proves the toxicity and negative health effects due to the consumption and exposure to glyphostate. Both issues were endorsed by the U.S. Department of Health. In addition, the 2017 IARC monograph is used at least 9 times to confirm the relationship between cancer and glyphostate.[94]

76. *Fifth*, Exhibit **MEX-305**,[95] contrary to what the United States argues, is a compilation of 1,108 studies of high scientific rigor that demonstrate the negative effects of glyphostate on health

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90 *See* Annex I of the Rebuttal Submission, p. 3 footnote 7.

91 EPA. Draft National Level Listed Species Biological Evaluation for Glyphosate, 2020. **MEX-174**.

92 *See* **USA-46,** p.7.

93 See Mexico´s response to Annexes I, II and III of the U.S. Rebuttal Submission. Jungers G., F. Portet-Koltalo, J. Cosme & G-E. Seralini. (2022). *Petroleum in Pesticides: A Need to Change Regulatory Toxicology*. Toxics, p. 13-14. **MEX-219**.

94 See ATSDR U.S. Department of Health and Human Services. "Agency for Toxic Substances and Disease Registry. Toxicological Profile for Glyphosate", 2020 pp. 6, 15, 81-82, 127, 138, 142-143, 210. **MEX-304**.

95 See Martin, E., "Glyphosate Toxicological Anthology", 2020, **MEX-305**.

and the environment. Each of these studies evaluates the genotoxic potential of glyphostate and details the diseases or health problems that result from it.[96]

77. *Sixth*, the United States decided not to refute other risks that Mexico identified regarding the consumption of glyphostate such as i) alterations in the intestinal microbiome;[97] inflammatory bowel disease and irritable bowel syndrome;[98]and iii) the presence of glyphostate in urine related to chronic kidney disease.[99]

78. *Seventh*, as explained by Dr. Michael Antoniou, expert in toxicology and molecular genetics, "[t]he body of epidemiological literature on the effects of Roundup [Glifosato] exposure on humans is vast". By way of example, in addition to what was presented by Mexico in its initial submission, the following risks have been identified:

i. In humans:

   a. A study of glyphostate in Iowa and North Carolina showed DNA damage caused by glyphostate, resulting in the development of cancer (lymphoma, mieloma, and leukemia).[100]

   b. Increased oxidatives stress. People exposed to glyphostate exhibit urine biomarkers of oxidative stress, a condition that causes DNA damage.[101]

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96 Mexico´s Initial Submission, ¶¶ 406-407.

97 Samsel, A., and Seneff, S. (2013). Glyphosate, pathways to modern diseases II: Celiac sprue and gluten intolerance. Interdisciplinary toxicology, pp. 18-19. **MEX-199**.

98 Barnett, J. A. & D. L. Gibson. (2020) Separating the Empirical Wheat From the Pseudoscientific Chaff: A Critical Review of the Literature Surrounding Glyphosate, Dysbiosis and Wheat-Sensitivity. Frontiers in Microbiology, p. 7. **MEX-212**.

99 Ruiz-Velazco, N. G., F. J. Lozano-Kasten, H. Guzman-Torres & A. I. Mejía-Sanchez. (2022). Social determinants and chronic kidney disease of undetermined origin in childhood: Its communication and understanding described by families in Lake Chapala, Mexico. Frontiers in Nephrology, p. 8. **MEX-215.**

100 Expert report Dr. Michael Antoniou, ¶¶ 142-144 (citing Schinasi LH, De Roos AJ. "*Invited Perspective: Important new evidence for glyphosate hazard assessment*". Environmental Health Perspectives, 2023, 131(12). CID: 121305 **MEX-370**.)

101 Expert report, Dr. Michael Antoniou, ¶¶ 145-146, (citing Chang VC et Al. "*Glyphosate exposure and urinary oxidative stress biomarkers in the Agricultural Health Study*". J Natl Cancer Inst. 2023, 115(4): 394–404. doi: 10.1093/jnci/djac242. **MEX-371**.)

c. High exposure to glyphostate herbicide increases the risk of non-Hodgkin´s lymphoma by 41%.[102]

ii. Animals:

a. A very low dose exposure over a 2-year period of a glyphostate-based herbicide causes liver and kidney damage.[103]

b. A very low dose for a period of 2 years of a glyphostate-based herbicide causes nonalcoholic fatty liver disease.[104]

c. Increased oxidative stress and DNA damage.[105]

79. *Eighth,* Dr Michael Antoniou explains various risks to human health arising from the accumulation of residues of various pesticides can have adverse health effects, even when each individual pesticide is present at levels considered "*safe*" by regulatory agencies. The mixture consisted of six herbicide active ingredients,[106] including glyphosate used in GM corn. The results showed a relationship between intestinal biochemical alteration and general health status: intestinal findings correlated with blood biochemistry and liver profile.[107]

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[102] Expert report, Dr. Michael Antoniou, ¶¶ 149-151, (citing Zhang, L.; Rana, I.; Shaffer, R.M.; Taioli, E.; Sheppard, L. "*Exposure to glyphosate-based herbicides and risk for non-Hodgkin lymphoma: A meta-analysis and supporting evidence*". Mutat. Res. Rev. Mutat. Res. 2019, 781:186-206. **MEX-226**.)

[103] Expert report, Dr. Michael Antoniou, ¶¶ 113-115, (citing a Mesnage R et al. "*Transcriptome profile analysis reflects rat liver and kidney damage following chronic ultra-low dose Roundup exposure*." Environmental Health, 2015, 14:70. **MEX-372**.)

[104] Expert report, Dr. Michael Antoniou, ¶¶ 116-117 (citing a Mesnage R et al., "*Multiomics reveal non-alcoholic fatty liver disease in rats following chronic exposure to an ultra-low dose of Roundup herbicide."* Scientific Reports 7, 2017. **MEX-373**.)

[105] Expert report, Dr. Michael Antoniou, ¶¶ 119-121 (citing a Mesnage R et al. "*Comparative toxicogenomics of glyphosate and Roundup herbicides by mammalian stem cell-based genotoxicity assays and molecular profiling in Sprague-Dawley rats*". Toxicological Sciences, 2022, 186(1): 83-101. **MEX-374**

[106] The herbicides were azoxystrobin, boscalid, chlorpyrfos, glyphosate, imidacloprid and thiabendazole.

[107] Expert report, Dr. Michael Antoniou, ¶¶ 158-168, (citing Mesnage, R., Teixeira, M., Mandrioli, D. *et al. "Multi-omics phenotyping of the gut-liver axis reveals metabolic perturbations from a low-dose pesticide mixture in rats*", 2021, **MEX-375**.).

80. The United States chose to omit all of the health risks presented by Mexico as a consquence of the inextricable link between GM corn and glyphostate. At best, it issued a cursory analysis of Mexico's evidence.

c. Risks to human health from stacking of transgenic proteins

81. It is important to distinguish the phenomenon of "hybridization" from "transgenic contamination". While the former may occur naturally, the latter artificially alters the genetic structure of the spieces, often resulting in "transgenic protein stacking" and potential irreversible damage with undesirable effects for the exposed organisms or for the species that are related to the organism.[108] "Transgenic contamination" takes place from the introgression of transgenic sequences into populations of conventional or native crops and their wild relatives. It has been called "contamination" in reference to environmental pollution that implies the unwanted introduction of physical or biological elements and chemical substances to a natural environment causing effects that are considered harmful.

82. On "transgenic contamination" the United States omits to mention the questions that have arisen about the effectiveness of traditional safety assessments based on the concept of "substantial equivalence", especially highlighting the difficulties presented by new generations of transgenic crops with "transgenic protein stacking".[109] This is reinforced by Exhibit **MEX-148**, which states that "exposure thresholds have not yet been determined for most food protein allergens".

83. Dr. Antoniou concurs and explains that GM crops with stacked traits contain multiple toxins that are considered to negatively affect agroecosystems. He states that, "a change in the expression of a single gene can lead to far-reaching effects — even the difference between health and disease".[110] There are also concerns about serious health and environmental risks.[111]

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108 Warwick, S. I., Beckie, H. J., & Hall, L. M. "*Gene flow, invasiveness, and ecological impact of genetically modified crops*". Annals of the New York Academy of Sciences, 2009 1168(1), 72-99, **MEX-428.** Also see **MEX-143**, **MEX-144**, **MEX-145**, **MEX-135**, and **MEX-146**.

109 Expert report, Dr. Michael Antoniou, ¶ 86.

110 Expert report, Dr. Michael Antoniou, ¶ 72.

111 Expert report, Dr. Michael Antoniou, ¶ 98.

Therefore, based on the current evidence, its release into the field and its approval on the market is unsafe.

3. Risks and damage to biodiversity and native maize diversity

84. In its Initial Submission, Mexico clearly identified the impacts of GM maize and glyphosate on biodiversity, and on the diversity of corn, which includes native varieties and their wild relatives. The United States does not even attempt to refute or dispute the evidence presented by Mexico on these risks. For the Panel's clarity, Mexico has identified the following risks:[112]

- Risks associated with transgenic contamination of native corn, in light of traditional seed selection and exchange practices where the flow and impact of transgenes on native varieties is difficult to predict.[113] Mexico clearly identified the direct effects of this contamination on native corn (including the loss of diversity of this species, which would have a serious impact at the international level) and on biodiversity in general.[114]

- Risks associated with the use of glyphostate and other herbicides in relation to GM maize, including the loss of biodiversity and of the species that accompany maize in the system

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[112] Mexico presented, in its Initial Submission, evidence of the following risks: (a) the presence of genetically modified (GM) sequences in populations of native maize distributed in different States of the Mexican Republic (**MEX-89**; **MEX-090**; **MEX-092**; **MEX-093**; **MEX-099**; **MEX-101**; **MEX-102**; **MEX-103**); b) the adverse effects and possible consequences of the presence of GM sequences at different and even physical (physiological) levels in native maize (**MEX-086, MEX-094, MEX-098, MEX-105, MEX-106, MEX-108, MEX-109**); and c) the risks on biodiversity associated (bees, for example) and not associated to native corn by the use of glyphostate**(**¶189; **MEX-232; MEX-233**), and even on the fertility of the soil in which they are grown (**MEX-233**).

[113] Mexico's Initial Submission, ¶¶ 123- 128. Ayala-Angulo, M., et al. "*Local and Regional Dynamics of Native Maize Seed Lot Use by Small- Scale Producers and Their Impact on Transgene Presence in Three Mexican States"*, 2023, Plants, p. 2. **MEX-088**. Piñeyro-Nelson, A et al. "*Transgenes in Mexican maize: molecular evidence and methodological considerations for GMO detection in landrace populations*", Molecular ecology vol. 18,4 (2009), pp. 750- 751. **MEX-101**.

[114] Álvarez-Buylla, E., & Piñeyro Nelson, A. (2009). "*Riesgos y peligros de la dispersión del maíz GM en México*". Ciencias, p. 88. **MEX-105**. Benevenuto RF, Agapito-Tenfen SZ, Vilperte V, Wikmark OG, van Rensburg PJ, Nodari RO. *Molecular responses of genetically modified maize to abiotic stresses as determined through proteomic and metabolomic analyses*. PLoS One. 2017, p. 15. **MEX-106**. Tobón-Niedfeldt, W., Mastretta-Yanes, A., Urquiza-Haas, T., Goettsch, B., Cuervo-Robayo, A. P., Urquiza-Haas, E. & Koleff, P. "*Incorporating evolutionary and threat processes into crop wild relatives conservation"*, Nature communications, 2022, p.2. **MEX-109**. Diana Pilson and Holly R. Prendeville, "*Ecological Effects of Transgenic Crops and the Escape of Transgenes into Wild Populations*", Annual Review of Ecology, Evolution, and Systematics, 2004, p. 151- 155. **MEX-110**.

known as Milpa,[115] which harbors vital fauna such as pollinators, in addition to the risks to microbial diversity, soil composition and agro-ecosystems due to the toxicity of transgenic proteins, such as the one denominated Cry.[116]

85. As explained in the Initial Submission, Mexico has a legitimate concern regarding transgene contamination because, despite the fact that the planting of GM corn has not been permitted since 2013, the unintended presence of transgenes in native corn has been identified in various studies.[117] It is important to keep in mind that Mexico is the center of origin of corn; it is a place where the domestication of this plant originated and where its wild relatives are found. Mexico has provided the particular conditions for the development of several native varieties that are unique to the country. The United States has not refuted this evidence.[118]

86. Mexico has stated in its Initial Submission and in this Reply Submission that GM corn grain is viable as seed capable of germinating a GM corn plant;[119] something that the United States has not refuted. In fact, by arguing that "the GM corn grain being imported, by itself, cannot pollinate with a native corn variety, regardless, it would first have to be planted in the ground…

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115 As Dr. Eckart Boege explains, "What we generically call milpa, are polycultures, with different ways of approaching ecosystems, depending on the varied physical, climatic and biotic conditions". Dr. Boege's Expert Report, ¶ 52.

116 Mexico's Initial Submission, ¶¶ 128, 152, 189-194.

117 Mexico's Initial Submission, ¶ 125 refering to the exhibits **MEX-090, MEX-101, MEX-102, MEX-99** and **MEX-104.**

118 The United States has not taken into consideration the traditional practices that allow for a constant domestication process. In each cycle that small-scale producers select the best varieties to plant, they are achieving a process of adaptation to changing climatic conditions that include unexpected variations in temperaturas, lack of wáter and pest attacks. Regarding the risks associated with transgenic contamination of the gene pool that Mexico protects in its territory, the possibilty of gene flow and even introgression could lead to effects on crop diversity that have not yet been estimated. The relevance of mantaining the source of genetic diversity is fundamental for the world, especially in the face of adverse climatic conditions.

119 "The domestic and imported grains are functional seeds, which retain their ability to develop and express recombinant proteins for glyphosate resistance". *See* Trejo-Pastor, V., Espinosa-Calderón, A., del Carmen Mendoza-Castillo, M., KatoYamakake, T. Á., Morales-Floriano, M. L., Tadeo-Robledo, M., & Wegier, A., "Corn grain commercialized in Mexico as a potential disperser of transgenic events", 2021, Fitotecnia Mexicana Magazine, p. 252 and 258. **MEX-087.**

and would have to sprout and grow to maturity",[120] United States admits that GM corn grain imported into Mexico is capable of germination.[121]

87. As such, the presence of GM maize implies a wide range of risks to the county's native varieties and to the biodiversity associated with them, since the flow of transgenes occurs through the movement of seeds or the dispersion of pollen.

88. In Mexico, traditional agricultural practices of seed selection and exchange increase the risks of transgenic contamination, as corn grain is harvested as seed for the next crop cycle, and even mixed with corn grain from other sources (including corn grain purchased as food) and exchanged between farmers and communities, all without identification of corn grain containing transgenes.[122] In this way, transgenic contamination of native maize can spread unintentionally in these informal seed systems and grain markets.[123] The United States ignores this element when discussing the risks identified by Mexico.

89. Once GM corn grain is planted, cross-pollination between native and GM varieties is more than possible;[124] often, as part of their traditional practices. It is the Mexican farmers themselves

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120 U.S. Rebuttal Submission, ¶ 135.

121 Mexico reiterates the Report of the North American Cooperative Commission that in 2004 described effects of transgenic contamination on maize diversity in Mexico.

122 Ayala-Angulo, M., González, E. J., Ureta, C., Chávez-Servia, J. L., González-Ortega, E., Vandame, R., & Piñeyro-Nelson, A., "*Local and Regional Dynamics of Native Corn Seed Lot Use by Small-Scale Producers and Their Impact on Transgene Presence in Three Mexican States Plants*", 2023, p. 2 ("Approximately 75–80% of land used for maize cultivation depends on small-scale producers (<5 ha) who tend to use low input, traditional farming methods and predominantly plant native maize varieties, while their production is primarily destined for self-consumption and any surplus is locally sold. These maize producers commonly save seed from one farming cycle to the next one, and share seeds among themselves, allowing alleles to pass from one generation to another, enabling the evolutionary processes that sustain this crop's genetic diversity"). **MEX-088**; Dyer, G., Serratos-Hernández, J., Perales, H., Gepts, P., Piñeyro-Nelson, A., Chávez, A. Salinas-Arreortua, Yúñez-Naude, A., Taylor, J. and Álvarez-Buylla, E. "*Dispersal of transgenes through corn seed systems in Mexico*", 2009, PLoS One, p. 2 (""in addition to seed systems, farmers occasionally use grain purchased as food or feed in lieu of seed"). **MEX-089**.

123 Dyer, G., Serratos-Hernández, J., Perales, H., Gepts, P., Piñeyro-Nelson, A., Chávez, A. Salinas-Arreortua, Yúñez-Naude, A., Taylor, J. and Álvarez-Buylla, E. "*Dispersal of transgenes through corn seed systems in Mexico*", 2009, PLoS One, p. 2. **MEX-089**.

124 Mexico's Initial Submission, ¶ 123. *See* H. Vázquez-Cardona, "*Diseño de un esquema de bioseguridad comunitaria ante la presencia de maíz transgénico: estudio de caso en San Agustín Montelobos, Oaxaca*", 2023, Universidad Nacional Autónoma de México, p. 31. **MEX-099.**

who accidentally "allow" cross-pollination between the different varieties of maize they grow in their vicinity.[125]

90. The evidence presented by the United States confirms that "maize is wind-pollinated, highly hybridized species" and that cross-pollination is "inevitable under suitable meteorlogical conditions".[126] As part of traditional practices, 85% of Mexican farmers grow corn on land equal to or less than 5 hectares, and farmers plant seeds from different sources together, including hybrid varieties.[127] This is part of the traditional system of corn cultivation in Mexico.

91. The following sections detail the risks identified by Mexico for the benefit of the Panel.

a. Risks and damages derived from transgenic contamination

92. The scientific evidence presented by Mexico demonstrates the following adverse effects on non-GM maize resulting from transgenic contamination:[128]

- Alteration in the amount of proteins produced in different parts of the plant;[129]
- Alterations in physiological processes such as photosynthesis;[130]
- Potential loss of an important development function.[131]

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125 *See*, Report from the Secretariat of the Comission for Environmental Cooperation. "*Maíz y biodiversidad. Efectos del maíz transgénico en México*", 2004, p. 15. **MEX-095.**

126 *See* K. Zhang et al., "*Pollen-Mediated Transgene Flow in Maize Grown in the Huang-huai-hai Region in China*," 149 JOURNAL OF AGRICULTURAL SCIENCE 205 (2011), p. 205. **USA-258**

127 *See*Report of the Secretariat of the Comission for Environmental Cooperation. "*Maíz y biodiversidad. Efectos del maíz transgénico en México*", 2004, p. 15. **MEX-095.** Sagarpa, "*Maíz Situación actual y perspectivas 1996-2010*", s/f, p. 32. **MEX-030.**

128 Mexico's Initial Submission, ¶ 126.

129 Álvarez-Buylla, E., & Piñeyro Nelson, A. (2009). "*Riesgos y peligros de la dispersión del maíz GM en México*". Ciencias, p. 88. **MEX-105.**

130 Benevenuto RF, Agapito-Tenfen SZ, Vilperte V, Wikmark OG, van Rensburg PJ, Nodari RO. "*Molecular responses of genetically modified maize to abiotic stresses as determined through proteomic and metabolomic analyses.*" PLoS One. 2017, p. 15. **MEX-106.**

131 Álvarez-Buylla, E., & Piñeyro Nelson, A. (2009). "*Riesgos y peligros de la dispersión del maíz GM en México. Ciencias*", p. 87. **MEX-105.**

93. Among the unexpected and undesired effects of transgenic contamination from GM maize is the undesired expression of genes.[132] Likewise, the environment in which the corn is grown influences the genetic level.[133] Therefore, the presence of transgenes in native maize grown in different environments would lead to unexpected and even undesired effects.

94. In addition, genetic introgression from GM maize can result in the transmission of the herbicide resistance gene, even in teocintles.[134] As the same evidence submitted by the United States indicates, "in the case of herbicide tolerant cultivated corn, the common assumption is that the relevant herbicide would be used. Selective pressure would thus act in favour of transgenic hybrids and increase the likelihood of spread of the transgene in the wild subspecies or in the evolution of a new hybrid lineage".[135] This same article recognizes that the "joint conditions under which the transgene would be at its presumed selective advantage" is the "extensive use of glyphosate" and "the unintentional planting of transgenic glyphosate-resistant maize"; conditions that are present in Mexico, as has been already demonstrated.

95. In addition, the flow of transgenes into native maize varieties can lead to genetic erosion, that is, to the loss of the diversity of the species, which jeopardizes the most important genetic reservoir of this crop worldwide.[136] The evidence presented by the United States confirms this concern.

96. The United States presented a study on the suitability of GM corn versus non-GM corn-teosinte hybrids, in which it was noted that "[i]f the introgressed hybrid-derived lineages maintain

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132 Vilperte et al. "*Levels of DNA methylation and transcript accumulation in leaves of transgenic maize varieties*" Environ Sci Eur, 2016, p. 11. **MEX-376.**

133 Vilperte et al. "*Levels of DNA methylation and transcript accumulation in leaves of transgenic maize varieties*" Environ Sci Eur, 2016, p. 11. **MEX-376.**

134 *See* Le Corre, V., Siol, M., Vigouroux, Y., Tenaillon, M. I., and Délye, C. (2020). "*Adaptive introgression from maize has facilitated the establishment of teosinte as a noxious weed in Europe*". Proceedings of the National Academy of Sciences, pp. 25621-25622. **MEX-108.**

135 *See* R. Guadagnuolo et al., "*Relative Fitness of Transgenic vs. Non-Transgenic Maize x Teosinte Hybrids: A Field Evaluation*," 16 ECOLOGICAL SOCIETY OF AMERICA 1967 (October of 2006), p. 1972. **USA-171.**

136 Mexico's Initial Submission, ¶ 127. Tobón-Niedfeldt, W., Mastretta-Yanes, A., Urquiza-Haas, T., Goettsch, B., Cuervo-Robayo, A. P., Urquiza-Haas, E. & Koleff, P. "*Incorporating evolutionary and threat processes into crop wild relatives conservation*", Nature communications, 2022, p.2. **MEX-109**.

higher fitness and recover the seed-shattering trait, they could out-compete teosinte and finally result in its extinction". This study also adds that "[i]n the specific case of herbicide tolerance, the use of the associated herbicide would reduce the size of the pure wild teosinte population and favor the hybrid derivatives". If this is possible with teocintle, it is also possible with native corn because of its close relationship with it and because GM and non-GM corn are of the same species.[137]

97. In fact, the displacement of native varieties by the introgression of GM varieties has already occured in the case of cotton. As Dr. Wegier mentions:

> In recent studies in cotton on the chloroplast genome it was observed that genetic diversity is lower in the chloroplasts of the samples that present introgression of transgenes compared to the genomes of high productivity varieties, this evidences two important points: 1) that the presence of transgenes acquired by introgression has an unexpected effect on the chloroplast genome, so there is still gap in the research on the dynamics, regulation and communication between plant genomes that prevents ensuring that a transgene and/or event will not have unexpected effects on the species itself; and 2) that genetic diversity is reduced more than when it comes to domestication events.[138]

98. This is of utmost importance beacause, as mentioned in the Initial Submission, Mexico is the center of origin, domestication and diversification of corn.[139] In addition, this loss of native corn diversity leads to the loss of what has been described as the most important genetic reservoir of corn in the world. This implies the loss of food sustenance, associated traditional agricultural knowledge, traditions and customs.[140] Consequently, through the protection of native corn biodiversity, Mexico also protects "the milpa, biocultural wealth, peasant communities, gastronomic heritage and human health".[141]

99. Several scientific studies have specifically demonstrated the effects of transgenic contamination on non-GM maize. These studies highlight the existence of undesirable alterations that could endanger the organisms's capabilities in the environment. The following stand out:

- A 2016 study identified changes in the structure of corn DNA due to the presence of transgenes, such as the addition of chemical structures (methyl groups) involved in

137 Mexico's Initial Submission, ¶¶ 47, 123.

138 Expert report from Dr. Wegier, ¶ 104.

139 Mexico's Initial Submission, ¶¶ 3, 46, 192.

140 Berkes, F., Colding, J, and Folke, C. "*Rediscovery of traditional ecological knowledge as adaptive management. Ecological Applications*", 2000, 10(5), pp. 1255, 1258-1259. **MEX-377.**

141 2023 Decree, Article 6. **MEX-167**.

changes related to gene silencing or unwanted gene expression. This study also concluded that the environment in which maize is grown influences the genetic level to such an extent that even between GM varieties (single and stacked) differences in transgene expression occur.[142]Therefore, the presence of transgenes in native maize grown in different environments would lead to unexpected and even undesired effects.

- Another 2001 study recorded that the significant increase in the amount of lignin generated by GM corn (MON810) in contrast to a non-GM corn (MON810) was due to a significant increase in the amount of lignin generated by GM corn (MON810);[143]which makes it less digestible for ruminant animals when used as fodder.[144]
- There is evidence that in GM corn containing event NK603 (glyphostate tolerant), unexpected effects occur in the production of proteins, metabolities and alterations in physiological and biochemical processes such as photosynthesis.[145]
- It has also been shown that in GM corn there is an increase in the toxic chemicals cadaverine and putrescine, which are involved in cell death processes.[146]

b. Risks and damages derived from the use of GM corn and glyphostate

100. The United States does not even attempt to refute the evidence presented by Mexico on the risks to maize biodiversity, including native maize varieties, arising from the relationship between GM maize and the use of glyphostate.

101. As Mexico has shown, the use of glyphostate in agriculture has caused significant environmental deterioration and decreased biodiversity. It is worth explaining that the herbicidal

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142 Vilperte et al. (2016). "*Levels of DNA methylation and transcript accumulation in leaves of transgenic maize varieties*" Environ Sci Eur, p. 11. **MEX-376**.

143 Saxena, D. and Stotzky, G. (2001). Bt corn has a higher lignin content than non-Bt corn.American Journal of Botany, 88(9), p. 1. **MEX-459**.

144 Ramírez-Cortina, C. R., Alonso-Gutiérrez, M. S., & Rigal, L. (2012). Valorización de residuos agroindustriales del tequila para alimentación de rumiantes. Chapingo Magazine serie ciencias forestales y del ambiente, 18(3), pp. 450, 453. **MEX-460**.

145 Benevenuto RF, Agapito-Tenfen SZ, Vilperte V, Wikmark OG, van Rensburg PJ, Nodari RO. Molecular responses of genetically modified maize to abiotic stresses as determined through proteomic and metabolomic analyses. PLoS One. 2017, pp. 1, 15, 16. **MEX-106**

146 Mesnage- Robin, Z-Sarah, Tenfen-Agapito, VilperteV-inicius, Renney-George, Ward- Malcolm, Séralini-Gilles Eric, O-Nodari Rubens and N-Antoniou, Michael (2016). "An integrated multiomics analysis of the NK603 Roundup-tolerant GM maize reveals metabolism disturbances caused by the transformation process". Nature, p. 1. **MEX-135**.

effect of glyphostate consists of blocking the production of essential amino acids and the synthesis of protein in plant cells, so that plant growth ceases until it dies.[147]

102. For this reason, Mexico has pointed out that, as a broad-spectrum herbicide, the use of glyphostate may cause the loss of flora related to native maize varieties, such as other crops and weeds, which are habitats for various insects and pollinators that contribute to the pollination of maize and other plants.[148] Weeds, also called quelites, are valuable in Mexico as food, or for medicinal or artisanal purposes.[149] In addition, it has been reported that the presence of glyphostate residues in the soil alters physiological processes in plants, which makes them more vulnerable to attack by fungal, bacterial and insect pests; in other words, the constant use of glyphostate leaves native corn more exposed to pest attack.[150]

103. On the other hand, the constant use of glyphostate produces weed resistance to it, which leads to increased herbicide application.[151] There are reports that in Mexico glyphostate is used in industrial agriculture in quantities of 1.5 to 4.3 kg/ha.[152] The United States has not refuted this evidence; on the contrary, the same evidence it has presented confirms the development of resistance to glyphostate derived from the constant use of the herbicide.[153]

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147 *See* CONAHCYT, "*Expediente científico sobre el glifosato y los cultivos GM*", 2020, p.6. **MEX-085**.

148 Mexico's Initial Submission, ¶ 189. See Vázquez-Cardona, H. (2023). *Diseño de un esquema de bioseguridad comunitaria ante la presencia de maíz GM: estudio de caso en San Agustín Montelobos, Oaxaca*. Universidad Nacional Autónoma de México, p. 36. **MEX-099.**

149 Mexico's Initial Submission, ¶ 189.

150 Mexico's Initial Submission, ¶ 191. See B. Fuchs, et al., "*Glyphosate-Modulated Biosynthesis Driving Plant Defense and Species Interactions*" (2021), Trends in Plant Science, abril de 2021, p. 312, **MEX-234.**

151 Mexico's Initial Submission, ¶ 189.

152 *See* CONAHCYT, "*Expediente científico sobre el glifosato y los cultivos GM*", 2020, p.2. **MEX-085**.

153 "To date, both target site (TS) and non-target site (NTS) mechanisms of glyphosate resistance have evolved in 45 weed species. […] Significantly higher levels of TS glyphosate resistance eventually evolved in some weed species. […] The intense selection pressure by glyphosate over vast geographic areas annually for decades has resulted in TS mechanisms not seen or rarely seen in evolved resistance to other herbicides. […] This amazing range of evolved responses to the massive selection pressure of glyphosate is wider than for any other herbicide or herbicide class. Darwin would probably have been amazed at the diversity of resistance mechanisms that have evolved to a single selection pressure in such a short time

c. Risks to biodiversity

104. Mexico has clearly identified the risks to biodiversity. These include the following:

i) The elimination of plants associated with corn cultivated by the use of glyphosate, e.g., quelites.[154]

ii) Impact on other organisms associated with the ecosystem, such as pollinators, such as bees.[155]

iii) Damage to soil fertility and to the microbiota in which the corn can grow, thus affecting the development of these plants.[156]

105. Gene flow from GM maize to native maize may also have impacts on the organisms that depend on those varieties and on the ecosystems in which they are grown. In fact, as Mexico pointed out in its Initial Submission, from the time Bt corn was first planted, it was known that Cry proteins, with insecticidal characteristics, are not specific to insect pest species, but can eliminate other insects that interact with them, and can even be predators of corn plant pests, i.e. organisms considered beneficial.[157]

106. Mexico presented several studies that have demonstrated the toxicity of Cry proteins in both target and non-target organisms, e.g., of the orders Lepidoptera (butterflies and moths), Diptera (flies and mosquitoes), Coleoptera (beetles and weevils), Hymenoptera (wasps and bees) and nematodes; as well as in crayfish (Orconectes rusticus).[158]

107. On the other hand, there is evidence that shows that the use of glyphostate, due to its inextricable relationship with GM corn, causes damage to biodiversity. For example, the population of asclepias, called milkweed, has been reduced by up to 99% in some areas due to the

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period." See S. Duke, "Enhanced Metabolic Degradation: The Last Evolved Glyphosate Resistance Mechanism of Weeds?," 181 PLANT PHYSIOLOGY 1401 (2019), pp. 1401-1402. **USA-156**.

154 CONABIO. "*Quelites*". **MEX-230.**

155 Battisti L, Potrich M, Sampaio AR, de Castilhos Ghisi N, Costa-Maia FM, Abati R, Dos Reis Martinez CB, Sofia SH. *Is glyphosate toxic to bees? A meta-analytical review*. Sci Total Environ. 2021, **MEX-232.**

156 Singh S, Kumar V, Gill JPK, Datta S, Singh S, Dhaka V, Kapoor D, Wani AB, Dhanjal DS, Kumar M, Harikumar SL, Singh J. *Herbicide Glyphosate: Toxicity and Microbial Degradation. Int J Environ Res Public Health*, 2020, **MEX-233.**

157 Mexico's Initial Submission, ¶ 127.

158 Mexico's Initial Submission, ¶ 128.

use of glyphostate.[159] This plant is food for the larvae of the monarch butterfly, an insect that is present in both the United States and Mexico, and that for many years has been a focus of conservation due to its biological and cultural value.[160] It is estimated that in the last two decades this species has decreased its population by more than 80%, due mainly to the increase of GM crops and its associated use of pesticides, namely glyphosate.[161]

B. United States decontextualizes the 12th Court's determinations in class action 321/2013.

108. The United States presents the Judgment issued on September 28, 2023 by the 12th District Court in Civil Matters of Mexico City in class action 321/2013 (2023 Judgment) to argue that "there is not even evidence that GE corn seeds licensed […] have ever had an adverse effect on the life or health of Mexico's native corn",[162] and that "Mexico's own government agencies have found no evidence of unauthorized release of GE corn or any damage to the environment".[163] This is incorrect.

109. These assertions ignore the evidence presented by Mexico in its Initial Submission on the risks to native varieties associated with the use of GM corn and glyphosate and the correct context of the 2023 Judgment. Five issues are highlighted.

110. *First*, the 2023 Judgment was appealed by the claimants collectively on September 29, 2023 and is pending before the Second Collegiate Tribunal of Appeals on Civil, Administrative and Specialized in Antitrust, Broadcasting and Telecommunications Matters of Mexico City ("Second Collegiate Tribunal"). Therefore, the determinations of the 2023 Judgment are not final and cannot be used by the United States to argue that the "Mexican judicial system" has

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159 Hartzler, R. G. "*Reduction in common milkweed (Asclepias syriaca) occurrence in Iowa cropland from 1999 to 2009".* Crop Protection, 2010 29(12), 1542-1544. **MEX-378.**

160 Wilcox, A. A., et al., "*An evaluation of studies on the potential threats contributing to the decline of eastern migratory North American monarch butterflies (Danaus plexippus)*". Frontiers in Ecology and Evolution, 2019, pp. 7 and 99. **MEX-379.**

161 Wilcox, A. A., et al., "*An evaluation of studies on the potential threats contributing to the decline of eastern migratory North American monarch butterflies (Danaus plexippus)*". Frontiers in Ecology and Evolution, 2019, pp. 7 and 99. **MEX-379.**

162 U.S. Rebuttal Submission, ¶ 124.

163 U.S. Rebuttal Submission, footnote 107.

"reaffirmed" that there is no evidence that imported GE corn authorized for food and feed purposes is adversely affecting Mexico's native corn varieties.[164]

111. It is important to specify that the moratorium on the cultivation of GM corn that was established as a precautionary measure by virtue of the class action remains in force until a final determination is issued and is therefore unaffected by the 2023 Judgment.[165]

112. *Second*, the United States omits to mention that the 12th Court issued Judgment 2023 based "on the evidence that the parties have produced in the class action",[166]. that is, the evidence that was offered by the class action plaintiffs and co-respondents between July 5, 2013, the date on which the Initial Submission was filed, and September 2016, the date on which the evidentiary period in the class action closed.

113. In this sense, the 2023 Judgment is irrelevant to this dispute because the risks identified in the "*Scientific Record on Glyphosate and GM Crops"* (2020) prepared by Conahcyt, and the collection of relevant studies in the National Biodiversity Information System (SNIB) maintained by Cibiogem, were not taken into account as part of the analysis conducted by the 12th Court.[167]

114. *Third*, the 12th Court declared the class action unfounded because it considered that the class action plaintiffs had failed to prove that the respondents had released GM corn in places where it was not permitted and that such release caused harm to the class action plaintiffs in the context of the applicable regulations which address release of corn into the environment in

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164 U.S. Rebuttal Submission, ¶ 124.

165 The moratorium was only established for the release of GM corn into the environment for commercial purposes, since "experimental" and "pilot" releases are still allowed with "adequate containment measures". In this sense, the precautionary measure orders that: "SAGARPA must submit periodic reports to the judge of first instance, at least once a month, demonstrating the monitoring of the releases of GMO corn, as well as the compliance and effectiveness of the containment measures adopted in each case in which a permit is granted for the release into the environment of GMO corn in experimental phase or in a pilot program with containment measures". In this regard, it is pointed out that from the monthly reports submitted to the 12th Court, throughout the precautionary measure, it is noted that no applications for the release of GM corn in "experimental" stage and/or in "pilot program" have been submitted, which shows that individuals do not have and cannot implement "adequate containment measures" that allow a safe handling of GM corn.

166 Judgment of the Twelfth District Judge in Civil Matters in Mexico City, September 28, 2023, p. 407. **MEX-380.**

167 Judgment of the Twelfth District Judge in Civil Matters in Mexico City, September 28, 2023, pp. 15-32, **MEX-380**.

experimental, pilot and commercial phases. The 12th Court clarified the scope of its determination as follows:

> It is fundamental that for there to be damage and consequently the obligation on the part of the respondents to repair the damage caused, the existence of an unlawful act that has as a direct and immediate consequence the realization of damages is required, there being fault on the part of the subject causing the damages, being that in the present case, no unlawful act is caused to the claimant with the strict compliance to the Law of Biosafety [...] and its Regulations, carried out by the authorities in charge of applying that legislation within the scope of their faculties and competences.
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> […] The collectivity may at any time resort to the competent authorities to provide scientific or technical information that a certain activity authorized by the Ministries may cause harm to the collectivity, in order to effectively safeguard its rights.
>
> [T]he fact that in no way, not even indicially, does it prove the existence of the alleged damages to the environment that it invokes, nor does it prove that there is a direct and immediate relationship between the application and observance of the [Law of Biosafety] and the non-existent damages to the environment that it narrates throughout its initial writ of claim, reason for which the claim filed by the claimant collectivity is unfounded.

115. In this sense, the determination on the lack of evidence of unauthorized releases by a specific private party is irrelevant to this case. Simply put, the evidence of the risks identified by Mexico was not part of the analysis of the 12th Court, much less the adequacy of the measures claimed in this proceeding in light of the adequate level of protection that has been established by Mexico.

116. *Fourth*, the United States argues that "Mexico's own government agencies have testified in a court of law that there is no evidence of unauthorized release of GE corn seeds licensed for cultivation (let alone GE corn grain imported for food and feed uses), and have no evidence of any adverse effects to native corn varieties.[168] What the United States omits is that these statements were submitted by the authorities in 2015, years before Mexico clearly identified the risks to native corn varieties that led to the 2023 Decree.

117. *Fifth*, the United States argues that "the Mexican federal court recently concluded that […] even if such [accidental] releases had occurred, that "does not mean that there is an impairment or damage to the biological diversity of native corn," observing that there are remediation procedures under the Biosafety Law to regulate and sanction unauthorized behaviour".

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168 U.S. Rebuttal Submission, ¶ 220. The United States does not identify the relevant paragraph.

118. The Law of Biosafety defines bioremediation as the process in which genetically modified microorganisms are used for the degradation or disintegration of pollutants that affect resources and/or natural elements, in order to convert them into simpler and less harmful or non-harmful components to the environment.[169] Thus, bioremediation is used once a damage has already occurred, which, in principle, makes it an unfeasible option in the case of protection of human health and native corn, since it intends to "remedy" a damage that Mexico intends to avoid at all costs. In addition, bioremediation requires that "the GMOs [to be used] have been created to prevent or combat" the appearance of "pests or contaminants that could endanger the existence of animal, plants or aquaculture species"; and this "environmental benefit" must be based on "the necessary scientific and technical elements".[170] As far as Mexico is aware, there are no GMOs created specifically to achieve the "degradation or disintegration" of transgenic proteins or glyphosate residues.

119. *Sixth*, the 12th Court is not a competent authority to determine the existence of sanitary or phytosanitary risks.[171] As has been pointed out by the Supreme Court of Justice of the Nation (SCJN), the judiciary "must play a subsidiary role [...]" in controversies of a technical nature such as an SPS issue, because "the judicial authority does not have the institutional capacities to determine the application of factors in tension", as is the case of phytosanitary health and foreign trade.[172]

120. Decisions regarding "the attribution of risks [...] such as plant health and foreign trade [...] should be relegated to those authorities best positioned to make these decisions, that is, the administrative authority, who, due to their attributions and technical knowledge (phytosanitary risk analysis) are in a clear position of institutional advantage for decision making".[173]

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169 Article 3, section IV of the Law of Biosafety. **MEX-250**.

170 Article 80 of the Law of Biosafety. **MEX-250**.

171 See Amparo in Review 109/2019 decided by the First Chamber of the Supreme Court of Justice of the Nation, **MEX-381.**

172 Amparo in Review 109/2019 decided by the First Chamber of the Supreme Court of Justice of the Nation, ¶ 199. **MEX-381.**

173 Amparo in Review 109/2019 decided by the First Chamber of the Supreme Court of Justice of the Nation, ¶. 202. **MEX-381.**

C. The safety assessments carried out by the United States do not ensure the level of protection sought by Mexico.

121. In sanitary matters, in the United States, the Food and Drug Administration (FDA) evaluates the safety of foods derived from GMOs before they enter the market, through a voluntary consultation program.[174] Although the FDA promotes these informal consultations with GMO producers, "[i]t is the responsibility of the producer of a new food [and not of the FDA] to evaluate the safety".[175] These assessments are not public.

122. In this sense, the voluntary consultation process consists of the manufacturer submitting to the FDA a summary of the nutritional and safety assessment it has conducted on the new plant variety.[176]

123. Subsequently, FDA conducts an assessment only of the summary information submitted by the GMO manufacturer and verifies "whether the summary contains sufficient information to demonstrate that the developer has addressed all matters relevant to the safety and regulatory status of the bioengineered food"[177]. As FDA itself has explained:

> During the consultation process, the FDA does not conduct a comprehensive scientific review of data generated by the developer. Instead, the FDA considers, based on agency scientists' evaluation of the available information, whether any unresolved issues exist regarding the food derived from the new plant variety that would necessitate legal action by the agency if the product were introduced into commerce.[178]

124. As part of the voluntary consultations, FDA provides manufacturers with flow charts with a series of questions as guidance for manufacturers to conduct their GMO safety assessment.

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174 *See* FDA, Statement of Policy - Foods Derived from New Plant Varieties (May 1992), pp. 6, 16. **USA-206**

175 FDA, Statement of Policy - Foods Derived from New Plant Varieties (May 1992), p. 17, **USA-206**.

176 *See* FDA, "*Guidance for Industry: Consultation Procedures under FDA's 1992 Statement of Policy for Foods Derived from New Plant Varieties",* October 1997, **MEX-382.**

177 *See* FDA, "*Guidance for Industry: Consultation Procedures under FDA's 1992 Statement of Policy for Foods Derived from New Plant Varieties",* October 1997, **MEX-382.**

178 *See* FDA, "*Guidance for Industry: Consultation Procedures under FDA's 1992 Statement of Policy for Foods Derived from New Plant Varieties",* October 1997, **MEX-382.** *See* the Written Opinions of Center for Food Safety and Friends of the Eearth, they point out that FDA's voluntary assessment system for evaluating the food safety of GMOs involves a simple "rubber stamp" or "checklist" procedure that relies on information provided by applicants. Center for Food Safety Opinion, pp. 1-3; Friends of Earth Opinion, p. 3-4.

According to FDA, these flow charts reflect "the current state of scientific information", *i.e.*, 1992, and "are not intended as regulatory requirements".[179]

125. After consultations, FDA may or may not convene a meeting with the manufacturer to discuss the scientific data and information in the submitted summary. It is worth mentioning that, according to FDA, a meeting between FDA and manufacturers may not be necessary if "FDA scientists are sufficiently familiar with the firm's product, a firm submits adequate supporting information together with the summary, or a consultation involves a food derived from additional lines derived from the bioengineered line through traditional breeding".[180]

126. At the end of the assessment, FDA merely reports that it has no further questions about the information and data provided, or about the conclusion reached by the manufacturing company about the safety of the GMO.[181] As a result, the safety assessments conducted by regulatory authorities in the United States and other countries create an illusion of safety of GMOs.

127. In Mexico, the procedure for evaluating the safety of GMOs is similar. A producer interested in obtaining a GMO authorization must submit to Cofepris an application accompanied by, among other things, a study of the possible risks that the use or human consumption of the GMO could pose to human health, including scientific and technical information on its innocuity.[182] According to the Law of Biosafety, Cofepris must decide on the authorization of the

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[179] See FDA, Statement of Policy - Foods Derived from New Plant Varieties (May 1992), pp. 22-24, **USA-206**.

[180] See FDA, "*Guidance for Industry: Consultation Procedures under FDA's 1992 Statement of Policy for Foods Derived from New Plant Varieties",* October 1997, **MEX-382.**

[181] "Based on the safety and nutritional assessment that you [Monsanto] have conducted, it is our understanding that Monsanto has concluded that corn products derived from this new variety are not materially different in composition, safety, and other relevant parameters from corn currently on the market, and that the genetically modified corn does not raise issues that would require premarket review or approval by FDA. […] Based on the information Monsanto has presented, we have no further questions concerning corn grain or fodder containing transformation event MON 810 at this time". FDA, "Biotechnology Consultation Agency Response Letter BNF No. 000034" (September 25, 1996), **USA-189.**

[182] See Law of Biosafety, Articles 91 and 92. **MEX-250** Regulations of the Law of Biosafety, Articles 23 and 31, **MEX-251.**

GMO "once it has analyzed the information and documentation provided by the interested party".[183]

128. Furthermore, as mentioned by Mexico in its Initial Submission[184] and ignored by the United States, information regarding the adverse health effects caused by the use of glyphosate was obtained from the "Monsanto papers", documents obtained at the discovery stage in more than 125,000 legal proceedings in courts of the United States.

129. These obtained documents prove not only the serious damage to health caused by glyphosate, but also that the safety assessments carried out by the United States do not ensure the level of protection sought by Mexico through the Decree. In this regard, Mexico takes the liberty of making a couple of comments related to these documents, which might prove useful for this Panel.

130. *First*, in the cases from which these documents arose, the opinion for the classification of glyphosate prepared by the United States Environmental Protection Agency (EPA) was considered with caution, since it omitted studies that pointed to the carcinogenicity of the substance and excluded commercial mixtures.[185] Recently, it has also been pointed out that the assessments made by the EPA have not considered other effects derived from chronic exposure and have disregarded evidence on genotoxicity, oxidative stress that point to carcinogenicity and others related to alterations in reproductive systems by acting as an endocrine disruptor.[186]

131. For example, the EPA issued a draft risk assessment in which it concluded that glyphosate did not pose a serious risk to human health.[187] In 2022, a United States Court of Appeals, on the

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183 See Law of Biosafety, Article 96, **MEX-250**

184 Mexico's Initial Submission, ¶ 186.

185 Benbrook M., "*How did the US EPA and IARC reach diametrically opposed conclusions on the genotoxicity of glyphosate-based herbicides*?" 2019, pp.31 and 2, **MEX-303.**

186 In 2019, the United States jury in the case *Edwin Hardeman v Monsanto/Bayer* determined that there were inconsistencies in the EPA's conclusions about the carcinogenic effects of the Roundup formulation and the carcinogen categorization contemplated in the California regulation. *See* OEHHA, "Glyphosate," 2017. **MEX-383.** Benbrook, C. "*Shining a light on Glyphosate-Based Herbicide Hazard, Exposures and Risk: Role of Non- Hodgkin Lymphoma Litigation in the USA.*" European Journal of Risk Regulation, 2020, 11(3),pp.498-519. **MEX-384**

187 EPA, "*Glyphosate issue paper: evaluation of carcinogenic potential.*" 2016. **MEX-385**

basis of a lawsuit, found the EPA's conclusion on glyphosate to be inconsistent and concluded that the EPA's determination was not supported by substantial evidence. As a result, the Court vacated the human health portion of the EPA's decision and ordered further analysis and explanation, including that the ecological portion of the assessment be redone.[188]

132. Precisely this shows that, as stated above, the safety assessments carried out by the United States authorities do not ensure the level of protection sought by Mexico.

133. *Second*, it was demonstrated that Monsanto hired scientists to write, through the practice of ghost writing, publications supporting its products, that is, these are documents not only with conflict of interest, as stated by Mexico in the Initial Submission,[189] but they were tailor-made, without proper scientific support.[190] This is a relevant fact, considering these studies were presented to regulatory agencies.

134. *Third*, the United States noted in its Rebuttal that "The United States would not typically comment on a specific author, but the overwhelming extent to which this author is cited in Mexico's Initial Submission (more than any other author), and the widespread concerns about this author's reputability, warrant mention."[191] However, it so happens that the author who is criticized and labeled as "highly unreliable among the scientific community"[192] is Gilles-Eric Séralini. Mexico invites the Panel to analyze in detail what is expressed in Section II of this Reply Submission .[193]

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188 United States Court of Appeals for the Ninth Circuit. "*NRDC V. USEPA. No. 20-70787 EPA No. EPA-HQ-OPP-2009-0361. On Petition for Review of an Order of the Environmental Protection Agency.*" January 10, 2022. **MEX-386**

189 Mexico's Initial Submission, ¶ 233.

190 Leemon B. McHenry, "*The monsanto papers: Poisoning the scientific well",* 2018. pp. 3 and 8, **MEX-387.**

191 U.S. Rebuttal Submission, footnote 51.

192 U.S. Rebuttal Submission, ¶ 233.

193 Leland, G., Bruce, A. (2021). "*Suborning science for profit: Monsanto, glyphosate, and private science research misconduct*." Research Policy. 2021. p. 6. **MEX-228** "Monsanto was seeking to influence how the public viewed the Seralini article by disrupting the peer-review process but did not want anyone to know that Monsanto was behind the effort."

135. In addition, the United States points out that one of his articles was withdrawn from the journal that published it. What the United States does not explain is that Monsanto was behind this.[194]

136. *Fourth*, these documents provide evidence that these companies are aware of the harms of glyphosate and GMOs, which is why they have devised plans to "[p]revent future bad IARC decisions on pesticides/GMOs"[195] For example, a Monsanto consultant concluded, among other things, the following:

> "Scientific studies linked Roundup and GM Roundup resistant seeds to endocrine disruption, DNA damage, reproductive toxicity, neurotoxicity, and cancer in humans. Monsanto's products are banned in several countries due to health concerns.
>
> Genetic contamination is hard to contain due to cross-pollination and as such companies involved in genetic research are expected to demonstrate strong risk management."[196]

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194 *See for example*: September 28, 2012 email chain between Dr. Goldstein and Eric Sachs, where they try to hide that Monsanto was involved in the letters to the editor, **MEX-388**. Leland, G., Bruce, A. (2021). "*Suborning science for profit: Monsanto, glyphosate, and private science research misconduct.*" Research Policy. 2021. p. 8 **MEX-228** "Monsanto's intervention to retract the Seralini article introduces two new dimensions to the literature on scientific misconduct. First, we are not aware of any examples in the pharmaceutical or medical literature describing a firm turning to a journal editor it had once hired as a consultant to influence editorial decisions. Second, it is ironic that Monsanto accused Seralini of doing improper scientific research when Monsanto was itself engaged in multiple cases of misconduct. Indeed, Monsanto has long pointed to "sound science" when arguing that their products are safe […] We now discover that Monsanto was engaging in several forms of research misconduct while publicly advocating for sound science. This adds a new dimension to the sociology of ignorance literature. […] However, our analysis reveals that Monsanto paid a consulting fee to the editor of Food and Chemical Toxicology before it orchestrated a campaign to convince that editor to retract the Seralini article".

195 IARC, Monsanto's evidence in follow-up to Glyphosate strategies, p. 1, **MEX-389**

196 Sustainalytics', "*Incident Report for Monsanto Co.,"* October 5, 2015, p. 9, **MEX-390** [Emphasis added]

III. THE UNITED STATES CONTINUES TO MISCHARACTERIZE THE CHALLENGED MEASURES

A. The challenged measures seek the protection of native corn, the milpa, the gastronomic heritage and the fulfillment of obligations towards indigenous peoples.

137. The United States does not dispute -because it cannot- that the challenged measures seek very specific objectives, among them, that the 2023 Decree was designed to protect native corn, the milpa, the gastronomic heritage, indigenous peoples and peasants.

138. These elements are linked to the history of the first settlers of the current Mexican territory, which is why they are central to the cultural identity of Mexicans.[197] That is why their protection was considered when issuing the 2023 Decree.

139. Native corn is a central element for the construction of the cultural identity of Mexican indigenous communities, because "the fact of planting corn is linked to their own history, to their identity, to the way they conceive the world, to being part of a whole".[198]

140. The foregoing is due not only to the role of corn in the customs and traditions of the first communities that settled in Mexican territory (Maya, Nahua, Mixe, Totonaco, Chontal, Huichol, etc.), which are still preserved to this day,[199] but also to its influence on various aspects of the lives of the communities.

141. In the religious and mythological realm, it can be observed that several legends and myths give corn an intrinsic value to the creation of the first settlers. These myths even incorporate the concept that the Gods had, through sacrifices or acts, created a food culture based on corn for their worshipers.[200] Derived from these elements, corn has become a primordial and inseparable part of Mexican identity.

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197 Expert Report of Dr. Espinosa, ¶ 56.

198 Expert Report of Dr. Espinosa, ¶ 32.

199 See Expert Report of Dr. Espinosa, ¶ 32.

200 Specifically, the centrality of corn in the creation myth is present in civilizations such as the Maya or Mexica. See Expert Report of Dr. Espinosa, ¶¶ 37-55. ("These brief stories show that corn is in the life of the original communities, they endorse its importance through rituals that entail deep beliefs that reach our days and that accompany the daily planting.")

142. In the words of Dr. Espinosa:

> "Corn has been a fundamental axis for the creativity of indigenous peoples who have venerated, taken care of and reproduced it as the central element around which cosmogonies, beliefs, religious practices, techniques and technologies have been constituted, constituting a whole system of knowledge, an identity and a historical narrative, which makes it a sacred plant for Mexicans".[201]

143. In this regard, it is worth emphasizing that the United States does not present a single argument to undermine the fact that corn represents an element of cultural identity of the Mexican population; on the contrary, it focuses on addressing issues that it considers relevant, without taking into account the entire historical and cultural panorama. Moreover, it is because the United States ignores these elements that it reaches erroneous conclusions.

144. In this regard, Mexico takes this opportunity to reiterate and emphasize certain points made by Mexico in its Initial Writen Submission.

145. First, with respect to native corn, Mexico reiterates that the definition of native corn in the *Federal Law for the Promotion and Protection of Native Corn*,[202] points out that these are those corn "that indigenous peoples, peasants and farmers have cultivated and cultivate from self-selected seeds."[203] In other words, the very definition of native corn refers to the participation of indigenous communities, which implies that any measure to protect native corn is a measure that seeks to protect indigenous communities. This is an indivisible relationship, since native corn implies the cultivation of the indigenous peoples, because, as Dr. Boege details: "the majority of small-scale producers - peasants and indigenous people or comparable (local) community are the main custodians of Mesoamerican agrodiversity in the agricultural system called milpa".[204]

146. This is why Mexican law protects native corn and indigenous peoples. For example, as Mexico explained in its Initial Written Submission,[205] the production, commercialization and

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201 Expert Report of Dr. Espinosa, ¶ 111, see also ¶ 9.

202 Mexico's Initial Written Submission, ¶ 48.

203 *Federal Law for the Promotion and Protection of Native Corn*, Article 2. **MEX-012**.

204 Expert Report of Dr. Boege, ¶ 16, see also ¶ 33-34.

205 Mexico's Initial Written Submission, ¶ 221.

consumption of native corn is a national cultural manifestation,[206] for which, in accordance with the General Law of Culture and Cultural Rights,[207]it is the responsibility of the Mexican State to develop actions to, *inter alia*, conserve and protect the cultural heritage by promoting respect for the manifestations of native cultures. As mentioned by Dra. Espinosa, "[t]he indigenous and peasant communities of Mexico that produce and live around the reproduction of corn have cultivated a deep knowledge and wisdom around this plant that is expressed in various ways: in mythology, legends, stories and poetry, art, gastronomy, rituals and symbolism".[208]

147. *Second*, as has already been established, there is an indissoluble relationship between GM corn and pesticides,[209] which implies, broadly speaking, that with the use of GM corn, more herbicides are used. Precisely for this reason: i) assertions by the United States, such as that the use of glyphosate is not relevant to this dispute,[210] are meaningless, and ii) agricultural systems such as the milpa use a polyculture that includes, among others, beans, fodder pumpkin, quelites, weeds, medicinal and ornamental plants in the same place where corn is produced.[211] This type of cultivation is important, among other reasons, because "far from competing they can promote soil and moisture conservation, introduction of organic matter, nutrient replenishment".[212]

148. In this sense, when herbicides are used, these plants would be affected because they are not resistant to the herbicides that GM corn could tolerate. As Dr. Espinosa explains:

> "[T]he use of transgenic hybrids and the associated technology (Glyphosate herbicide) puts the traditional milpa system (corn, beans, squash, chili, tomato and quelites, among other species grown within a plot) at high risk because the use of herbicides forces producers to use the monoculture (the herbicide-tolerant transgenic hybrid) and to

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206 Federal Law for the Promotion and Protection of Native Corn, Artículo 3, **MEX-012**. *See also* Expert Report of Dra. Espinosa, ¶ 177.

207 General Law of Culture and Cultural Rights, Article 15, **MEX-254**.

208 Expert Report of Dra. Espinosa, ¶ 110.

209 Mexico's Initial Written Submission, ¶¶ 9, 132, 147.

210 U.S. Rebuttal Submission, ¶ 3.

211 Sader, "*Milpa: the heart of Mexican agriculture*", September 14, 2020. **MEX-023**. Mapes C., "*¿What is the milpa*?" In: Morales Valderrama, C., Mapes Sánchez, C., Rodríguez Lazcano, C., Serratos Hernández, J.A. "*Answers about corn: The voice of 72 authors. Volume III*." [2021] Instituto Nacional de Antropología e Historia, p. 153, **MEX-024**. *See also* Expert Report of Dra. Espinosa, ¶ 80.

212 Expert Report of Dr. Boege, ¶ 56.

> eliminate all the species that are planted or tolerated within the milpa. This would affect biodiversity and the food supply of small indigenous peasant farmers".[213]

149. In this regard, Dr. Boege emphasizes, "[a]ny threat to native maize breeds threatens the viability of the multicultural use of maize as food".[214]

150. In this sense, the cultivation of GM corn has detrimental effects on the entire agricultural system and not only on corn.

151. In addition, the milpa has cultural implications. Dr. Boege explains it as follows:

> "The ways of structuring knowledge and its transmission involve women and men of different age groups. From an early age, the producer "learns by doing" all the cultural activities around the milpa and the resulting indigenous food system.
>
> Myth, ritual and the resulting spirituality frame the knowledge and give it structure to explain extraordinary phenomena, or guarantee survival in the annual climate cycle, for example. Indigenous languages are the platform for transmitting and conceptualizing this knowledge; in this sense it is practical philosophy with its local intellectuals, including the men and women of knowledge."[215]

152. *Third,* and in line with the previous point, UNESCO itself, in recognizing traditional Mexican gastronomy as cultural heritage, identified the central role of corn and cornfields. Specifically, it stated that: "*The basis of the system is founded on corn, beans and chili; unique farming methods such as milpas (rotating swidden fields of corn and other crops)* […]"[216]

153. In order to safeguard Mexico's gastronomic heritage, an intangible cultural heritage of humanity, it is necessary to extend this protection not only to native corn, but also to the milpa.

154. In fact, UNESCO has identified traditional Mexican gastronomy as "a comprehensive cultural model comprising farming, ritual practices, age-old skills, culinary techniques and ancestral community customs and manners."[217] It acknowledges that Mexican gastronomy includes the agrarian activities of native corn in the milpas, carried out by the indigenous peoples.

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213 Expert Report of Dra. Espinosa, ¶ 169.

214 Expert Report of Dr. Boege, ¶ 82.

215 Expert Report of Dr. Boege, ¶¶ 57-58.

216 UNESCO, "*Mexican traditional cuisine: A community, ancestral and living culture and the paradigm of Michoacán*". **MEX-042**. UNESCO, "*Decision of the intergovernmental Committee; 5.COM 6.30*", 2010, p. 35, **MEX-041**.

217 UNESCO, "*Mexican traditional cuisine: A community, ancestral and living culture and the paradigm of Michoacán*". **MEX-042**. UNESCO, "*Decision of the intergovernmental Committee; 5.COM*

155. It is important to note that the food culture (based on corn) present in the different archaeological epochs of the Mexican region continues to this day. For example, the methods and customs used by the ancient inhabitants, such as nixtamalization or the use of stone utensils, continue to be a fundamental element of Mexican gastronomy today.[218]

156. Thus, it should be noted that the "food wealth [of Mexican gastronomy] is pluricultural because it encompasses various social spheres, not only in the indigenous peasant sector. It is consumed in the cities as well as in the rural sector and is inextricably linked to the wealth of the 59 native corn varieties".[219]

157. *Fourth*, precisely this gastronomic heritage is possible thanks to the biocultural richness present in the country.

158. Biocultural heritage should be understood as "the relationship of a community with the biological resources of the ecosystem in which it lives and which, through the use and knowledge developed from this relationship, ends up shaping its customs and ways of life – culture –".[220]

159. In this sense, corn plays a very important role in biocultural wealth, since it constitutes "transmission of knowledge and traditions from generation to generation and thus circulates as a good, but also as knowledge and practices, as symbols, symbolisms and associated values".[221]

160. In fact, specifically with respect to the milpa, Dr. Boege points out that "it is an emblematic Mesoamerican agroecosystem and the heart of the biocultural heritage of the indigenous peoples and peasant communities that practice it."[222]

6.30", 2010, pp. 35 and 36, **MEX-041**. Furthermore, it pointed out that "*Traditional Mexican cuisine is central to the cultural identity of the communities that practise and transmit it from generation to generation*".

218 Expert Report of Dra. Espinosa, ¶¶ 130 and 132.

219 Expert Report of Dr. Boege, ¶ 81.

220 Expert Report of Dra. Espinosa, ¶ 116.

221 Expert Report of Dra. Espinosa, ¶ 119.

222 Expert Report of Dr. Boege, ¶ 54.

161. It is for all of the above reasons that Dr. Boege concludes "[c]onserving the wealth of agrodiversity is a national and international common good of Mexico that is today guarded by the indigenous peoples and local communities for humanity."[223]

162. Therefore, the Decree must be analyzed taking into account the objectives described in the Decree, which, as has been explained, implies a holistic analysis, not as the United States presents it, seeking to manipulate its reading.

B. The measures seek to protect native corn from the risks of transgenic introgression.

163. The chapeau of Article 6 of the Decree expressly states that the "End Use Limitation" is intended to "contribute" to the "protection of native corn".[224] In addition, "Gradual Substitution" contributes to this objective in that the risks to native corn varieties, derived from GM corn grain, are the same regardless of the different end uses.[225] As Mexico pointed out in its Initial Written Submission, it seeks to protect native corn from the risks arising from transgenic introgression resulting from the propagation of GM corn plants in Mexico.[226]

164. As can be seen in the following map, only in several northern states (in blue) was the experimental and pilot release of GM corn authorized. Although the above was done in conjunction with the adoption of "containment measures, such as physical barriers, or a combination of these with chemical or biological barriers, to limit their contact with the population and the environment.", as mandated by the Law of Biosafety,[227] the presence of transgenes has been observed in areas far removed from the northern states. In addition, although the events MON-00021-9 (mepsps), SYN-BTØ11-1 (pat and cry1Ab) and SYN-IR162-4 (vip3Aa20 and pmi) were not authorized for experimental or pilot release in Mexico, the map shows that their transgenic elements have been reported even in areas of the country where the release of GM corn has not been authorized.

Image: Transgenic contamination in Mexico

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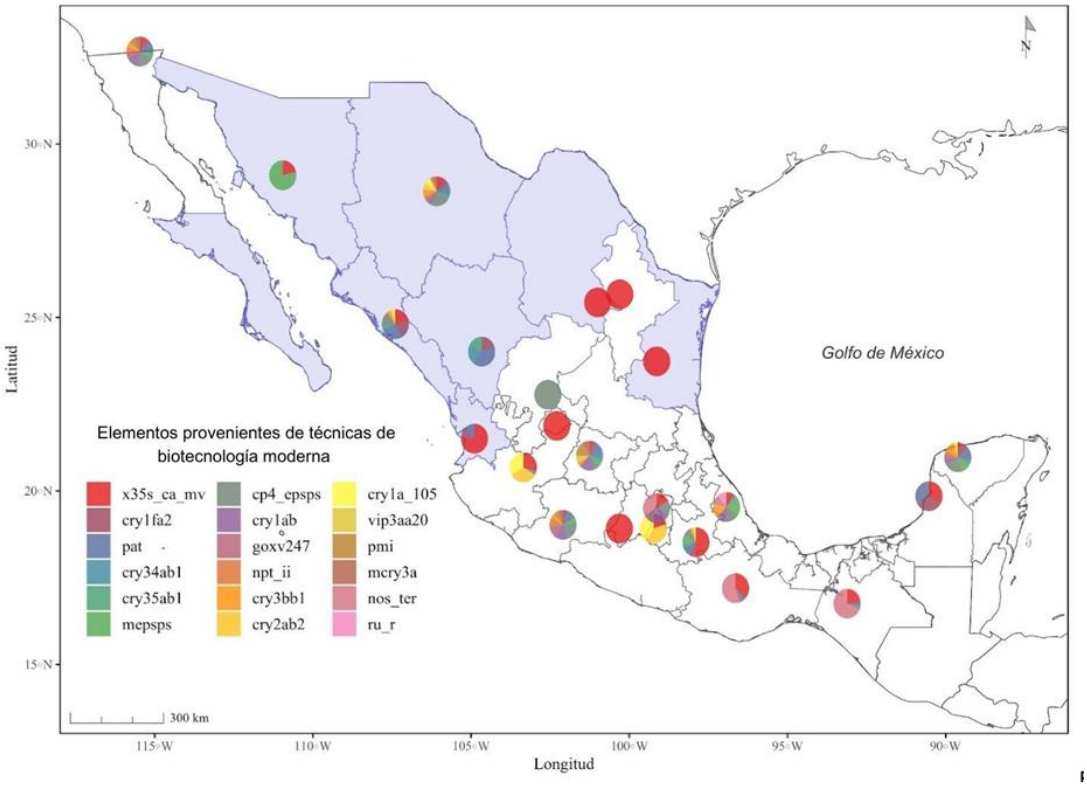
223 Expert Report of Dr. Boege, ¶ 70.

224 Article 6 of 2023 Decree.

225 Mexico's Initial Written Submission, ¶ 333.

226 Mexico's Initial Written Submission, ¶ 324.

227 *See* Article 3, section XVII, of the Law of Biosafety. **MEX-250**.



Source: Expert Report of Dra. Espinosa.

165. Mexico's concern regarding the risks associated with transgenic contamination is heightened by the fact that, as Dr. Wegier points out, "[t]here is no viable mechanism (neither in logistical nor economic terms) to prevent grain that could be used for the production of tortillas or nixtamalized products from being diverted (in part) to experimentation. There is no way to avoid this because of the biocultural context in Mexico".[228] The following reasoning stands out:

> The detection of modern biotechnology elements in Mexican maize is shown together with the states with experimental and pilot releases between 2009 and 2013 to observe the lack of correlation between the presence of transgenes and the proximity to these release areas, which suggests that the escapes are the result of more than one activity, not only of the inoperability and failure of the biosafety measures implemented to avoid crop dispersal (which are again recommended by the United States). Specifically, it is observed that the quantity and diversity of exogenous elements detected, such as MON-00021-9 (mepsps), SYN BTØ11-1 (pat and cry1Ab), and SYN-IR162-4 (vip3Aa20 and pmi), are not within those authorized for release into the environment. Therefore, it is highly probable that their presence in the country is explained by the authorizations for their importation for the consumption of corn with these elements. In addition, the mixing and dispersal of events are evidence of the high probability that the initial escape

[228] Expert Report of Dra. Wegier, ¶ 128.

> is mixed (therefore related to imported seed mixtures), at variable frequencies. Environmental and cultural selection is also operating, which confirms the inadequacy of information for risk analysis of exports to Mexico and of the biosecurity measures required for imports that are not reported. Therefore, it is urgent to prevent the problem from getting worse […].[229]

C. The challenged measures interact with the current biosafety regulatory framework.

166. The United States asserts that the End-use Limitation "makes it illegal to import GE corn for use in dough and tortillas".[230] This is incorrect in light of the text of the 2023 Decree and the applicable legislation.[231] Three issues stand out.

167. *First*, Article 6 of the Decree clearly states that the "revo[cation] and abstention from issuing authorizations for the use of genetically modified corn grain for human consumption" referred to in the second paragraph must be carried out by the biosafety authorities "in accordance with the applicable regulations".[232] The text of the Decree does not establish any restrictions preventing the importation of GM corn into Mexico.

168. According to this provision, the Mexican authorities must operate the 2023 Decree in accordance with the applicable regulations and within the scope of their competence. This implies that the actions set forth in paragraph II of Article Six of the 2023 Decree may only be carried out to the extent that they are so established and permitted by existing national legislation, i.e., the Biosafety Law and its Regulations.

169. As Mexico explained in its Initial Written Submission, this implies that Cofepris must issue a response to an application for authorization of GMOs after having conducted a case-by-case evaluation of the data and documents submitted with the application in accordance with the

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229 Expert Report of Dra. Wegier, ¶ 14.

230 U.S. Rebuttal Submission, ¶ 48.

231 Mexico's Initial Written Submission, ¶¶ 260- 266, 271,277, 278-283.

232 2023 Decree, Article 6. ("The biosafety authorities, within the scope of their competence, with the purpose of contributing to food security and sovereignty and as a special measure to protect native corn, the milpa, biocultural wealth, peasant communities, gastronomic heritage and human health, in accordance with the applicable regulations:

II. Revoke and refrain from granting authorizations for the use of genetically modified corn grain for human consumption, and […]")

requirements and standards established by the Law of Biosafety and its Regulations.[233] Therefore, any revocation or suspension of GMO permits and authorizations is strictly limited by the procedures and assumptions for permit review established in national legislation.[234]

170. The United States argues that "if Mexico contends that these Biosafety Law provisions have not been invoked, then Mexico concedes that there is no change in scientific information or circumstances to warrant a modification or revocation of the authorizations". This is incorrect. Mexico has clearly presented the scientific evidence that justifies the risks to health and plant varieties derived from the consumption of GM corn for human consumption.

171. *Second,* the United States has not disputed that the Law of General Taxes of Import and Export (LIGIE) was also not amended to establish corn as a commodity whose importation is prohibited.

172. *Third*, The United States ignores that the "authorization" of GMOs issued by Cofepris is the act through which "genetically modified organisms are authorized […] so that they can be used for trading and imported for trading".[235] This authorization thus has two elements, the commercialization element, on the one hand, and the importation element, on the other. The End-Use Limitation only affects the former.

173. Likewise, the United States notes that the instructions for Gradual Substitution "orders the phasing out of imported GE corn for other uses" and "contains a clear dictate to displace GE corn".[236] This interpretation of the Decree is incorrect because it analyzes the elements contained in Articles 7 and 8 of Decree 2023 in isolation.

174. *First,* Article 7 does not contain a "unequivocal instruction to substitute GM corn". Instead, it instructs the authorities to conduct "appropriate actions" for Gradual Substitution. This instruction should be understood in conjunction with Article 8 of the 2023 Decree, which indicates the parameters that condition the "implementation of alternatives for the Gradual Substitution", i.e., the "appropiate actions" for Gradual Substitution.

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233 *See* Regulations of the Law of Biosafety, Third Title, Chapter I and II.

234 *See* Article 69 of the Law of Biosafety.

235 Law of Biosafety, Article 3, section III.

236 U.S. Rebuttal Submission, ¶¶ 49 and 56.

175. In accordance with these parameters, the biosafety authorities are obliged to carry out the "appropiate actions" (i) "in accordance with scientific principles and relevant international standards, guidelines or recommendations" and (ii) based on "relevant scientific studies […] on the consumption of genetically modified corn [GM] and the possible damages to health". Additionally, "criteria of supply sufficiency, consistent with the country's food self-sufficiency policies", must be taken into account.

176. In simple terms, Gradual Substitution will only be implemented in the event that all these parameters are met. As long as they are not met, as provided in Article 7 of the 2023 Decree, the Cofepris "may issue authorizations of genetically modified corn for animal feed and industrial use for human consumption".

177. As of today, the Mexican authorities have not carried out any "appropriate actions" for the implementation of the Graduated Substitution. In this sense, Articles 7 and 8 of the 2023 Decree do not predetermine the outcome of the parameters to be evaluated by the authority to decide on the Gradual Substitution, nor do they modify or alter the regulatory framework applicable to the authorizations of GM corn for animal feed and industrial use for human food.

178. Simply put, the United States' assertion that "once the substitution is carried out, there would be no permissible uses left under Mexico's authorization regime in the Biosafety Law"[237] is premature because in order for the Gradual Substitution to take place, the authorities would have to (i) define the appropriate actions under Article 7 of the 2023 Decree and (ii) obtain a result that justifies the Gradual Substitution in light of the parameters of Article 8 of the 2023 Decree. Neither of these two elements has occurred.

179. Lastly, the United States argues, "should any relevant government agency in Mexico fail to comply with the provisions of the [Article 10] of the Corn Decree 2023, including the Substitution Instruction, the Decree establishes that these agencies will be subject to administrative penalties".[238] This is incorrect.

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237 U.S. Rebuttal Submission, ¶ 49.

238 U.S. Rebuttal Submission, ¶ 58.

180. On one hand, this provision does not alter the obligation of the authorities to implement the End-Use Limitation "in accordance with the applicable regulations," and on the other hand, it does not obligate the authorities to carry out the Gradual Substitution.

181. As explained above, the Gradual Substitution is conditioned upon compliance with the parameters established in Article 8 of the Decree, including studies confirming the risks to human health from the use of GM corn in animal feed and in industrial use for human food. It is precisely for this reason that the 2023 Decree does not contain a critical date for the implementation of the Gradual Substitution.

IV. IMPORTS OF U.S. CORN HAVE NOT BEEN AFFECTED BY THE CONTESTED MEASURES

182. Contrary to the claims made by the United States, the contested measures do not restrict trade, nor have they affected commercial exchange between the two countries, as already indicated in Mexico's Initial Written Submission[239] and explained below.

183. The United States argues that "the text of the measures on its face makes clear their impact on trade."[240] and adds that "[t]here is no argument that the Tortilla Corn Ban makes it illegal to import GE corn for use in dough and tortillas."[241] This is simply false.

184. *First.* It is reiterated that the measure that the United States refers as the "*Tortilla Corn Ban"* is merely a limitation on the end-use of corn. This implies that corn can continue to be imported – as it continues to be – as long as it complies with applicable legislation.

185. *Second*. The End-Use Limitation is applied by the competent authorities in accordance with applicable regulations, which do not establish any prohibition on the importation of GM corn.

186. Regarding the "Substitution Instruction," the United States states that "Mexico's decision not to define the exact timing in which the gradual substitution will be carried out does not eliminate international trade impacts."[242] This is clearly not the case, and the United States has not

239 *See* Mexico's Initial Written Submission, Section V.G

240 U.S. Rebuttal Submission, ¶ 48.

241 U.S. Rebuttal Submission, ¶ 48.

242 U.S. Rebuttal Submission, ¶ 48.

presented evidence to the contrary. There simply can not be trade effects from a measure that not only has not been applied and for which there is no certainty as to when it will be implemented, but also whose application is subject to the performance of pertinent studies on the potential health risks resulting from the consumption of genetically modified corn in the context of the measure, which has neither occurred nor begun as indicated in Mexico's Initial Submission.[243]

187. Despite Mexico having explained and demonstrated with evidence the commercial flows of corn between Mexico and the United States, and consequently that U.S. corn exports to Mexico have not been affected as a result of the 2023 Decree,[244] the United States insists that there is a trade impact[245] and simply points to the fact that "[i]n the eleven months that elapsed since the enactment of the 2023 Corn Decree […] U.S. white corn exports to Mexico, by volume, have declined by approximately 40 percent year-on-year and by 50 percent in total value as a result of Mexico's measures restrictions on GE corn."[246] Without further explanation or support, the United States assumes that the decline in its white corn exports is a result of the measures it alleges in this case, without considering other factors such as those highlighted by Mexico ("market competition conditions unrelated to the matter at issue in this dispute"[247]) that influence the trade of this product.

188. The competition conditions indicated by Mexico in its Initial Written Submission mainly refer to South Africa's participation as a supplier of white corn during 2022 and 2023. Specifically, Mexico stated:[248]

[[" [redacted] "]]

243 *See* Mexico's Initial Written Submission, ¶¶ 350 and 351.

244 *See* Mexico's Initial Written Submission, ¶¶ 236-249.

245 U.S. Rebuttal Submission, ¶ 50.

246 U.S. Rebuttal Submission, ¶ 50.

247 Mexico's Initial Written Submission, ¶ 241.

248 Mexico's Initial Written Submission, ¶ 241.

189. It is revealing that the United States has not addressed this point, as it is the reason why white corn imports to Mexico from the United States decreased and not as a result of the measures in dispute in this case.

190. To better understand South Africa's participation in the Mexican white corn market during 2022 and 2023, it is necessary to provide more context on the conditions in Mexico during these years.

191. In 2022, there was a significant increase in inflation, prompting the Mexican government to issue the Package Against Inflation and Scarcity on May 4, 2022.[249] This package aimed to reduce inflation and the decline in consumption through various measures, including the temporary exemption from import tariff payments for products that are part of the basic basket and inputs such as rice, tuna, onion, beans, corn flour, wheat flour, eggs, white corn, apples, oranges, sorghum, wheat, and carrots, among others.[250]

192. On May 16, 2022, the President of Mexico issued a Decree exempting white corn, among other products, from import tariffs.[251] This allowed white corn from any country in the world to be imported into Mexico duty-free, which explains the appearance of white corn from South Africa in Mexico and the growth of its imports to the detriment of those from the United States. Therefore, contrary to the United States' claims, the decrease in its white corn exports to Mexico was not due to the measures alleged before this Panel but to market competition factors.

193. It is very unfortunate that the United States tries to support its supposed trade impact with "anecdotal evidence",[252] without any document or identification that would allow for the verification of its claim, *i.e.*, "hearsay evidence". This should not be allowed by the Panel and should be dismissed.

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249 *See* Government of Mexico, "*Package Against Inflation and Scarcity (PACIC by its acronym in Spanish),* 2022. **MEX-392**

250 Decree exempting the following goods from import duties, 16 May 2022, **MEX-393**.

251 Decree exempting the goods indicated from import duties, 16 May 2022, tariff item 1005.90.04, **MEX-393**.

252 U.S. Rebuttal Submission, ¶ 51.

194. These accusations cannot be taken lightly and require clear and convincing evidence to substantiate them. The more serious the claims in a State-to-State dispute, the greater the *burden of proof* and the *standard of proof* that must be met, and basing an alleged trade challenge on "anecdotal evidence" can not substitute for the United States' obligations.

195. It is important to remember that the United States' accusations are based on the statement of an alleged U.S. white corn supplier[253] without mentioning who this supposed supplier is and what the alleged economic impact has been. The Panel will be able to corroborate that the United States' accusations are simply that *accusations* since the evidence is completely nonexistent.

196. International dispute resolution procedures are governed by two main procedural standards: the *burden of proof* and the *standard of proof.*

197. The first of these, the burden of proof, is based on the principle *onus probandi incumbit actori*, which means that the party making an allegation must assume the responsibility of proving it. This is incontrovertible and has even been recognized by the United States in other forums. As the International Court of Justice indicated in the *Avena* case: "[b]oth Parties recognize the well-settled principle in international law that a litigant seeking to establish the existence of a fact bears the burden of proving it".[254]

198. The second principle, the standard of proof, consists of the degree of proof necessary to demonstrate a fact or allegation, *i.e.*, it answers the question of how much evidence is needed to prove an aspect in dispute. The tribunal in *Rompetrol v. Rumania* explained it as follows:

> [T]he burden of proof defines which party has to prove what in order for its case to prevail; the standard of proof defines how much evidence is needed to establish either an individual issue or the party's case as a whole.[255]

199. It is widely accepted that the party alleging facts or claims of considerable gravity against a State—such as those presented today by the United States—must meet a high and convincing

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253 U.S. Rebuttal Submission, ¶ 51.

254 *Avena and Other Mexican Nationals* (Mexico v. United States of America), Judgment, I.C.J. Reports 2004, ¶ 55, **MEX-394**.

255 *Rompetrol Group N.V. v. Romania*, ICSID Case No. ARB/06/3, Award, 6 May 2013, ¶ 178, **MEX-395**.

standard of proof.[256] According to the famous conclusion of Judge Higgins in the *Case Concerning Oil Platforms*, "the graver the charge the more confidence there must be in the evidence relied on."[257] This means that the party alleging facts of considerable gravity not only has the burden of proof to demonstrate such an allegation but also that the evidence presented must meet a high, clear, and convincing standard of proof. As the Panel will observe, the United States' accusations based on "anecdotal evidence" do not meet the minimum standard of proof required to substantiate them.

200. While Article 10.4 of the Rules of Procedure states that "[i]n appropriate circumstances, a disputing Party may submit anonymous testimony and redacted evidence", the United States does not even explain, let alone prove, what the appropriate circumstances were to consider the "anecdotal evidence" as anonymous testimony. They did not even bother to explain these circumstances. This should not be allowed by the Panel and should be dismissed.

201. Additionally, all undisputed elements by the United States regarding the alleged impact caused by the End-Use Limitation and the Substitution Instruction should be taken into account:

202. *First*. The United States does not dispute that the 2023 Decree establishes specific actions for the agencies of the Federal Public Administration in Mexico, and not for private individuals.[258]

203. *Second*. The United States does not dispute that the 2023 Decree only regulates the use of GM corn in Mexico, regardless of whether it is domestically produced or imported,[259] and this must be done strictly in accordance with the applicable regulations.

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256 *Corfu Channel case*, Judgment of April 9th, 1949: I.C.J. Reports 1949, p. 17. ("A charge of such exceptional gravity against a State would require a degree of certainty that has not been reached here.") **MEX-396**. *Application of the Convention on the Prevention and Punishment of the Crime of Genocide* (Croatia v. Serbia), Judgment, I.C.J. Reports 2015, ¶ 178 ("The Court, after recalling that "claims against a State involving charges of exceptional gravity must be proved by evidence that is fully conclusive"") **MEX-397**.

257 *The Case Concerning Oil Platforms* (Iran v. U.S.), Separate Opinion of Judge Higgins, 2003, ¶ 33, **MEX-398**.

258 Mexico's Initial Written Submission, ¶ 258.

259 Mexico's Initial Written Submission, ¶ 253.

204. *Third*. The United States does not dispute that, under Mexican law, prohibitions on the importation of goods are established in the Law of General Taxes of Import and Export (LIGIE), in which corn is not listed as a good whose importation is prohibited.[260]

205. *Fourth*. The United States does not dispute that yellow corn imports to Mexico increased from 2022 to 2023.[261]

206. *Fifth*. The United States does not dispute that the main export product involved in this dispute is yellow corn, not white corn.[262]

207. *Sixth*. The United States does not dispute that yellow corn is used primarily for animal feed and purposes other than human consumption.[263]

208. *Seventh*. The United States concedes that the Substitution Instruction relates to yellow corn and not white corn.[264]

209. Finally, the United States argues that "U.S. biotechnology companies will not commercialize a new GE product, and U.S. farmers will not begin growing it, until it is evaluated and can be lawfully marketed in the United States and in key export markets" and adds that "the uncertainty already created by the Substitution Instruction—and any present effects that flow therefrom—the measure's future impacts on trade are also obvious".[265] However, it is not clear how all this alleged uncertainty generated by the disputed measures justifies increased imports of yellow corn from the United States to Mexico. The United States' argument simply does not make sense.

210. Another revealing piece of information that undermines the United States' argument of a supposed trade impact on its corn exports due to the End-Use Limitation and the instructions for

260 Mexico's Initial Written Submission, ¶ 271.
261 Mexico's Initial Written Submission, ¶¶ 247-249.
262 Mexico's Initial Written Submission, ¶ 248.
263 Mexico's Initial Written Submission, ¶ 236.
264 U.S. Rebuttal Submission, ¶ 261.
265 U.S. Rebuttal Submission, ¶¶ 49-50.

Gradual Substitution is the behavior of white corn imports from the United States to Mexico in 2024.

211. The United States claims that "U.S. and Mexican businesses are negatively affected in their business plans and commercial relationships as a result of the uncertain market access for U.S. yellow corn."[266] However, the volume of white corn imports from the United States to Mexico has increased during 2024. [[ ]]

212. The increase in United States' corn exports to Mexico is also reflected in viewing Mexico's demand for corn, which clearly would not exist if there were an impact as claimed by the United States. However, it is evident that this is not the case, as seen from the following:

> Mexico's surging demand for imported corn remains a contributor to U.S. corn supply and demand fundamentals. Mexico is just beginning a cycle of large corn imports which is likely to continue for several more years, and possibly longer, if Mexican weather conditions fail to improve. USDA in its April report raised 2023/24 Mexican corn imports by 500,000 MTs to a record 21.2 MMTs. This follows guidance from the USDA attache' in Mexico that suggested 2023 production in Mexico had been overstated. U.S. export commitments to Mexico as of April 4, 2024, totaled 735 million bushels, up 190 million bushels (35%) from last year. **USDA is expected to raise Mexican corn imports in crop year 2024/25 by another 1-2 MMTs**. Total U.S. corn exports could be raised by 50 million bushels in upcoming reports based on the strength of exports to Mexico.[268] (Énfasis añadido)

213. Other elements that support the lack of trade impact include the inspection of corn for export to Mexico, as well as the redirection of exports:

> The U.S. forecasted 20.6 million tons of corn to Mexico in the 2023/24 marketing year. Corn inspected for export to Mexico totals 9.4 million tons this marketing year, 38% above the five-year average.

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266 U.S. Rebuttal Submission, ¶ 261.

267 Ministry of Economy figures extracted from the databases of the National Customs Agency of Mexico.

268 U.S. Grains Council, "*Market Perspectives – April 18, 2024*", 18 de abril de 2024, **MEX-399.**

> U.S. corn exports are shifting away from China and toward Mexico as consumer demand for livestock products continues to support feed demand south of the border.[269]

214. In fact, the USDA itself has projected an increase in United States' exports to Mexico due to Mexico's weather conditions, noting that "Mexico corn imports are projected at a record 21.8 million tons, up 700,000 tons. While domestic production is forecast higher than the drought-affected crop of 2023/24, it is expected to be below the level of recent years. As Mexico draws from stocks to stabilize the current year, further imports in 2024/25 will be required to support modest growth in consumption" (emphasis added).[270]

V. LEGAL ARGUMENT

A. The "Gradual Substitution" instructions in Articles 7 and 8 of the 2023 Decree do not constitute an SPS Measure within the Meaning of Annex A.1 of the SPS Agreement

215. In Mexico's Initial Written Submission, Mexico explained that Articles 7 and 8 of the 2023 Decree constitute an executive order calling on "the agencies and entities of the Federal Public Administration" to "carry out the appropriate actions", at some point in the future, "in order to conduct the gradual substitution of genetically modified corn for animal feed and industrial use for human food"[271]. Articles 7 and 8 are not themselves the "appropriate actions in order to conduct the gradual substitution". Those actions do not yet exist. They have not yet been designed, proposed, adopted, or implemented, let alone applied. Moreover, Article 8 provides that this must be done "in accordance with scientific principles and relevant international standards, guidelines or recommendations", and that the "relevant scientific studies will be carried out", including "a study on the consumption of genetically modified corn and the possible damages to health"[272]. How the competent authorities will develop and carry out the "appropriate actions" in accordance with these instructions remains to be seen.

216. Articles 7 and 8 of the 2023 Decree are incapable, on their own, of constituting an SPS measure within the meaning of Annex A.1 of the SPS Agreement. At most, the purpose of Articles

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269 Sarah Zimmerman, "*US corn exports to Mexico expected to hit record high*", Agriculture Dive, 11 de marzo de 2024, **MEX-400**

270 USDA "*Grain: World Markets and Trade*", mayo 2024.p. 24, **MEX-401**

271 Mexico's Initial Written Submission, ¶¶ 307-312, 350-351.

272 Mexico's Initial Written Submission, ¶¶ 307-312, 350-351.

7 and 8 is to provide directions to the competent authorities in Mexico, instructing them to "carry out the appropriate actions" to create an SPS measure. Such directions to create an SPS measure should not be conflated with the existence of an SPS measure itself, particularly where the "appropriate actions" to create the SPS measure have not yet been designed, proposed, adopted, implemented, or applied.

217. The 2023 Decree, as a Decree issued by the President of the United Mexican States, is clearly a "measure". Within the context of the Decree, the directions to the competent authorities in Articles 7 and 8 may themselves constitute a "measure". This alone, however, does not bring Articles 7 and 8 within the scope of Chapter 9 of the USMCA or the SPS Agreement. For this to be the case, Articles 7 and 8 would have to qualify as an "SPS measure" within the meaning of Annex A.1 of the SPS Agreement.

218. In this regard, Articles 7 and 8 of the 2023 Decree are not capable, on their own, of being applied for any of the purposes listed in Annex A.1 of the SPS Agreement. They are not themselves capable, for example, of being applied to protect human health or native corn in Mexico. Rather, it is the "appropriate actions" that Articles 7 and 8 instruct the competent authorities to carry out that may constitute an SPS measure at some point in the future. Again, those "appropriate actions in order to conduct the gradual substitution" have not yet been developed, let alone carried out. In the meantime, there exists no regulatory or administrative mechanism to facilitate the "gradual substitution" mentioned in Articles 7 and 8. Thus, nothing related to the "Gradual Substitution" can be "applied to" protect human health and/or native corn in Mexico until the competent authorities have developed and implemented the "appropriate actions".

219. This is why Mexico has explained that the claims raised by the United States against the "Gradual Substitution" instructions are, at best, premature.[273] Until the "appropriate actions" have actually been proposed, adopted, and applied, it cannot be determined whether they have been designed or applied in a manner that is inconsistent with Mexico's obligations under Chapter 9 of the USMCA. In this regard, the scope and structure of the "gradual substitution" measure(s), including the mechanisms, conditions, and exceptions that would be applied and the products that

[273] Mexico's Initial Written Submission, ¶¶ 4, 25, 310, 351, 392, 453, 467.

would be covered, are all currently unknown. Moreover, as previously noted, they are subject to the requirements that (i) they must be carried out "in accordance with scientific principles and relevant international standards, guidelines or recommendations", and (ii) "relevant scientific studies will be carried out", including an assessment of "possible damages to health" arising from "the consumption of genetically modified corn".[274] It cannot be assumed at this stage, before any of these steps have taken place, that the "gradual substitution" measure(s) will be inconsistent with SPS requirements under the USMCA and the SPS Agreement. Neither the United States nor Canada have responded to these points.

220. The foregoing is not merely a technical argument. Mexico is not attempting to avoid scrutiny of Articles 7 and 8 of the 2023 Decree or to prevent the Panel from examining the instructions that they contain.[275] Rather, there are important practical considerations for the Panel's evaluation of the United States' claims concerning these provisions under Chapter 9 of the USMCA.

221. One of the relevant questions, for example, is what exactly is being evaluated for consistency with the obligations under Article 9.6 of the USMCA? Is it the President's *instructions to the competent authorities* in Mexico to take the "appropriate actions in order to conduct a gradual substitution", ensuring that this is done "in accordance with scientific principles and relevant international standards, guidelines or recommendations" and that the "relevant scientific studies will be carried out"?

222. Given that no action has been taken yet in relation to these instructions, and all of the steps still remain in the future, it is only the instructions themselves that can be evaluated for consistency with the obligations under Article 9.6 of the USMCA. How can these brief instructions — which contemplate that <u>future</u> "actions" will be carried out "in accordance with <u>scientific principles</u> and <u>relevant international standards, guidelines or recommendations</u>" and that "relevant scientific studies will be carried out" — be assessed against the substantive obligations in Articles 9.6.3, 9.6.6, 9.6.7, 9.6.8, and 9.6.10 of the USMCA? Each of these obligations <u>look back</u> on whether a measure that is applied for one of the purposes listed in Annex A.1 has met certain pre-requisites

274 2023 Decree, Article 8, **MEX-167.**

275 US Rebuttal Submission, ¶ 60.

and conditions. Articles 7 and 8 expressly require those pre-requisites and conditions in relation to future actions. [276]

223. Neither the United States nor Canada have suggested how the Panel might navigate the practical implications of evaluating the instructions in Articles 7 and 8 of the 2023 Decree as an SPS measure under Article 9.6 of the USMCA. The finding that the United States seeks under Article 9.6.3, for example, would lead to an absurd and unfair outcome. [277] The United States claims that the "Gradual Substitution" instructions are not based on the relevant international standards, guidelines, or recommendations or an appropriate risk assessment. How can such a breach of Articles 9.6.3 *arise when the measure at issue expressly provides that* the "appropriate actions", which have not even been designed yet, must be carried out in "in accordance with scientific principles and relevant international standards, guidelines or recommendations" and that "relevant scientific studies will be carried out", including an assessment of the risk of "possible damages to health" related to "consumption of genetically modified corn"?

224. If the "appropriate actions" are designed and applied, as expressly required, in accordance with "relevant international standards, guidelines, or recommendations" and/or on the basis of "an assessment, as appropriate to the circumstances, of the risk to human, animal, or plant life or health", they will meet the requirements of Article 9.6.3. However, as the process of developing the "appropriate actions" under Articles 7 and 8 has not even started, an evaluation of their consistency with Article 9.6.3 is not possible at this stage. Again, this illustrates how the United

[276] For greater certainty, Mexico does not suggest that the "Gradual Substitution" instructions are consistent with the obligations under Article 9.6 of the USMCA for this reason. In Mexico's view, the instructions themselves are neither consistent nor inconsistent with these obligations because they are merely instructions and not the SPS measure that they direct the competent authorities in Mexico to create. As such, the instructions do not themselves constitute an SPS measure. In Mexico's view, the relevant question will be whether the "appropriate actions in order to conduct a gradual substitution", once they have been adopted and applied at some point in the future, are consistent with the Article 9.6 obligations.

[277] For the Panel's ease of reference, Article 9.6.3 of the USMCA provides as follows: "Each Party shall base its sanitary and phytosanitary measures on relevant international standards, guidelines, or recommendations provided that doing so meets the Party's appropriate level of sanitary or phytosanitary protection (appropriate level of protection). If a sanitary or phytosanitary measure is not based on relevant international standards, guidelines, or recommendations, or if relevant international standards, guidelines, or recommendations do not exist, the Party shall ensure that its sanitary or phytosanitary measure is based on an assessment, as appropriate to the circumstances, of the risk to human, animal, or plant life or health".

States' claim of inconsistency with Article 9.6.3 is, at best, premature. The foregoing applies equally to the United States' claims that the "Gradual Substitution" instructions are inconsistent with Articles 9.6.6 (b), 9.6.7, and 9.6.8.[278]

225. To the extent that the United States takes the position that the development process itself should not be permitted because, in the United States' view, it would be impossible for the "appropriate actions" and the "relevant scientific studies" to ever comply with the requirements in Articles 9.6.3, 9.6.6 (b), 9.6.7, or 9.6.8, Mexico disagrees. All of this still remains to be seen.[279] In Mexico's view, dispute settlement should not be used as a means to prevent the competent authorities in Mexico from undertaking the process of developing the "appropriate actions", including the "relevant scientific studies" that "will be carried out".

226. Further, Mexico recalls that the scope and structure of the future "gradual substitution" measure(s), including the mechanisms, conditions, and exceptions that would be applied and the products that would be covered, are all currently unknown. The instructions in Articles 7 and 8 of the 2023 Decree afford broad discretion to the competent authorities in Mexico to develop these aspects of the future "gradual substation" measure(s). Whether, to what extent, and how the measure(s) will be based on the "relevant international standards, recommendations, and guidelines" and/or the "relevant scientific studies" remains an open question that cannot be assessed at this stage.

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[278] For the Panel's ease of reference, Article 9.6.6 (b) of the USMCA provides that: "Each Party shall ensure that its sanitary and phytosanitary measures: … are based on relevant scientific principles, taking into account relevant factors, including, if appropriate, different geographic conditions". Article 9.6.7 provides that: "Each Party shall conduct its risk assessment and risk management with respect to a sanitary or phytosanitary regulation within the scope of Annex B of the SPS Agreement in a manner that is documented and provides the other Parties and persons of the Parties an opportunity to comment, in a manner to be determined by that Party". Article 9.6.8 provides as follows: "In conducting its risk assessment and risk management, each Party shall: (a) ensure that each risk assessment it conducts is appropriate to the circumstances of the risk to human, animal, or plant life or health, and takes into account the available relevant scientific evidence, including qualitative and quantitative data and information; and (b) take into account relevant guidance of the WTO SPS Committee and the relevant international standards, guidelines, and recommendations of the relevant international organization".

[279] As Mexico explained in its Initial Written Submission, such an assumption could lead to the unintended result of precluding or interfering with Mexico's sovereign right to design, implement and carry out regulatory actions in the public interest *before such actions have been designed, implemented or carried out*. Mexico's Initial Written Submission, ¶¶ 351, 392, 467.

227. Similarly, the findings that the United States seeks under Articles 9.6.6 (a) and 9.6.10 would also lead to absurd and unfair outcomes.[280] As the "appropriate actions" have not yet been "selected" or carried out by the competent authorities, it is not possible at this stage to determine whether they will be applied beyond the extent necessary to protect human health and/or native corn in Mexico or whether they will be more trade restrictive than necessary to achieve the level of protection that Mexico has determined to be appropriate (further to the "relevant scientific studies" that "will be carried out").

228. The foregoing also illustrates an important practical reason why a measure needs to be "applied" for one of the purposes listed in Annex A.1 to qualify as an SPS measure. A violation of the obligations under Article 9.6 cannot arise until the measure is "applied" because, up until this point, the Party adopting the measure still has the opportunity to take whatever steps might be necessary to ensure that the pre-requisites and other conditions in Articles 9.6.3, 9.6.6, 9.6.7, 9.6.8, and 9.6.10 have been satisfied.

229. The United States argues that the "Gradual Substitution" instructions constitute "a final, adopted measure currently in effect".[281] It argues that the "fact" that this measure "does not delineate every detail as to how the agencies must carry out the provisions of this set of measures does not make it any less final".[282] To the extent that the instructions in Articles 7 and 8 of the 2023 Decree constitute "a final, adopted measure currently in effect", it is not an SPS measure within the meaning of Annex A.1 of the SPS Agreement, let alone "a final, adopted [SPS] measure currently in effect". As Mexico has explained above, the "Gradual Substitution" instructions are only exactly that — executive instructions to the competent authorities in Mexico. The "appropriate actions" that they instruct the competent authorities in Mexico to carry out, "in order to conduct the gradual substitution", may constitute an SPS measure at some point in the future (to

280 For the Panel's ease of reference, Article 9.6.6 (b) provides that: "Each Party shall ensure that its sanitary and phytosanitary measures: … (a) are applied only to the extent necessary to protect human, animal or plant life or health". Similarly, Article 9.6.10 provides that: "each Party shall select a sanitary or phytosanitary measure that is not more trade restrictive than required to achieve the level of protection that the Party has determined to be appropriate".

281 US Rebuttal Submission, ¶ 61.

282 US Rebuttal Submission, ¶ 59.

the extent that they are applied for one or more of the purposes listed in Annex A.1 of the SPS Agreement). However, those actions are currently as far as they could be from being "final", "adopted", or "in effect" — they have not even been designed yet.

230. The United States' assertion that "the Substitution Instruction does not delineate every detail as to how the agencies must carry out the provisions of this set of measures"[283] is misleading. The fact is that the instructions do not delineate any of the details as to how the "gradual substitution" would be carried out. In this regard, the scope and structure of the future "gradual substitution" measure(s), including the mechanisms, conditions, and exceptions that would be applied and the products that would be covered, are all currently unknown.

231. Moreover, the competent authorities in Mexico must develop these details pursuant to the instructions in Articles 7 and 8 of the 2023 Decree, which require that the future measure(s) shall be carried out "based on supply sufficiency criteria, consistent with the country's food self-sufficiency policies" and "in accordance with scientific principles and relevant international standards, guidelines or recommendations". The instructions also provide that the "relevant scientific studies will be carried out", including "a study on the consumption of genetically modified corn and the possible damages to health". It is not known how the competent authorities will develop and carry out the "appropriate actions" in light of these requirements. Given that no action has been taken yet in relation to these instructions, and all of the steps still remain in the future, it is clear that there is nothing "final", "adopted", or "in effect" with respect to the "appropriate actions in order to conduct the gradual substitution".

232. The United States also describes the "Gradual Substitution" instructions in Articles 7 and 8 of the 2023 Decree as "a clear dictate to displace GE corn for certain uses with non-GE corn"[284] and "an unambiguous instruction to substitute GE with non-GE corn for certain end uses".[285] For the same reasons as those outlined in the paragraph above, Mexico disagrees with these characterizations. It is neither "clear" nor "unambiguous" from the text of Articles 7 and 8 whether, to what extent, or how the future "gradual substitution" measure(s) will eventually be carried out.

283 US Rebuttal Submission, ¶ 59.

284 US Rebuttal Submission, ¶ 56.

285 US Rebuttal Submission, ¶ 58.

The terms of the instructions provide the competent authorities with broad discretion to develop the scope and structure of the measure(s), including the mechanisms, conditions, and exceptions that would be applied and the products that would be covered. Given the express requirements for the "relevant scientific studies" to be carried out, and for the future measure(s) to be carried out "based on supply sufficiency criteria, consistent with the country's food self-sufficiency policies", and "in accordance with scientific principles and relevant international standards, guidelines or recommendation, there is no basis on which to speculate that the future "gradual substitution" measure(s) would be so simple, total or unconditional.

233. Canada, in its Third-Party Submission, alleges that Mexico's interpretation of the word "applied" in Annex A.1 of the SPS Agreement "reflects a failure to interpret that term in its context and in the light of the object and purpose of Annex A(1)".[286] For the reasons set out below, this allegation lacks merit. Canada's arguments do not establish any error in Mexico's interpretation of the term "applied" in Annex A.1. Moreover, Canada fails to explain how the term "applied" in Annex A.1 does not mean that a measure must be "applied" for a purpose listed in Annex A.1 of the SPS Agreement to qualify as an SPS measure.[287]

234. In its arguments regarding the interpretation of Annex A.1, Canada places emphasis on the meaning of the word "to", arguing that it " it establishes a required link between the measure and the protected interest" in Annex A.1.[288] Mexico agrees. This part of Canada's interpretation is consistent with the ordinary meaning of the verb "to apply" that Mexico cited in its Initial Written Submission: i.e., "to employ, administer or put into practice a … measure … in order *to obtain a certain effect or performance* on someone or something".[289]

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286 Canada's Third-Party Submission, ¶ 25.

287 Mexico's Initial Submission, ¶ 304-305, 307-312.

288 Canada's Third-Party Submission, ¶ 26.

289 Mexico's Initial Submission, ¶ 305 ("The Appellate Body has considered that: 'the word "applied" points to the application of the measure'. The term 'applied' is the participle of the verb 'to apply'. The ordinary meaning of 'apply' is 'to employ, administer or put into practice a knowledge, measure or principle in order to obtain a certain effect or performance on someone or something' or 'to put into practice or exercise something so that it has a certain effect on something or someone'").

235. However, to the extent that Canada suggests that the term "applied" is therefore merely "used to serve as a connector between the measure and the purposes listed in Annex A(1)",[290] Mexico disagrees. Canada's interpretation would read the word "applied" out of the text of Annex A.1 altogether. The meaning proposed by Canada, which is simply to indicate a "nexus" or "link" between the measure at issue and one of the purposes listed in Annex A.1, would be given by the phrase "[a]ny measure: … to protect/prevent …", without any need to include the verb "applied". Moreover, as Mexico observed in its Initial Written Submission,[291] the terms of Annex A.1 use the verb "applied" as opposed to other verbs that could have been used alone or in combination (e.g., designed, adopted, intended, proposed, related, etc.). In Mexico's view, the use of the word "applied" in Annex A.1 must be given meaning. As Mexico has previously explained, there are important practical reasons for requiring a measure to be "applied" in order to qualify as an "SPS measure" within the scope of the obligations under the SPS Agreement.

236. Canada also alleges that "[a]n argument that a measure must be 'implemented' to fall within the scope of Annex A(1) would lead to an absurd result" because "some of the key provisions of the SPS Chapter that explicitly discipline the steps that apply prior to the implementation of an SPS measure would become inutile".[292] First, Mexico's arguments are that a measure must be "applied" in order to fall within the scope of Annex A.1 and, in the circumstances of this case, the "appropriate actions" contemplated in the instructions in Articles 7 and 8 of the 2023 Decree have not yet been designed, proposed, adopted, or implemented, let alone applied. It seems obvious that, in order to be "applied", a measure must be "implemented". Nonetheless, it is unnecessary to quibble over the term "implemented". While this is one part of Mexico's argument, it is not the entire point.

237. Second, giving meaning to the words "applied … to" in the definition for "SPS measure" under Annex A.1 does not render inutile any of the provisions of the USMCA or the SPS Agreement, including those that impose the pre-requisites for a *compliant* SPS measure.

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290 Canada's Third-Party Submission, footnote 27 to ¶ 26.

291 Mexico's Initial Submission, ¶ 306.

292 Canada's Third-Party Submission, ¶ 27.

238. Canada does not explain how the provisions that it identifies — Articles 9.6.3 and 9.6.10 of the USMCA — would be rendered inutile by the requirement for a measure to be "applied" for one of the purposes listed in Annex A.1 of the SPS Agreement. These obligations each presuppose the existence of an SPS measure and impose specific requirements (or pre-requisites) upon it. Article 9.6.3 disciplines the basis of the SPS measure, and Article 9.6.10 disciplines the selection of the SPS measure. These obligations do not operate in isolation from the SPS measure at issue. For example, the question of whether a Party has *complied with* or *violated* Article 9.6.3 only arises with respect to an SPS measure that is challenged by another Party. The issue in dispute between these Parties is whether, looking back, the responding Party based the SPS measure on the "relevant international standards, guidelines, or recommendations" or on "an assessment, as appropriate to the circumstances, of the risk to human, animal, or plant life or health". Clearly, requiring an SPS measure to be "applied" for one of the purposes listed in Annex A.1 before it becomes subject to the international obligations under Article 9.6.3 of the USMCA does not render those obligations in any way inutile.

239. Moreover, as a very practical matter, Mexico considers that a violation of the international obligations under Article 9.6 of the USMCA — including those under Articles 9.6.3 and 9.6.10 — cannot arise until the measure is "applied" for one of the purposes listed in Annex A.1. This is because, up until the point when the measure is applied, the Party adopting the measure still has the opportunity to take whatever steps might be necessary to ensure that the pre-requisites and other conditions set forth in the provisions of Article 9.6 have been met.

240. Canada also argues that "[i]nterpreting the term 'applied to' as requiring a measure to be 'implemented' would also preclude measures from being challenged under the SPS Chapter on an 'as such' basis even if it is clear from their design, text, structure and regulatory context that they are aimed at protecting against one of the risks listed in Annex A(1)".[293] Mexico does not understand how the "application" of a measure would preclude an "as such" challenge. Requiring a measure to be "applied" for an SPS purpose within the meaning of Annex A.1 in no way prevents a complaining USMCA Party or WTO Member from making an "as such" challenge of the measure (e.g., on the basis of the text of the written legal instrument setting forth the measure).

[293] Canada's Third-Party Submission, footnote 29 to ¶ 27.

241. As Mexico has previously explained, Articles 7 and 8, on their own, are incapable of being "applied" for any of the purposes listed in Annex A.1. More specifically, they are not capable of being "applied … to protect" human health and/or native corn in Mexico. Rather, to the extent that they constitute a measure that is currently being "applied" to someone or something, they are being applied to direct the competent authorities in Mexico to carry out the "appropriate actions", at some point in the future, "in order to conduct the gradual substitution", subject to the instructions and requirements that have already been discussed in detail above. In other words, their purpose is to direct the competent authorities in Mexico to *create* the "gradual substitution" measure(s). In Mexico's view, executive instructions issued to the competent authorities to carry out the "appropriate actions" necessary to create an SPS measure, including the "relevant scientific studies", should not be conflated with the existence of an SPS measure itself.

B. Arguendo, to the extent that the Panel considers the "Gradual Substitution" instructions to be an SPS measure, they constitute an unimplemented provisional measure covered by Articles 9.6.4(c) and 9.6.5 of the USMCA

242. Mexico's principal argument in its Initial Written Submission was clearly that the "Gradual Substitution" instructions in Articles 7 and 8 of the 2023 Decree do not constitute an SPS measure within the meaning of Annex A.1 of the SPS Agreement or Article 9.2 of the USMCA.[294] Mexico then explained that its further arguments "with respect to the 'Gradual Substitution' are presented *arguendo*, in case the Panel disagrees with Mexico's interpretation and considers that the 'Gradual Substitution' is being 'applied' for the SPS purposes listed in Annex A.1 of the SPS Agreement".[295]

243. One of these further arguments was that, "[i]n the event that the Panel disagrees with Mexico and concludes that 'Gradual Substitution' is in fact an SPS measure that is subject to the obligations under Chapter 9 of the USMCA, Mexico contends that it is a provisional measure that must be assessed under Articles 9.6.4(c) and 9.6.5 of the USMCA".[296] This argument was therefore expressly and clearly made on an *arguendo* basis.[297]

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294 Mexico's Initial Written Submission, ¶ 307-312.

295 Mexico's Initial Written Submission, ¶ 312.

296 Mexico's Initial Written Submission, ¶ 352.

297 Mexico's Initial Written Submission, ¶ 312, 350-352, 360, 393, 454, 485.

244. Moreover, as elaborated below, this argument is part of Mexico's response to the United States' premature and confusing claims that the mere instructions in Articles 7 and 8 of the 2023 Decree, on their own, are somehow inconsistent with the substantive SPS obligations under Article 9.6 of the USMCA. The United States' allegations that this argument is "*ex post*" in nature[298] and a "litigation tactic"[299] are therefore inappropriate and without merit.

245. For the reasons discussed in the preceding section, Mexico's position remains firmly that the instructions in Articles 7 and 8 of Decree 2023 are incapable, on their own, of constituting an SPS measure "applied to protect" human health and native corn in Mexico within the meaning of Annex A.1 of the SPS Agreement. They are merely instructions to the competent authorities in Mexico, directing them to carry out the "appropriate actions in order to conduct a gradual substitution" at some point in the future, subject to the requirements that have already been discussed in detail above. The "appropriate actions" themselves do not yet exist in any form. They have not been designed, proposed, adopted, or implemented yet, let alone applied. As such, the scope and structure of the future "gradual substitution" measure(s), including the mechanisms, conditions, and exceptions that would be applied and the products that would be covered, are all currently unknown.

246. As Mexico has explained, the executive instructions issued to the competent authorities to carry out the "appropriate actions" necessary to create an SPS measure (including the "relevant scientific studies"), should not be conflated with the existence of an SPS measure itself. Mexico's competent authorities should not be prevented from undertaking the process of carrying out the "relevant scientific studies" and developing the "appropriate actions", as contemplated in Articles 7 and 8 of the 2023 Decree. This is why Mexico has explained that the claims raised by the United States against the "Gradual Substitution" instructions in Articles 7 and 8 are, at best, premature.

247. If the Panel disagrees with Mexico's position and determines that the instructions in Articles 7 and 8, on their own, constitute an SPS measure within the meaning of Annex A.1 of the SPS Agreement and Article 9.2 of the USMCA, there remain important practical implications for the evaluation of the United States' claims under the provisions of Article 9.6 of the USMCA.

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298 US Rebuttal Submission, ¶ 65

299 US Rebuttal Submission, ¶ 62.

Mexico outlined these problems in the preceding section, above. For the purposes of this discussion of Mexico's *arguendo* submissions, these considerations are briefly summarized as follows:

a. The instructions in Articles 7 and 8 require that the future "gradual substitution" measure(s) must be carried out through "appropriate actions", "in accordance with scientific principles and relevant international standards, guidelines or recommendations", and that "relevant scientific studies will be carried out", including an assessment of "possible damages to health" arising from "the consumption of genetically modified corn".

b. No actions have been carried out yet in relation to these instructions, and all of the steps still remain in the future.

c. In the context of dispute settlement, the substantive obligations in Articles 9.6.3, 9.6.6, 9.6.7, 9.6.8, and 9.6.10 of the USMCA each look back on whether the SPS measure at issue has met certain pre-requisites and conditions.[300]

d. It would be an absurd and unfair outcome if the instructions in Articles 7 and 8 were found to be inconsistent with these obligations, given that (i) the instructions *expressly* require the competent authorities in Mexico to carry out the "relevant scientific studies" and to carry out the future "gradual substitution" measure(s) "in accordance with scientific principles and relevant international standards, guidelines or recommendations", (ii) the competent authorities *have not yet started to carry out the instructions*, (iii) none of the "appropriate actions" have been developed yet, let alone proposed or adopted, and (iv) the mechanism to conduct the "gradual substitution" has not even been designed yet.

[300] These pre-requisites and conditions include, *inter alia*, that: the measure is based on either "relevant international standards, guidelines, or recommendations" or "an assessment, as appropriate to the circumstances, of the risk to human … health" (Article 9.6.3); the measure is "based on relevant scientific principles" (Article 9.6.6 (b)); each risk assessment and risk management is "appropriate to the circumstances of the risk" (Article 9.6.8 (a)), takes into account "the available relevant scientific evidence" (Article 9.6.8 (a)) and "the relevant international standards, guidelines, and recommendations of the relevant international organization" (Article 9.6.8 (b)), and is conducted "in a manner that is documented and provides … an opportunity to comment" (Article 9.6.7); the adopting Party "selects" a measure that is "not more trade restrictive than required to achieve the [appropriate] level of protection" (Article 9.6.10); and this measure is "applied only to the extent necessary to protect human … health" (Article 9.6.6 (a)).

248. Under these circumstances, Mexico cannot understand how the instructions in Articles 7 and 8 of the 2023 Decree could reasonably be assessed for compliance with the substantive obligations in Articles 9.6.3, 9.6.6, 9.6.7, 9.6.8, and 9.6.10 of the USMCA at this stage.

249. To navigate this dilemma, Mexico considered, on an *arguendo* basis, that if Articles 7 and 8 of the 2023 Decree were determined to be an SPS measure, the terms of these provisions indicate the "provisional character" of such a measure.[301] Specifically, the instructions in Articles 7 and 8 provide that the "relevant scientific studies will be carried out" and that the "appropriate actions in order to conduct the gradual substitution" will be carried out "in accordance with scientific principles and relevant international standards, guidelines or recommendations".[302] These requirements are broadly aligned with the three conditions set forth in Article 9.6.5, even though no "gradual substitution" mechanism has been "adopted" or "maintained" yet. In this regard, Mexico specified in its Initial Written Submission that: "If the Panel … determines … that the 'Gradual Substitution' is in fact an SPS measure that is currently being applied, Mexico submits that it is a provisional SPS measure <u>that has not yet been implemented</u>".[303] This is an important point. The fact that none of the "appropriate actions" have been carried out, and no "gradual substitution" mechanism has been adopted or maintained, limits how far the analysis under Article 9.6.5 can reasonably proceed at this stage.

250. Articles 9.6.4 (c) and 9.6.5 of the USMCA, in keeping with Article 5.7 of the SPS Agreement, permit a Party to "adopt" or "maintain" an SPS measure "on a provisional basis" in circumstances where "relevant scientific evidence is insufficient". In the context of WTO dispute settlement, the Appellate Body has considered that "the relevant scientific evidence is 'insufficient' where 'the body of available scientific evidence does not allow, in quantitative or qualitative terms, the performance of an adequate assessment of risks".[304] In this regard, the Appellate Body has explained that:

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301 Mexico's Initial Written Submission, ¶ 357-360.

302 Mexico's Initial Written Submission, ¶ 357-360.

303 Mexico's Initial Written Submission, ¶ 393 and 454 [*underline emphasis added*].

304 Appellate Body Report, *US — Continued Suspension*, ¶ 677 (**Exhibit MEX-294**), citing Appellate Body Report, *Japan – Apples*, ¶ 179 (**Exhibit MEX-327**).

> When determining whether such deficiencies exist, a Member must not exclude from consideration relevant scientific evidence from any qualified and respected source. Where there is, among other opinions, a qualified and respected scientific view that puts into question the relationship between the relevant scientific evidence and the conclusions in relation to risk, thereby not permitting the performance of a sufficiently objective assessment of risk on the basis of the existing scientific evidence, then a Member may adopt provisional measures under Article 5.7 on the basis of that qualified and respected view.[305]

251. The Appellate Body has also explained that the right to adopt or maintain a provisional measure under Article 5.7 "contemplates situations where there is some evidentiary basis indicating the possible existence of a risk, but not enough to permit the performance of a risk assessment".[306]

252. If a Party "adopts or maintains" a provisional SPS measure, Article 9.6.5 of the USMCA requires the Party to carry out the following actions "within a reasonable period of time": (a) seek to obtain the additional information necessary for a more objective assessment of risk; (b) complete the risk assessment after obtaining the requisite information; and (c) review and, if appropriate, revise the provisional measure in light of the risk assessment.[307] These conditions are consistent with those set out in the second sentence of Article 5.7 of the SPS Agreement. As Mexico explained in its Initial Written Submission, the Appellate Body has noted that the conditions that apply to provisional SPS measures under Article 5.7 "must be interpreted keeping in mind that the precautionary principle finds reflection in this provision".[308]

253. The basis for the 2023 Decree, including the instructions in Articles 7 and 8, was the assessment of risks in the "*Scientific Record on glyphosate and GM crops*" (2020) prepared by CONAHCYT and the collection of relevant studies in the National Biosafety Information System (SNIB) maintained by CIBIOGEM.[309]

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[305] Appellate Body Report, *US — Continued Suspension*, ¶ 677 (**Exhibit MEX-294**); Appellate Body Report, *Korea – Radionuclides (Japan)*, ¶ 5.106 (**Exhibit MEX-291**).

[306] Appellate Body Report, *US — Continued Suspension*, ¶ 678 (**Exhibit MEX-294**).

[307] Mexico's Initial Written Submission, ¶ 354, 356.

[308] Mexico's Initial Written Submission, ¶ 355, citing Appellate Body Report, *US — Continued Suspension*, ¶ 680 (**Exhibit MEX-294**).

[309] Mexico's Initial Written Submission, ¶ 27, 314, 397.

254. As Mexico explained in its Initial Written Submission, the Dossier and the associated scientific studies presented clear scientific evidence of the risks of harmful effects arising from the direct consumption of transgenic proteins and glyphosate residues in GE corn grain.[310] As Mexico has previously explained, these risks are particularly concerning in Mexico due to the very high quantities of whole corn grain that are directly consumed on a daily basis in staple foods made from nixtamalized masa, such as tortillas. However, the scientific evidence also disclosed that transgenic material and glyphosate residues were flowing into industrially processed food products, such as breakfast cereals and snacks.[311]

255. Taken collectively, Mexico considers this information to establish, at minimum, an "evidentiary basis indicating the possible existence of a risk" in relation to industrially processed foods and animal products made with GE corn grain, although "not enough to permit the performance of a risk assessment".[312] As explained in Mexico's Initial Written Submission, "more scientific evidence is needed to determine whether, and to what extent, such risks [that arise in relation to the direct consumption of GE corn grain] are transmitted to food products further downstream".[313]

256. In this regard, the instructions in Articles 7 and 8 of the 2023 Decree require the competent authorities in Mexico to carry out (i) "the relevant scientific studies", including a "study on the consumption of genetically modified corn and the possible damages to health", and (ii) "the appropriate actions in order to conduct the gradual substitution", which must be done "in accordance with scientific principles and relevant international standards, guidelines or recommendations". These instructions are broadly consistent with the conditions set out in Article 9.6.5. The instructions to carry out the "relevant scientific studies" are consistent with the condition to "seek to obtain the additional information necessary for a more objective assessment of risk",

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310 Mexico's Initial Written Submission, ¶ 131-136, 175-180, 193, 314; CONAHCYT, "*Scientific Record on Glyphosate and GM Crops*" (2020), pp. 7, 10 ("Transgenics", left column), 17-18 (**Exhibit MEX-085**), citing, *inter alia*, González-Ortega, E., Piñeyro-Nelson, A., Gómez-Hernández, E., Monterrubio-Vázquez, E., Arleo, M., Dávila-Velderrain, J., Martínez-Debat C. and Álvarez-Buylla E. R., "*Pervasive presence of transgenes and glyphosate in corn-derived food in Mexico*", 2017) (**MEX-125**).

311 Ibid.

312 Appellate Body Report, *US — Continued Suspension*, ¶ 678 (**Exhibit MEX-294**).

313 Mexico's Initial Written Submission, ¶ 358.

after which the risk assessment could be completed, and "appropriate" changes to the future "gradual substitution" measure(s) could be made.

257. Mexico recalls that no action has been taken yet in relation to the instructions in Articles 7 and 8 of the 2023 Decree. No "gradual substitution" mechanism has been designed or proposed, let alone "adopted" or "maintained". All of these steps remain in the future. If Mexico had already implemented substantive measures, such that a gradual substitution was *actually taking place* on a provisional basis, then the clock would be ticking on the "reasonable period of time" for the steps set out in Article 9.6.5, including the "relevant scientific studies". However, this is not the case. As even the process of developing the "appropriate actions to conduct the gradual substitution" has not been started yet, it cannot be said that Mexico has already failed to complete the three conditions under Article 9.6.5 "within a reasonable period of time". In this regard, Mexico recalls that what constitutes a "reasonable period of time" has to be established on a case-by-case basis, based upon the particular facts and circumstances of a given case.[314]

258. The United States argues that the "Gradual Substitution" instructions are "plainly not 'provisional'", but rather a "final, adopted measure currently in effect".[315] As Mexico has explained in the preceding section, Mexico's principal position is that the instructions in Articles 7 and 8 of the 2023 Decree do not constitute an SPS measure at all, provisional or otherwise. To the extent that they are a "final, adopted measure currently in effect", they are a "final, adopted" *non-SPS* measure. However, if the Panel determines that the "Gradual Substitution" instructions are an SPS measure within the meaning of Annex A.1 of the SPS Agreement, Mexico submits, *arguendo*, that they constitute a provisional SPS measure that has clearly not been implemented.

259. The United States further argues that the "Gradual Substitution" instructions have not met the "conditions for the legitimate adoption of a provisional measure under Articles 9.6.4(c) and 9.6.5 of the USMCA".[316] In this regard, the United States focuses on the condition that "a provisional measure is only permissible under Chapter 9 of the USMCA where the scientific

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314 Mexico's Initial Written Submission, ¶ 354, citing Appellate Body Report, *US — Continued Suspension*, ¶ 680 (**Exhibit MEX-294**).

315 US Rebuttal Submission, ¶ 61.

316 US Rebuttal Submission, ¶ 62.

evidence is 'insufficient'".[317] It alleges that "evidentiary limitations are not present here, as safety assessments of GE plants and animal-derived commodities are routinely overseen by national regulators, including in Mexico";[318] and "Mexico has traditionally assessed and authorized GE corn events for use in animal feed, as well as for human consumption, so Mexico's suggestion that it does not have sufficient information to assess the safety of animal feed is belied by the very authorizations it has issued".[319] As previously discussed, the process of assessing and authorizing GE corn events relies on the information and data submitted by the applicants, and Mexico has determined that this is not sufficient to address the risks posed by GE corn grain in Mexico.

260. Although Mexico is clearly concerned not only with glyphosate residues in GE corn grain, but also with transgenic proteins, the United States argues that "[t]o the extent Mexico focuses on glyphosate residues in processed corn products … studies have already determined that glyphosate residues do not concentrate in processed corn commodities".[320] To support this allegation, the United States cites a memorandum prepared by the US Environmental Protection Agency (EPA) in 2011 that summarizes information and data submitted by Monsanto as part of its application for registration of a GE corn event.[321] The memorandum merely states that the EPA "has previously determined that glyphosate residues do not concentrate in corn processed commodities" (Exhibit USA-233, pp. 4 and 10 of 13), citing to an EPA document that is more than 28 years old: "D216229, W. Cutchin, 21-Mar-1996".[322] The United States has not produced this document or cited it directly. In Mexico's view, the much more recent scientific evidence of glyphosate residues and transgenic materials found in industrially processed food products in Mexico[323] is more

317 US Rebuttal Submission, ¶ 63.

318 US Rebuttal Submission, ¶ 64.

319 US Rebuttal Submission, ¶ 66.

320 US Rebuttal Submission, footnote 90 to ¶ 65.

321 EPA, "Glyphosate. Section 3 Registration for Application of the Potassium Salt of Glyphosate to Roundup Ready® Field Corn. Summary of Analytical Chemistry and Residue Data," at 4, 10 (Mar. 24, 2011) (**Exhibit USA-233**), cited in US Rebuttal Submission, footnote 90 to ¶ 65.

322 EPA, "Glyphosate. Section 3 Registration for Application of the Potassium Salt of Glyphosate to Roundup Ready® Field Corn. Summary of Analytical Chemistry and Residue Data," at 4, 10 (Mar. 24, 2011) (**Exhibit USA-233**), cited in US Rebuttal Submission, footnote 90 to ¶ 65.

323 CONAHCYT, "*Scientific Record on Glyphosate and GM Crops*" (2020), p. 7, citing González-Ortega, E., Piñeyro-Nelson, A., Gómez-Hernández, E., Monterrubio-Vázquez, E., Arleo, M., Dávila-Velderrain, J., Martínez-Debat C. and Álvarez-Buylla E. R., "*Pervasive presence of transgenes and*

relevant and material than the outdated EPA determination that is indirectly referenced by the United States.

261. In addition, Mexico notes that the US Centre for Food Safety (CFS), in the written views that it submitted in this dispute, has cited scientific evidence that glyphosate contaminates industrially processed food in the United States. In this regard, CFS refers to a report published in 2016 on the findings from "[t]he first ever independent, FDA-registered laboratory food testing results for glyphosate residues in iconic American food brands", which found "alarming levels of glyphosate contamination" in industrially processed foods such as breakfast cereals, cookies, and snacks.[324]

262. Like the United States, Canada argues that "there is 'sufficient scientific evidence' to complete a risk assessment for GM corn".[325] It contends that "750 risk assessments have been performed in 27 different jurisdictions which focused on the safety of GM corn for direct use as food and feed".[326] On the basis of this "large number of risk assessments performed in many locations", Canada considers that the "safety of such products" has been "thoroughly assessed".[327] As an example, Canada cites to 75 "risk assessments by Mexico for GM corn, for direct use as food and feed", which appear to be related to COFEPRIS authorizations for GE corn events.[328] Mexico has already explained that the process of assessing and authorizing GE corn events in Mexico relies on the information and data submitted by the applicant who seeks to market the GE product that is being assessed. Given the alarming independent evidence of (i) the risks of harmful effects from the direct consumption of GE corn grain, and (ii) the detection of contaminating transgenic material and glyphosate residues in processed foods made with GE corn grain, Mexico

glyphosate in corn-derived food in Mexico", 2017) (**MEX-125**); Mexico's Initial Written Submission, ¶ 314 and footnote 369.

[324] Centre for Food Safety, NGE Written Views (15 March 2024), p. 10 of 10, citing Food Democracy Now & The Detox Project, "Glyphosate: Unsafe on Any Plate – Food Testing Results and Scientific Reasons for Concern", **MEX-402**.

[325] Canada's Third-Party Submission, ¶ 152.

[326] Canada's Third-Party Submission, ¶ 152.

[327] Canada's Third-Party Submission, ¶ 152.

[328] Canada's Third-Party Submission, footnote 183 to ¶ 182.

does not believe that the alleged safety of products made with GE corn grain is truly as "thoroughly assessed" as Canada contends.

C. Mexico's "End-Use Limitation" is consistent with Article 9.6.6 (a) because it is only applied to the extent necessary to protect human health and native corn in Mexico, while the "Gradual Substitution" instructions have not yet been "applied" at all

263. The United States takes the position that the measures at issue are inconsistent with Article 9.6.6 (a) because, according to the United States, "neither measure actually serves any human, animal, or plant life or health objective and thus neither is necessary at all".[329] This position reflects the United States' total rejection of any scientific evidence that contradicts its singular dogmatic view that the safety of GM corn grain is beyond question.

264. However, as Mexico has explained in detail, the measures set out in the 2023 Decree, including the specific measures at issue in this dispute, are based on the independent scientific evidence considered in the "*Scientific Record on glyphosate and GM crops*" (2020) prepared by CONAHCYT and the collection of relevant studies in the National Biosafety Information System (SNIB) maintained by CIBIOGEM.[330] The Dossier and the associated scientific studies present clear scientific evidence of the risks of harmful effects to human health arising from the direct consumption of transgenic proteins and glyphosate residues in GM corn grain[331] and the risks of transgenic contamination of native corn in Mexico.[332]

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329 US Rebuttal Submission, ¶ 130.

330 Mexico's Initial Written Submission, ¶¶ 314, 397-399;

331 Mexico's Initial Written Submission, ¶ 131-136, 175-180, 193, 314; CONAHCYT, "*Scientific Record on Glyphosate and GM Crops*" (2020), pp. 7, 10 ("Transgenics", left column), 17-18 (**Exhibit MEX-085**), citing, *inter alia*, González-Ortega, E., Piñeyro-Nelson, A., Gómez-Hernández, E., Monterrubio-Vázquez, E., Arleo, M., Dávila-Velderrain, J., Martínez-Debat C. and Álvarez-Buylla E. R., "*Pervasive presence of transgenes and glyphosate in corn-derived food in Mexico*", 2017) (**MEX-125**).

332 Mexico's Initial Written Submission, ¶ 314 and footnotes 371, 372; CONAHCYT, "*Scientific Record on Glyphosate and GM Crops*" (2020), pp. 4, 7, and 9 (**Exhibit MEX-085**), citing Quist, D. and Chapela, I.H., "*Transgenic DNA introgressed into traditional corn landraces in Oaxaca, Mexico*", 2001, (**Exhibit MEX-090**); Piñeyro-Nelson, A., Van Heerwaarden, J., Perales, H. R., Serratos-Hernández, J. A., Rangel, A., Hufford, M. B., Gepts, P., Garay-Arroyo, A., Rivera-Bustamante, R., & Alvarez-Buylla, E. R. "*Transgenes in Mexican corn: molecular evidence and methodological considerations for GMO detection in landrace populations*", 2009 (**Exhibit MEX-101**); see also Mexico's Initial Written Submission, ¶ 340 ("… the presence of contaminants and toxins in GM corn grain, such as transgenic proteins and glyphosate,

265. Mexico has also previously explained that the risks to human health are particularly acute in Mexico due to the very high quantities of whole corn grain directly consumed on a daily basis in staple foods made from nixtamalized masa, such as tortillas.[333] In addition, the risks of transgenic contamination have special importance in Mexico, given the natural biodiversity of Mexico's unique native landraces and varietals. Mexico takes each of these risks extremely seriously.[334]

266. Moreover, Mexico's intention to address these and other risks is reflected in the text of the 2023 Decree itself. The final recital of the preamble provides that "the main purpose of these measures is to protect the rights to health and a healthy environment, native corn, the milpa, biocultural wealth, peasant communities and gastronomic heritage; as well as to ensure nutritious, sufficient and quality diet". Similarly, Article 6 of the 2023 Decree, which includes the "End-Use

has been well documented. In addition, the adverse health effects of these contaminants and toxins have been scientifically demonstrated").

333 Mexico's Initial Written Submission, ¶ 340-341 ("The population in Mexico is highly exposed and vulnerable to these risks due to the amount of corn grain consumed directly on a daily basis in the form of tortillas and other foods made with nixtamalized flour and dough. Evidence shows that these foods can account for half or more of a person's average daily calorie and protein intake in Mexico – far more than in most other countries. In these circumstances, Mexico believes that a "zero risk" level of protection is not only an appropriate target, but the most appropriate"). See also Centre for Food Safety, NGE Written Views (15 March 2024), p. 10 of 10 ("Mexicans consume far more maize – 0.5 kg/day – than North Americans. For instance, EPA estimated Hispanic children 7-12 years of age in the U.S. would have many times the exposure to StarLink's Cry9C as U.S. citizens"); Institute for Agriculture and Trade Policy (IATP), the Rural Coalition, and the Alianza Nacional de Campesinas, NGE Written Views (15 March 2024), ¶ 32, citing Lorena Rios, "Despite U.S. Pushback, Mexico's Fight to Ban Genetically Modified Corn is Not Over", *Ambrook Research* (21 July 2023) (**Exhibit MEX-403**) ("'White com makes up almost 87% of Mexico's com production, some 22 million tons a year, most of which is for human consumption. Mexicans eat on average around 432 pounds of white com per year, largely in the form of tortillas. On the other hand, while the U.S. is the world's largest producer and consumer of com, less than 2% is for human consumption, according to the World Resources Institute'"), citing Lindsey Sloat, Deepak Ray, Andrea Garcia, Emily Cassidy and Craig Hanson, "The World Is Growing More Crops – but Not for Food", *World Resources Institute* (20 December 2022) (**Exhibit MEX-404**).

334 Mexico's Initial Written Submission, ¶ 382 ("Mexico considers these risks to human health to be extremely serious, considering (i) the extremely high amount of corn grain directly consumed on a daily basis in the Mexican diet, specifically in the forms of nixtamalized dough, tortilla and similar foods, which is much higher than in other countries in the world, and (ii) the clear scientific evidence of the presence of contaminants and toxins in GM corn grain and their harmful effects on health").

Limitation" under Article 6.2, describes itself as "a special measure to protect native corn, the milpa, biocultural wealth, peasant communities, gastronomic heritage and human health".

267. The United States' allegation that "neither measure actually serves any human, animal, or plant life or health objective" is therefore entirely without merit.

1. Legal principles relevant to the evaluation of a claim under Article 9.6.6 (a)

268. In the circumstances of this dispute, the legal question under Article 9.6.6 (a) of the USMCA is whether Mexico has applied the measures at issue "only to the extent necessary" to protect human health and native corn in Mexico. In Mexico's Initial Written Submission, Mexico explained that this obligation reflects the first requirement set out in Article 2.2 of the SPS Agreement.[335] Mexico also noted the close relationship between Articles 2.2 and 5.6 of the SPS Agreement, which implies that a similar relationship may exist between Articles 9.6.6 (a) and 9.6.10 of the USMCA.[336] In addition, Mexico considered the relevance of Article XX(b) of the GATT 1994, which provides the general exception for "measures … necessary to protect human, animal or plant life or health".[337]

269. There is a close relationship between the SPS Agreement and the general exception under Article XX(b) of the GATT 1994. The final recital in the preamble of the SPS Agreement expresses the intention of WTO Members "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)". In addition, Article 2.4 of the SPS Agreement expressly provides that "[s]anitary or phytosanitary measures which conform to the relevant provisions of this Agreement shall be presumed to be in accordance with the obligations … under the provisions of GATT 1994 which relate to the use of sanitary or phytosanitary measures, in particular the provisions of Article XX(b)".

270. In this regard, one of the most "relevant provisions" of the SPS Agreement is Article 2.2, the first part of which provides that: "Members shall ensure that any sanitary or phytosanitary

335 Mexico's Initial Written Submission, ¶ 374.

336 Mexico's Initial Written Submission, ¶¶ 375, 441.

337 Mexico's Initial Written Submission, ¶¶ 376,

measure is applied only to the extent necessary to protect human, animal or plant life or health". The text of this provision incorporates the exact wording in sub-paragraph (b) of Article XX: i.e., "necessary to protect human, animal or plant life or health". Thus, the legal test to determine whether a measure is provisionally qualified as "necessary" under sub-paragraph (b) of Article XX provides useful guidance for determining whether a measure is only being applied to "to the extent necessary" under Article 2.2 of the SPS Agreement. This guidance extends to the evaluation of a measure under Article 9.6.6 (a) of the USMCA, given the close relationships established in Chapter 9 of the USMCA with the SPS Agreement[338] and Article XX(b) of the GATT 1994.[339]

271. As Mexico explained in its Initial Written Submission, the analysis of whether a measure is "necessary to protect human, animal or plant life or health" under Article XX(b) of the GATT 1994 requires a panel to "consider the relevant factors, particularly the importance of the interests or values at stake, the extent of the contribution of the measure to the achievement of its objective, and the degree of trade restrictiveness involved".[340] Whether the measure is "necessary" has to be determined (i) by weighing and balancing "the contribution of the measure to the achievement of the ends it pursues" and "the restrictive impact of the measure on international trade", and (ii) by a comparison between the challenged measure and possible alternatives, taking into account the importance of the interests at stake".[341]

272. In its Third-Party Submission, Canada confirms this approach, and considers that: "A panel may, on this basis, reach a preliminary conclusion that the measure is necessary".[342] Based on the relationship between Articles 2.2 and 5.6 of the SPS Agreement, and the implications for a similar relationship between Articles 9.6.6(a) and 9.6.10 of the USMCA,[343] Canada suggests that the

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338 Mexico's Initial Written Submission, ¶¶ 290-291, citing USMCA, Articles 9.1, 9.3.1 (b), and 9.4.1.

339 USMCA, Articles 9.4.2 and 9.4.3.

340 Mexico's Initial Written Submission, ¶ 376, citing Appellate Body Report, *Brazil - Retreaded Tyres*, ¶ 178 **MEX-296**; Panel Report, *India - Agricultural Products*, ¶ 7,608.

341 Mexico's Initial Written Submission, ¶ 376, citing Panel Report, *India - Agricultural Products*, ¶ 7,609, **MEX-296** citing Appellate Body Report, *Brazil - Retreaded Tyres*, ¶ 178, **MEX-297**; Appellate Body Report, *US* - Gambling, ¶ 306-307 **MEX-298**; and Appellate Body Report, *China - Publications and Audiovisual Products*, ¶ 242. **MEX-299** .

342 Canada's Third-Party Submission, ¶ 125.

343 Canada's Third-Party Submission, ¶ 124.

"preliminary finding of necessity" under Article 2.2 "must then be confirmed by considering whether there is a reasonably available alternative SPS measure that could achieve a Party's ALOP while also being significantly less trade restrictive".[344]

273. In this way, Canada combines together the legal analyses under Articles 9.6.6(a) and 9.6.10 of the USMCA. According to Canada, "a violation of the more specific obligation in Article 9.6.10 would also entail a violation of the more general 'necessity' obligation in Article 9.6.6(a)". In Canada's view, this means that "the Panel should first assess whether Mexico's measures violate Article 9.6.10", and to the extent that a measure is "found to violate Article 9.6.10, that measure should be presumed to violate Article 9.6.6(a) as well".[345]

274. Mexico observes that there are substantive differences between the obligations in Articles 9.6.6(a) and 9.6.10. While Article 9.6.6(a) requires a Party to ensure that its SPS measures "are applied only to the extent necessary to protect human, animal or plant life or health", Article 9.6.10 requires a Party to "select" an SPS measure that is "not more trade restrictive than required" to achieve the ALOP determined by the Party. Mexico considers that, to the extent that a violation of either of these provisions may suggest a violation of the other, such an outcome cannot follow automatically. At most, it may give rise to a ***rebuttable*** presumption.[346] Accordingly, Mexico approaches the obligation under Article 9.6.6(a) as separate and independent from the obligation under Article 9.6.10, notwithstanding the potential relationship between these provisions.

275. For the purposes of evaluating the United States' claims under Article 9.6.6(a), Mexico recalls that, in the context of interpreting and applying Article XX(b) of the GATT 1994, the WTO Appellate Body has explained that "the word 'necessary' is not limited to what is 'indispensable'". To be considered "necessary", a measure need not be "indispensable". However, "its contribution to the achievement of the objective must be material, not merely marginal or insignificant". This

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344 Canada's Third-Party Submission, ¶ 125.

345 Canada's Third-Party Submission, ¶ 128.

346 Panel Report, *Russia – Pigs (EU)*, ¶ 7.843 **MEX-280** ("The Appellate Body has been clear in endorsing the analysis provided by the panel in *India – Agricultural Products* in considering that a breach of Article 5.6 does not result in a consequential violation of Article 2.2. Rather, such a finding may lead to a rebuttable presumption"), citing Appellate Body Report, *India – Agricultural Products*, ¶¶ 5.37-5.38 **MEX-290**.

contribution must be "weighed against the trade restrictiveness of the measure, taking into account the importance of the interests or the values underlying the objective pursued by it".[347]

276. In Mexico's view, the weighing and balancing of these factors is appropriate, given that "the right that WTO Members have to determine the level of protection that they consider appropriate in a given context" is a "fundamental principle" in the analysis under Article XX(b) and the SPS Agreement.[348] WTO Members have the right, for example, "to establish their own appropriate level of [SPS] protection, which level may be higher (i.e., more cautious) than that implied in existing international standards, guidelines and recommendations".[349] In this regard, the Appellate Body has acknowledged that "responsible, representative governments commonly act from perspectives of prudence and precaution where risks of irreversible, e.g. life-terminating, damage to human health are concerned".[350]

277. People in Mexico *directly consume* very high quantities of corn grain throughout their lives. Under these circumstances, Mexico should not be prevented from taking a precautionary approach to the protection of human health *specifically with respect to the direct consumption of GM corn grain* in Mexico, based on the independent scientific evidence available of the risks of ingesting transgenic proteins and pesticide residues in GM corn grain. Mexico should not be forced to allow GM corn grain to be used for direct human consumption and "wait for" the scientific evidence of adverse effects on people in Mexico over the long term. As the Friends of the Earth (FOE) have observed in their written views in this dispute, Mexico is justified "in refusing to allow its people to participate in the experiment that the U.S. government is seeking to impose on Mexico" in this regard.[351]

278. Similarly, Mexico's unique native corn varieties and their natural biodiversity, as well as their traditional and cultural value to indigenous people in peasant agrarian communities, are at risk of transgenic contamination from the unauthorized and unintentional spread of GM corn in

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347 Appellate Body Report, *Brazil - Retreaded Tyres*, ¶ 210 **MEX-297**.

348 Appellate Body Report, *Brazil - Retreaded Tyres*, ¶ 210 **MEX-297**.

349 Appellate Body Report, *EC - Hormones*, ¶ 124 **, MEX-286,** cited at Appellate Body Report, *US — Continued Suspension*, ¶ 680 . **MEX-294**.

350 Appellate Body Report, *EC - Hormones*, ¶ 124 **, MEX-286,** cited at Appellate Body Report, *US — Continued Suspension*, ¶ 680 . **MEX-294**. See also Mexico's Initial Written Submission, ¶ 384 (

351 Friends of the Earth (FOE), NGE Written Views (15 March 2024), p. 10 of 10.

Mexico. The United States does not share these interests. Instead, it values the industrial farming of commercial monocultures of GM corn and maximizing economic value for powerful biotechnology companies. In Mexico's view, the United States has every right to pursue these interests within its own territory. It should not, however, be permitted to impose unwanted biotechnology into Mexico, at the risk of the natural biodiversity of Mexico's *non-GM* native corn varieties.

2. The End-Use Limitation is consistent with Article 9.6.6 (a) because it is only applied to the extent necessary to protect human health in Mexico from the risks arising from the direct consumption of GM corn grain in everyday staple foods

279. According to the United States, "Mexico asserts that, because its designated ALOP is 'zero risk' with respect to protecting human health, Mexico can ban the importation of GM corn for use in dough and tortillas".[352] This allegation is both entirely incorrect and misleading. Mexico has not once suggested that the "End-Use Limitation" under Article 6.2 of the 2023 Decree is a "ban" on the "importation of GM corn". To the contrary, Mexico has repeatedly explained that the End-Use Limitation does not ban or prohibit the importation of GM corn grain, but rather places a limitation on the use of *all* GM corn grain, regardless of origin, for direct human consumption in everyday staple foods in Mexico, including nixtamalized masa, tortilla, and related foods.[353]

280. Moreover, the so-called "tortilla corn ban" is not a ban or prohibition on the importation or use of "tortilla corn" — that is, white corn grain that is used for human consumption and, in particular, for the process of nixtamalization, which produces the masa (corn dough) that is used to make tortillas and similar foods. Nothing in the 2023 Decree prevents US exporters from shipping white corn grain to Mexico.

- If the imported white corn grain is GM corn grain, it may be imported into Mexico in any quantity, provided that it has already been authorized for trading in Mexico.[354] All GM corn, regardless of its origin, must be authorized "for trading" in Mexico

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352 US Rebuttal Submission, ¶ 132. Tellingly, the United States does not provide any citation or reference to identify where in Mexico's Initial Written Submission the alleged "assertion" might be found.

353 Mexico's Initial Written Submission, ¶ 4, 21, 263, 275, 278, 385, 446, 499.

354 Mexico's Initial Written Submission, ¶ 475.

before it can be marketed.[355] COFEPRIS is the authority responsible for administering authorizations, including evaluating applications for authorization. Authorized GM corn, whether domestic or imported, may "be used for trading or imported for trading", subject to the conditions that it cannot be ***used*** for cultivation or for direct human consumption in Mexico. In this regard, Article 6.2 of the 2023 Decree has been implemented by applying the following notation to new authorizations for GM corn: e.g., "Uso: Para alimentación en animales y uso industríal para alimentación humana: excepto cultivo, harina de maíz y masa nixtamalizada."[356]

- Non-GM white corn may also be imported into Mexico in any quantity. No end-use limitations apply to such corn. As noted in the written views submitted in this dispute by the Institute for Agriculture and Trade Policy, the Rural Coalition, and the National Alliance of Farmworkers ("IATP *et al.*"), U.S. corn producers are able "with no problem" and willing to supply non-GM corn that meets Mexico's needs.[357]

281. Simply put, the "End-Use Limitation" does not ban or prohibit imports of corn grain into Mexico.

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355 The *Law on Biosafety of Genetically Modified Organisms* (LBOGM) provides that an authorization is an administrative act by which the competent authorities in Mexico authorize that GMOs "can be used for trading and imported for trading, as well as their utilization with public health or bioremediation purposes". See LBOGM, Article 3.III and Article 97, **MEX-250**. See also Mexico's Initial Written Submission, ¶ 206.

356 SALUD, COFEPRIS, Authorization for GM corn from the United States (12 August 2023) **Exhibit MEX-405**. Since the 2023 Decree went into effect, none of the existing authorizations for GM corn have been revoked, amended or otherwise modified. Such GM corn may continue to be imported. *See* Mexico's Initial Written Submission, ¶ 318.

357 IATP et al. Opinion, ¶ 49 ("some farmers have either made that shift or have expressed a willingness to do so to meet Mexico's needs"), citing Ken Roseboro, "Mexico plans to buy non-GMO corn from the U.S., other countries as it moves ahead with GMO ban," *The Organic & Non-GMO Report* (15 November 2022) ("Graham Christensen, a fifth-generation farmer in Lyons, Nebraska, said he would be eager to supply Mexico. 'I think that would be a good idea,' says Christensen, who grows non-GMO corn and soybeans. 'If their farmers aren't able to produce enough themselves and they need extra, that would be an ideal market to move that grain down south. There are a lot of farmers up here who could easily transition to non-GMO corn, and there are a lot of us that are looking for a solid marketplace.' Chris Wiegert, chief supply chain officer at Healthy Food Ingredients, says the U.S. could supply Mexico's need for non-GMO corn 'with no problem' though he said the supply of non-GMO corn seed would need to be ramped up and that farmers would need to be paid a premium to grow non-GMO"), **MEX-406**. *See* also Ken Roseboro, "Mexico wants to import non-GMO corn, and U.S. grain suppliers say they can deliver it", *The Organic & Non-GMO Report* (14 May 2021) **MEX-407** ("'Could we supply Mexico? Absolutely,' says Bill Niebur, president of High Fidelity Genetics, an Iowa-based non-GMO corn seed company. 'In terms of acres, it's not a problem. Instead of criticizing Mexico, let's provide it to them.'"), **MEX-408.**

282. The United States does not contest the facts that "the majority of U.S. GE corn exports to Mexico are not for use in dough and tortillas" and, therefore, the End-Use Limitation "does not reach the majority or all of U.S. exports of GE corn to Mexico".[358] Instead, the United States contends that Mexico's consideration of these facts "misses the point".[359] The United States is mistaken. These facts are entirely on point in the analysis under Article 9.6.6(a). Specifically, they are relevant to the "degree of trade restrictiveness involved" and "the restrictive impact of the measure on international trade", which must be weighed and balanced with the other relevant factors, including "the importance of the interests or values at stake" and "the extent of the contribution of the measure to the achievement of its objective".[360]

283. As Mexico explained in its Initial Written Submission, Mexico is generally self-sufficient with respect to white corn,[361] using all that it produces for direct human consumption in the form of traditional, everyday staple foods.[362] The volume of white corn that needs to be imported into Mexico in a given year is therefore directly related to the volume of white corn produced domestically in Mexico.[363] In contrast, Mexico relies on imports of yellow corn for other end uses. The overwhelming majority of US corn exports to Mexico consist of yellow corn for use in animal feed, industrial processing (e.g., ethanol), and industrial food processing.[364] In 2023, US exports of such yellow corn to Mexico increased [[[redacted]]], rising to approximately [[[redacted]]] from about [[[redacted]]] in 2022.[365] Consequently, US exports of white corn to Mexico are a tiny fraction of total US corn exports to Mexico.[366]

284. In this regard, imports of white corn from the United States accounted for only [[[redacted]]] of total imports of US corn in 2022 [redacted]

358 US Rebuttal Submission, ¶ 133 (*underline emphasis added*).

359 US Rebuttal Submission, ¶ 133.

360 Mexico's Initial Written Submission, ¶ 376, citing Appellate Body Report, *Brazil - Retreaded Tyres*, ¶ 178 **MEX-297.**

361 Mexico's Initial Written Submission, ¶ 237.

362 Mexico's Initial Written Submission, ¶ 242.

363 Mexico's Initial Written Submission, ¶ 237.

364 Mexico's Initial Written Submission, ¶¶ 236-237.

365 Mexico's Initial Written Submission, ¶ 246 and Table 4.

366 Mexico's Initial Written Submission, ¶ 237.

[redacted]]].[367] In 2023, imports of white corn from the United States accounted for only [[redacted]] of total imports of US corn [redacted]].[368] Year-to-year fluctuations are caused by a number of factors, including shortfalls or surpluses in domestic production, shortfalls or surpluses in different exporting countries, and competition between suppliers in different exporting countries. In 2023, for example, imports of white corn from [[redacted] accounted for [redacted]] of total imports of white corn into Mexico, while imports from [[redacted]] accounted for [redacted]]. This reversed the trend from 2022, when [redacted]] accounted for [[redacted]] and [[redacted] accounted for [redacted]] of all white corn imports into Mexico.[369]

285. The foregoing demonstrates that the "End-Use Limitation" under Article 6.2 of the 2023 Decree has no trade restrictive impact on US exports of white corn to Mexico. *Arguendo*, if there is any trade restrictive impact, it would be very small considering all of the relevant circumstances. These circumstances are briefly summarized as follows:

- *First,* Mexico is generally self-sufficient with respect to the white corn used for direct human consumption in nixtamalized masa, tortillas, and related foods, consuming all of what it produces domestically for this end-use. Accordingly, the demand for imports of white corn into Mexico for this end-use is low to begin with. Imports of white corn are subject to production-related fluctuations in supply and demand and competition between suppliers in different exporting countries.
- *Second*, the "End-Use Limitation" does not block imports of white corn into Mexico (whether GM or non-GM). Rather, it places a limitation on the end-use of *all* GM corn *in Mexico*, requiring that it not be used for direct human consumption in everyday staple foods made with nixtamalized masa or corn flour.
- *Third*, U.S. corn producers are readily capable of supplying non-GM corn that meets Mexico's needs and willing to do so
- *Fourth*, to the extent that US exports of white corn to Mexico might be indirectly affected by the "End-Use Limitation" (which Mexico does not concede, but vigorously denies), this represents a tiny fraction of total US corn exported to Mexico, which has been increasing in overall volume since the 2023 Decree was issued.

367 Mexico's Initial Written Submission, ¶ 240.

368 Mexico's Initial Written Submission, ¶ 240.

369 Mexico's Initial Written Submission, ¶ 241.

286. Thus, stated in the terms of the relevant factors in the "necessity" analysis under Article 9.6.6(a) of the USMCA, the "degree of trade restrictiveness involved", *if any*, is minimal, and the "restrictive impact of the measure on international trade", *if any*, is minimal.

287. These factors must be weighed and balanced with the other relevant factors, including "the importance of the interests or values at stake" and "the extent of the contribution of the measure to the achievement of its objective".[370]

288. With respect to "the importance of the interests or values at stake", Mexico explained in its Initial Written Submission that it "considers the interests at stake — the health and welfare of people in Mexico — to be of *paramount* importance".[371] In this regard, the "End-Use Limitation" under Article 6.2 of the 2023 Decree is applied to protect human health in Mexico from the risks arising from contaminants and toxins (e.g., pesticide residues, such as systemic glyphosate, and transgenic proteins) in GM corn grain.[372] Mexico considers these risks to human health to be very serious in Mexico, considering: (i) the extremely high amounts of corn grain that are directly consumed on a daily basis in the Mexican diet, specifically in the forms of nixtamalized dough, tortilla, and similar staple foods, which is much higher than in other countries in the world; and (ii) the clear scientific evidence of the presence of contaminants and toxins in GM corn grain and their harmful effects on health.[373]

289. As Mexico has repeatedly explained in response to the United States' allegations in this dispute, the basis of the 2023 Decree and its predecessor, the 2020 Decree, was the assessment of risks in the "*Scientific Record on glyphosate and GM crops*" prepared by CONAHCYT and the collection of relevant studies in the SNIB maintained by CIBIOGEM (which has continued to be

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370 Mexico's Initial Written Submission, ¶ 376, citing Appellate Body Report, *Brazil - Retreaded Tyres*, ¶ 178 **MEX-297**; Panel Report, *India - Agricultural Products*, ¶ 7,608, **MEX-296.**

371 Mexico's Initial Written Submission, ¶ 383 ("In this regard, the Mexican Constitution enshrines the human rights to 'nutritious, sufficient and quality food', to 'protection of health' and to 'human welfare'"). See also Mexico's Initial Written Submission, ¶ 342 ("From a public policy perspective, the health and well-being of people in Mexico are of utmost importance. As noted *above*, the Constitution establishes the human rights to "nutritious, sufficient and quality food", the "protection of health" and the "well-being of persons").

372 Mexico's Initial Written Submission, ¶ 381.

373 Mexico's Initial Written Submission, ¶ 382.

updated and supplemented with relevant scientific evidence since the Dossier was published in 2020). The Dossier and the associated scientific studies present clear scientific evidence of the risks of harmful effects arising from the direct consumption of transgenic proteins and glyphosate residues in GE corn grain.[374]

290. This includes scientific evidence, for example, that direct consumption of GM corn grain containing transgenic *Bt* proteins, which act as insecticidal toxins, adversely effects organ development and health, serum chemistry, hematology values, and gastrointestinal health in mammalian test subjects (i.e., rats, pigs, and cows).[375] In addition, such transgenic *Bt* toxins have

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[374] See e.g., Mexico's Initial Written Submission, ¶¶ 130-136 and, more broadly, ¶¶ 129-150. See also Appendix A, which provides Mexico's rebuttals to the United States' criticisms of the evidence it addresses in Annexes I-III of its Rebuttal Submission.

[375] Kiliçgün, H., C. Gürsul, M. Sunar & G. Gökşen. (2013). "*The Comparative Effects of Genetically Modified Maize and Conventional Maize on Rats"*. J Clin Anal Med. **MEX-130**; Seralini GE, Cellier D, de Vendomois JS. (2007). "*New analysis of a rat feeding study with a genetically modified corn reveals signs of hepatorenal toxicity*". Arch Environ Contam Toxicol. **MEX-126**; De Vendômois JS, Roullier F, Cellier D, Séralini GE. (2009). "*A comparison of the effects of three GM corn varieties on mammalian health*". Int J Biol Sci. **MEX-127**; El-Shamei, Z. S., A.A. Gab-Alla, A. A. Shatta, E. A. Moussa & A. M. Rayan. (2012). "*Histopathological Changes in Some Organs of Male Rats Fed on Genetically Modified Corn (Ajeeb YG)*". Journal of American Science. **MEX-128**; Oraby, Hanaa; Kandil, Mahrousa; Shaffie, Nermeen; and Ghaly, Inas. (2015). "*Biological impact of feeding rats with a genetically modified-based diet*". Turkish Journal of Biology: Vol. 39: No. 2, Article 11. **MEX-129**; M.A.A. Ibrahim, E.F. Okasha. (2016). "*Effect of genetically modified corn on the jejunal mucosa of adult male albino rat*", Exp Toxicol Pathol. **MEX-131**; Zdziarski, I.M., Carman, J.A. and Edwards, J.W. (2018). "*Histopathological Investigation of the Stomach of Rats Fed a 60% Genetically Modified Corn Diet*", Food and Nutrition Sciences. **MEX-132**; Carman, J. A., et al. (2013). "*A long-term toxicology study on pigs fed a combined genetically modified (GM) soy and GM corn diet*". Journal of Organic Systems. **MEX-137**; Séralini GE, Clair E, Mesnage R, Gress S, Defarge N, Malatesta M, Hennequin D, de Vendômois JS. (2014). Republished study: "*Long-term toxicity of a Roundup herbicide and a Roundup-tolerant genetically modified corn*". Environ Sci Eur. pp. 9-13. **MEX-225**; See also Glöckner, G. & G-É. Séralini. (2016). "*Pathology reports on the first cows fed with Bt176 corn (1997–2002)*". Scholarly J. Agric. Sci. **MEX-138**; and Hilbeck, A., Binimelis, R., Defarge, N. et al. (2015). "*No scientific consensus on GMO safety"*. Environ Sci Eur 27, 4. **MEX-218**; Ureta, C., González, J., Piñeyro-Nelson, A., Couturier, S., González-Ortega, E., and Álvarez- Buylla, E., "*A data mining approach gives insights of causes related to the ongoing transgene presence in Mexican native corn populations*", Agroecology and Sustainable Food Systems, 2023, pp. 203-205, p. 189 ("While it is very difficult to establish the impacts of recombinant DNA or proteins from transgenic crops on human health, toxicological feeding studies performed in animal models such as rodents, pigs and bovines have shown negative physiological effects (Chowdhury et al. 2003; Kılıç et al. 2008; Lutz et al. 2005; Mesnage et al. 2015; Onose et al. 2008; Séralini, Cellier, and de Vendomois 2007; Séralini et al. 2014; Walsh et al. 2011). Thus, there is growing concern on the potential effects of transgenic DNA and recombinant proteins on human tissues (Mendoza-Almanza et al. 2020; Nawaz et al. 2019). Finally, recent evidence confirms that

immunogenic properties.[376] Transgenic *Bt* protein (Cry1Ab insecticidal toxin) was found in the lower part of the gastrointestinal tract of pigs fed GM maize, indicating that it is not rapidly degraded in the stomachs of monogastric species (such as humans).[377] GM corn varieties with "stacked" transgenic traits can result in a "much higher concentration" of these proteins (e.g., Monsanto's GM "Smartstax" maize varieties "express up to six Bt toxins").[378]

291. Further, the scientific evidence establishes that glyphosate is carcinogenic[379] and, even at low doses, long-term exposure can cause acute and chronic toxicity resulting in damage to human health.[380] The evidence also indicates that glyphosate in food is linked to dysbiosis (alterations in the gut microbiome) associated with celiac disease, inflammatory bowel disease, and irritable bowel syndrome.[381]

292. People in Mexico are far more exposed to these risks than people in the United States, Canada, or other countries, due to the very high quantity of corn grain that they *directly* consume on a *daily* basis, *throughout their lives*, in minimally-processed staple foods like tortilla.[382]

Bt proteins produced by transgenic crops expressing *Cry* genes have potential allergenic properties (Santos-Vigil et al. 2018; Then and Bauer-Panskus 2017)"). **MEX-092**.

376 Then, C. and Bauer-Panskus, A., "*Possible health impacts of Bt toxins and residues from spraying with complementary herbicides in genetically engineered soybeans and risk assessment as performed by the European Food Safety Authority EFSA*", 2017, p. 8. **MEX-287**.

377 Then, C. and Bauer-Panskus, A., "*Possible health impacts of Bt toxins and residues from spraying with complementary herbicides in genetically engineered soybeans and risk assessment as performed by the European Food Safety Authority EFSA*", 2017, p. 5. **MEX-287**.

378 Then, C. and Bauer-Panskus, A., "*Possible health impacts of Bt toxins and residues from spraying with complementary herbicides in genetically engineered soybeans and risk assessment as performed by the European Food Safety Authority EFSA*", 2017, p. 6. **MEX-287**.

379 CONAHCYT, "*Scientific Record on Glyphosate and GM Crops*" (2020), p. 1 (**Exhibit MEX-085**).

380 Mexico's Initial Written Submission, ¶ 173, 179, 408-409.

381 Mexico's Initial Written Submission, ¶ 178.

382 Mexico's Initial Written Submission, ¶ 60-62, 340-341 ("The population in Mexico is highly exposed and vulnerable to these risks due to the amount of corn grain consumed directly on a daily basis in the form of tortillas and other foods made with nixtamalized flour and dough. Evidence shows that these foods can account for half or more of a person's average daily calorie and protein intake in Mexico – far more than in most other countries"). See also Centre for Food Safety, NGE Written Views (15 March 2024), p. 10 of 10 ("Mexicans consume far more maize – 0.5 kg/day – than North Americans. For instance, EPA estimated Hispanic children 7-12 years of age in the U.S. would have many times the exposure to StarLink's Cry9C as U.S. citizens"). See also Institute for Agriculture and Trade Policy, the Rural Coalition, and the Alianza Nacional de Campesinas (ITAP *et al.*), NGE Written Views (15 March 2024), ¶ 32, citing Lorena

293. Ignoring the scientific evidence of the risks to health arising in relation to the direct consumption of GM corn grain in Mexico, the United States complains that "Mexico has provided no evidence that GM corn imported into Mexico, including for use in dough and tortillas, presents unsafe levels of glyphosate residue or any other credible risk to human health".[383] Again, Mexico emphasizes that it is not concerned with *imported* GM corn grain in particular, but with the risks associated with the *direct consumption* of GM corn grain *in Mexico*, regardless of origin. This is reflected in the provisions of the 2023 Decree, which restrict the cultivation of GM corn seed in Mexico (Article 6.1) as well as the glyphosate that would be used for the cultivation of GM corn in Mexico (Articles 1-5).

294. The United States suggests that "if Mexico had a legitimate, scientifically supportable concern about the risk of glyphosate residue, it should have relied on current or modified MRLs, employed by Codex and countries around the world to ensure the safety of the global food supply".[384] Mexico has explained that the Codex MRLs are not appropriate or relevant for the specific circumstances in Mexico.[385] The Codex does not address the toxicity of transgenic protein in GM corn (e.g., insecticidal toxins and/or pesticide-resistant enzymes); nor does it provide MRLs for such transgenic protein in GM corn grain; nor does it address the cumulative risks arising from dietary exposure to glyphosate residues and transgenic protein in minimally processed foods made with whole GM corn grain.

295. Moreover, as Mexico has explained, more corn grain is directly consumed per capita in Mexico than anywhere else in the world.[386] This consumption pattern means that there would be

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Rios, "Despite U.S. Pushback, Mexico's Fight to Ban Genetically Modified Corn is Not Over", *Ambrook Research*, 21 July 2023, **MEX-403** ("'White com makes up almost 87% of Mexico's com production, some 22 million tons a year, most of which is for human consumption. Mexicans eat on average around 432 pounds of white com per year, largely in the form of tortillas. On the other hand, while the U.S. is the world's largest producer and consumer of com, less than 2% is for human consumption, according to the World Resources Institute'"), citing Lindsey Sloat, Deepak Ray, Andrea Garcia, Emily Cassidy and Craig Hanson, "The World Is Growing More Crops – but Not for Food", *World Resources Institute*, 20 December 2022, **MEX-404**).

383 US Rebuttal Submission, ¶ 134.

384 US Rebuttal Submission, ¶ 134.

385 Mexico's Initial Written Submission, ¶ 422-426.

386 Mexico's Initial Written Submission, ¶ 60-62, 321, 340-341, 423-424, 522.

substantially higher concentrations of the contaminants and toxins in GM corn grain being ingested *every day* by people in Mexico, *throughout their lifetimes* — including transgenic insecticidal toxins, transgenic pesticide-resistant enzymes, and residues of the concentrated pesticides used in the cultivation of GM corn (including but not limited to systemic glyphosate) — than anywhere else in the world. In Mexico's view, the Codex MRLs are simply not capable of addressing the risks that arise specifically with respect to the direct consumption of GM corn in Mexico's unique circumstances.

296. Although the United States argues that "glyphosate can be used on either type of corn",[387] referring to GM corn and non-GM corn, it is a simple fact that more glyphosate is applied — in substantially greater amounts and higher concentrations — to GM food crops with transgenic glyphosate resistance than to non-GM food crops that lack such resistance. That is the entire point of transgenic glyphosate resistance. The single most important food crop in Mexico is white corn grain, and it is consumed directly in the form of tortilla and similar foods made from nixtamalized masa *every day* by most people in Mexico.[388] Therefore, glyphosate-resistant GM corn grain cultivated with glyphosate-based pesticides poses the single greatest risk of dietary exposure to residual systemic glyphosate than any other GM or non-GM food crop in Mexico.

297. Given the fundamental importance of the interests at stake, and the circumstances outlined above, Mexico has considered that the appropriate level of protection with respect to the risks arising from the *direct consumption* of GM corn grain in Mexico is "zero risk". In this regard, the "End-Use Limitation" is applied *only to the extent necessary* to achieve this level of protection with respect to the direct consumption of corn grain in everyday staple foods made from nixtamalized masa, such as tortillas. As Mexico explained in its Initial Written Submission, the purpose and function of the "End-Use Limitation" is to discourage the use of GM corn grain in Mexico for direct human consumption in the form of nixtamalized dough, tortillas and related

387 US Rebuttal Submission, ¶ 134

388 Mexico's Initial Written Submission, ¶ 62 ("approximately 98.6% of Mexicans consume corn in the form of tortillas in their daily diet"), citing Sánchez G.J.J., "*Corn and Teocintle Diversity*". Report prepared for the project: "Compilation, generation, updating and analysis of information on the genetic diversity of corn and its wild relatives in Mexico", 2011, *Comisión Nacional para el Conocimiento y Uso de la Biodiversidad. Manuscrito,* p. 11. **MEX-035**.

foods.[389] When only non-GM corn grain is used for this purpose, human health risks arising from the *direct consumption* of GM corn grain are eliminated, thus achieving the appropriate level of protection determined by Mexico.[390] Thus, "the extent of the contribution of the measure to the achievement of its objective" is very high.

298. The foregoing establishes that: (i) the "End-Use Limitation" involves a very low degree of trade restrictiveness, if any, under the circumstances; (ii) the interests and values at stake — i.e., the health and well-being of Mexico's population — are fundamentally important; and (iii) the measure is highly effective at contributing to the specific objective of protecting human health in Mexico from the risks arising from the direct consumption of contaminants and toxins in GM corn grain in everyday staple foods. The weighing and balancing of these factors strongly favors a finding that the "End-Use Limitation" is "necessary" within the meaning of Article XX(b) of the GATT 1994 and "only applied to the extent necessary" within the meaning of Article 2.2 of the SPS Agreement and Article 9.6.6(a) of the USMCA.

299. In addition, the foregoing also demonstrates that the "End-Use Limitation" is "not more trade restrictive than required to achieve the level of protection" that Mexico "has determined to be appropriate" within the meaning of Article 9.6.10 of the USMCA. By narrowly applying the "End-Use Limitation" specifically to the *use* of GM corn grain for *direct* human consumption in nixtamalized masa, tortilla, and related foods, Mexico has selected a measure that is "not more trade restrictive" than required to fully address the risks to human health arising from the direct consumption of contaminants and toxins in GM corn grain in everyday staple foods.

300. Moreover, as explained above, the measure involves a very low degree of trade restrictiveness to begin with. As Mexico is generally self-sufficient with respect to the white corn used for direct human consumption in Mexico, the demand for imports is low. Only a tiny fraction of the corn grain exported from the US to Mexico consists of white corn suitable for direct human consumption. Importantly, however, the measure does not ban or prohibit the *importation* of this white corn grain into Mexico. It simply restricts GM corn grain, regardless of origin, from being *used* for *direct* human consumption in Mexico. At the same time, no end-use limitation applies to

389 Mexico's Initial Written Submission, ¶ 385.

390 Mexico's Initial Written Submission, ¶ 385.

non-GM white corn. US farmers are capable of exporting such corn to Mexico and are willing to do so. In any event, the "End-Use Limitation" is irrelevant to the vast majority of US corn grain exported to Mexico, which is yellow corn grain that is not suitable for direct human consumption in nixtamalized masa or tortilla. This yellow corn, which includes GM corn, continues to be imported into Mexico, where it is traded for use in animal feed and industrial processing.[391]

301. Under the second step of the "necessity" test, in the context of Article XX(b) of the GATT 1994, the burden rests with the complainant to identify possible alternatives to the measure that the respondent could have taken.[392] To qualify as a viable alternative, the proposed measure must be less trade restrictive than the measure at issue, while capable of achieving the respondent's desired level of protection with respect to the objective pursued.[393] The respondent may demonstrate that a proposed measure is not a genuine alternative by showing that it would not allow the respondent to achieve the level of protection it has chosen or by showing that it is not "reasonably available" to the respondent. A proposed alternative measure may be found not to be "reasonably available" where, for example, the respondent is not capable of taking it, or where it would impose an undue burden, such as prohibitive costs or substantial technical difficulties.[394]

302. The United States only suggests that, "if Mexico had a legitimate, scientifically supportable concern about the risk of glyphosate residue, it should have relied on current or modified MRLs".[395] The United States makes a similar proposal in the context of Article 9.6.10, alleging that: "Even if Mexico were able to identify a health concern related to some level of dietary intake of glyphosate residues on GE corn, a significantly less trade-restrictive measure that is reasonably

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391 Mexico's Initial Written Submission, ¶ 387 ("as the evidence shows, all or almost all of the corn grain imported into Mexico from the United States has historically been for use in animal feed or industrial processing of food for human consumption (e.g., starch, high fructose corn syrup, etc.). This continues to be the case. The 'End Use Limitation' has not affected these imports").

392 Appellate Body Report, *Brazil - Retreaded Tyres*, ¶ 156. **MEX-296**, citing Appellate Body Report, *US – Gambling*, ¶ 311. **MEX-298**.

393 Appellate Body Report, *Brazil - Retreaded Tyres*, ¶ 156. **MEX-296**, citing Appellate Body Report, *US – Gambling*, ¶ 308. **MEX-298**.

394 Appellate Body Report, *Brazil - Retreaded Tyres*, ¶ 156. **MEX-296**, citing Appellate Body Report, *US – Gambling*, ¶ 308, 311. **MEX-298**.

395 US Rebuttal Submission, ¶ 134.

available would be for Mexico to continue implementing its MRLs for glyphosate".[396] Mexico has already addressed this suggestion *supra.*

303. The United States' suggestion would not even cover the same risks addressed by the "End-Use Limitation", let alone at the appropriate level of protection determined by Mexico. The Codex MRLs for glyphosate, for example, do not address the toxicity of transgenic protein in GM corn (e.g., insecticidal toxins and/or pesticide-resistant enzymes), do not provide MRLs for such transgenic protein in GM corn grain, and do not address the cumulative risks arising from dietary exposure to glyphosate residues and transgenic protein in minimally processed foods made with whole GM corn grain. Moreover, given the pattern if direct consumption of GM corn grain in Mexico, Codex-based MRLs for glyphosate are incapable of addressing the risks that arise specifically with respect to the direct consumption of GM corn grain overt the long term in Mexico's unique circumstances.

304. Canada is not a disputing Party in this dispute. Nonetheless it suggests that "[a]n obvious alternative measure would be to review and approve authorization[s] for GM events for food and feed use in Mexico".[397] In this regard, Canada speculates that: "If Mexico considers that this measure was available to manage any alleged risks associated with GM corn as both food and feed, it would appear that it is also available to manage the alleged risk associated with human consumption of GM corn through nixtamalization or flour production".[398]

305. Mexico has already explained that the process of evaluating applications for authorization of GM corn events in Mexico relies on information and data submitted by the applicants. Mexico has determined that this is not sufficient to address the risks posed by the direct consumption of GM corn grain in everyday staple foods in Mexico. Given the alarming independent evidence of (i) the risks of harmful effects arising from the direct consumption of contaminants and toxins in GM corn grain, (ii) the detection of contaminating transgenic materials and glyphosate residues in foods made with GM corn grain, and (iii) the very high quantity of corn grain directly consumed

396 US Rebuttal Submission, ¶ 169.

397 Canada's Third-Party Submission, ¶ 133.

398 Canada's Third-Party Submission, ¶ 133. For its part, the United States simply alleges in a footnote that: "Mexico also has not addressed why its prior safety assessments of commercialized GE events were incorrect in their food safety findings". US Rebuttal Submission, footnote 180 to ¶ 134.

in Mexico on a day-to-day basis, Mexico does not believe that the mere evaluation of authorization applications can achieve the appropriate level of protection that Mexico has determined.

3. The "End-Use Limitation" does not infringe Article 9.6.6(a) by contributing to the SPS purpose of protecting native corn in Mexico from the risks of transgenic contamination arising in relation to the spread of GM corn.

306. The "End-Use Limitation" also contributes to the SPS purpose of protecting Mexico's native corn — including the natural biodiversity and natural genetic integrity of Mexico's unique native landraces and varietals of corn — from the risks of transgenic contamination arising from the spread of unauthorized, illegal, unintended, or uncontrolled GM corn plants in Mexico.[399] The measure does not infringe Article 9.6.6(a) by contributing to this purpose.[400]

307. To begin with, the contribution of the "End-Use Limitation" to the SPS purpose of protecting Mexico's native corn should not be examined in isolation from the measure's SPS objective of protecting human health. As Mexico explained in its Initial Written Submission, the *chapeau* of Article 6 of the 2023 Decree describes a "special measure" having the following purposes: "to protect native corn, the milpa, biocultural wealth, peasant communities, gastronomic heritage and human health".[401]

308. Thus, Article 6.2, working in conjunction with Article 6.1, is applied not only for two purposes falling within Annex A.1 of the SPS Agreement, but also for other, non-SPS purposes.[402]

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399 Mexico's Initial Written Submission, ¶¶ 324 ("Article 6.2 of 2023 Decree also contributes to the purpose of protecting "native corn", operating in conjunction with Article 6.1. This addresses the risks arising from transgenic introgression resulting from the propagation of GM corn plants in Mexico, which adversely affects the natural biodiversity, genetic integrity, constitution, traits and health of unique native varieties and local landraces of corn and their wild relatives in Mexico"), 346-349, 389.

400 Mexico's Initial Written Submission, ¶ 389.

401 Mexico's Initial Written Submission, ¶ 316.

402 These other, non-SPS purposes include, for example, the conservation of the natural biodiversity and genetic integrity of Mexico's native corn as "exhaustible natural resources" within the meaning of GATT Article XX(g); and the protection and conservation of Mexico's native corn, the milpa and other traditional agricultural practices associated with the cultivation of native corn in Mexico, the biodiversity and biocultural wealth of Mexico's native corn, and the protection of peasant communities whose livelihoods depend on the foregoing interests, which Mexico considers necessary to fulfill its legal obligations to indigenous peoples (within the meaning of Article 32.5 of the USMCA). Mexico's Initial Written Submission, ¶ 335.

In this context, the "zero risk" level of protection that Mexico has determined to be appropriate for the purpose of protecting human health completely overlaps and eclipses the appropriate level of protection for the purpose of protecting native corn. However, these circumstances should not prevent the measure from contributing to the purpose of protecting native corn nor diminish its ability to fulfil the purpose of protecting human health at the appropriate level of protection determined by Mexico.[403]

309. The United States alleges that "the Tortilla Corn Ban does not address any legitimate risk to Mexico's native corn varieties".[404] In this regard, the United States first suggests that (i) the germination of GM corn from GM corn grain, and (ii) cross-pollination of GM corn with non-GM corn are both so unlikely to ever happen in Mexico that there is no "legitimate risk" of transgenic contamination.[405] In this regard, the United States argues that "the suggestion that GE corn imported for use in dough and tortillas threatens the well-being of native corn landraces defies scientific reason, and Mexico has provided no logical explanation based in science for how this would plausibly occur".[406] The United States also argues that, even if transgenic contamination of Mexico's native corn varieties does occur, there is no risk to the health or life of Mexico's native corn plants.[407] For the following reasons, the United States' arguments on these points are without merit, ignoring the relevant science, the evidence on the record in this dispute, and Mexico's explanations.

310. In its arguments, the United States repeatedly refers to "GE corn that is imported for use in dough or tortilla".[408] Again, Mexico's concern is with the risks of transgenic contamination arising from the spread of GM corn regardless of its origin, and not specifically with the spread of imported GM corn. The United States' rhetoric ignores the wording and the relevant context of

403 Mexico's Initial Written Submission, ¶ 389.

404 US Rebuttal Submission, ¶ 135.

405 US Rebuttal Submission, ¶ 135-137.

406 US Rebuttal Submission, ¶ 137.

407 US Rebuttal Submission, ¶ 138.

408 US Rebuttal Submission, ¶ 135 ("GE corn that is imported for use in dough and tortillas"; "GE corn grain that is imported"), 136 ("the situation of importing GE corn for dough and tortillas"), 137 ("GE corn imported for use in dough and tortillas"), 138 ("GE corn imports intended for use in dough and tortillas"), etc.

Article 6.2 of the 2023 Decree, including Article 6.1, which restricts the cultivation of GM corn in Mexico.[409]

311. As Mexico explained in its Initial Written Submission, the dispersal of transgenic contamination in Mexico occurs in the following two ways: (i) through the flow of GM corn seed among farmers in Mexico, which includes corn grain purchased as food or feed and used by farmers as seed for cultivation; and (ii) through cross-pollination between GM corn and non-GM native corn.[410]

312. In its Rebuttal Submission, the United States has only addressed cross-pollination,[411] ignoring the flow of corn seed among farmers in Mexico. The United States' perspective appears to be narrowly focused on the conditions of industrialized commercial agriculture in the United States, where seed for each crop cycle is typically delivered to farmers in bulk from industrial seed suppliers and cultivated in monocultural fields. This perspective fails to acknowledge or consider the very different circumstances in Mexico, including with respect to traditional, small-scale agriculture based on the milpa, subsistence farming (with any small surplus sold locally), and the practices of peasant farming communities. In these conditions, corn grain is harvested as seed for the next crop cycle, mixed with corn grain from other sources (including corn grain purchased as food or feed), and exchanged between farmers and communities.[412] These differences have

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409 Mexico's Initial Written Submission, ¶ 324 ("Article 6.2 of 2023 Decree also contributes to the purpose of protecting "native corn", operating in conjunction with Article 6.1. This addresses the risks arising from transgenic introgression resulting from the propagation of GM corn plants in Mexico, which adversely affects the natural biodiversity, genetic integrity, constitution, traits and health of unique native varieties and local landraces of corn and their wild relatives in Mexico. Scientific evidence establishes that GM corn grain is 'a potential route of transgene dispersal into native corn' because 'imported grains are functional seeds, which retain their ability to develop and express recombinant proteins'").

410 Mexico's Initial Written Submission, ¶ 103-115.

411 US Rebuttal Submission, ¶ 135-137.

412 Ayala-Angulo, M., González, E. J., Ureta, C., Chávez-Servia, J. L., González-Ortega, E., Vandame, R., & Piñeyro-Nelson, A., "*Local and Regional Dynamics of Native Corn Seed Lot Use by Small-Scale Producers and Their Impact on Transgene Presence in Three Mexican States Plants*", 2023, p. 2 ("Approximately 75–80% of land used for maize cultivation depends on small-scale producers (<5 ha) who tend to use low input, traditional farming methods and predominantly plant native maize varieties, while their production is primarily destined for self-consumption and any surplus is locally sold. These maize producers commonly save seed from one farming cycle to the next one, and share seeds among themselves, allowing alleles to pass from one generation to another, enabling the evolutionary processes that sustain this crop's genetic diversity"). **MEX-088**; Dyer, G., Serratos-Hernández, J., Perales, H., Gepts, P., Piñeyro-

important implications for the risks of transgenic contamination of native corn arising from the spread of GM corn in Mexico.

313. In Mexico's Initial Written Submission, Mexico explained that the scientific evidence establishes that GM corn grain is "a potential route of transgene dispersal into native corn" because "imported grains are functional seeds, which retain their ability to develop and express recombinant proteins".[413] In this regard, farmers in Mexico are known to use corn grain purchased as food or feed for cultivation in lieu of seed.[414] In addition, farmers in Mexico "commonly save seed from one farming cycle to the next one, and share seeds among themselves",[415] "forming local seed stocks", and "creating informal seed systems".[416] Under these circumstances, transgenic contamination of native corn can not only become entrenched in seed stocks, spreading with each crop cycle, but it can also proliferate through networks of "informal seed systems and grain markets" throughout Mexico.[417]

Nelson, A., Chávez, A. Salinas-Arreortua, Yúñez-Naude, A., Taylor, J. and Álvarez-Buylla, E. "*Dispersal of transgenes through corn seed systems in Mexico*", 2009, PLoS One, p. 2 ("In addition to seed systems, farmers occasionally use grain purchased as food or feed in lieu of seed"). **MEX-089**.

413 Mexico's Initial Written Submission, ¶ 106, 324, 347, citing Trejo-Pastor, V., Espinosa-Calderón, A., del Carmen Mendoza-Castillo, M., Kato-Yamakake, T. Á., Morales-Floriano, M. L., Tadeo-Robledo, M., & Wegier, A., "*Corn grain marketed in Mexico as a potential disperser of genetically modified events*", 2021, pp. 251-259. **MEX-087**; Dyer, G., Serratos-Hernández, J., Perales, H., Gepts, P., Piñeyro-Nelson, A., Chávez, A. Salinas-Arreortua, Yúñez-Naude, A., Taylor, J. and Álvarez-Buylla, E. "*Dispersal of transgenes through corn seed systems in Mexico*", 2009, PLoS One, p. 2. **MEX-089**.

414 Dyer, G., Serratos-Hernández, J., Perales, H., Gepts, P., Piñeyro-Nelson, A., Chávez, A. Salinas-Arreortua, Yúñez-Naude, A., Taylor, J. and Álvarez-Buylla, E. "*Dispersal of transgenes through corn seed systems in Mexico*", 2009, PLoS One, p. 2. **MEX-089**.

415 Ayala-Angulo, M., González, E. J., Ureta, C., Chávez-Servia, J. L., González-Ortega, E., Vandame, R., & Piñeyro-Nelson, A., "*Local and Regional Dynamics of Native Corn Seed Lot Use by Small-Scale Producers and Their Impact on Transgene Presence in Three Mexican States Plants*", 2023, p. 2 ("These maize producers commonly save seed from one farming cycle to the next one, and share seeds among themselves, allowing alleles to pass from one generation to another, enabling the evolutionary processes that sustain this crop's genetic diversity"). **MEX-088**.

416 Dyer, G., Serratos-Hernández, J., Perales, H., Gepts, P., Piñeyro-Nelson, A., Chávez, A. Salinas-Arreortua, Yúñez-Naude, A., Taylor, J. and Álvarez-Buylla, E. "*Dispersal of transgenes through corn seed systems in Mexico*", 2009, PLoS One, p. 2. **MEX-089**;

417 Dyer, G., Serratos-Hernández, J., Perales, H., Gepts, P., Piñeyro-Nelson, A., Chávez, A. Salinas-Arreortua, Yúñez-Naude, A., Taylor, J. and Álvarez-Buylla, E. "*Dispersal of transgenes through corn seed systems in Mexico*", 2009, PLoS One, p. 2. **MEX-089**.

314. As explained in one scientific study,[418]

> US maize grain is another possible source of transgenes, since millions of tons of non-segregated grain have been imported and distributed throughout Mexican rural areas by the public retail network Diconsa. … Current models of transgene dispersal focus almost exclusively on pollen exchange and the selective advantage of transgenes in wild populations. Although they are well suited to industrialized agriculture, where seed is an input replaced every cropping cycle and seed exchange is absent, these models are not appropriate wherever seed is a capital asset saved across cropping cycles. In most centers of crop diversity, including Mexico, farmers save seed across cycles, forming local seed stocks, and they exchange seed among each other creating informal seed systems. … In addition to seed systems, farmers occasionally use grain purchased as food or feed in lieu of seed. In contrast to pollen, which deposits largely within meters, seed and grain can move thousands of kilometers, and seed replacement can alter local allele frequencies instantly and decisively. Unsurprisingly, some analysts have assumed that maize germplasm introduced into Mexico, including GMVs [*genetically modified varieties*], can diffuse rapidly across the country through informal seed systems and grain markets. It is undeniable that genes can linger in or travel across local seed stocks as a result of farmers' decisions ….[419]

315. A more recent scientific study also explains as follows:

> Cultivation of GM maize has raised concerns in the country [i.e., Mexico] because of its open-pollinated system in which gene flow can occur in closely related fields, as well as the traditional agricultural practices (e.g., introduction of seeds from distant localities, seed exchange within the community, seed replacement). These characteristics seemed to have facilitated the unintended or accidental and even illegal entry of transgenes into traditional cultivars ….[420]

316. Thus, in the specific circumstances in Mexico, traditional farming practices involve saving harvested corn grain for use as seed in the next crop cycle, using corn grain purchased or intended for other end-uses as seed for cultivation, and exchanging corn grain/seed with other farmers and communities. Under these circumstances, the unintended, accidental, and unauthorized spread of GM corn plants from GM corn grain "*intended for use in dough or tortillas*"[421] is a very real,

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418 As referenced in Mexico's Initial Written Submission, ¶ 106 and footnote 97.

419 Dyer, G., Serratos-Hernández, J., Perales, H., Gepts, P., Piñeyro-Nelson, A., Chávez, A. Salinas-Arreortua, Yúñez-Naude, A., Taylor, J. and Álvarez-Buylla, E. "*Dispersal of transgenes through corn seed systems in Mexico*", 2009, PLoS One, p. 2 ("In addition to seed systems, farmers occasionally use grain purchased as food or feed in lieu of seed."). **MEX-089**.

420 Rendón-Aguilar, B., Bravo-Avileza, D. & Rocha-Munivea, M., "*Temporal dynamics of transgenic sequences detected in native corn varieties in their center of origin*", 2019, Revista Mexicana de Biodiversidad, p. 9. **MEX-093**.

421 US Rebuttal Submission, ¶ 138.

material, and foreseeable risk. Moreover, it is not merely theoretical. As Mexico explained in its Initial Written Submission, transgenic contamination of native corn varieties has already occurred in Mexico.[422]

317. Where GM corn spreads in this way, through the traditional farming practices outlined above, transgenic contamination in Mexico is not a matter of cross-pollination between one field of GM monoculture and a neighbouring field of non-GM monoculture. Rather, it is a matter of GM corn and Mexico's non-GM native varieties of corn *growing together in the same milpas and fields*.[423] Contaminated corn grains produced from cross-pollination and harvested from those fields are saved for cultivation in the next crop cycle, exchanged with other farmers and communities, and sold locally (where they may be purchased as food or feed grains, but mixed with seed for cultivation by other farmers). Thus, the United States' suggestions of "[u]sing buffer crops, isolation distances, barriers, and variation in planting times"[424] are entirely inapplicable to the circumstances in Mexico in which the risks of transgenic contamination arise. These suggestions are not only *irrelevant* with respect to unintentional, accidental, uncontrolled, and unauthorized spread of GM corn, they are simply not *applicable* in the specific circumstances in Mexico.

318. Further, the United States suggests that cross-pollination in corn plants is an unlikely or rare occurrence. In this regard, it contends that "corn pollen is relatively large and heavy", it "typically does not travel far", "98 percent of pollen travels no further than ten meters", "the likelihood of a GE plant cross-pollinating with a non-GE plant depends on a combination of factors that must align for cross-pollination to even occur", and "studies have found that cross-pollination levels are a mere one percent or less where GE crops and non-GE crops are grown at a distance of 30 meters".[425] These submissions are misleading as presented. The relevant facts are that cross-

422 Mexico's Initial Written Submission, ¶ 104-107.

423 As Mexico explained in its Initial Written Submission, "transgenic introgression can occur when farmers in rural communities plant and store imported GM grains together with grains of native corn". Mexico's Initial Written Submission, ¶ 106, citing Secretariat Report of the Commission for Environmental Cooperation. "*Corn & Biodiversity. The effects of transgenic Corn in Mexico*". 2004. p. 16. **MEX-095**.

424 US Rebuttal Submission, ¶ 137.

425 US Rebuttal Submission, ¶¶ 136-137.

pollination does happen, transgenic introgression and contamination of non-GM crops does happen, and there are even examples of this occurring in the United States, with serious economic consequences, despite precautionary measures.[426]

319. For example, one of the articles cited by the United States explains that "studies clearly show that even though maize pollen is relatively large and heavy, it can travel long distances on the airflow when suitable meteorological conditions occur. Some degree of cross-pollination is therefore almost inevitable".[427] Another article explains that "[m]aize is a cross-pollinated crop relying on wind for the dispersal of its pollen", and "the natural pollen flow between neighboring fields" is one of the sources of "adventitious mixing between GM and non-GM material".[428] Another explains that, "[a]lthough measures to reduce the likelihood of the adventitious presence of GMOs in organic products are regularly implemented by farmers, eliminating the risk entirely is not possible".[429]

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[426] In the written views submitted by the Centre for Food Safety (CFS) in this dispute, two examples of transgenic contamination are described. The first example involves a GM corn variety called "StarLink", which was approved in the United States for use in animal feed, but not for human food, due to concerns about the allergenicity of the transgenic *Cry9c* insecticidal toxin that it expressed. A scientific study reports that, "[t]heoretically, corn grown within 660 ft [*approximately 200 meters*] of StarLink corn could produce the toxin because of cross-pollination", and therefore "a 660-ft buffer zone was required to segregate StarLink corn from other corn varieties". Nonetheless, StarLink contaminated the human food supply, and "[t]here are strong indications that StarLink corn pollinated other varieties, based on monitoring of food items that contain not yellow StarLink corn but other varieties of white corn". See CFS, NGE Written Views, p. 5; Bucchini & Goldman, "Starlink Corn: A Risk Analysis", *Environmental*

Health Perspectives 110(1): 5-13, **MEX-408**. The other example involves the GM corn variety "Enogen", developed for industrial biofuel processing and unsuitable for human consumption. Despite a "30-foot buffer zone from neighboring corn" and warnings from industry stakeholders, it is reported that Enogen "has widely contaminated the U.S. corn supply", affecting growers of white corn and the human food supply. See CFS, Written Views, pp. 6-8.

See CFS, NGE Written Views, pp. 5-9,

[427] M. Palaudelmàs et al., "Sowing and Flowering Delays Can Be an Efficient Strategy to Improve Coexistence of Genetically Modified and Conventional Maize," 44 Crop Science 2404, p. 2405 (Nov. 2008). **USA-262**.

[428] Y. Devos et al., "The Co-existence Between Transgenic and Non-transgenic Maize in the European Union: A Focus on Pollen Flow and Cross-Fertilization," 4 Environmental Biosafety Research 71, 77-84, p. 73 (2005). **USA-265**.

[429] M.A. Sánchez & H. Campos, "Coexistence of Genetically Modified Seed Production and Organic Farming in Chile," 12 GM Crops & Food 509, p. 509 (2021). **USA-266**.

320. The following scientific discussion provides a relevant and practical summary of the of the risks of transgenic contamination arising from the unintentional, accidental, or unauthorized spread of GM corn:

> It isn't easy to keep crop genes from wandering. For example, plant breeders trying to create corn seed of high genetic purity have recognized that the physical separation of different corn varieties by 200 m (660 feet) will still result in "contamination" due to cross-pollination at levels of about 0.1%. It is well known that most crops naturally mate with their wild relatives as well. Seeds don't stay in place either. They can persist in the soil seed bank. They can mix in the nooks and crannies of harvesting equipment. They can bounce out of vehicles transporting them and germinate on roadsides. The movement of unwanted crop genes into the environment may pose more of a management dilemma than unwanted chemicals. A single molecule of 1,1,1,-trichloro-2,2-bis(*p*-chlorophenyl) ethane remains a single molecule or degrades, but a single crop allele has the opportunity to multiply itself repeatedly through reproduction, which can frustrate attempts at containment. When crop genes arrive in locations for which they were not intended, they sometimes persist and at times spread.
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> …
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> How likely is it that corn genes will end up where they shouldn't be? Without efforts to isolate corn populations so that they don't cross-pollinate and without efforts to keep seed for different uses separate, inadvertent mixing of genetic material in corn is so likely that some mixing is a certainty. The "Starlink" GM corn incident of 2000 illustrates how easily things can get out of hand, even when some attempts are made to maintain segregation.
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> …
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> Food, often in the form of living propagules (seeds or other), often moves beyond the borders of the United States—sold, sent as aid, or in the pockets of travelers. Living seeds of an American variety can end up in distant communities. For annual food crops, seeds are saved and replanted as open-pollinated landraces in most of the world. Those farmers may exchange seed with each other and experiment with seed from distant sources.[430]

321. The United States also argues that, even if transgenic contamination of Mexico's native corn varieties does occur, "the United States is not aware of any scientific evidence supporting that such activity would present a risk to plant life or health".[431] At best, this statement reflects the United States's failure to acknowledge or take into account the specific circumstances in Mexico,

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[430] Norman C. Ellstrand, "*Going to 'Great Lengths' to Prevent the Escape of Genes That Produce Specialty Chemicals*", Plant Physiol, August 2003, 132(4): 1770–1774, pp. 1771, 1772, **MEX-409**

[431] US Rebuttal Submission, ¶ 138.

including the natural biodiversity of Mexico's unique landraces and varietals of native corn, and the vulnerability of this biodiversity to genetic erosion through transgenic contamination.[432]

322. As Mexico explained in its Initial Written Submission, Mexico is a "genetic reservoir of the world's most important food crop".[433] The scientific evidence on the record confirms that, "[f]rom an agri-biological perspective, Mexico is one of the most important genetic reservoirs of maize, whose 59 native races and thousands of varieties have been adapted to very different climatic conditions and agronomic practices", accounting for " approximately 50% of the world's genetic variability for this crop".[434] The natural biodiversity of Mexico's unique native races and varieties of corn, which is strongly associated with the Indigenous peoples and campesinos (small-scale producers) who shape it through traditional practices, "maintains alleles that could be necessary to face new selective pressures in response to changing environmental conditions".[435] This variability could therefore "help contend with the negative impacts of environmental changes which could imperil future maize production in Mexico and elsewhere".[436] Therefore, "the

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[432] Ayala-Angulo, M., et al. "*Local and Regional Dynamics of Native Maize Seed Lot Use by Small-Scale Producers and Their Impact on Transgene Presence in Three Mexican States*", 2023, Plants, p. 13. **MEX-088**; Ureta, C., González, J., Piñeyro-Nelson, A., Couturier, S., González-Ortega, E., and Álvarez-Buylla, E., "*A data mining approach gives insights of causes related to the ongoing transgene presence in Mexican native corn populations*", Agroecology and Sustainable Food Systems, 2023, p. 202. **MEX-092**.

[433] Mexico's Initial Written Submission, ¶ 8, 15, 45-52, 127, 478 ("This biodiversity encompasses the natural genetics and phenotypic diversity of various unique and cultivated varieties in Mexico. Traditional Mexican agriculture has been developed over generations in different biomes and habitats around the country, resulting in robust genetic diversity and a wide range of colors, flavors and other characteristics important to Mexican culture, including its traditions and gastronomic heritage. This has been created by small-scale farmers who represent the majority of the national corn production. They grow almost 60 varieties and races of corn native to Mexico, forming natural genetic reserves adapted to diverse environmental conditions. This is part of the 'biocultural wealth' that is expressly indicated at the end of the preamble of 2023 Decree").

[434] Ureta, C., González, J., Piñeyro-Nelson, A., Couturier, S., González-Ortega, E., and Álvarez-Buylla, E., "*A data mining approach gives insights of causes related to the ongoing transgene presence in Mexican native corn populations*", Agroecology and Sustainable Food Systems, 2023, p. 189. **MEX-092**.

[435] Ayala-Angulo, M., et al. "*Local and Regional Dynamics of Native Maize Seed Lot Use by Small-Scale Producers and Their Impact on Transgene Presence in Three Mexican States*", 2023, Plants, p. 2. **MEX-088**.

[436] Ureta, C., González, J., Piñeyro-Nelson, A., Couturier, S., González-Ortega, E., and Álvarez-Buylla, E., "*A data mining approach gives insights of causes related to the ongoing transgene presence in Mexican native corn populations*", Agroecology and Sustainable Food Systems, 2023, p. 189. **MEX-092**.

preservation of native maize varieties at their center of origin and diversification is strategic for food security at the national and international level".[437]

323. The United States appears to suggest that because transgenic contamination through "transgene flow" involves the same "biological processes" as "non-transgene flow", there is no risk of harm to Mexico's native corn varieties. However, the natural biological processes involved in gene flow between corn plants are not the problem. Transgene flow is *not* equivalent to natural, "non-transgene" flow for one critically important reason — the involvement of the transgenic material that is *foreign* to natural corn.

324. Unlike natural gene flow, transgenic contamination involves the *replacement* of natural corn genes with *foreign* genes — that is, genes that are *not* part of the natural genome of corn. In turn, the foreign genes code for one or more foreign proteins that are not naturally produced (i.e., "expressed") as part of the metabolism or physiology of corn plants. Moreover, the GM transformation process, through which the foreign gene(s) are incorporated into the GM corn variety, is "known to produce hundreds or thousands of sites of DNA damage in the resultant GM crop", "inevitably alter[ing] patterns of gene function, resulting in altered biochemistry".[438] For example, an integrative scientific analysis of the GM maize variety NK603 determined that "the GM transformation process used to generate NK603 maize caused deep alterations in the proteome and metabolome profiles of this crop and results in marked metabolic changes". This led

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[437] Ureta, C., González, J., Piñeyro-Nelson, A., Couturier, S., González-Ortega, E., and Álvarez-Buylla, E., "*A data mining approach gives insights of causes related to the ongoing transgene presence in Mexican native corn populations*", Agroecology and Sustainable Food Systems, 2023, p. 189 ("Preserving maize diversity in Mexico will enable millions of people to keep their livelihood, as well as preserve their diet, traditions and rituals, which in turn have been linked with ethnolinguistic diversity. To conserve such biocultural diversity, which is subject to a dynamic in situ evolutionary process mostly in the hands of small-scale farmers and peasants that sow native maize in diverse landscapes, there is a need to support them and mitigate possible risks"). **MEX-092**; Ayala-Angulo, M., et al. "*Local and Regional Dynamics of Native Maize Seed Lot Use by Small-Scale Producers and Their Impact on Transgene Presence in Three Mexican States*", 2023, Plants, p. 2 ("campesino production plays a crucial role in local food security, particularly in rural communities"). **MEX-088**.

[438] Expert Report of Prof. Michael Antoniou, citing "Mesnage-Robin, Z-Sarah, Tenfen-Agapito, VilperteV-inicius, Renney-George, Ward- Malcolm, Séralini-Gilles Eric, O-Nodari Rubens and N-Antoniou, Michael (2016). "*An integrated multiomics analysis of the NK603 Roundup-tolerant GM maize reveals metabolism disturbances caused by the transformation process*", **MEX-135**".

researchers to conclude "that NK603 maize is not compositionally equivalent to its non-GM isogenic counterpart as previously claimed".[439]

325. The outcomes of transgenic contamination — foreign genes that force corn plants to divert resources to produce foreign proteins and inherited genetic damage that was collateral to the GM transformation process — are not equivalent to the outcomes of natural gene flow or hybridization between natural races or varieties of native corn in Mexico. The substitution of the natural corn DNA in native corn with the damaged and disrupted DNA of GM corn, including one or more foreign genes, is destructive and harmful to the natural biodiversity and genetic integrity of Mexico's native corn. Thus, one of the challenges currently facing *in situ* conservation of Mexico's native races and varieties of corn is "the ongoing presence of transgenes and their potential introgression into native maize populations, which could alter endogenous genes, potentially affecting plant characteristics such as seed quality and fitness".[440]

326. Finally, the United States argues that "there are numerous less trade-restrictive measures available to mitigate gene flow between corn plants, irrespective of whether the plant is GE or non-GE".[441] However, none of the suggested alternatives briefly listed by the United States are appropriate to the circumstances in Mexico, let alone capable of making a meaningful contribution to the protection of native corn from the risks of transgenic contamination arising from the unintentional, accidental, unauthorized, or uncontrolled spread of GM corn.

327. The United States provides the following list: "adapting co-existence measures that are employed around the world to mitigate cross-pollination between native and non-native crops, such as spatial isolation and natural barriers; clean equipment and storage measures; and community outreach and education".[442] To start with, the risk at issue is not "cross-pollination

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439 Mesnage-Robin, Z-Sarah, Tenfen-Agapito, VilperteV-inicius, Renney-George, Ward- Malcolm, Séralini-Gilles Eric, O-Nodari Rubens and N-Antoniou, Michael (2016). "*An integrated multiomics analysis of the NK603 Roundup-tolerant GM maize reveals metabolism disturbances caused by the transformation process*". Nature, p. 2. **MEX-135**.

440 Ureta, C., González, J., Piñeyro-Nelson, A., Couturier, S., González-Ortega, E., and Álvarez-Buylla, E., "*A data mining approach gives insights of causes related to the ongoing transgene presence in Mexican native corn populations*", Agroecology and Sustainable Food Systems, 2023, p. 189. **MEX-092**.

441 US Rebuttal Submission, ¶ 139.

442 US Rebuttal Submission, ¶ 139.

between native and non-native crops". In the traditional practices that Indigenous peoples and campesinos use to "dynamically shape maize's genetic diversity", there is some experimentation with corn seed "from distant sources".[443] Rather, Mexico is concerned with the risks of *transgenic* contamination arising from the unintentional, accidental, unauthorized, or uncontrolled spread of *GM corn* in Mexico. As the United States has not identified alternative measures to address the relevant risks, its suggestions are *prima facie* inappropriate.

328. In any event, as Mexico has previously explained, co-existence measures that are designed and appropriate for use in industrialized agriculture — i.e., the cultivation of monocultural crops in large, separate fields using seed purchased in bulk from seed suppliers — are simply not relevant or applicable to the traditional farming practices and small-scale agriculture in Mexico. These "co-existence" measures contemplate the deliberate, purposeful cultivation of GM corn. However, there is currently a moratorium on the commercial cultivation of GM corn in Mexico, and Article 6.1 of the 2023 Decree (which the United States has not challenged) restricts the use of GM corn seed for cultivation in Mexico. Even if such measures could be applied in Mexico, they are simply irrelevant in relation to the *unintentional*, *accidental*, *unauthorized*, or *uncontrolled* spread of GM corn.

329. On the basis of the foregoing, it is clear that the interests and values at stake — i.e., the health and life of Mexico's native corn, including the natural biodiversity and natural genetic integrity of the unique landraces and varieties in Mexico — is extremely important, particularly to farmers and campesinos, Indigenous people, and peasant communities in Mexico.

330. In addition, the "End-Use Limitation" is more effective at contributing to the objective of protecting native corn from the risks of transgenic contamination arising from the spread of GM corn than any of the alternatives briefly listed by the United States. Mexico acknowledges that it is not possible to eliminate the risks of transgenic contamination in Mexico. As Mexico explained in its Initial Written Submission, the appropriate level of protection seeks to mitigate the damage

[443] Ayala-Angulo, M., et al. "*Local and Regional Dynamics of Native Maize Seed Lot Use by Small-Scale Producers and Their Impact on Transgene Presence in Three Mexican States*", 2023, Plants, p. 2. **MEX-088**; Norman C. Ellstrand, "Going to 'Great Lengths' to Prevent the Escape of Genes That Produce Specialty Chemicals", Plant Physiol. 2003 Aug; 132(4): 1770–1774, p. 1772

caused to native corn by slowing or stopping the rate of transgenic contamination. The objective is to try to limit the extent of future damage and to support efforts to reverse or eliminate existing damage, if possible.[444] In this respect, the "End-Use Limitation" works in conjunction with the restriction on the use of GM corn seed for cultivation under Article 6.1 of the 2023 Decree.[445] Under the circumstances, this is the most appropriate level of protection available.

331. Finally, for the same reasons explained in relation to the measure's SPS purpose of protecting human health, the "End-Use Limitation" involves a very low degree of trade restrictiveness, if any, under the circumstances.

332. The weighing and balancing of these factors establishes that the "End-Use Limitation" is "necessary" within the meaning of Article XX(b) of the GATT 1994 and "only applied to the extent necessary" within the meaning of Article 2.2 of the SPS Agreement and Article 9.6.6(a) of the USMCA. In addition, the foregoing also demonstrates that the "End-Use Limitation" is "not more trade restrictive than required to achieve the level of protection" that Mexico "has determined to be appropriate" within the meaning of Article 9.6.10 of the USMCA.

D. The "Gradual Substitution" instructions in Article 7 and 8 of the 2023 Decree are not being applied to protect human, animal or plant life or health

333. As Mexico explained in its Initial Written Submission, the "Gradual Substitution" instructions in Articles 7 and 8 of the 2023 Decree are simply an executive order to the competent authorities in Mexico to carry out the "appropriate actions" at some point in the future. These instructions alone do not constitute the "appropriate actions". Those actions do not yet exist in any form. They have not yet been designed, proposed, adopted, or implemented, let alone applied by "the agencies and entities of the Federal Public Administration". Thus, no action has been taken. There has been no "substitution ... of genetically modified corn for animal feed and industrial use

444 Mexico's Initial Written Submission, ¶ 346. The United States incorrectly alleges that this appropriate level of protection is "undefined". In Mexico's view, it is neither realistic nor appropriate to determine a level of protection in quantitative terms or attempt to describe a level of protection in highly specific qualitative terms.

445 Mexico's Initial Written Submission, ¶ 348.

for human food", and there is currently no regulatory or administrative mechanism to begin to carry out such substitution.[446]

334. Moreover, as Mexico has explained, the instructions in Articles 7 and 8 of the Decree are not capable, on their own, of being "applied" to protect human health and/or native corn in Mexico. To the extent that they constitute a measure that is currently being "applied" to someone or something, they are being applied to direct the competent authorities in Mexico to "carry out the appropriate actions" in order to *create* an SPS measure in the future. The instructions specify that this must be done "in accordance with scientific principles and relevant international standards, guidelines or recommendations", and that the "relevant scientific studies will be carried out", including "a study on the consumption of genetically modified corn and the possible damages to health". All of these steps remain in the future.

335. In this regard, the scope and structure of the "gradual substitution" measure(s), including the mechanisms, conditions, and exceptions that would be applied and the products that would be covered, are all currently unknown. How the competent authorities will develop and carry out the "appropriate actions" in accordance with the instructions in Articles 7 and 8 remains to be seen. It cannot be assumed at this stage, before any of these steps have taken place, that the future "gradual substitution" measure(s) will be inconsistent with SPS requirements under the USMCA and the SPS Agreement.

336. Article 9.6.6(a) of the USMCA, like Article 2.2 of the SPS Agreement, expressly regulates the extent to which SPS measures "are applied" to "protect human, animal or plant life or health". If a measure is not being "applied" to "protect human, animal or plant life or health", it cannot be said to infringe the obligation under Article 9.6.6(a). This is why Mexico has repeatedly explained that the claims raised by the United States against the "Gradual Substitution" instructions are, at best, premature.

337. Mexico simply does not understand how it could be expected to defend measures which have not yet been designed, proposed, adopted, or implemented, let alone applied.

[446] See Mexico's Initial Written Submission, ¶ 390-394.

E. The End Use Limitation is consistent with articles 9.6.3, 9.6.6 (b) and 9.6.8 of the USMCA

338. Mexico reiterates that it is in compliance with the interrelated obligations of Articles 9.6.3, 9.6.6 (b) and 9.6.8 of the USMCA.

339. Article 9.6.3 requires that a party base its SPS measures on international standards, guidelines and recommendations, provided that doing so meets the party's appropriate level of protection (ALOP). Article 9.6.3 recognizes that if an SPS measure is not based on relevant international standards, guidelines, or recommendations (e.g., because they would not meet a party's ALOP), or relevant international standards, guidelines, or recommendations do not exist, a party may base its SPS measure on an "assessment as appropriate to the circumstances" of the risk to human, animal, plant life or health.

340. Where a party undertakes a risk assessment, Article 9.6.8 (a) and (b) require that the assessment is "appropriate to the circumstances" of the risk to human, animal, plant life or health, and that it takes into account relevant scientific evidence as well as relevant guidance of the WTO SPS Committee and international standards, guidelines and recommendations.

341. Article 9.6.6 (b) elaborates on the above principles, requiring a Party to ensure that its SPS measures are based on relevant scientific principles, taking into account relevant factors including, if appropriate, different geographic conditions.

342. An SPS measure is considered to be based on a risk assessment when the results of the risk assessment sufficiently justify --or reasonably support-- the SPS measure in question. 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.[447]

343. Further, WTO Panels and the Appellate Body have clarified that ensuring that a risk assessment is "appropriate to the circumstances" involves assessing risk on a case-by-case basis, including country-specific situations.[448]

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[447] Appellate Body Report, *India - Agricultural Products,* ¶ 5.16 **MEX-290**; Appellate Body Report, *EC - Hormones*, ¶¶ 186 and 193. **MEX-286**. The decisions of WTO Panels and the Appellate Body on these issues apply Article 5.1 of the SPS Agreement, which Article 9.6.3 of the T-MEC closely follows.

[448] Panel Report, *Australia - Salmon,* ¶ 8.71. **MEX-295.**

344. As explained below, Mexico has demonstrated that relevant international standards do not exist or otherwise meet Mexico's appropriate levels of protection for (i) human health in relation to the risks arising from direct consumption of transgenic materials and pesticide residues in GMO corn grain in Mexico, and (ii) native corn in relation to the risks arising from the unauthorized or inadvertent spread of GM corn from GM corn grain. Mexico undertook an assessment of these risks to human health and the health of native corn, which took into account available relevant scientific evidence. The Risk Assessment is appropriate to the circumstances because it reflects specific situations relevant to the risks to human health and native corn in Mexico. Moreover, the End-Use Limitation is based on the Risk Assessment.

345. The United States asserts that the Risk Assessment is an "after-the-fact" attempt to justify the End Use Limitation. By characterizing the Risk Assessment as a hastily compiled document with little scientific rigor, the United States seeks to ignore the considerable body of scientific information gathered and examined over decades by Mexican authorities regarding the real risks of glyphosate and GMO corn to human health and to native corn. The United States also pretends that Mexican authorities kept this information to themselves and are disclosing it for the very first time as part of this dispute. That is far from the truth.

346. As Mexico has explained, during a period of more than four years, Mexico shared with the United States compilations of scientific information discussing concerns about the safety of glyphosate and the biosafety of GMOs, and highlighting the lack of scientific consensus on the safety of consumption of GM corn. Much of this same information is compiled as part of the National Biosafety Information System (SNIB) maintained by CIBIOGEM, which informed the 2020 Scientific Record on Glyphosate and GM crops. The 2020 Scientific Record on Glyphosate and GM crops was the basis of the 2020 Corn Decree, the predecessor to the 2023 Corn Decree. The SNIB contains updated scientific studies and literature on the risks of glyphosate and GMO corn, which further support the 2020 Scientific Record on Glyphosate and GM crops and are all part of Mexico's Risk Assessment. It is disingenuous for the United States to suggest that Mexico's Risk Assessment was assembled for purposes of this dispute.

347. The United States cannot reasonably discount the numerous scientific studies and data collected as part of the depository of information within the SNIB that contributed to the formulation of the 2020 Scientific Record on Glyphosate and GM crops and the information later

added as supplemental. All of this scientific literature rightly constitutes the Risk Assessment. It is immaterial whether or not a particular article was listed in the 2020 Scientific Record on Glyphosate and GM crops. So long as the information was part of the SNIB and "sufficiently warrants", or "reasonably support[s]", the maintenance of the End Use Limitation, the information is part of the Risk Assessment.[449]

348. It is also pertinent to note that the U.S. complaint that the CONAHCYT Dossier contains information unrelated to human health risks from consuming GM corn overlooks that the Dossier was created to support the 2020 Decree (and, in turn, the 2023 Decree) as a whole, including elements not challenged by the United States in this arbitration. The fact that the Dossier covers the other issues addressed in the 2023 Corn Decree in fact supports the conclusion that it was not prepared merely for this dispute.

1. International Standards do not exist and/or do not meet Mexico's ALOP as required under Articles 9.6.3 and 9.6.8 (b)

349. Article 9.6.8(b) requires that risk assessments and risk management take into account relevant guidance of the WTO SPS Committee and international standards, guidelines, and recommendations of the relevant international organization. However, Article 9.6.3 recognizes that where international standards do not exist or where they do not meet a Party's appropriate level of protection, a Party may base its sanitary or phytosanitary measure on an assessment, as appropriate to the circumstances, of the risk to human, animal or plant life or health.

350. The United States and Canada argue that the relevant international standards for assessing risks to human health from consuming GM corn are the Codex Guidelines and Codex Principles.[450] But Mexico has adopted a "zero risk" level of protection to address risks from direct consumption of GM corn grain in nixtamalized dough, tortillas and related foods, and the international standards cited by the United States and Canada do not address the ALOP that Mexico considers relevant and appropriate to address risks to the health of its population.

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449 Panel Report, *EC - Approval and Marketing of Biotech Products*, ¶¶ 7.3029-7.3030 and 7.3034. **MEX-277.**

450 US Reply Submission, ¶ 87; Canada's Third Party Submission, ¶ 44.

351. In particular, the Codex Maximum Residue Levels (MRLs) that identify residue limits of glyphosate for corn are not appropriate or relevant for the unique circumstances in Mexico. As explained previously, the very high consumption levels of whole corn grain in Mexico, coupled with the fact that corn grain is mostly consumed in unprocessed form such as nixtamalized dough or tortillas, means that global or regional averages for daily consumption – which are based on consumption patterns of other countries – are not applicable to Mexico.[451] Moreover, the Codex does not address the toxicity of transgenic protein in GM corn (e.g., insecticidal toxins of the Cry family), nor does it provide MRLs for such transgenic proteins in GM corn grain, nor does it address the risks arising from dietary exposure to glyphosate residues and/or transgenic protein in minimally-processed foods made with whole GM corn grain. Under these circumstances, Mexico undertook its own assessment of the risk to the health of its population from the consumption of GM corn grain.[452]

352. The United States[453] and Canada[454] also state that the relevant standard for assessing risk to native corn is the IPPC standard ISPM-11 related to pest risk analysis for quarantine pests. However, as Canada acknowledges, ISPM 11 provides that "zero-risk is not a reasonable option", and requires instead that parties "manage risk to achieve the required degree of safety that can be justified and is feasible within the limits of available options and resources".[455]

353. Mexico recalls that the End-Use Limitation serves a number of purposes at once, including the SPS purposes of protecting human health and protecting native corn in Mexico. As the ALOPs for each of these SPS goals co-exist in relation to the same measure, the "zero-risk" ALOP for the protection of human health overlaps with the lower ALOP for the protection of native corn. For

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451 Canada submits that "Codex MRLs do take into account varying patterns of food consumption from different groups of countries in the world and categorize those groups based on their varying patterns of food consumption." Canada's Third Party Submission, ¶ 50. Although the "cluster" approach may be useful to discern general trends and dietary exposure at a broad, multi-country level, it is not specific to food consumptions patterns in any individual country, and accordingly it has limited relevance, if any, for Mexico's particular situation.

452 Mexico's Initial Submission, ¶ 419-428.

453 US Reply Submission, ¶ 92.

454 Canada's Third Party Submission, ¶ 75-83.

455 Canada's Third Party Submission, ¶ 82.

this reason, the ALOPs cannot be examined in isolation from one another.[456] Under these circumstances, the ISPM-11 guidance regarding a "zero-risk" ALOP for the purpose of plant protection must be considered in the light of the overriding ALOP for the purpose of protecting human health in Mexico. Ultimately, this should not prevent the measure from contributing to the purpose of protecting native corn at the same time that it is being applied to protect human health in Mexico from the risks arising from the direct consumption of transgenic contaminants and glyphosate residues in GE corn grain.[457]

2. Mexico's Risk Assessment is "appropriate to the circumstances" of the risks to plant and human life in Mexico and accounts for available relevant scientific evidence

354. As discussed below, (i) the 2023 Decree incorporates mutually supportive measures that should not be viewed in isolation, (ii) the Risk Assessment in relation to the risk to genetic diversity of corn is appropriate to the circumstances and accounts for available scientific evidence, (iii) the Risk Assessment in relation to human health is appropriate to the circumstances and accounts for available scientific evidence, and (iv) the End Use Limitation is based on the Risk Assessment.

a. The 2023 Decree includes mutually supportive measures

355. The 2023 Decree is not limited to the specific measures incorrectly labelled by the United States as the "Tortilla Corn Ban" and "Substitution Instruction". Rather, the 2023 Decree is a combination of mutually supportive measures aimed at addressing risks to human health, risks to the health, natural biodiversity, and conservation of native corn, and risks to Mexico's rich cultural heritage in native corn. These measures address sanitary and phytosanitary risks as well as social, economic and cultural concerns of particular importance to Mexico.

356. First and foremost, the 2023 Decree addresses the risk from exposure to glyphosate as a herbicide as well as agrochemicals containing glyphosate as an active ingredient.[458] To that end, the 2023 Decree prohibits the acquisition, distribution, promotion or import of glyphosate and

456 Mexico's Initial Written Submission, ¶ 349.

457 Mexico's Initial Written Submission, ¶ 349.

458 See Decree 2023, Recitals, **MEX-167**; see also Mexico's Initial Submission at ¶ 3.

agrochemicals containing glyphosate as an active ingredient within public programs,[459] and revokes authorizations and permits for the import, production, distribution and use of glyphosate.[460] The 2023 Decree seeks to promote food self-sufficiency and the development of sustainable and culturally appropriate practices, and calls for the substitution of glyphosate with other sustainable alternatives by a given timeline. It also calls on regulatory authorities within Mexico to support and promote scientific research towards the development of agro-ecological and healthy practices as an alternative to glyphosate.[461]

357. The Decree thereafter addresses under Article 6.1 the risk from GM corn seed/grain, given its close association with the use of glyphosate in the cultivation of GM corn.[462] The risk is addressed by revoking existing permits and refraining from granting future permits for the release of GM corn seed.[463] This measure is further supported by the End-Use Limitation, which is a related measure that prohibits authorizations for use of GM corn grain for the specific end-use of human consumption through nixtamalization and flour processing.[464] Although the United States incorrectly refers to this particular measure as the "Tortilla Corn Ban", describing it as a ban on importation,[465] the measure does not impose a ban or prohibition on imports of white corn or GM corn.[466] The measure simply establishes a restriction on the end-use of GM corn, whether imported or otherwise, in nixtamalization and flour processing.[467] The measures listed within the subparagraphs of Article 6 are mutually supportive as well as supportive of the broader measures on glyphosate. As explained previously, a restriction on the end use of GM corn disincentivizes

459 See Decree 2023, Art. 3, **MEX-167**.
460 See Decree 2023, Art. 4, **MEX-167**.
461 See Decree 2023, Art. 5, **MEX-167**.
462 See Decree 2023, Art. 6, **MEX-167**; see also Mexico's Initial Submission at ¶ 160-168.
463 See Decree 2023, Art. 6.1, **MEX-167**.
464 See Decree 2023, Art. 6.2, **MEX-167**.
465 US Rebuttal Submission, ¶ 4(i), 91, 187.
466 Mexico's Initial Submission, ¶ 262, 263 and 279.
467 See Decree 2023, Art. 6.2, **MEX-167**.

the planting of GM corn, which in turn encourages the reduction and eventual elimination of glyphosate in agriculture.[468]

358. Importantly, as the chapeau of Article 6 makes clear, Mexico's concerns with respect to the risks associated with GM corn grain are not limited to the protection of human health alone. The goals of the measure extend to preserving food security, sovereignty, protection of native corn, the milpa, biocultural wealth, peasant communities, and gastronomic heritage.[469]

359. These goals are not simply abstract ideals. They are of particular relevance to Mexico where corn is considered cultural heritage, biocultural wealth, an integral part of the national identity in Mexico, and vitally important to Mexico's indigenous people.[470] This situation in Mexico is in stark contrast with that in the United States and Canada, where corn is a function of corporate agriculture, monocultures of corn are commercially farmed primarily for industrial food processing, and the cultivation of corn (or any other food crop) is divorced from cultural stewardship of indigenous peoples.[471]

360. The Risk Assessment, as described in more detail below, specifically addresses the particular circumstances around Mexican production of corn, characterized by small, peasant-owned farms, indigenous communities and informal exchange systems.[472] It also recognizes the significance of native corn within indigenous communities, where its preservation and propagation are an integral part of the cultural identify of such people.[473] By evaluating the risks of GM corn to native corn and indigenous communities, the Risk Assessment is tailored to the specific

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468 Mexico's Initial Submission, ¶ 287 and 288. Note the courses of action listed in Articles 7 and 8 are not implemented measures. Rather they are instructions for gradual substitution of genetically modified corn for industrial use for human consumption at some later point in the future in accordance with scientific principles and relevant international standards, guidelines or recommendation. See Decree 2023, Art. 7 and 8, **MEX-167**.

469 See Decree 2023, Art. 6 chapeau, **MEX-167**.

470 Mexico's Initial Submission, ¶ 56-59.

471 See Corn and Biodiversity: Effects of transgenic corn in Mexico, **MEX-095** at p. 23. "Corn has important cultural, symbolic and spiritual values for most Mexicans, which is not the case in Canada and the United States. The risk assessment of transgenic maize in Mexico is necessarily linked to these values."

472 Mexico's Initial Submission, ¶ 48-51.

473 Mexico's Initial Submission, ¶ 56-59.

circumstances prevalent in Mexico.[474] It is therefore in compliance with Article 9.6.3 and Article 9.6.8(a) of the USMCA.

b. The Risk Assessment is appropriate to the circumstances of the risks to genetic diversity of native corn and accounts for available scientific evidence

361. Mexico has explained previously the important role of corn in the cultural, social, agricultural, and culinary traditions of the Mexican people as well as with respect to the cultural identity of indigenous communities. Indigenous people and peasant communities, which are generally synonymous, are the main custodians and stewards managing the genetic diversity of this important grain in Mexico over thousands of years.[475] Indigenous practices maintain the natural genetic biodiversity of native corn, which in turn contributes to long term food security within Mexico.[476]

362. Mexico has implemented numerous laws ensuring the protection of native corn and the well-being of indigenous communities, including the Federal Law for the Promotion and Protection of Native Corn,[477] the Law of Sustainable Rural Development,[478] and the Federal Law for the Protection of the Cultural Heritage of Indigenous and Afro-Mexican Peoples and Communities[479] and General Law of Culture and Cultural Rights.[480] These laws are supplemented by state-level protections for native corn and food heritage, as seen in the laws promulgated by the states of Colima, Guerrero, Michoacán, San Luis Potosí, Sinaloa, State of Mexico and State of Tlaxcala.[481] Mexico's commitment to conservation of biodiversity is further bolstered by its ratification of international conventions such as the Convention on Biological Diversity, the

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474 WTO panels have held that the "phrase 'as appropriate to the circumstances' confers a right and obligation on WTO Members to assess the risk, on a case-by-case basis, in terms of product, origin and destination, including, in particular, country specific situations." See Panel Report, *Australia – Measures Affecting Importation of Salmon*, ¶ 8.71, WT/DS18/R and Corr.1, (6 November 1998).

475 Mexico's Initial Submission, ¶ 53-59.

476 Mexico's Initial Submission, ¶ 60-62.

477 Mexico's Initial Submission, ¶ 201-203 and **MEX-012**.

478 Mexico's Initial Submission, ¶ 216-218 and **MEX-253**.

479 Mexico's Initial Submission, ¶ 219-220 and **MEX-255**.

480 Mexico's Initial Submission, ¶ 221-224 and **MEX-254**.

481 Mexico's Initial Submission, ¶ 495.

Cartagena Protocol on Biosafety to the Convention on Biological Diversity, Nagoya-Kuala Lumpur Protocol on Liability and Redress to the Cartagena Protocol on Biosafety, and the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization.[482] It is important to note that international conventions have the force of domestic law in Mexico and do not need to be separately implemented through domestic legislation.[483]

363. Together, this combination of national, international, and state laws constitutes one of the more robust legal frameworks for the protection of biodiversity and indigenous people in the world. Mexico considers it unfortunate that the United States and Canada have each dismissed the protections afforded to indigenous communities and their native corn within the Mexican legal system, ignoring their relevance to the 2023 Decree.[484]

364. The existence of these various laws is proof that Mexico has taken concrete action over several decades to protect the natural genetic biodiversity of native corn, the role of indigenous people in preserving that diversity, the cultural heritage and identity of indigenous people and peasant communities in relation to Mexico's native corn, and the long-term health and well-being of indigenous people in Mexico. These concerns are not new and Mexico is not addressing them for the first time in the context of the 2023 Decree. Instead, the incorporation of these vital public policy objectives into the 2023 Decree reflects Mexico's recognition of their importance and priority within the Mexican legal system.

365. Indeed, the 2004 report by the Commission for Environmental Cooperation (CEC) reinforces the need for measures to preserve the genetic diversity of native corn which could too

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482 Mexico's Initial Submission, ¶ 198-199.

483 Mexico's Initial Submission, ¶ 197.

484 On the other hand, third party NGE submissions acknowledge the inextricable linkage between biological diversity, native corn, role of indigenous people and food security. *See* Written submission of the Institute for Agriculture and Trade Policy (IATP), the Rural Coalition and the Alianza Nacional de Campesinas, March 14, 2024; Written Submission of the Project on Organization, Development, Education and Research regarding the import and use of genetically modified corn, March 15, 2024; Written view: Fundación Semillas de Vida, March 15, 2024.

easily be lost by virtue of the introduction of GM seeds.[485] The findings of this Report on the entry, establishment and spread of transgenes from GM corn were evaluated in the Risk Assessment and were the basis for the development of, *inter alia*, the measures that are the subject of this dispute.[486]

366. The CEC Report made important findings on the risk to Mexican native corn from GM corn as outlined below:

- Maize diversity in Mexico is maintained mainly by local and indigenous rural communities.[487]
- If farmers have access to transgenic varieties that they perceive as valuable, they will interbreed them with traditional varieties, thereby spreading the transgenes and their traits into the fields of native maize.[488]
- Farmers believe that freedom to exchange seeds, store them for later cultivation and experiment with new seeds is essential for conservation and their cultural identities.[489]
- The main source of transgenes present in Mexican corn breeds is U.S. grown grain.[490]
- Removal of transgenes that have been widely introduced into traditional varieties can be extremely difficult, if not impossible.[491]
- The policy of moratorium on commercial planting of transgenic corn has been undermined by the unauthorized cultivation of imported corn, and does not serve its

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485 Mexico's Initial Submission at ¶ 108-115 and **MEX- 095**. "The CEC was created by Canada, the United States and Mexico in 1994, when the North American Agreement on Environmental Cooperation (NAAEC) came into force." It includes scientific experts from all three countries that prepared the report independent of the three parties.

486 The United States's objection with respect to this report cites language acknowledging the long-term uncertainty around genetic diversity. However, the United States completely ignores the remaining relevant findings which go directly to the heart of the measures at issue. See US Written Submission at ¶ 125.

487 CEC Secretariat. "*Corn & Biodiversity: The Effects of Transgenic Corn in Mexico*", 2004, p. 18, **MEX- 095**.

488 CEC Secretariat. "*Corn & Biodiversity: The Effects of Transgenic Corn in Mexico*", 2004, p. 1, **MEX-095**.

489 CEC Secretariat. "*Corn & Biodiversity: The Effects of Transgenic Corn in Mexico*", 2004, p. 22, **MEX-095**.

490 CEC Secretariat. "*Corn & Biodiversity: The Effects of Transgenic Corn in Mexico*", 2004, p. 16, **MEX-095**.

491 CEC Secretariat. "*Corn & Biodiversity: The Effects of Transgenic Corn in Mexico*", 2004, p. 17, **MEX-095**.

purpose if imports of fertile, unlabeled and unseparated GM corn grain from the United States are allowed.[492]

- Mexico should consider minimizing imports of live transgenic maize from countries that grow GM maize commercially. For example, some importing countries have addressed this issue by milling GM grain at the port of entry.[493]
- Measures should be taken to reduce the likelihood of unauthorized GM maize being planted in Mexico by supporting the existing moratorium on commercial cultivation of GM maize. A significant and "reasonably achievable" reduction in any demonstrated risks would be achieved if the following measures were implemented:[494]
    - A requirement that corn imported from the United States and Canada be labeled, either with an indication of its possible GM corn content or certified as GMO-free.
    - A requirement that all corn imported into Mexico from Canada and the United States that is not certified GMO-free be shipped directly, and without exception, to mills for processing. One implementation mechanism could be a mandatory system of "end-use certificates" for all such imports.

367. The risk to native corn varieties from the entry, establishment and spread of GM corn imported from the United States is clearly established in the 2004 Report. Indeed, the neutral body of experts took the view that Mexico needed to do more beyond the imposition of a planting moratorium if it sought to prevent the establishment and spread of transgenes through GM corn. The panel relied on the precautionary principle in recommending that in addition to the moratorium, Mexico require labelling of GM corn from the United States and Canada as GMO-free. For corn not so labelled, the panel recommended that it be shipped directly to mills for processing and be accompanied by an end-use certificate, to prevent the GM corn grains from being exchanged between farmers and indigenous communities.

368. In light of the risks from imports of GM corn identified by the 2004 Report, Mexico took a measured approach in Article 6 of the 2023 Decree, which serves to protect a number of interests. In this regard, Article 6.2 places a restriction on the use of GM corn grain, regardless of whether

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[492] CEC Secretariat. "*Corn & Biodiversity: The Effects of Transgenic Corn in Mexico*", 2004, p. 25, **MEX-095**.

[493] CEC Secretariat. "*Corn & Biodiversity: The Effects of Transgenic Corn in Mexico*", 2004, p. 27, **MEX-095**.

[494] CEC Secretariat. "*Corn & Biodiversity: The Effects of Transgenic Corn in Mexico*", 2004, p. 31, **MEX-095**.

it is imported or produced domestically, requiring that it not be used for nixtamalization or masa. This measure, operating in conjunction with Article 6.1 of the 2023 Decree, helps to ensure that even when white corn grain intended for direct consumption is used for cultivation, mixed or exchanged with seed for cultivation, or unintentionally lost or discarded under conditions leading to uncontrolled growth, the risks of GM corn propagation or transgenic introgression to the detriment of native corn are minimized.

369. In sum, it was appropriate for Mexico, in conducting its Risk Assessment, to take into consideration the unique circumstances in Mexico and the goals specific to its legal regime for the protection of biodiversity, native corn and the rights and interests of indigenous people. By doing so, the Risk Assessment was tailored and appropriate to the circumstances of the risk to the health of native corn in Mexico.

370. Further, the End-Use Limitation is clearly based on the risks identified in the 2004 Report to native corn varieties from import of GM corn and is in accordance with Articles 9.6.3, 9.6.6(b), and 9.6.8(a) of the USMCA.

c. The Risk Assessment is appropriate to the circumstances of the risk to human health and accounts for available scientific evidence

371. At the outset, Mexico reminds this panel that the 2023 Decree is a set of measures to address the well-documented risks to human health arising from exposure to glyphosate herbicide in agriculture and exposure to glyphosate residue and transgenic proteins in GM corn grain.[495] It is not an isolated measure to "ban" the importation of GM corn grain for use in dough or tortilla, as the United States argues.

372. Glyphosate is a highly toxic herbicide and exposure to the herbicide even at low doses is known to cause liver cancer, diabetes and cardiovascular diseases, reproductive problems and birth defects among many other serious illnesses. Studies show that even rainwater from GM corn crops sprayed with glyphosate that eventually reaches aqueous bodies and is consumed can cause endocrine disrupting effects in humans.[496]

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495 See Decree 2023, Art. 6; see also Mexico's Initial Submission, ¶ 160-168.

496 Mexico's Initial Submission, ¶ 171-174.

373. The United States seeks to dismiss this scientific evidence because it pertains to exposure from "spraying" of glyphosate on GM corn rather than consumption of GM corn sprayed with glyphosate.[497] Mexico continues to affirm the relevance of this information. At a threshold level, this uncontroverted evidence establishes that even at low doses, long-term exposure to glyphosate can cause acute and chronic toxicity resulting in damage to human health.[498] The evidence of risk even at low doses is especially relevant in the context of Mexico, where the population consumes a significant amount of corn grain in unprocessed form, much more than any other country.

374. It was appropriate for Mexico to take into account the very high levels of direct consumption of whole corn grain in nixtamalized masa, tortilla, and related products as part of its Risk Assessment.[499] High consumption levels are particularly relevant to Mexico given the diet of the people. The fact that this was factored into the Risk Assessment means that the assessment was appropriate to the circumstance of the risk to human health in Mexico.[500]

375. It is important to note that the use of glyphosate as a herbicide is critical to the cultivation of most GM crops, including the majority of GM corn. Glyphosate-resistant GM corn can tolerate greater amounts (e.g., higher concentrations) of glyphosate in herbicide treatments. In Mexico for instance, 90% of GM corn authorizations are related to glyphosate-tolerant events.[501]

376. Further, Mexico adduced ample scientific evidence and data showing the impact of GM corn on human health, unintended consequences at the epigenetic level, horizontal transfer of antibiotic resistance transgenes and deficiencies in nutritional quality. This includes evidence of the risk from consumption of GM corn containing residues of glyphosate and GM-associated proteins (i.e., the Cry family of insecticidal toxins and molecules in glyphosate-tolerant corn events that act as free radicals, promoting oxidative stress associated with various chronic and

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497 US Reply Submission, ¶ 3.

498 Mexico's Initial Submission at ¶ 173.

499 CONAHCYT, "*Scientific Record on Glyphosate and GM Crops*", 2020, p.18. **MEX-085**.

500 WTO panels have held that the "phrase "as appropriate to the circumstances" confers a right and obligation on WTO Members to assess the risk, on a case by case basis, in terms of product, origin and destination, including, in particular, country specific situations." See Panel Report, *Australia – Measures Affecting Importation of Salmon*, ¶ 8.71, WT/DS18/R and Corr.1 (6 November 1998) **MEX-295.**

501 Mexico's Initial Submission, ¶ 160- 163.

degenerative diseases).[502] It also includes studies in animals and mammals in particular showing the adverse impact of GM corn from ingestion as feed. Importantly, the scientific literature includes evidence that harmful GMO-associated proteins and glyphosate were detected in corn-based foods in Mexico (i.e., "more than 90% of tortillas available to Mexican families have been found to contain transgenic proteins, and three out of 10 contain glyphosate residues").[503]

377. The United States objects to much of this scientific evidence, frequently mischaracterizing the manner in which Mexico relied on the evidence, objecting to methodology, or casting the authors and research as unreliable.[504] To be clear, none of the U.S. objections undermine the science underpinning Mexico's Risk Assessment.

378. Below, Mexico provides a sample of the types of objections raised by the United States and Mexico's responses thereto. A comprehensive list of responses to the U.S. objections to Mexico's exhibits is provided in Appendix A.

a. **MEX-118**: Bernstein IL, Bernstein JA, Miller M, Tierzieva S, Bernstein DI, Lummus Z, Selgrade MK, Doerfler DL, Seligy VL. "*Immune responses in farm workers after exposure to Bacillus thuringiensis pesticides. Environ Health Perspect."*.[505]
    i. US objection: The United States objects that the study is irrelevant because it is a study of applicators of *Bt* sprays, not exposure to transgenic plants.
    ii. Mexico response: The United States mischaracterizes how Mexico relied on this evidence. Mexico did not include Exhibit MEX-118 as evidence of

502 Mexico's Initial Submission, ¶ 130-151.

503 Mexico's Initial Submission, ¶ 130-151.

504 US Reply Submission at Annex I. See for instance United States' aspersions cast on Gilles-Eric Séralini, as "unreliable" within the scientific community. To prove the point, the United States cites to a 2012 study on renal deficiencies in rats from ingesting glyphosate tolerant GM corn grain, which was retracted for being methodologically flawed. The study recommended long-term feeding trials to be conducted to thoroughly evaluate the safety of GM foods and pesticides in their full commercial formulations. The value of long-term studies was refuted by the EU and Codex. However, the journal that retracted the study republished it in 2014 to highlight methodological controversies. The journal states that "*science needs controversial debates aiming at the best methods as basis for objective, reliable and valid results*". The journal clearly saw value in involving diverse and conflicting views to debate the best scientific processes towards objective, reliable and valid results. See **MEX-225** at p. 2; US Reply Submission, ¶ 39.

505 Bernstein IL, Bernstein JA, Miller M, Tierzieva S, Bernstein DI, Lummus Z, Selgrade MK, Doerfler DL, Seligy VL. "*Immune responses in farm workers after exposure to Bacillus thuringiensis pesticides. Environ Health Perspect*", 1999, **MEX-118**.

the risks of consuming GM corn. Rather Mexico included this study as evidence showing that "*exposure to Bt sprays could cause allergic skin sensitivity and the induction of antibodies (immunoglobulins), or both*".

b. **MEX-126**- Séralini GE, Cellier D, de Vendomois JS. "*New analysis of a rat feeding study with a genetically modified maize reveals signs of hepatorenal toxicity"*. Arch Environ Contam Toxicol.
   i. US objection: The United States dismisses this study as "just a statistical re-analysis of data from a biotechnology developer." It states that because "this particular study is a whole-food animal feeding study, [it] is known to be difficult to interpret."
   ii. Mexico response: The U.S. objects on methodological grounds but ignores critical elements which ensure greater precision in the results. The study explicitly states its objective and the limited variables in the findings as follows: "*to study the possible toxicological effects of introducing genetic construction producing an insecticide into the maize; thus it should be guaranteed that the only variability sources in the results are related to the presence, or not, of this transgene apart from purely random effects*".[506] Unlike the biotechnology developer's analysis to which the United States refers, this study separated the analysis first between the GMO groups and the control groups, and then between GMO groups and the reference groups in order to provide a more accurate evaluation of the specific effects of GM organisms. The United States' critique of this methodology as "*difficult to interpret*" is unsubstantiated and fails to address the study's approach to enhance precision and limit variabilities.

c. **MEX-127**- De Vendômois JS, Roullier F, Cellier D, Séralini GE. "*A comparison of the effects of three GM corn varieties on mammalian health"*. Int J Biol Sci. 2009.
   i. US objection: The United States dismisses this study as a re-analysis of a study conducted by a technology developer. It states that even if the authors' analysis were to be correct, this would only be one piece of data used in a safety assessment and typically at the exception to other more reliable studies. It also points to Mexico's COFEPRIS authorization of the three GE corn events—MON810, MON863, and NK603
   ii. Mexico response: It is noteworthy that the United States did not provide any substantive criticisms of this article. The United States also failed to provide any explanation or authority to justify why the data collected in this study is unreliable or what would constitute a more reliable study in this context. The study is valuable because it identifies significant effects, "*mostly concentrated in kidney and liver function, the two major diet detoxification* organs", and goes on to provide that, "*in addition, some effects on heart, adrenal, spleen and blood cells were also frequently noted […] we therefore*

[506] Seralini GE, Cellier D, de Vendomois JS. "*New analysis of a rat feeding study with a genetically modified maize reveals signs of hepatorenal toxicity*". Arch Environ Contam Toxicol. 2007; 52:596–602. pp. 600-601 **MEX-126**, pp. 600-601.

conclude that our data strongly suggests that these GM maize varieties induce a state of hepatorenal toxicity" Event MON810 was authorized by COFEPRIS on November 6, 2002, event MON863 was authorized by COFPERIS on October 7, 2003 and event NK603 was authorized by COFPERIS in June 2002. As argued in the document, they were evaluated several years ago, when the LBOGM did not yet exist. For this reason, although COFEPRIS has authorized these events, these evaluations do not consider the current information on the adverse effects related to glyphosate.

d. **MEX-128**- El-Shamei, Z. S., A.A. Gab-Alla, A. A. Shatta, E. A. Moussa & A. M. Rayan. (2012). "*Histopathological Changes in Some Organs of Male Rats Fed on Genetically Modified Corn (Ajeeb YG*)". Journal of American Science
   i. US objection: The United States claims that this is only one part of a safety assessment. It also claims that this is a study done as part of a PhD thesis in Egypt, which approved this variety (MON810) for cultivation (and which Mexico has approved for consumption).
   ii. Mexico response: The US objections to this study again center on the fact that it would be "only one part of a safety assessment". In any event US objections are unavailing. Its noteworthy that this study criticizes the "*substantial equivalence*" concept—where new foods similar in composition and nutritional characteristics to existing ones are considered safe—and suggests this approach may explain the scarcity of scientific safety data on GM corn safety. Accordingly, this study highlights that it "*was carried out to provide new information about the negative effects of genetically modified corn and its effects on the tissues of vital organs of male rats*".[507] Event MON810 was authorized by COFEPRIS on November 6, 2002. As argued in the document, they were evaluated several years ago, when the LBOGM did not yet exist. For this reason, although COFEPRIS has authorized these events, these evaluations do not consider the current information on adverse effects related to glyphosate.

e. **MEX-129**- Oraby, Hanaa; Kandil, Mahrousa; Shaffie, Nermeen; and Ghaly, Inas (2015) *"Biological impact of feeding rats with a genetically modified-based diet*" Turkish Journal of Biology: Vol. 39: No. 2, Article 11.
   i. US objection: The US objects that test article in this study is not defined but rather is just listed as corn and soy without specifying which corn varieties.
   ii. Mexico response: The general subject of the study is highly relevant to the concerns of Mexico. The research focuses on the health effects of GM protein ingestion, including the presence of glyphosate-tolerant enzymes, none of which is rebutted by the United States. In any case, as argued by

[507] El-Shamei, Z. S., A.A. Gab-Alla, A. A. Shatta, E. A. Moussa & A. M. Rayan. (2012). *Histopathological Changes in Some Organs of Male Rats Fed on Genetically Modified Corn* (Ajeeb YG). Journal of American Science, pp. 684-685, **MEX-128**.

Mexico, this reference shows that there are significant effects of diets with GM Bt corn. Importantly, the broader perspective of this study helps to provide context when analyzing studies that have a narrower focus, for instance, those that isolate a particular race of corn. Also, an experiment that combines different GM crops in a diet is important because it better reflects the diets of humans and it fills a research gap as identified by academics.[508]

f. **MEX-136**- Walsh MC, Buzoianu SG, Gardiner GE, Rea MC, Ross RP, Cassidy JP, Lawlor PG. "*Effects of short term feeding of Bt MON810 maize on growth performance, organ morphology and function in pigs"*. Br J Nutr. 2012.
   i. US objection: The US objects that "higher feed intake" is not necessarily an adverse health outcome. Feed conversion rates are a measure of growth performance and not necessarily safety.
   ii. Mexico response: While the United States' critiques the study based on higher feed intake, it fails to acknowledge the associated "*poorer feed conversion efficiency*", and overlooks other significant findings such as heavier organs like kidneys, "*indicating possible renal toxicity*".[509]

g. **MEX-137**- Carman, J. A., et al. (2013). "*A long-term toxicology study on pigs fed a combined genetically modified (GM) soy and GM maize diet. Journal of Organic Systems."*
   i. US objection: The United States dismisses this study stating that the diet is ill-defined with multiple variables.
   ii. Mexico response: The response of the United States to the evidence lacks foundation. First, the diet is not ill-defined. For instance, the study specifies the corn varieties fed to the pigs.[510] Moreover, the study is well-supported by a detailed literature review and methodology explanation. This study is also relevant because the GM crops it assesses are those consumed by humans.[511] These types of studies that combine different GM crops in a diet

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508 Then, C. and Bauer-Panskus, A., "*Possible health impacts of Bt toxins and residues from spraying with complementary herbicides in genetically engineered soybeans and risk assessment as performed by the European Food Safety Authority EFSA*", 2017, pp. 6-7, **MEX-287**.

509 Walsh MC, Buzoianu SG, Gardiner GE, Rea MC, Ross RP, Cassidy JP, Lawlor PG. *Effects of short-term feeding of Bt MON810 maize on growth performance, organ morphology and function in pigs*. Br J Nutr. 2012, pp. 367-368, **MEX-136**.

510 Carman, J. A., et al. (2013). *A long-term toxicology study on pigs fed a combined genetically modified (GM) soy and GM maize diet*. Journal of Organic Systems, p. 40, **MEX-137**.

511 Carman, J. A., et al. (2013). *A long-term toxicology study on pigs fed a combined genetically modified (GM) soy and GM maize diet*. Journal of Organic Systems, p. 39, **MEX-137**.

are important because they more closely resemble the diets of humans and they fill a research gap identified by other scholars.[512]

h. **MEX-218**- Hilbeck, A., Binimelis, R., Defarge, N. et al. "*No scientific consensus on GMO safety"*. Environ Sci Eur 27, 4 (2015)
   i. US objection: the US dismisses this article on the ground that it is not a research article and purportedly signed by 300 researchers (who are not listed in this paper). The US takes objection to focus of the paper which states that a blanket statement of food and environmental safety for all GMOs cannot be made and thus the Cartagena Protocol on Biosafety and Codex advocate for reviews on a case-by-case basis.
   ii. Mexico response: This article gives voice to a broad, independent community of scientists challenging the alleged consensus on GM food safety, directly contradicting the United States' assertions that there is a settled agreement on the safety of GM crops. Moreover, the article references the European Network of Scientists for Social and Environmental Responsibility, which substantiate the claims by the 300 scientists.

i. **MEX-125**- González- Ortega, E., Piñeyro-Nelson, A., Gómez-Hernández, E., Monterrubio-Vázquez, E., Arleo, M., Dávila-Velderrain, J., Martínez- Debat C. and Álvarez-Buylla E. R., "*Pervasive presence of transgenes and glyphosate in corn-derived food in Mexico*", 2017).
   i. US objections: US makes a number of procedural objections to this study to try to undermine uncontroverted evidence of the presence of glyphosate in corn derived food. For instance, the United States claims that the paper is a snapshot in time at a specific location of a limited number of processed maize-based food samples (as opposed to raw agricultural commodity samples) pulled from a marketplace and tested for the presence of transgenes and glyphosate residues. Due to the methods used, the presence of glyphosate cannot be conclusively connected to the application of glyphosate to glyphosate-tolerant corn.
   ii. Mexico response: this study is extremely important from a perspective of identifying the risk of glyphosate in corn-based foods. The study analysed only those products in which maize was the main ingredient were included in the sampling. Through a PCR-based molecular analysis and assays Liquid Chromatography with tandem Mass Spectrometry (LC MS/MS) after acidic extraction and derivatization of the samples, the researchers noted a "*high frequency of samples positive for transgenes*" and that "*glyphosate and AMPA residues were found in 50% of the samples assayed*

[512] Then, C. and Bauer-Panskus, A., "*Possible health impacts of Bt toxins and residues from spraying with complementary herbicides in genetically engineered soybeans and risk assessment as performed by the European Food Safety Authority EFSA*", 2017, pp. 6-7, **MEX-287**.

> *for herbicide presence. The presence of glyphosate residues in a food frequently consumed by Mexicans is noteworthy.*

379. To summarize, Mexico's Risk Assessment takes into account risks from consumption of GM corn that are appropriate to the circumstances of Mexican people, namely the diet consisting of a very high degree of unprocessed corn grain. It also takes into account relevant scientific evidence, which presents a clear risk to human health from consumption of GM corn containing glyphosate residues, as well as evidence of the presence of harmful proteins in GM corn. Mexico was entitled to take this scientific evidence into consideration in its Risk Assessment.

380. In Mexico's view, the United States' vigorous dismissals and total denial of any scientific evidence of risk in relation to the direct consumption of GM corn grain is alarming. Likewise, Canada's refusal to even consider the evidence of risks in the context of Mexico's unique circumstances is disturbing. Mexico considers that respected and qualified independent researchers have disclosed the scientific evidence demonstrating the existence of the risks. Even though this scientific evidence may not be aligned with the large body of evidence that has been prepared and submitted by the biotechnology industry itself, or funded by the biotechnology industry (e.g., through grants to researchers and academic institutions through trade associations), this does not diminish its relevance and materiality in Mexico's assessment of the risks to people in Mexico.[513]

381. Mexico's Risk Assessment is therefore appropriate to the circumstances of the risk to human health and accounts for available scientific evidence.

d. The End Use Limitation is based on the Risk Assessment

382. As discussed previously, Article 9.6.3 requires that that a party base its SPS measures on international standards. Where a party does not base the measure on international standards, it is required to base the measure on a risk assessment that is "appropriate to the circumstances" of the risk to human, animal, plant life or health.

383. The Risk Assessment undertaken by Mexico identified risks to human health from exposure to glyphosate residue in GM corn grain. The Risk Assessment also identified risks to

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513 *US – Continued Suspension* (DS320), **MEX-294**, ¶ 677, where the Appellate Body observed that, "Under Article 5.1 [*of the SPS Agreement*], WTO Members are allowed to base SPS measures on divergent or minority views provided they are from a respected and qualified source." (emphasis added)

genetic diversity of native corn in Mexico from transgenic introgression by GM corn. Because the End Use Limitation addresses the risks identified in the Risk Assessment, the End Use Limitation is "based" on the assessment and is compliant with Article 9.6.3 of the USMCA.

384. The Appellate Body has held that the requirement that SPS measures be "based on" a risk assessment does not mean that the measures have to "conform to" the risk assessment.[514] It is sufficient if the results of the risk assessment sufficiently warrant or reasonably support the measure at issue. "[T]here must be a rationale relationship between the SPS measure and the risk assessment."[515] A risk assessment also "need not embody only the view of a majority of the relevant scientific community." Risk assessments may be based on divergent opinions coming from qualified and respected sources and such an approach would not necessarily signal the absence of a reasonable relationship between the SPS measure and the risk assessment.[516]

385. Importantly, Panels have clarified that "the fact that a Member has decided to follow a precautionary approach could have a bearing on a panel's assessment of whether an SPS measure is 'based on' a risk assessment as required by Article 5.1 [....] Thus, there may conceivably be cases where a Member which follows a precautionary approach, and which confronts a risk assessment that identifies uncertainties or constraints, would be justified in applying (i) an SPS measure even though another Member might not decide to apply any SPS measure on the basis of the same risk assessment, or (ii) an SPS measure which is stricter than the SPS measure applied by another Member to address the same risk. However, even if a Member follows a precautionary approach, its SPS measures need to be 'based on' (i.e., 'sufficiently warranted' or 'easonably supported' by) a risk assessment. Or, to put it another way, such an approach needs to be applied in a manner consistent with the requirements of Article 5.1.".[517]

386. The End Use Limitation is one aspect of a larger set of measures that address the risk to the health of Mexican people and risk to Mexican biodiversity from exposure to glyphosate. As Mexico has established, the limitation on use of GM corn for nixtamalization and corn processing

514 Appellate Body Report, *US – Continued Suspension* (DS320), ¶ 528. **MEX-294**.
515 Appellate Body Report, *US – Continued Suspension* (DS320), ¶ 528. **MEX-294**.
516 Appellate Body Report, *US – Continued Suspension* (DS320), ¶ 528. **MEX-294**.
517 Panel Report, *EC - Approval and Marketing of Biotech Products*, ¶7.3065, **MEX-277.**

is guided by concerns specific to Mexico. The risk to human health from consumption of GM corn containing glyphosate residues and/or transgenic proteins is well documented.

387. The End Use Limitation is also guided by the concern that indigenous people who are considered stewards of maintaining the biodiversity of corn grain readily exchange corn grain and seed as part of their cultural tradition[518]. This illustrates the important role that Article 6.2 of the 2023 Decree plays in supporting Article 6.1. In addition to protecting human health from the risks arising from glyphosate residues and transgenic materials in corn grain for direct consumption, Article 6.2 also supports Article 6.1 in protecting native corn from transgenic contamination from the spread of GM corn in the unique circumstances in Mexico, where corn grain for consumption can be readily exchanged and used for cultivation purposes.

388. In addition, it is well documented in the 2004 CEC Report that although establishment of GM corn varieties is easily accomplished, its reversal is difficult if not impossible.[519] This has potentially dire implications for the biodiversity of corn currently maintained in Mexico.

389. Mexico's approach for the protection of native corn varieties is one such precaution.[520] Nonetheless, the measure is based on risks identified in scientific studies, documented instances of establishment of GM corn in Mexico, as well as scientific reports such as the 2004 CEC study. The United States takes the view, based on the same information and data, that introgression of a few transgenes is unlikely to have any "major" biological effect on genetic diversity in maize landraces. But Mexico cannot take that risk.[521] The greatest diversity in corn in the world is concentrated in Mexico.[522] The Risk Assessment clearly identified a pathway for the entry, establishment and spread of GM corn varieties through the practices of indigenous people. Mexico's approach of preventing use of GM corn for nixtamalization and corn is a narrow approach which supplements the broader measures in the 2023 Decree and prevents diversion of

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518 CEC Secretariat. "*Corn & Biodiversity: The Effects of Transgenic Corn in Mexico*", 2004, p. 22, **MEX-095**.

519 CEC Secretariat. "*Corn & Biodiversity: The Effects of Transgenic Corn in Mexico*", 2004, p. 17, **MEX- 095**.

520 CONAHCYT, "*Scientific Record on Glyphosate and GM Crops*", 2020, p.20. **MEX-085**.

521 US Reply Submission, ¶ 125.

522 Mexico's Initial Submission, ¶ 47.

GM corn grain for planting. That Mexico takes a different view based on the existing science is no ground to claim that it is not based on scientific evidence.

390. It is apparent that unlike the broader measure on glyphosate and agrochemicals containing glyphosate as an active ingredient, the End Use Limitation is narrowly tailored. The measure on glyphosate involves an import ban, the End Use Limitation does not. The End Use Limitation does not prohibit import of GM corn and applies equally to domestically produced GM corn. The measure on glyphosate revokes authorizations and permits for the production, distribution and use of glyphosate, while the End Use Limitation prohibits diversion of GM corn for a specific purpose.

391. In summary, the End Use Limitation is narrowly tailored to address the risks to human health from consumption of GM corn in an unprocessed form and the risks to native corn from mixing or exchange with seed for cultivation, and those risks are supported by the scientific literature adduced by Mexico in its Risk Assessment. The measure is hence based on the Risk Assessment and is in compliance with Article 9.6.3.

F. Mexico is in compliance with Article 9.6.7 of the USMCA

392. The United States claims that Mexico acted inconsistently with Article 9.6.7 of the USMCA, alleging that Mexico did not afford parties an opportunity to comment on the risk assessment or risk management measures and did not document its risk assessment or risk management process. But Mexico did document its Risk Assessment and shared scientific information identifying risks from GM corn.

393. As Mexico previously explained, the Risk Assessment consists of the 2020 Scientific Record on Glyphosate and GM crops as well as relevant scientific information compiled as part of the National Biosafety Information System (SNIB) maintained by CIBIOGEM, which informed that document. The information of SNIB relates to the risks of glyphosate and GMO corn to human health and to native corn and was gathered and examined over decades by Mexican authorities. The Risk Assessment also includes updated scientific studies and literature on the risks of glyphosate and GMO corn which is also compiled and made available on the SNIB.

394. The 2020 Scientific Record on Glyphosate and GM crops was published by CONAHCYT on its public website in August 2020[523] and CONAHCYT posted a description and link to the report on its public Twitter account.[524] In addition, media outlets published articles about the report.

395. The United States argues that Mexico should have instituted a separate risk management process that documented the weighing of policy alternatives and provided the United States with an opportunity for comment on it.[525] Mexico disagrees. Nothing in Article 9.6.7 requires that Mexico institute a separate process for risk management in addition to the Risk Assessment.

396. Mexico also disagrees that the United States did not have an opportunity to comment on the measure taken in response to the Risk Assessment. The Risk Assessment informed the 2020 Decree as well as the 2023 Decree. The 2020 Decree included language referring to a prohibition on the use of GMO grain in the diet of Mexican people and calling for total substitution by January 31, 2024.[526] The United States objected to aspects of the 2020 Decree, regarding which the two countries held consultations.[527] Article 6 of the 2023 Decree substantially narrowed this aspect of the 2020 Decree and called for a restriction on the use of GM corn only for the purpose of nixtamalization and processing of flour.[528] Importantly, there are no prohibitions on use of GM corn for animal feed and industrial use.[529]

397. The United States had ample opportunity to comment on the proposed measure. There has been no violation of Article 9.6.7.

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523 CONAHCYT, "*Scientific Record on Glyphosate and GM Crops*", 2020, **MEX-085**.

524 CONAHCYT México, Twitter (X) ("The Scientific Record on Glyphosate and GM Crops explains how herbicide application increased from the planting and commercialization of #corn, #cotton and #GM #soybean in the 1990s"). **MEX-300**.

525 US Reply Submission, ¶ 154.

526 *See* Exhibit **USA-092.**

527 *See* Press release "*En Washington, autoridades de Mexico y Estado Unidos sostienen diálogo constructivo en torno al maíz*", 16 December 2022, **MEX-410** Press release, "*Joint Statement from Ambassador Tai and Secretary Vilsack after Meeting with Mexican Government Officials*", 16 de diciembre 2022, **MEX-411**; Inside US Trade, "Tai, Vilsack: Biotech talks with Mexico have been difficult, but U.S. is 'hopeful.'" 18 August 2022, **MEX-412.**

528 2023 Decree, Article 6.2, **MEX-167.**

529 2023 Decree, Article 6.7, **MEX-167**.

G. Mexico's "End-Use Limitation" is not more trade restrictive than required to achieve the level of protection that Mexico has determined to be appropriate, while the future "Gradual Substitution" measure(s) have not yet been selected at all.

1. Legal principles relevant to a claim under Article 9.6.10 of the USMCA.

398. In Mexico's Initial Written Submission, Mexico explained that Article 9.6.10 of the USMCA reflects the text of Article 5.6 and footnote 3 of the SPS Agreement.[530] Mexico also explained that compliance with this obligation is tested by comparing the measure at issue with possible alternative measures.[531] In the context of WTO dispute settlement, the Appellate Body has explained that the legal question under Article 5.6 of the SPS Agreement is not whether the importing country's authorities, in conducting the risk assessment, have acted in accordance with the obligations of the SPS Agreement. Rather, the legal question is whether the importing country's authorities could have adopted a less trade restrictive measure. This requires a panel to objectively assess whether an alternative measure proposed by the complainant would achieve the importing Member's appropriate level of protection.[532]

399. Mexico also explained in its Initial Written Submission that, in order to establish that a measure is inconsistent with Article 5.6 of the SPS Agreement,[533] the complainant must demonstrate that an alternative measure meets the following three cumulative requirements: (i) it is reasonably available, taking into account technical and economic feasibility; (ii) it achieves the appropriate level of protection (ALOP) determined by the respondent; and (iii) it is significantly less restrictive to trade than the contested SPS measure.[534] The second sentence of Article 9.6.10 of the USMCA sets out the same list of requirements.

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530 Mexico's Initial Written Submission, ¶¶ 436-437.

531 Mexico's Initial Written Submission, ¶ 438.

532 Mexico's Initial Written Submission, ¶ 438, citing Appellate Body Report, *Australia — Apples*, ¶ 356. **MEX-279**.

533 Mexico's Initial Written Submission, ¶ 439.

534 Appellate Body Report, *Korea – Radionuclides (Japan)*, ¶ 5.21, **MEX-291**; Appellate Body Report, *India – Agricultural Products*, ¶ 5.203, **MEX-290;** Appellate Body Report, *Australia – Apples*, ¶¶ 328-329, 337, 369, **MEX-279**; Appellate Body Report, *Australia – Salmon*, ¶ 194, **MEX-292**; Panel Report, *Costa Rica – Avocados*, ¶ 7.1800. **MEX-273.**

400. Therefore, in Mexico's view, the legal principles relevant to the evaluation of claims under Article 5.6 of the SPS Agreement are also relevant to the evaluation of claims under Article 9.6.10 of the USMCA.[535] The United States and Canada appear to generally agree with this approach.[536]

401. Finally, Mexico recalls the close relationship between Articles 2.2 and 5.6 of the SPS Agreement, which implies a similar relationship between Articles 9.6.6(a) and 9.6.10 of the USMCA.[537] In this regard, the detailed arguments and evidence that Mexico has presented in the context of Article 9.6.6(a) in this Rebuttal Submission are directly relevant and applicable to Mexico's case under Article 9.6.10.[538] Rather than repeating the said arguments and evidence here, which are extensive, Mexico incorporates them by reference into the following submissions with respect to Article 9.6.10.

2. The United States has not proposed any genuine alternative measures that are reasonably available, capable of achieving the appropriate level of protection determined by Mexico, or significantly less trade restrictive

a. The "End-Use Limitation" under Article 6.2 of the 2023 Decree and the protection of human health from the risks arising from direct consumption of GM corn grain

402. As Mexico explained in its Initial Written Submission, Mexico considers that a "zero risk" level of protection is the appropriate level of protection with respect to the risks to human health arising from the ingestion of contaminants and toxins in GM corn grain — including transgenic insecticidal toxins, transgenic pesticide-resistant enzymes, and residues of the concentrated pesticides used in the cultivation of GM corn (including but not limited to systemic glyphosate) — when GM corn grain is *directly consumed* in tortilla and similar staple foods made with nixtamalized masa or corn flour.[539]

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535 Mexico's Initial Written Submission, ¶ 440.

536 US Rebuttal Submission, ¶ 168; Canada's Third-Party Submission, ¶¶ 130-131.

537 Mexico's Initial Written Submission, ¶¶ 375, 441.

538 **Ver Sección V.C.**

539 Mexico's Initial Written Submission, ¶¶ 341-342, 363, 384-385, 445-446.

403. Mexico considers these risks to human health to be very serious in Mexico, considering: (i) the extremely high amounts of corn grain that are *directly consumed* on a daily basis in the Mexican diet, specifically in the forms of nixtamalized masa, tortilla, and similar staple foods, which is much higher than in other countries in the world; and (ii) the clear scientific evidence of the presence of contaminants and toxins in GM corn grain and their harmful effects on health.[540]

404. In this regard, the "End-Use Limitation" is applied *only to the extent necessary* to achieve the appropriate level of protection with respect to the direct consumption of corn grain in everyday staple foods made from nixtamalized masa, such as tortillas.[541] When only non-GM corn grain is used for this purpose, human health risks arising from the *direct consumption* of GM corn grain are eliminated, thus achieving the appropriate level of protection determined by Mexico.[542]

405. As Mexico has repeatedly explained, the "End-Use Limitation" does not ban or prohibit the importation of GM corn grain, but rather places a limitation on all GM corn grain in Mexico, regardless of origin, specifically with respect to the end-use of direct human consumption.[543] Moreover, it does not impose any ban or prohibition on the importation of "tortilla corn" — that is, white corn grain that is used for human consumption and, in particular, for the process of nixtamalization, which produces the masa (corn dough) that is used to make tortillas and similar foods. Nothing in the 2023 Decree prevents US exporters from shipping white corn grain to Mexico, whether it is GM or non-GM white corn grain. In this regard, exports of US white corn grain to Mexico have increased [[[redacted]]] percent in January-April 2024 after losing market share to South African exports of white corn grain in 2023 (due to a temporary exemption from import duties for white corn of any origin).[544]

406. Moreover, the "End-Use Limitation" involves a very low degree of trade restrictiveness to begin with. As Mexico is generally self-sufficient with respect to the white corn used for direct human consumption in Mexico, the demand for imports is low. Only a tiny fraction of the corn

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540 Mexico's Initial Written Submission, ¶ 382.

541 **See Section V.C.**

542 Mexico's Initial Written Submission, ¶ 385.

543 Mexico's Initial Written Submission, ¶¶ 4, 21, 263, 275, 278, 385, 446, 499.

544 **See Section V.C.**

grain exported from the US to Mexico consists of white corn suitable for direct human consumption. In this regard, the United States does not contest the facts that"the majority of U.S. GE corn exports to Mexico are not for use in dough and tortillas" and, therefore, the End-Use Limitation "does not reach the majority or all of U.S. exports of GE corn to Mexico".[545] Therefore, it is no exaggeration to observe that the "End-Use Limitation" is irrelevant to the vast majority of US corn grain exported to Mexico, which is yellow corn grain that is not suitable for direct human consumption in nixtamalized masa or tortilla. This yellow corn, which includes GM corn, continues to be imported into Mexico in *increasing* volumes, where it is traded for use in animal feed and industrial processing.[546]

407. Thus, as Mexico has explained in the context of Article 9.6.6(a) in this Rebuttal Submission, the "End Use Limitation" (i) involves a very low degree of trade restrictiveness, if any, under the circumstances; (ii) the interests and values at stake — i.e., the health and well-being of Mexico's population — are fundamentally important; and (iii) the measure is highly effective at contributing to the specific objective of protecting human health in Mexico from the risks arising from the direct consumption of contaminants and toxins in GM corn grain in everyday staple foods.

408. The foregoing also establishes that the "End-Use Limitation" is "not more trade restrictive than required to achieve the level of protection" that Mexico "has determined to be appropriate" within the meaning of Article 9.6.10 of the USMCA. By narrowly applying the "End-Use Limitation" specifically to the *use* of GM corn grain for *direct* human consumption in nixtamalized masa, tortilla, and related foods, Mexico has selected a measure that is "not more trade restrictive" than required to fully address the risks to human health arising from the direct consumption of contaminants and toxins — including transgenic proteins and pesticide residues — in GM corn grain in everyday staple foods.

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545 US Rebuttal Submission, ¶ 133 (*emphasis added*).

546 Mexico's Initial Written Submission, ¶ 387 ("as the evidence shows, all or almost all of the corn grain imported into Mexico from the United States has historically been for use in animal feed or industrial processing of food for human consumption (e.g., starch, high fructose corn syrup, etc.). This continues to be the case. The 'End Use Limitation' has not affected these imports").

409. Although the United States criticizes Mexico's assessment of the risks and the appropriate level of protection that Mexico has determined,[547] Mexico recalls that these elements fall to be evaluated under other provisions and are not at issue in an evaluation of whether a measure is "more trade restrictive than required" within the meaning of Article 5.6 of the SPS Agreement and, in turn, Article 9.6.10 of the USMCA.[548] Nonetheless, Mexico makes the following observations.

410. *First*, "[w]hile it is very difficult to establish the impacts of recombinant DNA or proteins from transgenic crops on human health, toxicological feeding studies performed in animal models such as rodents, pigs and bovines have shown negative physiological effects".[549] As previously explained, Mexico considered such independent scientific evidence in the "*Scientific Record on glyphosate and GM crops*" (2020) prepared by CONAHCYT and the collection of relevant studies in the National Biosafety Information System (SNIB) maintained by CIBIOGEM. This assessment of risks formed the basis of the 2020 Decree and, in turn, the 2023 Decree. Mexico considers that the available independent scientific evidence of the risks to health related to transgenic proteins and pesticide residues is sufficient to warrant the very narrow action it has taken in the "End-Use Limitation" under Article 6.2 of the 2023 Decree.

411. *Second*, most people in Mexico *directly consume* very high quantities of corn grain *every day* throughout their lives. Under these circumstances, Mexico should not be prevented from taking a precautionary approach to the protection of human health *specifically with respect to the direct consumption of GM corn grain* in Mexico, based on the independent scientific evidence available of the risks of ingesting transgenic proteins and pesticide residues in GM corn grain. Mexico should not be forced to allow GM corn grain to be used for direct human consumption and "wait for" whatever scientific evidence of adverse effects on people in Mexico over the long term the United States would consider sufficient. As the Friends of the Earth (FOE) have observed in

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547 US Rebuttal Submission, ¶¶165-167, 169.

548 Appellate Body Report, *Australia – Apples*, ¶ 356. **MEX-279**.

549 Ureta, C., González, J., Piñeyro-Nelson, A., Couturier, S., González-Ortega, E., and Álvarez-Buylla, E., "*A data mining approach gives insights of causes related to the ongoing transgene presence in Mexican native corn populations*", Agroecology and Sustainable Food Systems, 2023, p. 189. **MEX-092**.

their written views in this dispute, Mexico is justified "in refusing to allow its people to participate in the experiment that the U.S. government is seeking to impose on Mexico" in this regard.[550]

412. The United States argues that "it is not clear how Mexico's Tortilla Corn Ban even achieves a 'zero risk' ALOP, as this measure does not ban non-GE corn, which may also be treated with glyphosate".[551] To the extent that the United States is proposing that Mexico should expand the scope of the "End-Use Limitation" to cover both GM corn and non-GM corn for direct human consumption, this option is neither "reasonably available" (as it would encompass all corn) nor "less restrictive to trade".

413. Similarly, the United States argues that "[t]he Tortilla Corn Ban also does not ban the importation or sale of other crops — whether GE or non-GE — such as soybean, canola, or cotton, which may be grown domestically in Mexico or internationally with the aid of glyphosate".[552] Again, to the extent that the United States is proposing that Mexico should expand the scope of the "End-Use Limitation" to cover all food and industrial crops, this option is even less realistic or compliant with Article 9.6.10.

414. In any event, Mexico makes two observations on these points. First, Mexico's ALOP applies to the entire basket of risks arising in relation to the *direct consumption of GM corn grain*, including the ingestion of transgenic insecticidal toxins, transgenic pesticide-resistant enzymes, other transgenic materials, and residues of the concentrated pesticides used in the cultivation of GM corn (including but not limited to systemic glyphosate).

415. Second, with respect to residual systemic glyphosate in corn grain, it is a simple fact that more glyphosate is applied to GM food crops with transgenic glyphosate resistance than to non-GM food crops that lack such resistance. That is the entire point of transgenic glyphosate resistance. The single most important food crop in Mexico is white corn grain, and it is *consumed directly* in the form of tortilla and similar foods made from nixtamalized masa *every day* by most

550 Friends of the Earth Written Views, p.10.

551 US Rebuttal Submission, ¶. 169.

552 US Rebuttal Submission, ¶ 169.

people in Mexico.[553] Therefore, glyphosate-resistant GM corn grain cultivated with glyphosate-based pesticides poses the single greatest risk of dietary exposure to residual systemic glyphosate than any other GM or non-GM food crop in Mexico.

416. Finally, the United States argues that "[e]ven if Mexico were able to identify a health concern related to some level of dietary intake of glyphosate residues on GE corn, a significantly less trade-restrictive measure that is reasonably available would be for Mexico to continue implementing its MRLs for glyphosate".[554] However, this suggestion would not even cover the same risks addressed by the "End-Use Limitation", let alone at the appropriate level of protection determined by Mexico.

417. Mexico has explained that the Codex MRLs are not appropriate or relevant for the specific circumstances in Mexico.[555] The Codex does not address the toxicity of transgenic protein in GM corn (e.g., insecticidal toxins and/or pesticide-resistant enzymes); nor does it provide MRLs for such transgenic protein in GM corn grain; nor does it address the cumulative risks arising from dietary exposure to glyphosate residues and transgenic protein in minimally processed foods made with whole GM corn grain.

418. Moreover, more corn grain is directly consumed per capita in Mexico than anywhere else in the world.[556] This consumption pattern means that there would be substantially higher concentrations of the contaminants and toxins in GM corn grain being ingested *every day* by people in Mexico, *throughout their lifetimes* — including transgenic insecticidal toxins, transgenic pesticide-resistant enzymes, and residues of the concentrated pesticides used in the cultivation of GM corn (including but not limited to systemic glyphosate) — than anywhere else in the world. In Mexico's view, the Codex MRLs are simply not capable of addressing the risks that arise specifically with respect to the direct consumption of GM corn in Mexico's unique circumstances.

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553 Mexico's Initial Written Submission, ¶ 62 ("approximately 98.6% of Mexicans consume corn in the form of tortillas in their daily diet"), citing Sánchez G.J.J., "*Corn and Teocintle Diversity*". Report prepared for the project: "Compilation, generation, updating and analysis of information on the genetic diversity of corn and its wild relatives in Mexico", 2011, CONABIO. Manuscrito, p. 11. **MEX-035**.

554 US Rebuttal Submission, ¶ 169.

555 Mexico's Initial Written Submission, ¶¶ 422-426.

556 Mexico's Initial Written Submission, ¶¶ 60-62, 321, 340-341, 423-424, 522.

3. The "End-Use Limitation" under Article 6.2 of the 2023 Decree and the protection of native corn from the risks of transgenic contamination arising from the spread of GM corn

419. The "End-Use Limitation" also contributes to the SPS purpose of protecting Mexico's native corn — including the natural biodiversity and natural genetic integrity of Mexico's unique native landraces and varietals of corn — from the risks of transgenic contamination arising from the spread of unauthorized, illegal, unintended, or uncontrolled GM corn plants in Mexico.[557] The measure does not infringe Article 9.6.10 by contributing to this purpose.[558] Mexico recalls the arguments and evidence that it has presented in this regard in the context of Article 9.6.6(a), above. These arguments and evidence are relevant, applicable, and incorporated by reference into Mexico's submissions here, concerning Article 9.6.10.

420. Again, the United States criticizes Mexico's assessment of the risks to native corn and the appropriate level of protection that Mexico has determined.[559] In this regard, the United States argues that "Even putting aside the flawed proposition that authorized imports of GE corn (which cannot legally be planted in Mexico) threaten native varieties' life or health because of possible transgene flow, the United States notes that the Tortilla Ban fails to address this threat, because it does not prohibit the importation of all GE corn, or the importation, domestic cultivation, or sale of non-GE corn that is not a native variety".[560]

421. To begin with, Mexico considers that it is not possible to eliminate the risks of transgenic contamination in Mexico from spread of unauthorized, illegal, unintended, or uncontrolled GM corn plants. As Mexico explained in its Initial Written Submission, the appropriate level of protection seeks to mitigate the damage caused to native corn by slowing or stopping the rate of

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557 Mexico's Initial Written Submission, ¶¶ 324 ("Article 6.2 of 2023 Decree also contributes to the purpose of protecting "native corn", operating in conjunction with Article 6.1. This addresses the risks arising from transgenic introgression resulting from the propagation of GM corn plants in Mexico, which adversely affects the natural biodiversity, genetic integrity, constitution, traits and health of unique native varieties and local landraces of corn and their wild relatives in Mexico"), 346-349, 389.

558 Mexico's Initial Written Submission, ¶ 389.

559 US Rebuttal Submission, ¶ 170.

560 US Rebuttal Submission, ¶ 170. Mexico recalls that these elements fall to be evaluated under other provisions and are not at issue in an evaluation of whether a measure is "more trade restrictive than required". Appellate Body Report, *Australia — Apples*, ¶ 356. **MEX-279**.

transgenic contamination. The objective is to try to limit the extent of future damage and to support efforts to reverse or eliminate existing damage, if possible.[561] In this respect, the "End-Use Limitation" works in conjunction with the restriction on the use of GM corn seed for cultivation under Article 6.1 of the 2023 Decree.[562] Under the circumstances, this is the most appropriate level of protection available.[563]

422. Moreover, the contribution of the "End-Use Limitation" to the SPS purpose of protecting Mexico's native corn should not be examined in isolation from the measure's SPS objective of protecting human health. The "zero risk" level of protection that Mexico has determined to be appropriate for the purpose of protecting human health completely overlaps and eclipses the appropriate level of protection for the purpose of protecting native corn. However, this should not prevent the measure from contributing to the purpose of protecting native corn nor diminish its ability to fulfil the purpose of protecting human health at the appropriate level of protection determined by Mexico.[564]

423. The United States also argues that "there are many significantly less trade-restrictive measures that are reasonably available to Mexico that would contribute to Mexico's goal … at least as effectively, if not more effectively, than the Tortilla Corn Ban".[565] However, the United States merely provides a simple list of vaguely described ideas.[566] It has not presented any

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561 Mexico's Initial Written Submission, ¶ 346. The United States incorrectly alleges that this appropriate level of protection is "undefined". In Mexico's view, it is neither realistic nor appropriate to determine a level of protection in quantitative terms or attempt to describe a level of protection in highly specific qualitative terms.

562 Mexico's Initial Written Submission, ¶ 348.

563 Appellate Body Report, *Australia – Salmon*, ¶ 206, **MEX-292** ("We do not believe that there is an obligation to determine the appropriate level of protection in quantitative terms"); Appellate Body Report, *US – Continued Suspension*, ¶ 523. **MEX-294**.

564 Mexico's Initial Written Submission, ¶ 389.

565 US Rebuttal Submission, ¶ 171.

566 US Rebuttal Submission, ¶ 171 ("These measures include adapting co-existence measures that are employed around the world, such as spatial isolation, natural barriers, and clean equipment and storage measures, to mitigate cross-pollination between native and non-native corn crops; enforcing or strengthening remediation procedures under the Biosafety Law to regulate and sanction unauthorized behavior such as illegal GE corn cultivation; continuing or strengthening existing in situ (environment) and ex situ (germplasm banks) conservation measures and adopting new ones; community outreach and education efforts; et cetera").

arguments or evidence to establish that there are genuine alternative measures that are "readily available" to Mexico or capable of achieving the appropriate level of protection determined by Mexico. For example, the United States does not identify which "remediation procedures under the *Biosafety Law*" it considers to be available and how they would be "enforced" or "strengthened" to achieve the same level of protection of native corn, taking into account the specific circumstances in Mexico.

424. For the reasons summarized below,[567] none of the options listed by the United States are appropriate to the circumstances in Mexico, realistic, or capable of meeting the requirements set out in Article 9.6.10.

425. The United States suggests "adapting co-existence measures that are employed around the world, such as spatial isolation, natural barriers, and clean equipment and storage measures, to mitigate cross-pollination between native and non-native corn crops".[568] To start with, the risk at issue is not "cross-pollination between native and non-native crops". Rather, Mexico is concerned with the risks of *transgenic* contamination arising from the unintentional, accidental, unauthorized, or uncontrolled spread of *GM corn* in Mexico.

426. As Mexico has previously explained, "co-existence" measures that are designed and appropriate for use in industrialized agriculture — i.e., the cultivation of monocultural crops in large, separate fields using seed purchased in bulk from seed suppliers — are simply not relevant or applicable to the traditional farming practices and small-scale agriculture in Mexico. These "co-existence" measures contemplate the deliberate, purposeful cultivation of GM corn. However, there is currently a moratorium on the commercial cultivation of GM corn in Mexico, and Article 6.1 of the 2023 Decree (which the United States has not challenged) restricts the use of GM corn seed for cultivation in Mexico. Therefore, even if such "co-existence" measures could be applied in Mexico, they are simply irrelevant in relation to the *unintentional*, *accidental*, *unauthorized*, or *uncontrolled* spread of GM corn.

427. Further, by addressing only the risk arising from cross-pollination, the United States has failed to acknowledge or consider the specific circumstances in Mexico, including with respect to

567 These reasons are more thoroughly presented in the context of Article 9.6.6(a).

568 US Rebuttal Submission, ¶ 171.

traditional farming methods, small-scale agriculture, the milpa, subsistence farming (with any small surplus sold locally), and the practices of peasant farming communities. In these conditions, corn grain is harvested as seed for the next crop cycle, mixed with corn grain from other sources (including corn grain purchased as food or feed, but used for cultivation), and exchanged between farmers and communities.[569] As Mexico explained in its Initial Written Submission, the dispersal of transgenic contamination in Mexico occurs not only through cross-pollination between GM corn and non-GM native corn, but also through the flow of GM corn seed among farmers in Mexico.[570]

428. In this regard, farmers in Mexico "commonly save seed from one farming cycle to the next one, and share seeds among themselves", [571] "forming local seed stocks", and "creating informal

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[569] Ayala-Angulo, M., González, E. J., Ureta, C., Chávez-Servia, J. L., González-Ortega, E., Vandame, R., & Piñeyro-Nelson, A., "*Local and Regional Dynamics of Native Corn Seed Lot Use by Small-Scale Producers and Their Impact on Transgene Presence in Three Mexican States Plants*", 2023, p. 2 ("Approximately 75–80% of land used for maize cultivation depends on small-scale producers (<5 ha) who tend to use low input, traditional farming methods and predominantly plant native maize varieties, while their production is primarily destined for self-consumption and any surplus is locally sold. These maize producers commonly save seed from one farming cycle to the next one, and share seeds among themselves, allowing alleles to pass from one generation to another, enabling the evolutionary processes that sustain this crop's genetic diversity"). **MEX-088**; Dyer, G., Serratos-Hernández, J., Perales, H., Gepts, P., Piñeyro-Nelson, A., Chávez, A. Salinas-Arreortua, Yúñez-Naude, A., Taylor, J. and Álvarez-Buylla, E. "*Dispersal of transgenes through corn seed systems in Mexico*", 2009, PLoS One, p. 2 ("In addition to seed systems, farmers occasionally use grain purchased as food or feed in lieu of seed"). **MEX-089**.

[570] Mexico's Initial Written Submission, ¶¶ 103-115. In this regard, Mexico explained that the scientific evidence establishes that GM corn grain is "a potential route of transgene dispersal into native corn" because "imported grains are functional seeds, which retain their ability to develop and express recombinant proteins". Mexico's Initial Written Submission, ¶¶ 106, 324, 347citing Trejo-Pastor, V., Espinosa-Calderón, A., del Carmen Mendoza-Castillo, M., Kato-Yamakake, T. Á., Morales-Floriano, M. L., Tadeo-Robledo, M., & Wegier, A., "*Corn grain marketed in Mexico as a potential disperser of genetically modified events*", 2021, pp. 251-259. **MEX-087**; Dyer, G., Serratos-Hernández, J., Perales, H., Gepts, P., Piñeyro-Nelson, A., Chávez, A. Salinas-Arreortua, Yúñez-Naude, A., Taylor, J. and Álvarez-Buylla, E. "*Dispersal of transgenes through corn seed systems in Mexico*", 2009, PLoS One, p. 2. **MEX-089**.

[571] Ayala-Angulo, M., González, E. J., Ureta, C., Chávez-Servia, J. L., González-Ortega, E., Vandame, R., & Piñeyro-Nelson, A., "*Local and Regional Dynamics of Native Corn Seed Lot Use by Small-Scale Producers and Their Impact on Transgene Presence in Three Mexican States Plants*", 2023, p. 2 ("These maize producers commonly save seed from one farming cycle to the next one, and share seeds among themselves, allowing alleles to pass from one generation to another, enabling the evolutionary processes that sustain this crop's genetic diversity"). **MEX-088**.

seed systems".[572] Under these circumstances, unintentional transgenic contamination of native corn can not only become entrenched in seed stocks, spreading with each crop cycle, but it can also proliferate through networks of "informal seed systems and grain markets" throughout Mexico.[573]

429. Where GM corn spreads in this way, through the traditional farming practices outlined above, transgenic contamination in Mexico is not a matter of cross-pollination between one field of GM monoculture and a neighbouring field of non-GM monoculture. Rather, it is a matter of GM corn and Mexico's non-GM native varieties of corn growing *together in the same milpas and fields*.[574] Contaminated corn grains produced from cross-pollination and harvested from those fields are saved for cultivation in the next crop cycle, exchanged with other farmers and communities, and sold locally (where they may be purchased as food or feed grains, but mixed with seed for cultivation by other farmers). Thus, the United States' suggestions are entirely inapplicable to the circumstances in Mexico in which the risks of transgenic contamination arise.

430. Ultimately, the "End-Use Limitation" is more effective at contributing to the objective of protecting native corn from the risks of transgenic contamination arising from the spread of GM corn than any of the alternatives briefly listed by the United States. Also, as explained above, it involves a very low degree of trade restrictiveness, if any. For these reasons, the "End-Use Limitation is "not more trade restrictive than required to achieve the level of protection" that Mexico has determined.

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572 Dyer, G., Serratos-Hernández, J., Perales, H., Gepts, P., Piñeyro-Nelson, A., Chávez, A. Salinas-Arreortua, Yúñez-Naude, A., Taylor, J. and Álvarez-Buylla, E. "*Dispersal of transgenes through corn seed systems in Mexico*", 2009, PLoS One, p. 2. **MEX-089**.

573 Dyer, G., Serratos-Hernández, J., Perales, H., Gepts, P., Piñeyro-Nelson, A., Chávez, A. Salinas-Arreortua, Yúñez-Naude, A., Taylor, J. and Álvarez-Buylla, E. "*Dispersal of transgenes through corn seed systems in Mexico*", 2009, PLoS One, p. 2. **MEX-089**.

574 As Mexico explained in its Initial Written Submission, "transgenic introgression can occur when farmers in rural communities plant and store imported GM grains together with grains of native corn". Mexico's Initial Written Submission, para. 106, citing Secretariat Report of the Commission for Environmental Cooperation. "*Corn & Biodiversity. The effects of transgenic Corn in Mexico*", 2004, p. 16. **MEX-095**.

4. The future "Gradual Substitution" measure(s) have not been "selected" yet, and the "Gradual Substitution" instructions in Articles 7 and 8 of the 2023 are not trade restrictive at all

431. As Mexico has repeatedly explained, the "Gradual Substitution" instructions in Articles 7 and 8 of the 2023 Decree are simply an executive order to the competent authorities in Mexico to carry out the "appropriate actions" at some point in the future. The "appropriate actions" have not been carried out. They have not yet been designed, proposed, adopted, or implemented, let alone applied by "the agencies and entities of the Federal Public Administration". Thus, there has been no "substitution ... of genetically modified corn for animal feed and industrial use for human food", and there is currently no regulatory or administrative mechanism to begin to carry out such substitution.[575]

432. The instructions in Articles 7 and 8 of the 2023 Decree specify that this must be done "in accordance with scientific principles and relevant international standards, guidelines or recommendations", and that the "relevant scientific studies will be carried out", including "a study on the consumption of genetically modified corn and the possible damages to health". All of these steps remain in the future.

433. Thus, the scope and structure of the future "gradual substitution" measure(s), including the mechanisms, conditions, and exceptions that would be applied and the products that would be covered, are all currently unknown. How the competent authorities will develop and carry out the "appropriate actions" in accordance the instructions in Articles 7 and 8 remains to be seen. It cannot be assumed at this stage, before any of these steps have taken place, that the future "gradual substitution" measure(s) will be inconsistent Article 9.6.10 of the USMCA.

434. In the terms of Article 9.6.10, the competent authorities in Mexico have not yet "selected" the future "gradual substitution" measure(s). As Mexico has repeatedly explained, the claims raised by the United States against the "Gradual Substitution" instructions are, at best, premature.

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575 Mexico's Initial Written Submission, ¶¶ 390-394.

H. The measures at issue are not prohibitions or restrictions on the importation of any good and do not fall within the scope of Article 2.11

1. Introduction

435. The United States has failed to engage with Mexico's arguments in relation to this claim.[576] As Mexico explains below, the United States has either ignored or mischaracterized Mexico's submissions rather than respond to them on their merits. Ultimately, the United States has failed to address Mexico's fundamental point: the measures at issue are not prohibitions or restrictions on the importation of GM corn.

436. The "End-Use Limitation" under Article 6.2 of the 2023 Decree, in its design (including its text and context), architecture, revealing structure, and application, regulates the end-use of all GM corn grain in Mexico, whether domestic or imported, regardless of origin. As part of the universe of all GM corn grain in Mexico, *imported* GM corn grain may be affected by the measure, but the *importation* of that GM corn grain has not been affected at all. GM corn grain may continue to be imported into Mexico in any quantity, where it may be marketed for use in animal feed and industrial processing, but not for cultivation or direct human consumption. If imported GM corn grain is affected by the measure in this way, it is affected no differently than any other GM corn grain within Mexico. In this regard, imported corn grain is *only* affected by the "End-Use Limitation" to the extent that it is *GM* corn grain and not because it is *imported* GM corn grain.

437. The same may one day be true of the future "Gradual Substitution" measure(s). However, the future "Gradual Substitution" measure(s) do not even exist yet. They have not yet been designed, proposed, adopted, or implemented, let alone applied. Moreover, nothing in the "Gradual Substitution" instructions in Articles 7 and 8 of the 2023 Decree are capable, on their own, of affecting the importation of GM corn grain into Mexico. No regulatory or administrative mechanism exists "in order to conduct the gradual substantiation", let alone anything capable of restricting the importation of GM corn into Mexico.

438. The words "import", "imported", and "importation" do not appear anywhere in Articles 6, 7, and 8 of the 2023 Decree, and none of these provisions have affected how GM corn is imported

[576] Mexico's Initial Written Submission, ¶¶ 457-475.

into Mexico from the United States or from anywhere else. As Mexico has explained, US corn exports to Mexico increased in 2023 by [[ ]] percent over 2022,[577] and increased again in 2024 by [[ ]] percent over 2023.[578] Even US exports of white corn have rebounded [[ ] percent in January-April 2024 after losing market share to South African exports of white corn in 2023 (due to a temporary exemption from import duties for white corn of any origin). While a complainant is not necessarily required to demonstrate the existence of trade effects, this does not preclude a panel from considering clear and uncontested evidence that the trade in question has been substantially increasing, plainly demonstrating the exact opposite of the alleged prohibitions or restrictions on importation.

439. The United States has not responded to any of these points. Instead, it merely makes bald assertions that the measures are "clearly" restrictions on the importation of GM corn[579] and that it is "evident" that they are "directly" related to importation.[580] However, the United States is unable to substantiate these assertions or offer any explanation as to how or why the "End-Use Limitation" is a prohibition or restriction on the "importation" of GM corn rather than an internal measure "affecting the internal sale, offering for sale, … or use" of GM corn.

2. Legal principles relevant to a claim under Article 2.11.1 of the USMCA

440. As Mexico explained in its Initial Written Submission, only the first paragraph of Article 2.11 is relevant to the United States' claim. In relevant part, it provides as follows:

> Except as otherwise provided in this Agreement, no Party shall adopt or maintain any prohibition or restriction on the importation of any good of another Party …, except in accordance with Article XI of the GATT 1994, including its interpretative notes, and to this end Article XI of the GATT 1994 and its interpretative notes are incorporated into and made a part of this Agreement, *mutatis mutandis*.

441. This single obligation — not to adopt or maintain any prohibition or restriction on the importation of any good of another Party — is subject to two sources of exceptions: (i) "except as

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577 Mexico's Initial Written Submission, ¶ 245.

578 U.S. Grains Council, "*Market Perspectives – April 18, 2024*", 18 April 2024, p.4 ("U.S. export commitments to Mexico as of April 4, 2024, totaled 735 million bushels, up 190 million bushels (35%) from last year"). **MEX-399**

579 US Rebuttal Submission, ¶¶ 189, 192.

580 US Rebuttal Submission, ¶ 178.

otherwise provided in this Agreement [i.e., the USMCA]"; and (ii) "except in accordance with Article XI of the GATT 1994, including its interpretative notes, and to this end Article XI of the GATT 1994 and its interpretative notes are incorporated into and made a part of this Agreement, *mutatis mutandis*".

442. The United States argues that "Article 2.11 of the USMCA sets out three elements to determine whether the measures at issue are inconsistent with the provision", including whether "(i) the measure is a 'prohibition or restriction' on importation, (ii) the measure is not 'in accordance with Article XI of the GATT 1994,' and (iii) the measure is not 'otherwise provided' for in the USMCA".[581] The United States contends that "Mexico only discusses the consistency of its measures with the first of the aforementioned elements — that is, whether its measures can be characterized as a "prohibition or restriction" — and does not contest that the latter two elements are met".[582] In Mexico's view, it is only necessary to establish that a prohibition or restriction on importation is permitted in accordance with Article XI of the GATT 1994 if a Party is invoking one of the exceptions set out therein. None of the exceptions are relevant in this case because the measures at issue are not prohibitions or restrictions on the importation of any good. As such, they simply do not fall within the scope of Article 2.11.

443. As Mexico explained in its Initial Written Submission, WTO dispute settlement decisions relating to Article XI:1 of the GATT 1994 can provide relevant guidance in the interpretation of the relevant obligation under Article 2.11.1 of the USMCA.

3. The measures fall under Article III of GATT 1994, rather than Article 2.11

444. In Mexico's Initial Written Submission, Mexico explained that the application of a measure "at the point or time of importation" is not necessarily the decisive factor in determining whether the measure is a restriction on the importation of a good within the scope of Article XI:1 or an internal measure affecting an imported good within the scope of Article III.[583]

581 US Rebuttal Submission, ¶ 183.

582 US Rebuttal Submission, ¶ 183.

583 Panel Report, *India — Autos*, ¶ 7.260. **MEX-328**.

445. In this regard, specifically in the context of determining whether a measure fell within the scope of Article XI:1 or Article III:4 of the GATT 1994, the panel in *Indonesia — Chicken Meat* considered that: "a measure that affects the internal sale, offering for sale, etc., when enforced at the time or point of importation, only comes under Article III:4 if it applies to an imported product and the like domestic product"; and "measures which only apply to imported products affecting their internal sale, etc., but do not apply to like domestic products, do not fall under Article III:4".[584]

446. The United States alleges that "[i]t is evident that Mexico's measures are related to the importation, or process of importing, of GE corn".[585] To support this allegation, the United States quotes the text of Article 6.2 of the 2023 Decree, asserting that it "explicitly states that Mexico's biosafety authorities 'shall revoke and refrain from issuing authorizations <u>for the use</u> of genetically modified corn grain for human consumption'".[586] The United States ignores the plain wording that limits the "use" of GM corn "for human consumption" and focuses instead on the term "authorizations". It alleges that the "decision to issue, revoke, or refrain from granting authorizations for the commercialization and importation of GE products is *directly* related to the process of importing GE corn into Mexico", and "without an authorization GE corn cannot enter Mexico".[587] These statements are misleading.

447. Under Mexico's *Law on Biosafety of Genetically Modified Organisms* (LBOGM), GM organisms (GMOs), regardless of origin, must be authorized "for trading" in Mexico before they can be marketed or commercialized.[588] These "authorizations" are required equally for domestic GMOs and for imported GMOs. Importantly, the purpose of an authorization is to permit a GMO to be "traded" in Mexico. An authorized GMO may "be used for trading" and, if it needs to be imported from a source outside Mexico to be traded in Mexico, it may be "imported for trading".

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584 Panel Report, *Indonesia — Chicken Meat*, ¶ 7.189. **MEX-451**.

585 US Rebuttal Submission, ¶ 178.

586 US Rebuttal Submission, ¶ 178 (*emphasis added*).

587 US Rebuttal Submission, ¶ 178.

588 The *Law on Biosafety of Genetically Modified Organisms* (LBOGM) provides that an authorization is an administrative act by which the competent authorities in Mexico authorize that GMOs "can be used for trading and imported for trading, as well as their utilization with public health or bioremediation purposes". See LBOGM, Article 3.III and Article 97, **Exhibit USA-085**. See also Mexico's Initial Written Submission, ¶ 206.

The fact that an authorization for an imported GMO authorizes it to be "imported for trading" merely reflects the simple fact that the product needs to be imported before it can be "used for trading" in Mexico. It is simply a practical administrative necessity with respect to GMOs authorized for trading in Mexico that need to be imported into Mexico to be traded. Thus, an "authorization" under Mexico's LBOGM is not a "restriction on the importation" of GMOs because the same authorization is required for all like domestic GMOs. Rather, an authorization is an internal restriction on the trading of GMOs in Mexico.

448. The United States has not challenged Mexico's GMO authorization measures under the LBOGM. Rather, it is challenging the "End-Use Limitation" under Article 6.2 of the 2023 Decree. However, since the 2023 Decree was published in February 2023, none of the existing authorizations for GM corn have been revoked, amended, or modified pursuant to Article 6.2 of the 2023 Decree.[589] In addition, COFEPRIS has continued to grant GM corn authorizations to exporters in the United States.[590] Article 6.2 of the 2023 Decree has been implemented by applying the following notation to new authorizations for GM corn: e.g., "Uso: Para alimentación en animales y uso industrial para alimentación humana: excepto cultivo, harina de maíz y masa nixtamalizada."[591] Thus, authorized GM corn, whether domestic or imported, may continue to "be used for trading or imported for trading", subject to the conditions that it cannot be used for cultivation or for direct human consumption in Mexico.

449. For the foregoing reasons, the "End-Use Limitation" under Article 6.2 of the 2023 Decree is not a "prohibition or restriction on the importation of any good" and it has not resulted in any restriction on the process of importing any GM corn into Mexico. This is evidenced by the fact that US exports of white corn to Mexico *increased* [[■■■]] percent in January-April 2024 relative to the same period in 2023.

589 Mexico's Initial Written Submission, ¶¶ 318, 465, and footnote 411 to ¶ 386.

590 Mexico's Initial Written Submission, ¶ 465.

591 SALUD, Cofepris, "*Authorization for GM corn from the United States"*, 12 August 2023. **MEX-405**. Since the 2023 Decree went into effect, none of the existing authorizations for GM corn have been revoked, amended or otherwise modified. Such GM corn may continue to be imported. See Mexico's Initial Written Submission, ¶ 318.

450. WTO panels have cautioned against an overbroad application of Article XI:1 because if it "were interpreted broadly to cover also internal requirements, Article III would be partly superfluous".[592] The nature and purpose of the "End-Use Limitation" indicates that it would be best described as an internal measure "affecting the … use of products" under Article III of the GATT 1994, rather than a measure "affecting the importation of products" under Article XI:1.[593]

4. The measures do not constitute prohibitions or restrictions "on the importation of any good"

451. As Mexico explained in its Initial Written Submission, the measures at issue are internal measures aimed at mitigating the harmful effects of GM corn grain in Mexico, regardless of whether such GM corn grain is produced domestically or imported from other countries. The "End-Use Limitation", for example, applies horizontally and equally to all GM corn grain, regardless of its origin. This is clearly reflected, for example, in the text, design, purpose, and application of the measure.

452. With respect to the "Gradual Substitution" instructions, the United States alleges that the measure "is specifically aimed at limiting the importation of certain GE corn in pursuit of self-sufficiency policies designed to encourage domestic production". Further, the United States speculates that "[b]oth the gradual phase-out and the completed substitution place a 'limiting condition' on importation, and therefore constitute a 'restriction' under the ordinary meaning of 'prohibition or restriction' on importation for purposes of Article 2.11".[594] However, as previously discussed, the future "Gradual Substitution" measure(s) do not even exist yet. They have not yet been designed, proposed, adopted, or implemented, let alone applied.

453. Moreover, nothing in the "Gradual Substitution" instructions in Articles 7 and 8 of the 2023 Decree are capable, on their own, of affecting the importation of GM corn grain into Mexico. No regulatory or administrative mechanism exists "in order to conduct the gradual substantiation", let

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592 Panel Report, *India — Autos*, ¶ 7.220. **MEX-328**. (in reference to the Panel Report, *Canada – FIRA*, ¶ 5.14, MEX-329).

593 Panel Report, *India — Autos*, ¶ 7.220, 7.261, **MEX-328**. (in reference to the Panel Report, *Canada – FIRA*, ¶ 5.14, **MEX-329**).

594 US Rebuttal Submission, ¶ 187.

alone anything capable of restricting the importation of GM corn into Mexico. Until the "appropriate actions" have been designed and/or applied, it cannot be determined whether they are designed or applied in a manner that is covered by and contrary to Article 2.11 of the USMCA.[595]

I. The "End-Use Limitation" and the "Gradual Substitution" instructions are covered by the exceptions contained in Article XX GATT (a) and (g)

454. For the reasons provided in Mexico's Initial Written Submission and this Rebuttal Submission, neither the "End-Use Limitation" nor the "Gradual Substitution" instructions breach Mexico's obligations under the USMCA. However, if the Panel finds that either of these measures are inconsistent with any provision in Article 9.6 or with Article 2.11 of the USMCA, such inconsistencies are justified under Articles 32.1.1 and 32.5 of the USMCA. In this section, Mexico submits its rebuttal arguments with respect to the general exceptions under Articles XX(a) and XX(g) of the GATT 1994, which are incorporated by reference into Article 32.1.1 of the USMCA.[596] Mexico's rebuttal arguments with respect to the specific exception under Article 32.5 of the USMCA are submitted below.

455. This section explains why the measures satisfy the requirements of Article XX(a) and (g) of GATT 1994. The following section explains that the measures are consistent with the chapeau of Article XX of GATT 1994.

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595 Mexico's Initial Written Submission, ¶ 467.

596 Mexico's arguments in relation to the "Gradual Substitution" instructions are provided on an *arguendo* basis, in the event that the Panel has either: (i) determined that the instructions in Articles 7 and 8 of the 2023 Decree, on their own, constitute an SPS measure within the meaning of Annex A.1 of the SPS Agreement and, further, that the said measure is inconsistent with a provision under Article 9.6 of the USMCA; or (ii) determined that the instructions in Article 7 and 8 of the 2023 Decree, on their own, constitute a "prohibition or restriction on the importation of any good of another Party" that has been "adopted" or "maintained" within the meaning of Article 2.11 of the USMCA. Any discussion of the instructions in Articles 7 and 8 of the 2023 Decree as a "measure" is therefore without prejudice to Mexico's arguments that the instructions alone do not constitute an SPS measure or any measure "adopted" or "maintained" to prohibit or restrict the importation of any good.

1. The measures are necessary to protect the native corn, the milpa, the biocultural wealth and the gastronomic heritage of Mexico in the terms of Article XX (a) of GATT 1994

456. Mexico reiterates that the measures at issue comply with the obligations in Articles 9.6 and 2.11 of the USMCA. Were the Panel to find the End Use Limitation to be inconsistent with these obligations, the measure is nonetheless justified as "necessary to protect public morals" under GATT Article XX(a) and Article 32.1.1 of the USMCA.[597]

457. Mexico has previously explained that the 2023 Decree provides a set of mutually supportive measures. These measures address not only risks to human health, but also risks to the health and conservation of native corn. Native corn is considered cultural heritage in Mexico.[598] It is vitally important to the identity and cultural of Mexico's indigenous and peasant communities, who are considered custodians and stewards of this tradition and biodiversity.[599]

458. The 2023 Decree therefore is guided by overlapping concerns related to health, food security, protection of native corn, the milpa, biocultural wealth, indigenous/peasant communities and associated gastronomic heritage.[600]

459. Mexico presented significant evidence to establish the high priority accorded under Mexican law to the protection of native corn and the indigenous communities that maintain it.[601] Yet the United States and Canada argue that the concerns underlying such protections are not valid "public morals".[602] Their arguments reflect the purely commercial nature of industrial agriculture in those countries, which promotes monocultures and depends on corporations rather than indigenous communities.[603] Moreover, these arguments essentially amount to the United States

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597 Article 32.1.1 incorporates GATT Article XX for purposes of Chapter 2 related to National Treatment and Market Access for Goods and Chapter 9 related to Sanitary and Phytosanitary Measures.

598 Mexico's Initial Submission, ¶¶ 53-55.

599 Mexico's Initial Submission, ¶¶ 56-59.

600 *See* Decree 2023, Article 6, **MEX-167.**

601 Mexico's Initial Submission, ¶¶ 197-229.

602 US Reply Submission, ¶¶ 207-216; Canada's Third Party Submission, ¶¶ 158-167.

603 *See* Secretariat Report of the Commission for Environmental Cooperation. "*Corn & Biodiversity: Effects of transgenic corn in Mexico*", 2004, p. 23. **MEX-095.** ("Corn has important cultural, symbolic and spiritual values for most Mexicans, which is not the case in Canada and the United States. The risk assessment of transgenic maize in Mexico is necessarily linked to these values".)

and Canada substituting their version of "right or wrong" in place of what Mexico has decided for itself. GATT Article XX(a) recognizes the right of every country to define for itself public morals that guide policy and rule-making, even when they are different than the public morals and principles of other members.[604]

460. To be justified under GATT Article XX(a), (a) a measure must relate to a valid public moral, (b) the measure must contribute to the protection of that public moral, and (c) it must be necessary for the protection of the moral. Each of these issues are addressed below.

a. The protection of native varieties, the livelihoods of indigenous communities and associated unique gastronomic traditions are valid "public morals"

461. GATT Article XX(a) allows Members to maintain measures "necessary to protect public morals". In the absence of a definition of the term "public morals" within Article XX(a), WTO panels have considered the term to denote norms of "right and wrong conduct maintained by or on behalf of a community or nation".[605] WTO panels have also recognized the discretion afforded to members in defining the scope of "public morals," which are guided by values prevailing in their societies at a given time.[606] Panels evaluate whether the measure is designed to safeguard the public morals objective.[607]

462. As explained by Mexico, the protection of native varieties of corn, the cultural heritage of traditional farming (milpa) and peasant communities based on cultivating native varieties of corn, the livelihoods of indigenous communities that develop and preserve native varieties of corn, and

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604 *See* Panel Report, *US — Tariff Measures (China)*, ¶. 7.116. **MEX-335** ("To the extent that the concept of public morals pertains to a group of individuals (a community or nation), the content and scope of this concept may vary from one WTO Member to another, influenced by each Member's systems and scales of values. Prior WTO adjudicators have similarly observed that the content of the concept of public morals for WTO Members can vary in time and space, depending on a range of factors, including prevailing social, cultural, ethical and religious values.").

605 Panel Report, *US — Tariff Measures (China)*, ¶ 7.115 **MEX-335** (referring to Panel Reports *US - Gambling*, ¶ 6,465 **MEX-340;** *China - Publications and Audiovisual Products*, ¶ 7759, **MEX-339;** *EC - Seal Products*, ¶ 7,380, **MEX-338;** *Colombia - Textiles*, ¶ 7,299, **MEX-341;** and *Brazil - Taxation*, ¶ 7.520, **MEX-342**) **MEX-335**.

606 Panel Report, *Brazil - Taxation*, ¶ 7.565, **MEX-342**.

607 See Panel Report, *US — Tariff Measures (China)*, ¶ 7.110 **MEX-335**; Panel Report, *Brazil - Taxation*, ¶ 7.519. **MEX-342.**

the associated gastronomic traditions are important interests and values in Mexico that rise to the level of "public morals".

463. Traditional farming practices consist of saving harvested corn grain for use as seed in the next crop cycle, using purchased corn grain as food or feed as seed for cultivation, and exchanging corn grain/seed with other farmers and communities.[608] The End Use Limitation prevents transgenic contamination from the spread of GM corn in the unique circumstances in Mexico, where corn grain for consumption can be readily exchanged and used for cultivation purposes. In doing so, the measure protects public morals by preventing harmful displacement of native corn and the corresponding negative impact on indigenous communities and associated gastronomic traditions. These are exactly the types of values that Article XX(a) seeks to preserve.

464. The United States dismisses these concerns on various grounds, asserting that (i) Mexico has not sufficiently explained what it means by preservation of native corn and unique gastronomic tradition, (ii) domestic legislation is of limited use as evidence of an existing public morals concern and (iii) preservation of livelihoods cannot be a public moral concern.[609] Mexico responds to each of the U.S. arguments below.

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608 Ayala-Angulo, M., González, E. J., Ureta, C., Chávez-Servia, J. L., González-Ortega, E., Vandame, R., & Piñeyro-Nelson, A., "*Local and Regional Dynamics of Native Maize Seed Lot Use by Small-Scale Producers and Their Impact on Transgene Presence in Three Mexican States Plants*", 2023, p. 2 ("Approximately 75–80% of land used for maize cultivation depends on smallscale producers (<5 ha) who tend to use low input, traditional farming methods and predominantly plant native maize varieties, while their production is primarily destined for self-consumption and any surplus is locally sold. These maize producers commonly save seed from one farming cycle to the next one, and share seeds among themselves, allowing alleles to pass from one generation to another, enabling the evolutionary processes that sustain this crop's genetic diversity"). **MEX-088**; Dyer, G., Serratos-Hernández, J., Perales, H., Gepts, P., Piñeyro-Nelson, A., Chávez, A. Salinas-Arreortua, Yúñez-Naude, A., Taylor, J. and Álvarez-Buylla, E. "Dispersal of Transgenes through corn seed systems in Mexico", 2009, PLoS One, p. 2 ("In addition to seed systems, farmers occasionally use grain purchased as food or feed In lieu of seed."). **MEX-089**; Ayala-Angulo, M., et al. "*Local and Regional Dynamics of Native Maize Seed Lot Use by Small-Scale Producers and Their Impact on Transgene Presence in Three Mexican States Plants*", 2023, Plantas, p. 2. **MEX-088**; Norman C. Ellstrand, "*Going to 'Great Lengths' to Prevent the Escape of Genes That Produce Specialty Chemicals*", (Ir a 'grandes distancias' para evitar el escape de genes que producen productos químicos especializados), Plant Physiol, August 2003, 132(4): 1770-1774, p. 1772. **MEX-409**.

609 US Reply Submission, ¶ 202-208.

(1) Preservation of Native Corn and Gastronomic Traditions are Important Public Morals in Mexico

465. Mexico is a country with great biological diversity (10% of the world's biological diversity) and is the center of origin of numerous species including corn.[610] In fact, the greatest diversity of corn in the world is concentrated in Mexico, which includes populations of its wild relatives, the teocintles, and another set of related grasses (Poaceae), species of the genus Tripsacum, both of which are ancestors of corn.[611]

466. As Mexico explained in its initial submission, the term "native" has been used to differentiate traditional corn populations maintained by farmers from those generated from hybrid varieties. Article 2 of the Federal Law for the Promotion and Protection of Native Corn defines native corn as those breeds of the taxonomic category Zea mays and its subspecies mays that indigenous peoples, peasants and farmers cultivate, from seeds selected by themselves or obtained through exchange, in constant evolution and diversification, which are identified by the National Commission for the Knowledge and Use of Biodiversity (CONABIO).[612]

467. Per this definition, of the 64 corn breeds present in Mexico, 59 are considered native.[613] These native races or varieties have been organized into 7 groups based on morphological, genetic,

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610 DOF, *Agreement on the determination of Centers of Origin and Centers of Genetic Diversity of Corn*, November 2, 201. **MEX-008**.

611 CONABIO, Corn Breeds, available at: https://www.biodiversidad.gob.mx/diversidad/alimentos/maices/razas-de-maiz. **MEX-010**. Kato, T. Á., Mapes, C., Mera, L. M., Serratos, J. A., & Bye, R. A. "A., & Bye, R. A. "*Origen y diversificación del maíz: una revisión analítica*", 2009, Universidad Nacional Autónoma de México, Comisión Nacional para el Conocimiento y Uso de la Biodiversidad., México, p.17. **MEX-001**.

612 Mexico's Initial Submission, ¶ 47-48.

613 Torres-Morales, B., Rocandio-Rodríguez, M., Santacruz-Varela, A., Córdova-Téllez, L., Estrada, B. C., & Sánchez, H. L. "*Genetic diversity characterization of corn populations using molecular markers*". Italian Journal of Agronomy, 2023, p. 7. **MEX-013**. Vega-Alvarez, I., Santacruz-Varela, A., Rocandio-Rodríguez, M., Córdova-Téllez, L., López-Sánchez, H., Muñoz-Orozco, A., & Hernández-Bautista, A. "*Genetic diversity and structure of native corn races from Northwestern Mexico*", 2017, Pesquisa Agropecuária Brasileira, p. 1024. **MEX-014**.

adaptive and geographical distribution characteristics and a common evolutionary history, or by the name by which they are known to the indigenous or mestizo groups that cultivate them.[614]

468. Native varieties of corn have certain unique properties that allow them to be more productive, tolerant to environmental factors, and resistant to pests and diseases, as well as providing for nutritional needs.[615] For instance, Tuxpeño corn is fundamental to genetic improvement worldwide due to its high protein, starch, oil, fiber and mineral content,[616] while Nal-tel corn is high in essential amino acids such as lysine and tryptophan.[617] Mixteco corn has a high content of antioxidants such as flavonoids, phenols and anthocyanins,[618] zapalote chico tolerates strong winds, drought and weevils,[619] while conical corn varieties have a high content of natural pigments.[620]

469. Importantly, Mexico has retained the diversity of native corn due to prevalence of traditional agricultural and management systems maintained by indigenous communities.[621] This includes the "milpa," a system of sustainable agriculture that minimizes use of synthetic chemicals and promotes biodiversity through the cultivation of corn, squash, beans and weeds.[622]

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614 Ruiz Corral, J. A., Sánchez González, J. D. J., Hernández Casillas, J. M., Willcox, M. C., Ramírez Ojeda, G., Ramírez Díaz, J. L., & González Eguiarte, D. R., "R., "R., "R., "*Identification of Mexican corn breeds adapted to moisture deficient conditions using biogeographic data*", 2013, Rev. Mex. Cienc. Agríc., pp. 840-841. **MEX-015**. *See also,* Sánchez, G. J. J; Goodman, M. M. and Stuber, C. W. "*Isozymatic and morphological diversity of the races of corn of Mexico*", 2000, p. 56. **MEX-005.**

615 Arteaga, M. C., Moreno-Letelier, A., Mastretta-Yanes, A., Vazquez-Lobo, A., Breña-Ochoa, A., Moreno-Estrada, A., Eguiarte, L. E. and Piñero, D., "*Genomic variation in recently collected corn landraces from Mexico*", 2016, pp. 38-39. **MEX-016**.

616 CONABIO, "*Tuxpeño Breed*", 2020. **MEX-017**.

617 Sagarpa, "*Policies for the promotion and conservation of native corn in Mexico"*, s/f, p.35. **MEX-020**.

618 CONABIO, "*Oloton Breed*". **MEX-018**. Van Deynze, A., Zamora, P., Delaux, P. M., Heitmann, C., Jayaraman, D., Rajasekar, S. and Bennett, A. B. "*Nitrogen fixation in a landrace of corn is supported by a mucilage-associated diazotrophic microbiota*", PLoS biology, 2018, p. 3. **MEX-019**.

619 Expert Report Dra. Espinosa, ¶ 107.

620 Sagarpa, "*Policies for the promotion and conservation of native corn in Mexico"*, s/f, p.35. **MEX-020**.

621 *See, for example,* Expert Report Dra. Espinosa, ¶ 108.

622 Mexico's Initial Submission, ¶ 52.

470. Relatedly, the protection of native varieties of corn is also tied to the ability to make traditional Mexican food. The uniqueness of this linked tradition between farming of native varieties and gastronomy is recognized by UNESCO as an intangible cultural heritage.[623] The UN agency acknowledges that this tradition is "made possible by collective participation in the entire traditional food chain: from planting and harvesting to cooking and eating."[624]

471. Native corn varieties are thus an integral part of a unique gastronomic tradition where different varieties lend different flavor, texture, color, nutritional value to food and add symbolic meaning to community rituals.[625]

472. On the other hand, as Dr. Espinosa points out:

> [T]he use of transgenic hybrids and the associated technology (Glyphosate herbicide) puts the traditional milpa system (corn, beans, squash, chili, tomato and quelites, among other species grown within a plot) at high risk because the use of herbicides forces producers to use the monoculture (the herbicide-tolerant transgenic hybrid) and to eliminate all the species that are planted or tolerated within the milpa. This would affect biodiversity and the food supply of small indigenous peasant farmers.[626]

473. As the Risk Assessment establishes, there are serious concerns that introduction of GM corn will displace native varieties and negatively impact the livelihoods of indigenous communities. As previously reported, since the early 2000s numerous studies have confirmed the presence of transgenes in native corn varieties in Mexico.[627] Moreover, as the 2004 CEC Report confirmed, where farmers have access to transgenic varieties that they perceive as valuable, they will interbreed them with traditional varieties, thereby spreading the transgenes and their traits into

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623 UNESCO, "*Decision of the intergovernmental Committee; 5.COM 6.30*", 2010. ¶¶ 63-64 **MEX-041**.

624 UNESCO, "*Traditional Mexican cuisine - ancestral, ongoing community culture, the Michoacán paradigm*". **MEX-042**.

625 Mexico's Initial Submission , ¶¶ 63-68.

626 Expert Report Dra. Espinosa, ¶ 169.

627 Mexico's Initial Submission, ¶¶ 103-107 and 123-128.

the fields of native maize.[628] Removal of transgenes that have been widely introduced into traditional varieties can be extremely difficult, if not impossible.[629]

(2) The Relevance of Legislation in Establishing a Public Moral

474. The United States argues that the evidence presented by Mexico to demonstrate long standing issues of moral value is vague. In its Initial Submission, Mexico cited to numerous national, international and state level laws,[630] which along with other laws cited in the submission,[631] relate to the protection of one or more of the cited public morals. For instance, many of the cited laws relate to protection of biodiversity, which includes native varieties of corn, while others more directly relate to the protection of native corn as biocultural and food heritage. Other laws relate to protections afforded to indigenous and rural farming communities that include consumption of native corn and the gastronomic traditions associated with it. As pointed out, UNESCO recognizes traditional Mexican cuisine as Intangible Cultural Heritage of Humanity and further recognizes the role of native corn in that tradition.[632] The UNESCO decision was based on a nomination by Mexico which strongly suggests that the country values gastronomic traditions associated with traditional farming practices and has taken steps to protect it.

475. It is well-established that domestic legislation incorporating protections related to the stated public morals is evidence that these concerns indeed exist within the society of a country.[633] In *US-Tariff Measures (China),* the United States cited to domestic laws on theft, misappropriation and protection of intellectual property as reflective of its national concept of right and wrong. Similarly, Columbia cited decrees related to prevention of terrorist financing as evidence of its concern to combat money laundering.[634] In *EC-Seal Products*, the EU cited commission reports

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628 Secretariat Report of the Commission for Environmental Cooperation. "*Corn & Biodiversity: Effects of transgenic corn in Mexico*", 2004, p.1, **MEX-095**.

629 Secretariat Report of the Commission for Environmental Cooperation. "*Corn & Biodiversity: Effects of transgenic corn in Mexico*", 2004, p.17, **MEX-095**.

630 Mexico's Initial Submission, ¶ 495.

631 Mexico's Initial Submission, ¶¶ 214-224.

632 *See UNESCO*, "*Decision of the intergovernmental Committee; 5.COM 6.30*", 2010. **MEX-041.**

633 *US — Tariff Measures (China),* ¶ 7.117, **MEX-335.**

634 Panel Report, *Colombia — Textiles*, ¶¶ 7.337-7.338, **MEX-341.**

that discussed inhuman treatment of seals during hunts and the public's concern with promoting products made from such seals.[635] Brazil submitted government expert reports, a UNESCO report, and domestic decrees that highlighted the "digital divide" in that country and the need for democratization of information.[636]

476. Likewise, the laws identified by Mexico demonstrate that concerns regarding the preservation of native corn and livelihoods of indigenous communities and their associated gastronomic traditions qualify as public morals.

(3) Preservation of Indigenous Livelihoods is a Valid Public Moral Concern

477. The United States argues that "preservation of livelihoods" is not itself a standard of good or bad behavior but a desired economic outcome. The stated U.S. concern is that treating indigenous livelihoods as a public moral would risk turning GATT Article XX(a) into an economic safeguard.

478. The United States' view of what qualifies as a valid "public moral" is divorced from the reality of Mexico, which guarantees indigenous people and peasant communities the right to self-determination, which includes, among other things, respect for culture and identity. Mexican law recognizes the unique culture and traditional expressions of indigenous people and prohibits any act that threatens or affects the integrity of this heritage.[637] These protections are based on a widely held moral belief among Mexican people that protecting indigenous communities and their way of life is important.

479. In words of Dra. Espinosa:

> Native corn is much more than a simple product for sale or subsistence, it is life itself and, by breaking this delicate symbiotic relationship, we would be opening the door to greater unemployment in the countryside, job insecurity, loss of individual freedoms,

635 Panel Report, *EC- Seal Products*, ¶¶ 7.331 and 7.631, **MEX-338.**

636 Panel Report, *Brazil - Taxation*, ¶¶ 7.561-7.565, **MEX-342**.

637 *See* discussion of Mexico's Federal Law for the Protection of the Cultural Heritage of Indigenous and Afro-Mexican Peoples and Communities and the General Law of Culture and Cultural Rights in Mexico's Initial Submission, ¶¶ 220-222.

> famine, violence caused by the rupture of the social equilibrium that corn weaves and, obviously, migration.[638]

480. The fact that a public moral concern also serves economic interests does not disqualify it as a valid objective. A WTO Panel dismissed similar concerns raised by China in *US — Tariff Measures (China)*, in which China claimed that measures taken by the United States were not based on public morals, as the United States had argued, but rather sought a "purely economic objective" of reducing China's exports to the United States.[639] Likewise, in *Brazil - Taxation*, the Panel dismissed EU concerns that Brazil's articulation of its public moral objective would be "virtually available to justify any governmental action which is taken in the public interest."[640]

b. The End Use Limitation is Designed to Protect the Stated Public Morals

481. The End Use Limitation is designed to protect the stated public morals related to the protection of native varieties, the livelihoods of indigenous communities and associated unique gastronomic traditions. WTO panels have reviewed the design, architecture and revealing structure of the measure and acknowledged that the legal standard for evaluating the design of the measure only requires that the measure not be "incapable of protecting public morals".[641]

482. The End Use Limitation is a narrow restriction on the use of GM corn grain for consumption of unprocessed corn, i.e. through nixtamalization and flour processing. Although Mexico recognizes that it is not possible to eliminate the risks of GM contamination in Mexico, its objective is to try to limit the magnitude of future harm and to support efforts to reverse or eliminate existing harm, if possible. In this regard, the "End Use Limitation" works in conjunction with the restriction on the use of GM corn seeds for cultivation under Article 6.1 of the 2023 Decree.[642]

483. The Risk Assessment identifies the risk to native corn (a public moral concern) through the entry and spread of GM corn grain by virtue of it being easily exchanged as part of the cultural

638 Expert Report Dra. Espinosa, ¶ 202.

639 Panel Report, *US — Tariff Measures (China)*, ¶¶ 7.114-7.115, **MEX-335**.

640 Panel Report, *Brazil - Taxation*, ¶7.566, **MEX-342.**

641 Panel Report, *US — Tariff Measures (China)*, ¶ 7.145, **MEX-335.**

642 Mexico's Initial Submission, ¶ 348.

and agricultural practices of indigenous communities.[643] By prohibiting the use of GM corn grain, the measure significantly reduces pathways for the spread of GM corn through exchange and distribution systems. By addressing the risk to native corn, the measure furthers the public moral objective of protecting native corn. This in turn furthers other related public morals namely the livelihoods of indigenous farming communities that rely on access to native corn and their associated gastronomic traditions.

c. The End Use Limitation is Necessary to Protect the Identified Public Morals

484. Mexico agrees with Canada's three step analysis to determine whether a measure is "necessary" to protect the identified public morals.[644] This analysis involves three factors:

- the relative importance of the interests or values furthered by the challenged measure;
- the degree to which the measure contributes to that objective; and,
- the relative trade-restrictiveness of the measure.

485. A panel reviewing the "necessity" of a measure must weigh and balance these factors and assess whether less trade restrictive alternatives suggested by the United States are reasonably available.[645]

486. With regard to the first factor, Mexico has conclusively established that the public morals identified by Mexico are extremely important to the Mexican people. This is evident in the numerous laws and legal protections accorded to the protection of native varieties and indigenous communities. The maintenance of gastronomic traditions flowing from the protection and use of

643 Ayala-Angulo, M., González, E. J., Ureta, C., Chávez-Servia, J. L., González-Ortega, E., Vandame, R., & Piñeyro-Nelson, A., "*Local and Regional Dynamics of Native Maize Seed Lot Use by Small-Scale Producers and Their Impact on Transgene Presence in Three Mexican States Plants*", 2023, p. 2 ("Approximately 75–80% of land used for maize cultivation depends on smallscale producers (<5 ha) who tend to use low input, traditional farming methods and predominantly plant native maize varieties, while their production is primarily destined for self-consumption and any surplus is locally sold. These maize producers commonly save seed from one farming cycle to the next one, and share seeds among themselves, allowing alleles to pass from one generation to another, enabling the evolutionary processes that sustain this crop's genetic diversity"). **MEX-088**; Dyer, G., Serratos-Hernández, J., Perales, H., Gepts, P., Piñeyro-Nelson, A., Chávez, A. Salinas-Arreortua, Yúñez-Naude, A., Taylor, J. and Álvarez-Buylla, E. " Dispersal of Transgenes through corn seed systems in Mexico", 2009, PLoS One, p. 2 ("In addition to seed systems, farmers occasionally use grain purchased as food or feed In lieu of seed."). **MEX-089**.

644 Canada's Third Party Submission, ¶ 162.

645 Panel Report, *US — Tariff Measures (China)*, ¶ 7.159, **MEX-335**.

native corn is also extremely important because it reinforces the unique relationship with protection of biodiversity and communities that maintain it.

487. With regard to the second factor, the United States claims Mexico has not established that the End Use Limitation contributes to the stated public moral concerns, because it has not identified any threat or explained how the threat would be prevented by the measures. As Mexico has explained previously, the Risk Assessment identified the risk to native corn through the entry and spread of GM corn grain by virtue of it being easily exchanged as part of the agricultural practices of indigenous and peasant communities. The End Use Limitation prohibits the use of GM corn grain for human consumption, i.e., for nixtamalization or processing of flour. This limitation on the use of the GM corn grain for these specific purposes significantly reduces pathways for the spread of GM corn through exchange and distribution systems. By addressing the risk to native corn, the measure furthers the public moral objective of protecting native corn, the livelihoods of indigenous communities, and associated gastronomic traditions. There is therefore a genuine connection between the measure and the fulfillment of the public moral objective identified by Mexico.

488. The measure is also less trade restrictive than an import ban. The United States continues to mischaracterize the measure as an import ban, but that is not the case. It is a limitation on use of any GM corn, whether imported or domestically produced, for purposes of nixtamalization and processing of flour. Mexico has explained previously that other aspects of the 2023 Decree do restrict imports. Those measures relate to prohibition on the acquisition, distribution, promotion or import of glyphosate and agrochemicals containing glyphosate as an active ingredient within public programs,[646] and revocation of authorizations and permits for the import, production, distribution and use of glyphosate.[647] Unlike the measures on glyphosate, the End Use Limitation does not impose an import ban. It is a narrow measure that restricts a particular end use, rather than trade.

489. The other allegedly less trade restrictive measures are not reasonably available to Mexico. The United States suggests spatial isolation, clean equipment and storage methods, continuing

646 See Decree 2023, Article 3, **MEX-167**.

647 See Decree 2023, Article 4, **MEX-167**.

germplasm banks, conservation and community outreach. These suggested alternatives do not account for the fact that indigenous and peasant communities exchange seeds as part of their cultural stewardship and agricultural practices. Once GM corn grains are exchanged, the measures suggested by the United States would amount to post-hoc damage control, but they would not prevent the GM corn grains from being planted. Further, Mexico also does not require labeling or segregation of GM corn grain from non-GM corn grain, which makes it more likely that these grains would be planted among holdings managed by indigenous communities. For these reasons, the alternatives suggested by the United States are not reasonably available.

490. In conclusion, the public morals identified by Mexico are extremely important within Mexican society, the End Use Limitation contributes to the public moral objective, and the End Use Limitation is not a trade restrictive measure. Mexico has therefore established that the End Use Limitation is necessary for the protection of the public morals stated by Mexico.

2. The measures relate to the conservation and genetic integrity of Mexico's Native Corn varieties as "exhaustible natural resources" within the meaning of Article XX (g) of the GATT 1994

491. The design of the measures demonstrate that they relate to conserving the natural biodiversity and genetic integrity of Mexico's native corn varieties, which would be considered "exhaustible natural resources" under Article XX (g) of GATT 1994, as Mexico explains in its Initial Written Submission.[648]

492. The following responds to the United States' Rebuttal submissions concerning whether the "End-Use Limitation" and the "Gradual Substitution Instruction" qualify for exceptions under Article XX (g) of the GATT 1994. There are two general and four specific points of disagreement. Mexico takes the following perspectives on the issues and will address each in turn.

493. *First*, the "End-Use Limitation" and the "Gradual Substitution" instructions are measures "relating to" the conservation of an exhaustible natural resource. These measures "relate to" the conservation of an exhaustible natural resource. To this end, Mexico has demonstrated "a close and genuine relationship of ends and means" between the measures and the conservation objective.

[648] Mexico's Initial Submission, ¶¶ 506-514.

The risks posed by GM corn on native corn in Mexico are well documented. However, the United States conflates traditional hybridization with transgenic introgression and disregards Mexico's explanation to this effect in its Initial Written Submission. Namely that GM corn features disruptive transgenes, which can be imparted on native varieties through transgenic introgression. Moreover, in attempting to suggest that native corn is not at risk in Mexico, the United States misquotes, mischaracterizes and omits information provided by the Mexican authorities during the Final Judgment 321/2013-I, which concerned the moratorium on the cultivation of GM corn crops in Mexico.

494. *Second*, the "End-Use Limitation" and the "Gradual Substitution Instruction" are made effective in conjunction with restrictions on domestic production or consumption. To argue otherwise, the United States disregards domestic restrictions that Mexico referenced in its Initial Written Submission, such as the moratorium on GM corn production.

a. The measure(s) at issue relate to the conservation of an exhaustible natural resource

495. The United States argues that the measures at issue do not "relate to" the conservation of an exhaustible natural resource. It argues that Mexico has not demonstrated "a close and genuine relationship of ends and means" between the measures and the conservation objective,[649] quoting the language used in the Appellate Body Report in *US — Shrimp*.[650] However, it ignores the fact that GM corn grain can be used as viable seed, as Mexico wrote in its Initial Written Submission.[651] What is more, the United States does not provide an analysis based on the relevant WTO decisions concerning this matter.

496. The words "relat[e] to" indicate "hav[ing] some connection with, be[ing] connected to".[652] To determine if a measure "relate[s] to" an objective, the Panel must examine the nature of the measure as reflected in its "design and architecture" and evaluate if it assists, supports or furthers

649 US Rebuttal Submission, ¶ 223.

650 Appellate Body Reports, *US — Shrimp*, ¶ 135. **MEX-346**

651 Mexico's Initial Written Submission, ¶ 509.

652 Mexico's Initial Written Submission, ¶ 504, citing Appellate Body Report, *China — Raw Materials*, ¶ 355. **MEX-345.**

that objective.[653] For a measure to relate to "conservation" in the context of Article XX(g), there must be "a close and genuine relationship of ends and means" between the measure and the conservation objective.[654] Ultimately, the test for whether a measure "relates to" conservation turns on whether the measure is "reasonably related" to the objective of conservation, in a way that implies a "close and real" and "substantial" relationship and the measure is not "disproportionately wide in its scope and reach in relation to the policy objective of protection and conservation".[655]

497. The *chapeau* of Article 6 and the last preambular recital of the 2023 Decree ascribe the following objectives of the measures: "contributing to food security and sovereignty and as a special measure to protect native corn, the milpa, biocultural wealth, peasant communities, gastronomic heritage and human health",[656] "the right to health and a healthy environment, […] cornfields, […] as well as to ensure nutritious, sufficient and quality food".[657]

498. As Mexico explained in its Initial Written Submission, the "End-Use Limitation" under Article 6.2 of the 2023 Decree supports the objective of safeguarding "native corn", in conjunction with Article 6.1, which gives biosafety agents the authority to revoke and refrain from issuing permits that would release GM corn seeds in Mexico.[658] This objective will be furthered when the "Gradual Substitution" under Articles 7 and 8 is applied in the future.[659]

499. The 2023 Decree is not "disproportionately wide in its scope and reach". Mexico clarified its limited scope as follows:[660]

i. It is limited only to corn.

ii. It establishes three categories of corn based on its use: corn for human consumption, which includes masa and tortillas through nixtamalization; corn for industrial use for human consumption, and corn for animal consumption.

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653 Panel Report, *China Rare Earths*, ¶ 7.379. **MEX-347**.

654 Appellate Body Reports, *US — Shrimp*, ¶ 136, **MEX-346;** and *China — Raw Materials*, ¶ 355. **MEX-345.**

655 Panel Report, *China Rare Earths*, ¶ 7.282. **MEX-347**.

656 2023 Decree, Article 6. **MEX-167.**

657 2023 Decree, Final Preambular Recital. **MEX-167.**

658 Mexico's Initial Written Submission, ¶510.

659 Mexico's Initial Written Submission, ¶510.

660 Mexico's Initial Written Submission, ¶ 259.

iii. It limits the use of GM corn in the case of corn intended for dough and tortilla.

iv. It does not establish a specific timeframe for the gradual substitution of GM corn for industrial use for human consumption and for animal feed.

500. Ultimately, there is a close and genuine relationship of ends and means between the measure and the conservation objective of the measure because it prevents GM corn grain to be distributed and used as seeds, in order to prevent further genetic introgression among native varieties of corn.

(1) It is well documented that native races of corn are at risk of transgenic contamination in Mexico

501. The circumstances threatening the depletion of the genetic integrity and the supply of the unique native corn varieties in Mexico has been recognized by academics, journalists and farmers in Mexico since the early 2000s. The United States argues that Mexico's unique native corn varieties are not an "exhaustible natural resource", contending that Mexico disregards the "overwhelming weight of the evidence supporting the opposite conclusion".[661] Contrary to the United States' arguments, there is ample positive evidence of the risks to varieties of non-GM corn posed by transgenic introgression both in Mexico and the United States' own territory.[662]

502. As Mexico explained in its Initial Written Submission, the dispersal of transgenic contamination in Mexico occurs in the following two ways: (i) through the flow of GM corn seed among farmers in Mexico, which includes corn grain purchased as food or feed and used by farmers as seed for cultivation; and (ii) through cross-pollination between GM corn and non-GM

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661 US Rebuttal Submission, ¶ 219.

662 Bernstein JA, Bernstein IL, Bucchini L, Goldman LR, Hamilton RG, Lehrer S, Rubin C, Sampson HA. *Clinical and laboratory investigation of allergy to genetically modified foods*. Environ Health Perspect, 2003, pp. 1118-1120. **MEX-221**; CDC. (2001). *Investigation of Human Health Effects Associated with Potential Exposure to Genetically Modified Corn. Centros de Control de Enfermedades*, pp. 3, 8. **MEX-222**; Bucchini & Goldman, "*Starlink Corn: A Risk Analysis*", Environmental Health Perspectives, 10 December 2001, 110(1): 5-13 **MEX-408**. Marc Kaufman, "*Engineered corn found in white tortilla chips" Washington Post,* 4 July 2001, **MEX-413**; Brownfield Ag News, "*Enogen vs. food grade: a coexistence issue in Nebraska"*, 19 January 2018, p. 4, **MEX-414**; Roseboro K. "*GMO-ethanol corn contamination raises concerns about another 'StarLink' disaster"*, The Organic & Non-GMO Report, 22 de febrero de 2017, pp. 1, and 6, **MEX-415**; Norman C. Ellstrand, "*Going to 'Great Lengths' to Prevent the Escape of Genes That Produce Specialty Chemicals*", Plant Physiol, August 2003, 132(4): pp. 1770–1774. **MEX-409**.

native corn.[663] However, the United States has only addressed cross-pollination,[664] ignoring the flow of corn seed among farmers in Mexico. This is a critical oversight because GM corn grain is "a potential route of transgene dispersal into native corn" due to the fact that "imported grains are functional seeds, which retain their ability to develop and express recombinant proteins", as Mexico explained with scientific evidence in its Initial Written Submission.[665] This is particularly relevant in Mexico, where traditional farming practices involve saving harvested corn grain for use as seed in the next crop cycle, using corn grain purchased or intended for other end-uses as seed for cultivation, and exchanging corn grain/seed with other farmers and communities.[666]

503. Evidence before this Panel demonstrates the risks posed by transgenic introgression on non-GM corn.[667] Genetically engineered "Starlink" Bt and Enogen GM corn have cross-pollinated with corn varieties meant for human consumption.[668] The degrees of contamination were

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663 Mexico's Initial Written Submission, ¶¶ 103-115.

664 US Rebuttal Submission, ¶¶ 135-137.

665 Mexico's Initial Written Submission, ¶¶ 106, 324, 347, citing Trejo-Pastor, V., Espinosa-Calderón, A., del Carmen Mendoza-Castillo, M., Kato-Yamakake, T. Á., Morales-Floriano, M. L., Tadeo-Robledo, M., & Wegier, A., "*Corn grain marketed in Mexico as a potential disperser of genetically modified events*", 2021, pp. 251-259. **MEX-087**; Dyer, G., Serratos-Hernández, J., Perales, H., Gepts, P., Piñeyro-Nelson, A., Chávez, A. Salinas-Arreortua, Yúñez-Naude, A., Taylor, J. and Álvarez-Buylla, E. "*Dispersal of transgenes through corn seed systems in Mexico*", 2009, PLoS One, p. 2. **MEX-089**.

666 Dyer, G., Serratos-Hernández, J., Perales, H., Gepts, P., Piñeyro-Nelson, A., Chávez, A. Salinas-Arreortua, Yúñez-Naude, A., Taylor, J. and Álvarez-Buylla, E. "*Dispersal of transgenes through corn seed systems in Mexico*", 2009, PLoS One, p. 2 ("In addition to seed systems, farmers occasionally use grain purchased as food or feed in lieu of seed"). **MEX-089**; Rendón-Aguilar, B., Bravo-Avileza, D. & Rocha-Munivea, M., "*Temporal dynamics of transgenic sequences detected in native corn varieties in their center of origin*", 2019, Revista Mexicana de Biodiversidad, p. 9. **MEX-093**.

667 Mexico's Initial Written Submission, ¶ 183 citing Bernstein JA, Bernstein IL, Bucchini L, Goldman LR, Hamilton RG, Lehrer S, Rubin C, Sampson HA. "*Clinical and laboratory investigation of allergy to genetically modified foods*. Environ Health Perspect. 2003. pp. 1118-1120 **MEX-221**; CDC. (2001). *"Investigation of Human Health Effects Associated with Potential Exposure to Genetically Modified Corn"*. Centros de Control de Enfermedades. pp. 3, 8, **MEX-222**. See also, Center for Food Safety Written Views, pp. 5, 7 citing; Bucchini & Goldman, "*Starlink Corn: A Risk Analysis*", Environmental Health Perspectives, 10 December 2001, 110(1): 5-13. **MEX-408;** Marc Kaufman, "*Engineered corn found in white tortilla chips" Washington Post,* 4 July 2001, pp. 1-2, **MEX-413**; Brownfield Ag News, "*Enogen vs. food grade: a coexistence issue in Nebraska"*, 19 de enero de 2018, p. 4, **MEX-414**; Roseboro K. "*GMO-ethanol corn contamination raises concerns about another 'StarLink' disaster"*, The Organic & Non-GMO Report, 22 February 2017, pp. 1, and 6, **MEX-415**.

668 Mexico's Initial Written Submission, ¶ 183, citing Bernstein JA, Bernstein IL, Bucchini L, Goldman LR, Hamilton RG, Lehrer S, Rubin C, Sampson HA. "*Clinical and laboratory investigation of*

extensive[669] and resulted in significant economic consequences, including product recalls[670] and farmers being forced to abandon tainted corn.[671]

504. To support its claim that there is a lack of evidence of the risks to native corn, the United States relies on the Judgement of the Judicial Branch of the Federation of the United Mexican States that pertains to the moratorium on the cultivation of GM corn crops in Mexico.[672] However, that judgment has been appealed and the judgement suspended.

505. The United States does not engage with the scientific evidence considered in the assessment of risks in the "*Scientific Record on glyphosate and GM crops*" prepared by CONAHCYT and the collection of relevant studies in the National Biosafety Information System (SNIB) maintained by CIBIOGEM.[673] As Mexico discussed in its Initial Written Submission, this evidence demonstrates that genetically modified sequences (transgenes) have contaminated native corn in Mexico.[674] This situation is summarized by Professor Norman Ellstrand of the University of California, Riverside, as follows:

> … despite a multiyear moratorium on growing transgenic corn in Mexico, transgenes have introgressed, unintended and undetected, into remote corn landraces in that

allergy to genetically modified foods. Environ Health Perspect. 2003, pp. 1118-1120. **MEX-221**; CDC. (2001). *"Investigation of Human Health Effects Associated with Potential Exposure to Genetically Modified Corn"*. Centros de Control de Enfermedades. pp. 3, 8. **MEX-222**. See also, Center for Food Safety Written Views, pp. 5, 7 citing ; Bucchini & Goldman, "*Starlink Corn: A Risk Analysis*", Environmental Health Perspectives, 10 December 2001, 110(1): 5-13**MEX-408**; Marc Kaufman, "*Engineered corn found in white tortilla chips" Washington Post*, 4 July 2001, pp. 1-2, **MEX-413**; Brownfield Ag News, "*Enogen vs. food grade: a coexistence issue in Nebraska"*, 19 January 2018, p. 4, **MEX-414**; Roseboro K. "*GMO-ethanol corn contamination raises concerns about another 'StarLink' disaster"*, The Organic & Non-GMO Report, 22 February 2017, pp. 1, and 6, **MEX-415**

669 Brownfield Ag News, "*Enogen vs. food grade: a coexistence issue in Nebraska"*, 19 January 2018, p. 2, **MEX-414**.

670 Marc Kaufman, "*Engineered corn found in white tortilla chips" Washington Post*, 4 July 2001, p. 1, **MEX-413**

671 Roseboro K. "*GMO-ethanol corn contamination raises concerns about another 'StarLink' disaster"*, The Organic & Non-GMO Report, 22 February 2017, p. 2, **MEX-415**

672 US Rebuttal Submission, ¶¶ 220-222.

673 PODER/Alianza Written Views, p. 4

674 Mexico's Initial Written Submission, ¶ 125.

> country, likely representing the migration of those genes across international boundaries.[675]

506. Similarly, the United States ignores the examples of the Starlink and Enogen GM corn varieties contaminating non-GM white corn in the United States, which were discussed in the NGE written views submitted by the U.S. Centre for Food Safety.[676]

507. Dr. Wegier's opinion states that "there are two main means for the transmission of transgenes in populations, one of a natural nature and the other influenced by social factors; these are pollen-mediated and seed-mediated transmission".[677] Dr. Wegier also explains that "the cultural processes to which Mexican corn is subjected give it additional potential for dispersal, and seed exchange stands out in these practices".[678] Dr. Wegier identifies geographic areas where the practice of seed saving and exchange overlaps with places where transgenic corn varieties have contaminated native maize. Critically, Dr. Wegier notes that "The wide distribution and diffuse boundaries show the impossibility of putting up physical and biological barriers with the potential to control without affecting diversity."[679]

(2) The United States conflates natural hybridization with transgenic introgression and disregards Mexico's explanation to this effect in its Initial Written Submission

508. The United States conflates hybridization with introgression and fails to respond to key points in Mexico's Initial Written Submission. According to the United States, "[i]t is common knowledge that Mexico's present-day native corn varieties are a product of ongoing cross-breeding

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675 Norman C. Ellstrand, "*Going to 'Great Lengths' to Prevent the Escape of Genes That Produce Specialty Chemicals*", Plant Physiol, agosto de 2003. pp. 1770–1774. **MEX-409**, citing Alvarez MA. "*Transgenes in maize landraces in Oaxaca: official report on the extent and implications*", The 7th International Symposium on the Biosafety of Genetically Modified Organisms: Meeting Proceedings. International Society for Biosafety Research, 2002. p 78, **MEX-416**.

676 Regarding the StarLink incident, see Center for Food Safety Written Views, p. 5, citing Bucchini & Goldman, "*Starlink Corn: A Risk Analysis*", Environmental Health Perspectives, 10 de diciembre de 2001, 110(1): 5-13, **MEX-408**; Marc Kaufman, "*Engineered corn found in white tortilla chips" Washington Post,* 4 July 2001, **MEX-413**. Regarding the Enogen incident, see Center for Food Safety Written Views, pp. 6-8.

677 Expert Report Dra. Wegier, ¶ 96.

678 Expert Report Dra. Wegier, ¶ 96.

679 Expert Report Dra. Wegier, ¶ 85.

and evolution over millennia, including cross-breeding with non-native hybrids".[680] Furthermore, the United States contends that "Mexico's own policies have encouraged the use of hybrids (including for use in tortillas) over the use of native landraces".[681] The United States also makes the argument that "the risk logically would be from non-native corn, not just GE corn".[682] To this point, the United States incorrectly asserts that "Mexico does not explain how any gene flow from GE corn necessarily affects the biodiversity and genetic integrity of Mexico's native varieties in a manner different from, or any more negatively, than gene flow from non-native, non-GE corn varieties or cross-breeding between native varieties".[683] In making these points, the United States appears to conflate natural hybridization with transgenic introgression. These are not analogous concepts.

509. Dr. Wegier explains in her expert report that the distinction between hybridization and transgenic contamination is as follows. Hybridization is the mating between individuals from different populations or closely related species, usually resulting in offspring with different genetic backgrounds of pollen donors and recipients through genetic recombination of genes. Transgenic contamination is the stable integration of a gene into the genome of a related plant by consecutive backcrosses after hybridization between the two related populations (species, subspecies, races, etc.) has occurred. Hybridization between a transgenic crop and a non-transgenic crop or wild relative can occur within one generation, after which the transgenic construct can be integrated into the genome of non-transgenic crop varieties or wild relatives by introgression.[684]

510. As Mexico explained in its Initial Written Submission, and which the United States fails to acknowledge, GM corn features disruptive transgenes, which can be imparted on native varieties

680 US Rebuttal Submission , ¶ 126, citing I. Rojas-Barrera et al., "*Contemporary Evolution of Maize Landraces and Their Wild Relatives Influenced by Gene Flow with Modern Maize Varieties,"* 116 PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES 21302 (Oct. 2019); (assessing the adoption of non-GE hybrids and observing introgression (*i.e.*, gene flow) from hybrids into native landraces) (**Exhibit USA- 166**).

681 US Rebuttal Submission, ¶ 126.

682 US Rebuttal Submission, ¶ 224.

683 US Rebuttal Submission, ¶ 224.

684 Expert Report Dra. Wegier, ¶¶ 97-102.

through transgenic introgression.[685] This process results in various impairments to the genetic code of native corn and ultimately diminishes the integrity of the effected plants, as confirmed by FOE in its NGE Opinion.[686] Corn that is both non-native and non-GM does not represent this critical risk.

(3) The United States omits critical context, and misquotes and mischaracterizes information provided by the Mexican authorities during the class action 321/2013-I

511. As discussed in Section II. E., the United States also made claims in connection with the class action that pertains to the moratorium on the cultivation of GM corn crops in Mexico, which remains in force. However, in doing so, the United States omits critical context, and misquotes and mischaracterizes statements made by Mexican authorities.

512. First, the 2023 Judgment was appealed by the plaintiff class. Therefore, the findings of the 2023 Judgment are not final.

513. Second, the evidence that the court relied on is out of date, having been provided between 2013 and 2016. Most importantly, the court did not consider the evidence compiled in the "*Scientific Record on Glyphosate and GM Crops"* (2020).

514. *Third*, the court relied on evidence from only one private party to determine that there was a lack of evidence of unauthorized releases of GM corn seed, which evidently does not provide a sufficient scientific basis to make such a finding.

515. *Fourth*, the authorities provided these statements in 2015, years before Mexico clearly identified the risks to native corn varieties that led to the 2023 Decree.

516. Finally, the SCJN has confirmed that the 12th Court is not a competent authority to determine the existence of sanitary or phytosanitary risks.[687]

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685 Mexico's Initial Written Submission, ¶ 126.

686 *Ver* Opinón Escrita de Friends of the Earth, p. 8.

687 See Amparo en Revisión 109/2019, decided by the First Chamber of the Supreme Court of Justice of the Nation, **MEX-381.**

517. In the event that the Panel finds that it is not sufficiently relevant that the Mexican authorities made their statements almost ten years ago, the Panel should take note that the United States has misquoted and mischaracterized the statements made by Mexican authorities. For instance, the United States asserts that Mexican agencies "testified in a court of law that there is no evidence of unauthorized release of GE corn seeds licensed for cultivation".[688] This is not accurate. Instead, in a letter dated March 26, 2015, the Secretariat of the Environment and Natural Resources provided that it "does not have information, data or indications" of "the presence of the release of transgenic corn in unauthorized places" [emphasis added].[689] Similarly, the Court considered reports from different agencies of the Mexican government, and found that: "[f]rom these reports, it can be seen that these authorities have stated that they have no knowledge of the existence of the acts referred to by the plaintiff in their complaint or of the existence of any damage to the environment, or to any other fundamental right, due to the release of genetically modified corn into the environment" [emphasis added].[690]

518. The United States also mischaracterizes the statements of the Mexican agencies and the Court's summaries thereof in order to strengthen its position. The agencies of the Mexican government have only stated that they did not have information or evidence on the matter before the Court. In contrast to the United States' allegations, the court did not find that the agencies had made definitive statements that "there is no evidence". Specifically, none of the agencies claimed that "there is no evidence of unauthorized release of GE corn seeds licensed for cultivation", as wrongfully asserted by the United States.[691]

b. The measures at issue are made effective in conjunction with restrictions on domestic production or consumption

519. The phrase "made effective in conjunction with" requires that, when international trade is restricted, "real" and effective restrictions on domestic production or consumption must reinforce

688 US Rebuttal Submission, ¶ 220.

689 Judicial Branch of the Federation of the United Mexican States, Final Judgment 321/2013-I, September 28, 2023 (English excerpt) (Exhibit USA-165), p. 4.

690 Judicial Branch of the Federation of the United Mexican States, Final Judgment 321/2013-I, September 28, 2023 (English excerpt) (Exhibit USA-165), pp. 15-16.

691 US Rebuttal Submission, ¶ 220.

and complement the restrictions on international trade.[692] The Appellate Body interpreted the relevant legal principles in *U.S. – Gasoline*. Namely that identical treatment of domestic and imported products is not required.[693] However, the analysis under the second stage of the Article XX(g) inquiry concerns whether restrictions are applied even-handedly considering the conservation objective.[694] The Appellate Body explains that a measure would unlikely be saved under Article XX (g) if it is applied "if no restrictions on domestically-produced like products are imposed at all, and all limitations are placed upon imported products alone".[695]

520. There is no legal basis for the United States' argument that "[t]he requirement that there exist restrictions on domestic production or consumption ensures that the burden of conserving the exhaustible natural resource is not put solely or predominantly on imports[696] [emphasis added]. Rather, the restrictions must be "even-handed".[697] Mexico fulfills this requirement because it even-handedly imposes restrictions on domestic production of GM corn and the end-uses of all GM corn, regardless of whether the source is domestic or imported. As Mexico explained in its Initial Written Submission, measures in Mexico restrict the domestic production of GM corn grain (e.g. the moratorium and Article 6.1 of the 2023 Decree).[698] Also, the "End-Use Limitation" under Article 6.2 of the Decree is applied as an internal measure to GM corn grain, treating domestic and imported corn in a non-discriminatory manner.[699]

521. In Mexico's Initial Written Submission, it identified several internal measures that restrict the domestic production of domestic GM corn grain:[700] (1) the moratorium on the commercial production of GM corn grain in Mexico; (2) Article 6.1 of the 2023 Decree; (3) Articles 3, 4, and 5 of the 2023 Decree; Article 6.2 of the Decree restricts authorizations for the use of GM corn

692 Appellate Body Report, *China — Rare Earths*, ¶ 5.132, **MEX-344** Appellate Body Report, *US — Tuna II (Mexico) (second recourse to Article 21.5 – Mexico)*, ¶ 7.514., **MEX-348.**

693 Appellate Body Report, *US – Gasoline*, p. 21, **MEX-269.**

694 Appellate Body Report, *US – Gasoline*, p. 21, **MEX-269.**

695 Appellate Body Report, *US – Gasoline*, p. 21, **MEX-269**

696 US Rebuttal Submission, ¶ 227.

697 Appellate Body Report, *US – Gasoline*, p. 21, **MEX-269**

698 Mexico's Initial Written Submission, ¶ 513.

699 Mexico's Initial Written Submission, ¶ 514.

700 Mexico's Initial Written Submission ¶¶ 513-514.

grain for direct human consumption whether produced domestically or otherwise; and (4) when applied in the future, the "Gradual Substitution" under Articles 7 and 8 will contribute to these ends.

522. The United States does not address the domestic restrictions that Mexico referenced in its Initial Written Submission. According to the United States, "Mexico cites the moratorium on cultivation of GE corn in Mexico as well as the restrictions on glyphosate in Articles 3, 4, and 5 of the 2023 Corn Decree".[701] While the United States "is not challenging Articles 3 through 5 of the 2023 Corn Decree" it does not explain why Articles 3, 4, and 5 of the 2023 Corn Decree would not constitute valid restrictions on domestic production of GM corn, as Mexico provided in its Initial Written Submission.[702]

523. In Mexico's Initial Written Submission, Mexico explained that "Article 6.1 of the 2023 Decree restricts authorizations for the use of GM corn events for domestic production of GM corn crops in Mexico".[703] This is clearly a "restriction on domestic production" of GM corn. In addition, Mexico also explained how "the 'End-Use Limitation' under Article 6.2 of the Decree is applied as an internal measure to GM corn grain, whether domestic or imported, in a non-discriminatory manner". [704] As such, the "End-Use Limitation" involves a "restriction on domestic consumption" of GE corn. Therefore, the measures at issue are not only made effective in conjunction with "restrictions on domestic production and consumption", but they actually incorporate such restrictions themselves. The United States has offered no response to these points.

J. The "End-Use Limitation" and the "Gradual Substitution Instruction" satisfy the requirements of the *chapeau* of Article XX of the GATT 1994

524. The measures at issue satisfy the requirements of the *chapeau* of Article XX. Neither the "End-Use Limitation" nor the "Gradual Substitution" instructions are "applied in a manner that would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail". Moreover, neither of them constitutes a "disguised restriction on international trade".

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701 US Rebuttal Submission, ¶ 228.

702 Mexico's Initial Written Submission, ¶ 513.

703 Mexico's Initial Written Submission, ¶ 513.

704 Mexico's Initial Written Submission, ¶ 514.

1. The measures are not applied in a manner that would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail

525. While the measures clearly discriminate against GM corn, this discrimination is neither arbitrary nor unjustifiable. Rather, it is absolutely integral to the pursuit of the public policy objectives that justify the measures in the first place.

526. This is explicit in the text of the 2023 Decree. For example, the "End-Use Limitation" in Article 6.2 of the 2023 Decree provides that the competent authorities in Mexico "[s]hall revoke and refrain from issuing authorizations for the use of *genetically modified corn grain* for human consumption". This provision works in conjunction with Article 6.1, which requires the authorities to "revoke and refrain from issuing permits for the release of *genetically modified corn seeds* into the environment in Mexico", effectively restricting the commercial cultivation of GM corn in Mexico. The chapeau of Article 6 describes these provisions "as a special measure to *protect* native corn, the milpa, biocultural wealth, peasant communities, gastronomic heritage and human health". Similarly, the final recital of the preamble of the 2023 Decree provides that " the main purpose of these measures is to protect the rights to health and a healthy environment, native corn, the milpa, biocultural wealth, peasant communities and gastronomic heritage". It is therefore clear that the discrimination against *GM corn* in each of the measures is rationally connected to the public policy objectives justifying the measures.

527. In this regard, even the United States acknowledges that "[t]he face of the measure … describe[s] these measures as predominantly driven by concerns over human and plant health" and "cultural traditions".[705]

528. Contrary to the United States' allegations, neither of the measures discriminate against imported corn, including imported corn from the United States or from any other exporting country. The measures only have a discriminatory effect on imported *GM corn* to the extent that it is *GM corn*. Such discrimation is not arbitrary or unjustifiable because, as explained above, discrimination against *GM corn* is rationally connected and functionally integral to the pursuit of

[705] US Rebuttal Submission, ¶ 235. Mexico does not agree with the United States' qualification in this statenment that the measures are driven "to a lesser extent" by cultural traditions. The United States does not explain the basis for this interpretation, which is not consistent with the text of the 2023 Decree.

the public policy objectives that justify the measures. In this regard, it is plain that the measures do not discriminate against imported corn that is not *GM corn*. Articles 6, 7, and 8 of the 2023 Decree do not include the words "import" or "export" at all. Instead, they are focused specifically on regulating the *use* of GM corn grain in Mexico.

529. GM corn is not commercially produced in Mexico. Contrary to the United States' allegations, this is not a reason to interpret the discrimination against GM corn as protectionist or otherwise in pursuit of an economic interest rather than a public policy interest. The absence of commercial cultivation of GM corn in Mexico is rationally connected to the same objectives that justify the measures at issue: i.e., the conservation of the natural biodiversity and natural genetic integrity of Mexico's unique races and varieties of native corn, which are threatened by transgenic contamination and genetic erosion from GM corn; and the protection of public morals in Mexico with respect to national identify, traditional farming (i.e., the milpa), peasant communities, and gastronomic heritage as they relate to Mexico's native corn. Stated simply, the absence of domestically produced GM corn in Mexico relates directly to the same discrimination against *GM corn* found in the measures at issue. This is reflected not only in the moratorium on commercial cultivation of GM corn in Mexico, but also in Article 6.1 of the 2023 Decree.

530. Thus, rather than establishing a competitive tension between imported GM corn and Mexico's native corn (which is inherently non-GM), Mexico's measures restricting the domestic production of GM corn demonstrate that Mexico's concerns relate specifically to *GM corn* in Mexico, regardless of where it comes from, and not to imported corn.

531. This is also evidenced by the relevant factual circumstances. While Mexico is generally self-sufficient with respect to white corn used for direct human consumption, Mexico *relies upon imports of yellow corn* for use in animal feed and industrial processing. The 2023 Decree was issued on 13 February 2023. Total exports of US corn to Mexico in 2023 increased by [[■]] percent over 2022. This trend has continued in 2024. US corn export commitments to Mexico as of April 2024 have increased [[■]] percent over last year.[706]

[706] U.S. Grains Council, "*Market Perspectives*" 18 April 2024 p. 4, **MEX-399**.

532. This demonstrates that the discrimination against *GM corn* is not being used to mask discrimination against imported corn. There is simply no discrimination against imported corn. To the contrary, Mexico must balance the policy objectives justifying the measures under Articles XX(a) and XX(g) with realistic considerations of feasibility and adequacy of supply in relation to certain end uses for which it requires imported corn — namely, animal feed and industrial processing. Looking ahead, US corn producers have expressed that they are able "with no problem" and willing to supply non-GM corn that meets Mexico's needs.[707]

533. The different conditions prevailing in Mexico and the United States are also relevant to this analysis. The Appellate Body has explained that "in determining which 'conditions' prevailing in different countries are relevant in the context of the *chapeau*, the … subparagraph under which a measure has been provisionally justified" provides the most pertinent context."[708] Thus, "the relevant 'conditions' for the analysis under the *chapeau* are the ones that relate to the particular policy objective under the applicable paragraph of Article XX".[709]

534. With respect to the conservation of "exhaustible natural resources", the natural biodiversity and natural genetic integrity of Mexico's unique native corn varieties are highly valued in Mexico. Mexico is "one of the most important genetic reservoirs of corn, whose 59 native races and thousands of varieties have been adapted to very different climatic conditions and agronomic practices", accounting for "approximately 50% of the world's genetic variability for this crop".[710] This natural biodiversity, which is strongly associated with the Indigenous peoples and campesinos

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707 IATP et al Written Views ("some farmers have either made that shift or have expressed a willingness to do so to meet Mexico's needs"), citing Ken Roseboro, "Mexico plans to buy non-GMO corn from the U.S., other countries as it moves ahead with GMO ban," *The Organic & Non-GMO Report* (15 November 2022) **MEX-406.**

708 Appelate Body Report, *Indonesia – Import Licensing Regimes*, ¶ 5.94, **MEX-336,** citando el citing Appellate Body Reports, *EC – Seal Products*, ¶¶ 5.300**. MEX-337.**

709 Appelate Body Report, *Indonesia – Import Licensing Regimes*, ¶ 5.94, **MEX-336,** citando el citing Appellate Body Reports, *EC – Seal Products*, ¶¶ 5.300**. MEX-337.**

710 Ureta, C., González, J., Piñeyro-Nelson, A., Couturier, S., González-Ortega, E., and Álvarez-Buylla, E., "*A data mining approach gives insights of causes related to the ongoing transgene presence in Mexican native corn populations*", Agroecology and Sustainable Food Systems, 2023, p. 189. **MEX-092**.

(small-scale producers) who shape it through traditional practices, "maintains alleles that could be necessary to face new selective pressures in response to changing environmental conditions".[711]

535. These resources have been cultivated through thousands of years of traditional farming methods. Today, the vast majority of corn cultivation in Mexico continues to involve traditional farming based on small-scale agriculture (e.g., the milpa), subsistence farming (with any small surplus sold locally), and the practices of peasant farming communities. In these conditions, corn grain is harvested as seed for the next crop cycle, mixed with corn grain from other sources (including corn grain purchased as food or feed), and exchanged between farmers and communities.

536. The conditions prevailing in the United States are very different. The United States does not share the traditional farming methods, unique and biodiverse corn varieties, agricultural practices, interests, or values that are so important in Mexico. Instead, the United States values the industrial farming of commercial monocultures of GM corn in large fields, maximizing surplus production and economic interests. In this model, seed is an input purchased in bulk from seed suppliers and replaced every cropping cycle.[712] Farmers do not save grain from their harvest to use as their seed in the next crop cycle, and they do not exchange seed among themselves or with other communities. Very little of the corn produced in the United States is suitable or used for direct human consumption. Rather, it is traded for use in feed and industrial processing instead (including ethanol and highly processed food products, such as high fructose corn syrup).

537. The conditions prevailing in Mexico render Mexico's unique native varieties of corn vulnerable to transgenic contamination and genetic erosion from the spread of *GM corn*. Under these circumstances, *GM corn* can be dispersed through the flow of corn seed among farmers in Mexico, becoming entrenched in seed stocks, spreading with each crop cycle, and proliferating through networks of "informal seed systems and grain markets" throughout Mexico.

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711 Ayala-Angulo, M., et al. "*Local and Regional Dynamics of Native Maize Seed Lot Use by Small-Scale Producers and Their Impact on Transgene Presence in Three Mexican States*", 2023, Plants, p. 2. **MEX-088**.

712 Dyer, G., Serratos-Hernández, J., Perales, H., Gepts, P., Piñeyro-Nelson, A., Chávez, A. Salinas-Arreortua, Yúñez-Naude, A., Taylor, J. and Álvarez-Buylla, E. "*Dispersal of transgenes through corn seed systems in Mexico*", 2009, PLoS One, p. 2 ("In addition to seed systems, farmers occasionally use grain purchased as food or feed in lieu of seed"). **MEX-089**.

538. Where *GM corn* spreads in this way, through the traditional farming practices outlined above, transgenic contamination in Mexico is not a matter of cross-pollination between one field of GM monoculture and a neighbouring field of non-GM monoculture. Rather, it is a matter of *GM corn* and Mexico's non-*GM* native varieties of corn growing *together in the same milpas and fields*. Contaminated corn grains produced from cross-pollination and harvested from those fields are saved for cultivation in the next crop cycle, exchanged with other farmers and communities, and sold locally (where they may be purchased as food or feed grains, but mixed with seed for cultivation by other farmers). The so-called "co-existence" measures that are used with limited success in industrialized agriculture are simply not applicable to the specific circumstances of traditional agriculture in Mexico.

539. Finally, transgenic contamination is damaging to the natural biodiversity and genetic integrity of Mexico's native corn. Unlike natural gene flow with *non-GM* corn, transgenic contamination involves the *replacement* of natural corn genes with *foreign* genes that are not part of the natural genome of corn. In turn, the foreign genes code for one or more foreign proteins that are not naturally produced (i.e., "expressed") as part of the metabolism or physiology of corn plants. The outcomes, i.e., foreign genes that force corn plants to divert resources to produce foreign proteins and the inherited genetic damage that was collateral to the GM transformation process, are destructive and harmful to the natural biodiversity and genetic integrity of Mexico's native corn.

540. In addition, the conditions related to the consumption and cultural importance of corn are very different in Mexico and the United States.[713] In Mexico, corn grain is *directly consumed* in high quantities by most people on a *daily basis* in the forms of tortilla and other staple foods made with nixtamalized masa and corn flour.[714] In 2021, consumption of corn and corn products in Mexico was 10 times higher than in the United States.[715] Moreover, the different varieties of native

[713] Mexico's Initial Written Submission, ¶¶ 521-522.

[714] Mexico's Initial Written Submission, ¶¶ 423, 522, citing FAO. "Food Balances (2010-) [2022]". **MEX-040**.

[715] FAO. "*Food Balances (2010-) [2022]*". **MEX-040**. Mexico's Initial Written Submission, ¶ 423.

corn in Mexico serve distinct gastronomic functions.[716] For example, corn varieties such as Cónico, Chalqueño, Olotillo, Pepitilla, Tuxpeño and those with pigmented genotypes are preferred for making good tortillas because they are high quality corn.[717] The importance of Mexico's native corn in traditional Mexican cuisine has been acknowledged as intangible cultural heritage of humanity by UNESCO. The United States does not share these cultural values and traditional interests in corn.

541. The foregoing conditions are also relevant to the public morals relating to national identity, traditional farming (i.e., the milpa), peasant communities, and gastronomic heritage based on Mexico's native corn.

542. Thus, the differences in the relevant conditions prevailing in Mexico and the United States confirm that the discrimination against *GM corn* in the measures at issue is rationally related to the public policy objectives that justify the measures. Contrary to the United States' allegations, there is no arbitrary or unjustifiable discrimination against imported corn and no disguised restrictions on trade in corn.

2. Neither of the measures constitutes a disguised restriction on international trade

543. In the context of WTO dispute settlement, the Appellate Body has considered that the concept of a "disguised restriction on international trade" embraces "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". Thus, "the kinds of considerations pertinent in deciding whether the application of a particular measure amounts to 'arbitrary or unjustifiable discrimination', may also be taken into account in determining the presence of a

716 Mexico's Initial Written Submission, ¶¶ 65-68.

717 Mexico's Initial Written Submission, ¶ 66. *See also* Ortega-Beltran, A., Guerrero-Herrera, M. D., Ortega-Corona, A., Vidal-Martinez, V. A., & Cotty, P. J., "*Susceptibility to aflatoxin contamination among corn landraces from Mexico*", 2014, Journal of food protection, p. 156, **MEX-043**. Colín-Chávez, C., Virgen-Ortiz, J. J., Serrano-Rubio, L. E., Martínez-Téllez, M. A., & Astier, M., "*Comparison of nutritional properties and bioactive compounds between industrial and artisan fresh tortillas from corn landraces*", 2020, Current Research in Food Science, pp.193-194. **MEX-044**.

'disguised restriction' on international trade". The "fundamental theme is to be found in the purpose and object of avoiding abuse or illegitimate use of the exceptions".[718]

544. Mexico therefore incorporates by reference the arguments and evidence presented above, establishing that the measures are not applied in a manner that would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail. The same arguments and evidence demonstrate that the measures at issue are not restrictions on international trade, disguised or otherwise.

545. Moreover, as Mexico has observed throughout this submission, the factual evidence clearly and simply confirms that there are no restrictions on US exports of corn to Mexico. As briefly noted above, total exports of US corn to Mexico increased by [[■]] percent in 2023, and this trend has continued, with US corn export commitments to Mexico as of April 2024 increasing [[■]] percent over last year.[719]

546. Although the export volume of US white corn to Mexico decreased in 2023, Mexico has explained that this was due to competition with South African exports of white corn to Mexico,[720] which increased to take advantage of a temporary measure exempting white corn of any origin from import duties. More recently, exports of US white corn to Mexico have rebounded, increasing [[■■■]]% during the period from January to April 2024 over the same period in 2023. This *increasing* export volume in 2024 confirms that the decrease in 2023 was due to competitive market forces rather than a restriction on imports of US corn into Mexico.

547. As Mexico explained in its Initial Written Submission, the "End-Use Limitation" in Article 6.2 of the 2023 Decree is an internal measure that applies horizontally and equally to all *GM corn* grain, regardless of origin.[721] This is because it is concerned with regulating the <u>*use*</u> of all *GM corn* grain for the express purpose of protecting important public policy interests and values in Mexico, including human health, native corn, the milpa, peasant communities, biocultural wealth, and gastronomic heritage. Any impact this measure may have on imports is incidental to its purpose

718 Appellate Body Report, *US – Gasoline*, p. 29, **MEX-269.**

719 U.S. Grains Council, "*Market Perspectives*" 18 April p. 4, **MEX-399**.

720 Mexico's Initial Written Submission, ¶ 241.

721 Mexico's Initial Written Submission, ¶¶ 462, 474, 520.

and function, which is to discourage the domestic use of GM corn grain for direct human consumption in the forms of nixtamalized dough, tortilla and related foods.

548. The "Gradual Substitution" instructions are incapable, on their own, of restricting trade. This is becasue they are merely instructions. They merely direct the competent authorities in Mexico to develop and carry out the "appropriate actions" at some point in the future, "in accordance with scientific principles and relevant international standards, guidelines or recommendations", and to conduct the "relevant scientific studies". No action has been taken further to these instructions. The future "Gradual Substitution" measure(s) do not yet exist in any form. Therefore, they are simply unable to constitute a "disguised restriction on international trade".

549. The United States refers to "isolated statements" that it suggests "reveal the intent to restrict trade".[722] However, in providing these statements, the United States ignores the textual and factual contexts surrounding the measures.

550. The United States highlights references to "self-sufficiency" in Decree 2023, as well as in Mexico's Initial Brief, and argues that this term "implies a preference for buying domestic production at the expense of supply that is currently imported".[723] However, the United States ignores the specific circumstances relevant to Mexico, including traditional agricultural methods (e.g, grain harvested from native corn is saved to use as seed in the next crop cycle and exchanged with other farmers), *subsistence farming*, peasant communities, the milpa, and the stewardship role of campesinos and Indigenous people with respect to the conservation and development of Mexico's unique native races and varieties of corn. It also ignores the fact that Mexico has long been self-sufficient with respect to the white corn and coloured native corn varieties that are used for direct human conmsumption in everyday staple foods in Mexico. Moreover, in the passages from Mexico's Initial Written Submission that the Untied States cites, the public policy objective of "food self suffiency" is listed alongside the related objectives of "food security" and a "healthy environment". A "food self-sufficiency" policy is not equivalent to a restriction on imported food.

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722 Réplica de Estados Unidos, ¶ 237.

723 Réplica de Estados Unidos, ¶ 237, citando Decreto 2023, preámbulo (Exhibit USA-3); *id.*, art. 8 (Exhibit USA-3); Escrito Inicial de México, ¶¶ 216, 284.

551. The United States also references Mexico's "duty to preserve … the livelihoods of communities that derive their income and livelihood from the cultivation and processing of native varieties of grains", alleging that "[t]his is another way of saying to protect Mexican producers in competition with imported corn."[724] This statement reveals the same failure to acknowledge and take into account the specific circumstances in Mexico. The vast majority of "Mexican producers" are subsistence farmers, campesinos, peasant communities, and Indigenous people using traditional agricultural methods. They are not even competing with the supply of yellow corn exported by industrial agricultural producers in the United States.

552. For the foregoing reasons, Mexico has established that the measures at issue are neither "disguised restrictions on international trade" nor "applied in a manner that would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail" within the meaning of the *chapeau* of Article XX of the GATT 1994.

553. As Mexico has observed throughout this submission, the factual evidence clearly and simply confirms that there is no restriction on US corn exports to Mexico.

K. The Measures are justified under Article 32.5 of the USMCA.

554. Mexico reiterates that Article 32.5 provides a general exception for measures deemed necessary to fulfill legal obligations to indigenous peoples provided they are not used as (*i*) a means of arbitrary or unjustified discrimination against persons of other parties or (*ii*) as a disguised restriction on trade in goods, services and investment.

555. Mexico emphasizes that the United States does not dispute that Decree 2023 is "a measure that [Mexico] consider[s] necessary to comply with its legal obligations to indigenous peoples," In this regard, Mexico will focus on refuting the United States' arguments regarding whether the measures *(i)* unjustifiably discriminate against persons of other Parties or *(ii)* are a disguised restriction on trade in goods

556. The United States argues that Mexico's Article 32.5 defense fails because "Mexico's bans do constitute a disguised restriction on trade and arbitrary or unjustified discrimination because they are disguised and applied to restrict import of GE corn while not affecting domestic

[724] Escrito de Réplica de Estados Unidos, ¶ 238

production of non-native, non-GE corn, thus uniquely disadvantaging U.S. exports".[725] The United States ignores important aspects.

557. A crucial point is that the analysis of "arbitrary or unjustified discrimination against persons of other parties" and the analysis of "disguised restriction on trade in goods, services and investment" should be conducted separately, yet the United States appears to analyze both elements together and incorrectly conflates different concepts. Although the elements of the first part of the standard are similar to the elements of the preamble to GATT Article XX, the Parties to the USMCA decided to deviate from the language. These differences must be taken into account when interpreting this provision. [726]

558. The United States argues that the word "discrimination" includes "not only the treatment of goods, trading partners, etc, on a more or less favourable basis according to circumstances, but also the action of perceiving, noting or making a distinction between things" and therefore "Mexico must establish that its measures do not make a distinction between things or treat its trading partners on a less favourable basis according to circumstances". This is incorrect in light of the ordinary meaning of the terms of the treaty.

559. The use of the preposition "against" ("denotes the opposition or contrariety of one thing to another"[727]) in Article 32.5 establishes a link between the term "discrimination" ("to give unequal treatment"[728]) and "the persons of the other Parties". In this sense, the discrimination established by Article 32.5 refers to unequal treatment of the *people* of the other Parties. Simply put, Article 32.5 does not cover unequal treatment towards goods or services

560. In this regard, the United States' claims that the measures are discriminatory because they "are designed and applied to restrict imports of GE corn while not affecting domestic production

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725 US Reply Submission, ¶ 246.

726 In fact, the Article 32.5 Section of the U.S. Counter-Submission does not even develop an argument about an alleged disguised restriction, which is why no additional arguments are presented in this Section.

727 Real Academia Española, "*Contra*". **MEX-453.** (Español: "denota la oposición o contrariedad de una cosa con otra")

728 Real Academia Española, "*Discriminar*". **MEX-454** (Español: "Dar trato desigual a una persona o colectividad por motivos raciales, religiosos, políticos, de sexo, de edad, de condición física o mental, etc.").

of non-native, non-GE corn" fail.[729] Article 32.5 does not require an examination of discrimination between goods and the United States has simply not identified unequal treatment against a U.S. person.

561. The United States loses sight of the structure of article 32.5. While "arbitrary or unjustified discrimination" refers only to people, "disguised restriction on trade" refers to goods, services and investment. The Parties could have used a wording similar to Article XX of the GATT[730] or Article XIV of the GATS,[731] as regards arbitrary discrimination, but decided to limit it only to discrimination against persons, not to all trade.[732] In this sense, as Mexico explained in the Initial Submission,[733] only a measure that refers to persons could fall within the scope of "arbitrary or unjustified discrimination" under Article 32.5.

562. In any event, "discrimination against persons of other Parties" does not exist. The United States states that "Mexico must show that its measures are not used as a means of arbitrary or unjustified discrimination against not only natural persons of other Parties, but also entities constituted or organized under U.S. law, including U.S. exporters."[734] From this, the United States argues that the challenged measures do not affect the "*domestic* production of non-native, non-GE corn."

563. The United States errs in its argument because (i) the challenged measures apply generally to domestic and foreign producers; (ii) the Decree has no bearing on non-GM corn originating in

729 US Reply Submission, ¶ 244.

730 GATT Article XX: "Provided that the following measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination *between countries where the same conditions prevail*, or a disguised restriction on international trade, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of the following measures: [...]" [Emphasis added].

731 Article XIV of the GATS: "Subject to the requirement that the measures listed below are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination *between countries where like conditions prevail*, or a disguised restriction on trade in services, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any Member of any measure:" [Emphasis added].

732 *See, e.g.*, Third Party Submission of Canada, ¶ 221.

733 Mexico's Initial Written Submission, ¶ 531.

734 US Reply Submission, ¶ 250.

the United States; and (iii) the United States simply ignores that not all of its corn production is GM, evidently there is non-GM corn produced in the United States. Indeed, as IATP put it regarding the cultivation of non-GM corn in the U.S., U.S. corn producers "have either made that shift or have expressed a willingness to do so to meet Mexico's needs."[735]

564. That is to say, the persons (exporters) of which the United States complains of arbitrary or unjustified discrimination, have indicated not only that they are not being discriminated against, but that they agree to supply these goods, which is further demonstrated, as noted *supra*, by the increase in corn imports from the United States.

565. The United States argues that "Mexico must show that its measures are not used as a means of arbitrary or unjustified discrimination against not only natural persons of other Parties, but also entities constituted or organized under U.S. law, including U.S. exporters".[736] Mexico disagrees. While the burden of demonstrating that a measure is not used as a means of arbitrary or unjustified discrimination rests with the Party invoking the exception, Mexico has explained in its Initial Written Submission that the "2023 Decree does not discriminate against any persons of the other Parties".[737] Under the circumstances specific to the measures at issue and the claims in this dispute, this constitutes an accurate and complete assessment.

566. The measures in the 2023 Decree focus on the *protection* of important public interests and values in Mexico, including human health, native corn, the milpa, peasant communities, biocultural wealth, and gastronomic heritage. The specific measures at issue under Articles 6, 7, and 8 of the 2023 Decree do not include the words "import" or "export" at all. Instead, they are concerned with regulating the *use* of the agricultural commodity that poses risks to the said public interests and values in Mexico: GM corn grain, regardless of where it comes from. In their text, design, revealing structure, and application/non-application, these measures are not "used as a means to discriminate" against any person. In this dispute, the United States has not made any claims or raised any allegations related to discrimination against persons. Thus, although Mexico's assessment is concise, it is sufficient to meet the burden in the ciurcumstances of this case.

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735 Written Opinion IATP *et al.* ¶ 49.

736 US Rebuttal Submission, para. 249 (*underline emphasis added*).

737 Mexico's Initial Written Submission, ¶ 532.

567. Moreover, the United States has not rebutted Mexico's assessment that the "2023 Decree does not discriminate against any persons of the other Parties". It is well-established that the party who asserts a fact bears the burden of proving its truth. However, the United States has not even affirmatively alleged that the measures at issue are being used as a means of discrimination against US exporters, or anyone else. If the United States genuinely felt that this was the case, Mexico would expect the United States to make an affirmative allegation. That the United States has decided not to make such an allegation is telling.

568. With regard to the analysis of "disguised restriction on trade in goods, services and investment", the language is the same as in GATT Article XX. To avoid unnecessary repetition, Mexico incorporates into this analysis the arguments presented *supra* under Article XX, paragraphs (a) and (g), and the chapeau.[738]

569. In conclusion, should the Panel consider that "End Use Limitation" and "Gradual Substitution" are inconsistent with the Treaty, they would be exempted under Article 32.5.

L. The United States has not established a valid claim of non-violation nullification or impairment under Article 31.2 (c) of the USMCA

570. If the Panel determines that either or both of the measures at issue in this dispute are justified under Article 32.5 of the USMCA (i.e., as measures that Mexico deems necessary to fulfill its legal obligations to indigenous peoples), the United States asserts a claim of non-violation nullification or impairment under Article 31.2(c) of the USMCA.[739]

571. Specifically, the United States "considers that a benefit it could reasonably have expected to accrue to it under Chapter 2 or Chapter 9 of the USMCA is being nullified or impaired as a result of the application of each measure".[740] On this basis, the United States asks the Panel for a determination under Article 31.13.1(b)(iii) that the "measures are causing nullification or

738 The United States agrees that there is no material difference in the language of these provisions for purposes of this dispute. See Reply Submission of the United States, ¶ 245.

739 US Rebuttal Submission, ¶ 251

740 US Rebuttal Submission, ¶ 251.

impairment within the meaning of Article 31.2(c)".[741] For the reasons set out below, the United States has not established a legally or factually valid claim under Article 31.2(c) of the USMCA.

572. The United States does not specifically identify the "benefit" that it considers it could reasonably have expected to accrue to it, stating only that it is "*a* benefit … under Chapter 2 *or* Chapter 9 of the USMCA".[742]

573. However, the United States describes having a "reasonable expectation" in a number of different ways: e.g., "a reasonable expectation at the time the USMCA was concluded that Mexico would not adopt the Tortilla Corn Ban or the Substitution Instruction";[743] "a reasonable expectation at the time the USMCA was concluded that trade in GE corn would continue as it had for years";[744] "the U.S. expectation that it would continue to be able to export its top agricultural product to Mexico was reasonable because Mexico had not indicated that it would adopt these measures intended to completely stop those exports";[745] "the United States could — and did — reasonably expect that the *volume* and *value* of U.S. exports to Mexico of corn, including GE corn, would *continue* under Chapter 2 and Chapter 9 after USMCA entered into force".[746]

574. Factually, exports of US corn to Mexico have not only continued since the 2023 Decree was issued in February 2023, but they have increased considerably in volume. As Mexico explained in its Initial Written Submission, total imports of corn grain from the United States increased from almost [[[redacted]]] tons in 2022 to about [[[redacted]]] tons in 2023,[747] an

741 US Rebuttal Submission, ¶ 251.

742 US Rebuttal Submission, ¶ 251 (emphasis added).

743 US Rebuttal Submission, ¶ 251 (emphasis added).

744 US Rebuttal Submission, ¶ 253 (emphasis added).

745 US Rebuttal Submission, ¶ 253 (emphasis added).

746 US Rebuttal Submission, ¶ 258 (emphasis added). Mexico observes that corn is an *agricultural commodity* that is subject to production variables (e.g., weather, disease, etc.), production surpluses and shortfalls, and international competition with other exporting countries. Fluctuations in trade volumes and values are to be expected. In Mexico's view, it is not "reasonable" for the United States to "expect that the *volume* and *value* of U.S. exports of corn" would simply "continue".

747 Mexico's Initial Written Submission, ¶ 245.

increase of approximately [[■]] percent. These totals included [[■ ■]] tons of yellow corn in 2022 and over [[■ ■]] tons of yellow corn in 2023.[748]

575. Moreover, this trend has continued. In April 2024, the U.S. Grains Council published the following information:

> Mexico's surging demand for imported corn remains a contributor to U.S. corn supply and demand fundamentals. Mexico is just beginning a cycle of large corn imports which is likely to continue for several more years, and possibly longer, if Mexican weather conditions fail to improve. USDA in its April report raised 2023/24 Mexican corn imports by 500,000 MTs to a record 21.2 MMTs. This follows guidance from the USDA attaché in Mexico that suggested 2023 production in Mexico had been overstated. U.S. export commitments to Mexico as of April 4, 2024, totaled 735 million bushels, up 190 million bushels (35%) from last year. USDA is expected to raise Mexican corn imports in crop year 2024/25 by another 1-2 MMTs. Total U.S. corn exports could be raised by 50 million bushels in upcoming reports based on the strength of exports to Mexico.[749]

576. The 35 percent increase in US corn export commitments to Mexico in 2024, following the increase of [[■]] percent in 2023, speaks for itself. To the extent that the United States expected that exports of US corn to Mexico "would continue", they have continued rather vigorously.

577. Although the export volume of US white corn to Mexico decreased in 2023, Mexico has explained that this was due to competition with South African exports of white corn to Mexico,[750] which increased to take advantage of a temporary measure exempting white corn of any origin from import duties. More recently, exports of US white corn to Mexico have rebounded, increasing 61.8% during the period from January to April 2024 over the same period in 2023. This *increasing* export volume in 2024 indicates that the decrease in 2023 was due to competitive market forces rather than a measure "intended to completely stop those exports" as the United States alleges.[751]

578. Therefore, as a clear and simple factual matter, exports of US corn to Mexico have continued. Moreover, they have increased dramatically. Under these circumstances, it simply cannot be said that any expectations the United States might have had regarding market access for

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748 Mexico's Initial Written Submission, ¶¶ 245-246 and Table 4.

749 U.S. Grains Council, "*Market Perspectives*" 18 April 2024 p. 4, **MEX-399**.

750 Mexico's Initial Written Submission, ¶. 241.

751 US Rebuttal Submission, ¶ 253. ("the U.S. expectation that it would continue to be able to export its top agricultural product to Mexico was reasonable because Mexico had not indicated that it would adopt these measures intended to completely stop those exports").

exports of US corn to Mexico at the time the USMCA was concluded are being "nullified or impaired". The United States has argued that it does not need to establish the existence of trade effects for any of its claims.[752] Even to the extent this is true, it does not mean that the Panel is compelled to ignore clear and uncontested evidence that trade in US corn to Mexico has been substantially *increasing*, which plainly demonstrates the exact opposite of the restrictions on trade and "import bans" that the United States has alleged in this dispute. It is clear from this unassailable factual evidence that US exporters of corn continue to enjoy market access and competitive opportunities in Mexico.

579. For the foregoing reasons, there is no evidence of any nullification or impairment of a benefit occurring in relation to US exports of corn to Mexico. To the contrary, the evidence establishes that no such nullification or impairment is occurring and that none is likely to occur in the foreseeable future.[753] This renders moot the questions of: (i) whether, in the circumstances of this dispute, the United States would actually have any legally valid "non-violation nullification or impairment" claim under Article 31.2 (c) of the USMCA; and (ii) whether the United States could have a "reasonable expectation" under the USMCA that Mexico would never regulate the end-use of GM corn to fulfill its legal obligations to indigenous peoples, or to protect human health, or to protect the health, life, and natural biodiversity of Mexico's native varieties of corn, including as an exhaustible natural resource. Nonetheless, on an *arguendo* basis, Mexico addresses these issues below.

i. Legal principles relevant to a non-violation nullification and impairment claim under Article 31.2(c) of the USMCA

580. The provision for non-violation nullification and impairment claims under Article 31.2(c) of the USMCA is similar to that under Article XXIII:1(b) of the GATT 1994. It provides, in relevant part, as follows:

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752 US Rebuttal Submission, ¶ 46.

753 U.S. Grains Council, "Market Perspectives" (18 April 2024), p. 4 ("Mexico is just beginning a cycle of large corn imports which is likely to continue for several more years, and possibly longer …. USDA is expected to raise Mexican corn imports in crop year 2024/25 by another 1-2 MMTs. Total U.S. corn exports could be raised by 50 million bushels in upcoming reports based on the strength of exports to Mexico"), **MEX-399**

> Unless otherwise provided for in this Agreement, the dispute settlement provisions of this Chapter apply: … when a Party considers that a benefit it could reasonably have expected to accrue to it under Chapter 2 (National Treatment and Market Access for Goods) … [and] Chapter 9 (Sanitary and Phytosanitary Measures) … is being nullified or impaired as a result of the application of a measure of another Party that is not inconsistent with this Agreement.

581. Similarly, Article XXIII:1(b) of the GATT 1994 covers matters under the following circumstances:

> If any contracting party should consider that any benefit accruing to it directly or indirectly under this Agreement is being nullified or impaired or that the attainment of any objective of the Agreement is being impeded as the result of … the application by another contracting party of any measure, whether or not it conflicts with the provisions of this Agreement, …. [emphasis added]

582. Each of these provisions addresses a situation in which a complainant considers that a benefit accruing to it under an international trade agreement "is being nullified or impaired" as a result of the "application" of a measure.

583. Article XXIII:1(b) covers "any benefit" accruing to a WTO Member "*directly or indirectly*" under the GATT 1994. In comparison, Article 31.2(c) of the USMCA covers "a benefit" that a Party "*could reasonably have expected* to accrue to it" under specified chapters of the USMCA. However, the phrase "could reasonably have expected" in Article 31.2(c) incorporates "the concept of 'reasonable expectations'" that "was developed in the context of *non-violation* complaints" under Article XXIII:1(b) of the GATT.[754] Thus, the difference in wording actually relates to an important similarity underpinning the interpretation and application of these provisions.

584. In addition, Article XXIII:1(b) covers the application of a measure "whether or not it conflicts with the provisions of" the GATT 1994, while Article 31.2(c) more specifically covers only the application of a measure "that is not inconsistent" with the USMCA.

585. For the foregoing reasons, Mexico considers that WTO dispute settlement reports interpreting and applying the text of Article XXIII:1(b) in the context of non-violation complaints may provide relevant and appropriate guidance for the interpretation and application of Article 31.2(c) in the current dispute.

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[754] Appellate Body Report, *EC – Computer Equipment* (DS62, DS67, DS68), ¶ 80**, MEX-418**, citing Appellate Body Report, *India – Patents*, ¶¶ 36 and 41, **MEX-270.**

586. In the *India – Patents* dispute, the Appellate Body provided the following explanation of "the concept of the protection of the reasonable expectations of contracting parties" in the context of "non-violation" complaints under Article XXIII:1(b), describing how it relates to "market access concessions":[755]

> The doctrine of protecting the "reasonable expectations" of contracting parties developed in the context of "non-violation" complaints brought under Article XXIII:1(b) of the GATT 1947. Some of the rules and procedures concerning "non-violation" cases have been codified in Article 26.1 of the DSU. "Non-violation" complaints are rooted in the GATT's origins as an agreement intended to protect the reciprocal tariff concessions negotiated among the contracting parties under Article II. In the absence of substantive legal rules in many areas relating to international trade, the "non-violation" provision of Article XXIII:1(b) was aimed at preventing contracting parties from using non-tariff barriers or other policy measures to negate the benefits of negotiated tariff concessions. Under Article XXIII:1(b) of the GATT 1994, a Member can bring a "non-violation" complaint when the negotiated balance of concessions between Members is upset by the application of a measure, whether or not this measure is inconsistent with the provisions of the covered agreement. The ultimate goal is not the withdrawal of the measure concerned, but rather achieving a mutually satisfactory adjustment, usually by means of compensation.[756]

587. In the *EC – Asbestos* dispute, the Appellate Body confirmed that "the remedy in Article XXIII:1(b) should be approached with caution and should remain an exceptional remedy".[757] In this regard, it considered the straightforward reason for this caution articulated by the panel in the *Japan – Film* dispute: "Members negotiate the rules that they agree to follow and only exceptionally would expect to be challenged for actions not in contravention of those rules".[758]

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755 Appellate Body Report, *India – Patents*, ¶¶36 and 41. **MEX-270.**

756 Appellate Body Report, *India – Patents*, ¶ 41, **MEX-270.** Similarly, see Appellate Body Report, *EC – Asbestos* (DS135), ¶ 185 ("The idea underlying [the provisions of Article XXIII:1(b)] is that *the improved competitive opportunities that can legitimately be expected from a tariff concession can be frustrated not only by measures proscribed by the General Agreement but also by measures consistent with that Agreement*. In order *to encourage contracting parties to make tariff concessions* they must therefore be given a right of redress when a reciprocal concession is impaired by another contracting party as a result of the application of any measure, whether or not it conflicts with the General Agreement" [*emphasis original*]), citing *European Economic Community – Payments and Subsidies Paid to Processors and Producers of Oilseeds and Related Animal-Feed Proteins*, Adopted 25 January 1990, BISD 37S/86, ¶ 144.

757 Appellate Body Report, *EC – Asbestos*, ¶ 186, **MEX-417,** citing Panel Report, *Japan – Film*, ¶¶ 10.36-10.37, **MEX-419**

758 Panel Report, *Japan – Film*, ¶¶ 10.36-10.37, **MEX-419** ("We note in this regard that both the European Communities and the United States in the EEC – Oilseeds case, and the two parties in this case, have confirmed that the non-violation nullification or impairment remedy should be approached with

588. WTO dispute settlement panels have developed a three-step test to evaluate non-violation claims under Article XXIII:1(b) of the GATT 1994, requiring a complainant to demonstrate the following elements:

i. the application of a measure by a WTO Member;

ii. the existence of a benefit accruing under the relevant agreement; and

iii. the nullification or impairment of the benefit as a result of the application of the measure.[759]

589. With respect to the first element, "the application of a measure", the panel in *Japan – Film* considered that, "given that the text contemplates nullification or impairment in the present tense, caused by application of a measure, … the ordinary meaning of this provision limits the non-violation remedy to measures that are currently being applied".[760] The Panel also noted that the disputing parties did not disagree on the "fundamental point" that only a measure that is being applied, "and not the market structure which may or may not result from the application of such measure, may be the basis for a cognizable claim under GATT Article XXIII:1(b)".[761]

590. The wording of Article 31.2(c) suggests a further qualification of the measure at issue. As noted above, Article 31.2(c) specifically covers only "the application of a measure … that is not inconsistent" with the USMCA. This indicates that a measure that has been found to be inconsistent with obligations under the USMCA, including such a measure that has subsequently been justified pursuant to one of the exceptions under Article 31.1 or Article 32.5, does not fall within the scope of a non-violation complaint under Article 31.2(c).

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caution and treated as an exceptional concept. The reason for this caution is straightforward. Members negotiate the rules that they agree to follow and only exceptionally would expect to be challenged for actions not in contravention of those rules"), cited in Appellate Body Report, *EC – Asbestos*, ¶ 186, **MEX-417.**

759 Panel Report, *US – Cool*, ¶ 7.890, **MEX-420**; Panel Report, *US – Offset Act (Byrd Amendment)* ¶ 7.120, **MEX-421**; Panel Report, *EC – Asbestos*, ¶ 8.283, **MEX-417**; and Panel Report, *Japan – Film*, ¶ 10.41, **MEX-419**

760 Panel Report, *Japan – Film*, ¶ 10.57, **MEX-419.**

761 Panel Report, *Japan – Film*, ¶ 10.59, **MEX-419.**

591. In the alternative, if such a measure does fall within the scope of Article 31.2(c), Mexico considers that the "special treatment" described by the panel in *EC – Asbestos* would be warranted, including the "stricter burden of proof being applied in this context to the party invoking" the non-violation complaint.[762] In this regard, the panel in *EC – Asbestos* explained as follows:

> […] the special situation of measures justified under Article XX, insofar as they concern non-commercial interests whose importance has been recognized *a priori* by Members, requires special treatment. By creating the right to invoke exceptions in certain circumstances, Members have recognized *a priori* the possibility that the benefits they derive from certain concessions may eventually be nullified or impaired at some future time for reasons recognized as being of overriding importance. This situation is different from that in which a Member takes a measure of a commercial or economic nature such as, for example, a subsidy or a decision organizing a sector of its economy, from which it expects a purely economic benefit. In this latter case, the measure remains within the field of international trade. Moreover, the nature and importance of certain measures falling under Article XX can also justify their being taken at any time, which militates in favour of a stricter treatment of actions brought against them on the basis of Article XXIII:1(b).
>
> Consequently, the Panel concludes that because of the importance conferred on them *a priori* by the GATT 1994, as compared with the rules governing international trade, situations that fall under Article XX justify a stricter burden of proof being applied in this context to the party invoking Article XXIII:1(b), particularly with regard to the existence of legitimate expectations and whether or not the [measure at issue] could be reasonably anticipated.[763] [*emphasis added*]

592. The considerations outlined above are relevant in this case because the United States has restricted its non-violation complaint to a situation in which the Panel has determined that a measure at issue in this dispute is justified under Article 32.5 of the USMCA (i.e., as a measure that Mexico deems necessary to fulfill its legal obligations to indigenous peoples). Such a justification will only arise if the Panel has first determined that the measure is inconsistent with one or more of Mexico's obligations under Articles 9.6 or 2.11 of the USMCA, which will trigger Mexico's affirmative defence under Article 32.5. Therefore, the United States' claims under Article 31.2(c), on their own terms, are subject to the "stricter burden of proof" outlined above.

593. With respect to the second element of the three-step legal test, "the existence of a benefit accruing under the relevant agreement" has generally been described in non-violation complaints

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762 Panel Report, *EC – Asbestos*, ¶¶ 8.281-8.282. **MEX-417**

763 Panel Report, *EC – Asbestos*, ¶¶ 8.281-8.282. **MEX-417**

as the reasonable expectation of improved market access opportunities arising out of relevant tariff concessions.[764] In this regard, the United States observes in its submissions that the USMCA continued the "tariff-free and quota-free trade" of US corn to Mexico that began in 2008 under the *North American Free Trade Agreement* (NAFTA).[765] The expectation of market access is contingent on the measure(s) at issue not having been reasonably anticipated at the time the concessions were made.[766]

594. With respect to the third element of the legal test, "causality", WTO panels have considered that it must be demonstrated that the "competitive position of the imported products" benefitting from market access is "being upset by the application of a measure not reasonably anticipated".[767] Although this has typically been equated with "upsetting the competitive relationship established between domestic and imported products as a result of tariff concessions",[768] the panel in the *US – COOL* dispute considered that the benefit of market access may also be impaired "by violations of rules and disciplines on non-tariff measures".[769]

595. The panel in *Japan – Film* considered that the complainant bears the burden of proving that the challenged measures have upset the competitive relationship between domestic and imported goods to the detriment of the imported goods. In this regard, the complainant must demonstrate a "clear correlation" between the challenged measures and the alleged nullification or impairment of the expected market access conditions.[770] The panel further clarified that the respondent is responsible for what "is caused" by measures attributable to its government, but not by restrictive business conduct attributable to private economic actors.[771] It concluded that what

764 Panel Report, *Japan – Film*, ¶ 10.61. **MEX-419**.

765 US Rebuttal Submission, ¶ 255.

766 Panel Report, *US – Cool*, ¶ 7.691, **MEX-420** citing Panel Report, *Japan – Film*, ¶ 10.76. **MEX-419**.

767 Panel Report, *Japan – Film*, ¶ 10.82. **MEX-419**.

768 Panel Report, *US – Cool*, ¶ 5.10, **MEX-420**; Panel Report, *Japan – Film*, ¶. 10.82. **MEX-419**.

769 Panel Report, *US – Cool*, ¶ 5.10. **MEX-420**.

770 Panel Report, *Japan – Film*, ¶ 10.82, **MEX-419.**

771 Panel Report, *Japan – Film*, ¶ 10.84, **MEX-419.**

must be considered is whether the measures have made more than a "de minimis" contribution to the alleged nullification or impairment.[772]

i. The measures at issue do not fall within the scope of Article 31.2 of the USMCA

596. Article 31.2(c) specifically covers only "the application of a measure … that is not inconsistent" with the USMCA. This implies that a measure that has been found to be inconsistent with obligations under the USMCA, including a measure that has subsequently been justified pursuant to the exception under Article 32.5, does not fall within the scope of a non-violation complaint under Article 31.2(c).

597. As noted above, the United States has limited its non-violation complaint to a situation in which the Panel has determined that the measures are justified under Article 32.5.[773] Such a determination would only arise in the event that the Panel has first determined that the measures are inconsistent with one or more of Mexico's obligations under Articles 9.6 or 2.11 of the USMCA, thereby triggering Mexico's affirmative defense under Article 32.5. Thus, it cannot be said in these circumstances that the measures are "not inconsistent" with the USMCA.

598. This interpretation gives meaning to the relevant difference in wording between Article 31.2(c) and Article XXIII:1(b) of the GATT 1994. While Article 31.2(c) expressly restricts non-violation nullification or impairment claims to the application of a measure "that is not inconsistent" with the USMCA, Article XXIII:1(b) admits such claims regardless of "whether or not" the application of the measure "conflicts with the provisions" of the GATT 1994. While the wording in Article XXIII:1(b) leaves open the possibility of a further non-violation nullification or impairment challenge even after a WTO-inconsistent measure has been justified under an exception (e.g., Article XX), the wording in Article 31.2(c) does not. This effectively protects a USMCA-inconsistent measure that has been justified under one of the exceptions (e.g., Articles 32.1.1 or 32.5) from being further challenged through a non-violation complaint.

599. There is an important systemic rationale for this approach. Where a measure has been found to be inconsistent with a positive obligation to which a Party has agreed to be bound, but that

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772 Panel Report, *Japan – Film*, ¶ 10.84, **MEX-419**.

773 See US Panel Request, ¶1, n.5, ¶ 2, n.9; see also US Rebuttal Submission, ¶¶ 27, 251.

inconsistency is justified on the basis of an exception (e.g., Article 32.5), it is because the Parties consider the public policy interest protected by the exception to be of "overriding importance".[774] Several WTO decisions have noted that such exceptions are a legal right and should not "be rendered illusory".[775] Allowing a non-violation complaint further to the justification of an inconsistent measure on the basis of an exception would undermine the importance that the Parties have assigned to the public policy interest or value protected by the exception.

600. In the alternative, if the Panel considers that the measure(s) at issue fall within the scope of a non-violation complaint under Article 31.2(c), even after being justified under Article 32.5, Mexico submits that the "stricter burden of proof" identified by the panel in *EC – Asbestos* should be applied for the same reasons considered by that panel and outlined above.[776] This stricter standard led the panel in *EC – Asbestos* to find that the complainant had failed to establish the existence of nullification or impairment because it had not presented a "detailed justification in support of its claim".[777] This approach is based on the "legitimacy" of the exceptions,[778] which is relevant to the circumstances of the potential non-violation complaint in this dispute.

ii. Neither the "Gradual Substitution" instructions nor the future "Gradual Substitution" measure(s) are "currently being applied"

601. As Mexico has repeatedly explained, the future "Gradual Substitution" measure(s) do not even exist yet. They have not yet been designed, proposed, adopted, or implemented, let alone applied. No regulatory or administrative mechanism exists "in order to conduct the gradual substitution". In addition, nothing in the instructions in Articles 7 and 8 of the 2023 Decree are capable, on their own, of nullifying or impairing the market access of US corn exports to Mexico. Moreover, as discussed above, there is no evidence of any nullification or impairment of market access actually occurring at all. To the contrary, there is overwhelming evidence of increasing

774 Panel Report, *EC – Asbestos*, ¶ 8.281 – 8.282, **MEX-417**.

775 Panel Report, *United States – Tariff Measures (China)*, ¶ 7.104. **MEX-335**; Appellate Body Report, *US – Gasoline*, ¶. 22, **MEX-269**; Appellate Body Report, *US – Shrimp*, ¶ 156, **MEX-346**.

776 Panel Report, *EC – Asbestos*, ¶ 8.282, **MEX-417**.

777 Panel Report, *EC – Asbestos*, ¶ 8.301-8.304, **MEX-417**.

778 Panel Report, *EC – Asbestos*, ¶ 8.301, **MEX-417**.

trade volumes, indicating that US exports are enjoying expanding market access and competitive opportunities in Mexico.

602. Mexico recalls the "fundamental point" that only a measure that is "being applied", "and not the market structure which may or may not result from the application of such measure, may be the basis" for a non-violation nullification or impairment claim.[779] Therefore, any non-violation claim raised by the United States against the "Gradual Substitution" instructions is, at best, premature.

iii. The reasonable expectation of market access opportunities for US corn exports to Mexico

603. In non-violation complaints, the complainant carries the burden of establishing (i) a benefit that it expected would accrue to it under the relevant trade agreement, and (ii) the reasonableness of this expectation. The relevant question has been described as whether the benefit allegedly accruing to the complainant "creates legitimate expectations of market access". The legitimacy of the complainant's expectations is "contingent on the contested measure not having been reasonably anticipated at the time" the market access commitment was made.[780] Consequently, if the challenged measures could have been anticipated by the complaining party, it could not have had a legitimate expectation.[781]

604. In Mexico's view, the United States could not have reasonably expected that Mexico would not regulate GM corn grain in Mexico for the purposes of protecting human health from the risks of directly consuming contaminants or toxins in GM corn, protecting Mexico's native races and varieties of corn from transgenic contamination, and protecting the associated rights, traditions, and cultural heritage of Indigenous people in Mexico. Stated another way, the United States could have reasonably anticipated, as foreseeable, that Mexico would introduce measures to regulate GM corn grain in Mexico in the public interest.

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779 Panel Report, *Japan – Film*, ¶ 10.59, **MEX-419.**

780 Panel Report, *US – COOL (Article 21.5)* (DS384, DS386), ¶ 7.691, **MEX-420**. Similarly, the panel in *Japan – Film* found that for expectations to be legitimate, they must consider "all measures" of the party making the concession that could have been "reasonably anticipated" at the time of the concession. Panel Report, *Japan – Film*, ¶ 10.61, **MEX-419.**

781 Panel Report, *Japan – Film*, ¶ 10,76, **MEX-419.**

605. Mexico bases this argument on two premises: (i) prior to the conclusion of the USMCA, there was an undisputed concern in Mexico regarding GM corn, which led to the progressive adoption of regulatory measures that rendered future regulations foreseeable to the United States; and (ii) the arguments and evidence submitted by the United States do not meet the high burden of proof required under Article 31.2(c).

1. Prior to the negotiation and conclusion of the USMCA, there was an undisputed, public concern in Mexico regarding GM corn and progressive regulatory measures were being adopted

606. The United States overlooks the background on GM corn regulation in Mexico before and during the USMCA negotiations. Mexico has extensively detailed the regulatory history concerning GM corn,[782] which is crucial for understanding reasonable expectations. The United States has criticized this history as irrelevant.[783] To avoid repetition, Mexico highlights the following factual evidence: (i) between 1998 and 2005, it maintained a moratorium on the commercial cultivation of GM corn; (ii) in 2005, the CEC issued a report raising significant concerns with respect to GM corn in Mexico and recommending restrictions; and (iii) there has been significant domestic litigation concerning the risks related to GM corn in Mexico.

607. Between 1996 and 1998, Mexico observed a rise in GM corn trial applications, accompanied by growing concerns about potential risks to corn biodiversity. Authorities were particularly worried about transgene introgression into native corn varieties, leading to the imposition of a moratorium on commercial GM corn cultivation from 1998 to 2005.[784] In the early 2000s, Mexico detected transgenes in native corn varieties, intensifying concerns about contamination despite the existing moratorium.[785] A 2001 study revealed significant gene flow from industrially produced corn to native varieties.[786] Concerns regarding the possibility of genetic

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782 Mexico's Initial Written Submission, ¶¶ 97-118.

783 US Rebuttal Submission, ¶ 3.

784 Mexico's Initial Written Submission, ¶ 102; Serratos Hernández, J. A., "Biosafety and the spread of transgenic corn in Mexico", 2009, Revista Ciencias, pp. 133-134. **MEX-086**.

785 Mexico's Initial Written Submission, ¶ 104; Quist, D., Chapela, I., "Transgenic DNA introgressed into traditional corn landraces in Oaxaca", 2001, Mexico, Nature, p. 541. **MEX-090**.

786 Mexico's Initial Written Submission, ¶ 125; Quist, D. and Chapela, I., "Transgenic DNA introgressed into traditional maize landraces in Oaxaca, Mexico", Nature, 2001, p. 542. **MEX-090**.

introgression have remained a fundamental concern. Against this backdrop, the foreseeability of future measures affecting GM corn imports was evident at the time when the USMCA was negotiated.

608. Another critical fact that the United States fails to address is the CEC report. This commission, created by the three USMCA parties in 1994, published an independent analysis on biodiversity and corn in Mexico.[787] It noted, *inter alia*, the following facts:[788]

> 2. Mexico consumes an enormous amount of corn, unlike any other country in the world, so special consideration must be given to approved and future transgenes.[789]
>
> 3. This, in addition to the use of pharmaceuticals and industrial compounds not suitable for human and animal consumption in food crops, poses a health risk of great magnitude, which is intensified in a vegetable produced by open pollination such as corn.[790]
>
> 9. Corn has important cultural, symbolic, and spiritual values for most Mexicans, which is not the case in Canada and the United States. The risk assessment of GM corn in Mexico is necessarily tied to these values.
>
> 16. Many of the farmers and community organizations that have been most vocal about their concerns regarding the gene flow of transgenes perceive GM corn as a direct threat to political autonomy, cultural identity, personal security, and biodiversity.
>
> 24. The GM corn commercial planting moratorium policy was affected by the unauthorized cultivation of unlabeled and unseparated imported GM corn of the United States.

609. Further, the CEC report not only identified risks posed by GM corn but also recommended actions aligning with Mexico's concerns:[791]

- That the genetic diversity of local Mexican maize and teosinte races must be conserved.

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787 Secretariat Report of the Commission for Environmental Cooperation. "Corn & Biodiversity. The effects of transgenic Corn in Mexico", 2004. p. 2. **MEX-095**.

788 Secretariat Report of the Commission for Environmental Cooperation. "Corn & Biodiversity. The effects of transgenic Corn in Mexico", 2004. pp. 14-25. **MEX-095**.

789 Secretariat Report of the Commission for Environmental Cooperation. "Corn & Biodiversity. The effects of transgenic Corn in Mexico", 2004. p. 20. **MEX-095**.

790 Secretariat Report of the Commission for Environmental Cooperation. "Corn & Biodiversity. The effects of transgenic Corn in Mexico", 2004. p. 20. **MEX-095**.

791 Secretariat Report of the Commission for Environmental Cooperation. "Corn & Biodiversity. The effects of transgenic Corn in Mexico", 2004. pp. 27-30. **MEX-095**.

- That Mexico strengthen "the moratorium on commercial planting of transgenic maize by minimizing the imports of living transgenic maize from countries that grow transgenic maize commercially".

- That the implications of the consumption of GM corn in large quantities, as is the case in Mexico, should be urgently investigated.[792]

610. These recommendations underscore the widespread concerns with respect to GM corn among Mexican farmers, campesinos, peasant communities, Indigenous people, and consumers. These concerns have continued to prevail in Mexico, so it has been foreseeable that measures may be taken in the public interest in relation to the risks and issues documented in the CEC Report.

611. Another significant development is the legal action initiated by multiple organizations before the Mexican judiciary, which in 2013 led to a precautionary measure, temporarily suspending the issuance of commercial permits for releasing GM corn into Mexico's environment.[793] In 2019, these proceedings escalated to the Supreme Court, which acknowledged the case's strategic significance in safeguarding national biodiversity and upheld the provisional measure.[794]

612. The USMCA negotiations took place from May 2017 to November 2018. The widespread public concerns regarding GM corn in Mexico preceded these negotiations, continued throughout the negotiations, and they continue today.

613. Further, since 2019, Mexico has shared scientific information with the United States, discussing concerns about glyphosate, GMOs, and GM corn consumption safety.[795] Mexico's 2020 Federal Law for the Promotion and Protection of Native Corn reflected these concerns, aiming to promote the sustainable development of native corn varieties.[796]

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792 Mexico's Initial Written Submission. ¶ 114, citing Secretariat Report of the Commission for Environmental Cooperation. "Corn & Biodiversity. The effects of transgenic Corn in Mexico", 2004. pp. 27-30. **MEX-095**

793 Mexico's Initial Written Submission, ¶ 196.

794 Mexico's Initial Written Submission, ¶ 228.

795 Mexico's Initial Written Submission, footnote 1.

796 Mexico's Initial Written Submission, ¶ 202; Federal Law for the Promotion and Protection of Native Corn, Articles 3-4, 11-13. **MEX-012**.

614. The 2023 Decree central to this dispute, and the 2020 Decree that preceded it, reflect over two decades of ongoing regulatory efforts by Mexican authorities, evolving in response to scientific uncertainties regarding the risks associated with GM corn in Mexico.

615. Under these circumstances, the adoption by government authorities of precautionary measures to address the risks of GM corn to public health, native corn, and indigenous people in Mexico, particularly in light of the considerations and recommendations in the CEC Report. The United States therefore could not be said to have had a reasonable expectation that Mexico would not take measures in the public interest on a precautionary basis with respect to GM corn.

2. The arguments and evidence submitted by the United States do not meet the high burden of proof required under Article 31.2(c) of the USMCA

616. Mexico already noted that, since this claim arises only if the measures are justified under Article 32.5, a stricter burden applies to the United States. Additionally, it highlights the caution expressed by the *EC – Asbestos* panel against loosely interpreting non-violation complaints, stressing their exceptional nature.[797] In Mexico's view, the United States has failed to meet the rigorous burden of proof required under Article 31.2(c) of the USMCA in the circumstances of this case.

617. First, the United States cites to total trade values in certain years following the concessions provided under the NAFTA in 2008 and to past approvals of GM events to assert its legitimate expectations.[798] However, past trade values and past GM authorizations do not establish a reasonable expectation against future regulation of GM corn, particularly as scientific evidence of risks develops and is taken into consideration by responsible government authorities. While relevant for assessing trade importance, they do not constitute a "detailed justification in support" of legitimate expectations.

618. Secondly, the United States relies on two exhibits to support its claims regarding Mexico's supposed commitments under the USMCA. The first is an internal 18-slide presentation on SPS

797 Appellate Body Report, EC - Asbestos, ¶¶ 185-186, **MEX-452**

798 US Rebuttal Submission, ¶¶. 255-256, citando **USA-285**.

matters. From this document, the United States extracts a single sentence, claiming that it shows that Mexico considered the USMCA "one of the most ambitious instruments it had negotiated on SPS matters".[799] This only highlights the significance of the agreement for one of the parties, not any legitimate expectations of the United States.

619. To the contrary, Mexico's right to enact measures for life and health protection under the USMCA is reaffirmed in the second document, a brief Q&A of the treaty published by Mexican authorities. The United States relies on a single sentence of the document, but omits any reference to question No. 51 on Chapter 32 exceptions, which states that these provisions allow measures to protect legitimate objectives.[800]

620. In conclusion, none of the evidence brought by the United States demonstrates a reasonable expectation that Mexico would forego the right to implement regulatory measures in the public interest, including precautionary measures to protect human health, native corn, and associated Indigenous rights from the risks posed by GM corn.

iv. The "End-Use Limitation" and the "Gradual Substitution" instructions do not cause nullification or impairment within the meaning of Article 31.2 of the USMCA

621. Determining whether a measure caused nullification or impairment is factually complex and requires demonstrating a "causal link" between the measure and the alleged effects.[801] Previous panels have dismissed non-violation claims due to insufficient evidence of causality.[802] To establish causality, a complainant must show that the competitive position of imported products benefiting from relevant market access concessions is adversely affected by a measure that was not reasonably anticipated.[803] This requires evidence that the measure directly disrupts the anticipated competitive landscape.[804]

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799 US Rebuttal Submission, ¶ 257.

800 **USA-294**, p. 21.

801 Panel Report, *Japan - Film*, ¶ 10,83, **MEX-419.**

802 Panel Report, *Japan - Film*, ¶ 10,83, **MEX-419.**.

803 Panel Report, *Japan - Film*, ¶ 10,82, **MEX-419.**

804 Panel Report, *Japan - Film*, ¶ 10,82, **MEX-419.**.

622. The United States claims that the measures "are already having significant impacts on current trade", citing an alleged "collapse" in white corn exports "as a consequence" of Mexico's alleged restrictions on GM corn.[805] However, the correlation is broken by (i) the fact that South African exports of white corn simply captured market share from US exports by taking advantage of the temporary exemption on import duties, and (ii) US exports of white corn have rebounded in 2024, substantially increasing again in volume.

623. The United States provides no independent assessment of the nullification or impairment allegedly caused by each of the measures at issue. The United States provides no explanation of the alleged adverse effects on market access. Contrary to this, the evidence presented by Mexico shows increasing import volumes from 2022-2023 and 2023-2024. Therefore, there is simply no evidence that "market access" or "competitive opportunities" for US corn are being "nullified or impaired".

624. Additionally, the United States has failed to address alternative explanations for any decline in white corn exports, such as Mexico's self-sufficiency in white corn[806] and shifts in import volumes for different sources due to market competition.[807] The argument regarding uncertainty for US farmers and companies[808] relies solely on an academic publication discussing potential trade constraints related to GM product authorization, which targets SPS approvals themselves rather than the specific measures in question.[809] Mexico, in contrast, has presented evidence that US farmers are capable and willing to supply non-GMO corn to Mexico.

625. In its Rebuttal Submission, the United States requested the Panel the following:

> "Should the Panel find—contrary to the U.S. arguments above—that the Tortilla Corn Ban or the Substitution Instruction are not inconsistent with Mexico's USMCA obligations due to the applicability of the indigenous peoples' exception in USMCA Article 32.5, the United States alternatively asserts that it had a reasonable expectation at the time the USMCA was concluded that Mexico would not adopt the Tortilla Corn Ban or the Substitution Instruction."[810]

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805 US Rebuttal Submission, ¶ 260.

806 Mexico's Initial Written Submission, ¶¶ 236-249.

807 Mexico's Initial Written Submission, ¶ 241.

808 US Rebuttal Submission, ¶ 261.

809 **USA-057**, pp. 306-308.

810 US Rebuttal Submission, ¶ 251.

626. Notwithstanding that the United States does not meet the standard required to establish a *prima facie* claim under Article 31.2(c) of the USMCA, the United States is asking the Panel to do something that is not legally possible under the USMCA, as explained below.

627. Article 31.2 (c) of the USMCA provides that:

> "Unless otherwise provided for in this Agreement, the dispute settlement provisions of this Chapter apply:
>
> […]
>
> (c) when a Party considers that a benefit it could reasonably have expected to accrue to it under Chapter 2 (National Treatment and Market Access for Goods), Chapter 3 (Agriculture), Chapter 4 (Rules of Origin), Chapter 5 (Origin Procedures), Chapter 6 (Textile and Apparel Goods), Chapter 7 (Customs Administration and Trade Facilitation), Chapter 9 (Sanitary and Phytosanitary Measures), Chapter 11 (Technical Barriers to Trade), Chapter 13 (Government Procurement), Chapter 15 (Cross-Border Trade in Services), or Chapter 20 (Intellectual Property Rights), *is being nullified or impaired as a result of the application of a measure of another Party that is not inconsistent with this Agreement*." [Emphasis added]

628. That is, one of the essential requirements to argue the nullification or impairment of a benefit that could reasonably have been expected under Chapters 2 and 9 is that the measure is not "inconsistent" with the USMCA.

629. The Parties could have chosen much broader language to include inconsistent measures,[811] but simply did not do so, limiting this possibility to consistent measures only.

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811 For example, under GATT, inconsistent measures are provided for in Article XIII on nullification or impairment, which provides for their application in a wider range of cases: "1. If any contracting party should consider that any benefit accruing to it directly or indirectly under this Agreement is being nullified or impaired or that the attainment of any objective of the Agreement is being impeded as the result of

a) the failure of another contracting party to carry out its obligations under this Agreement, or

b) *the application by another contracting party of any measure, whether or not it conflicts with the provisions of this Agreement*, or

c) the existence of any other situation,

he contracting party may, with a view to the satisfactory adjustment of the matter, make written representations or proposals to the other contracting party or parties which it considers to be concerned. Any contracting party thus approached shall give sympathetic consideration to the representations or proposals made to it." [Emphasis added]

630. On the other hand, the United States was explicit in stating that it invoked this provision in a subsidiary manner, i.e., only in the event that the objection raised by Mexico under Article 32.5 of the USMCA (Rights of Indigenous Peoples) was successful.

631. However, as has been widely recognized in the cases decided by the WTO where exceptions have been invoked, the application of these exceptions assumes that the measures sought to be excepted are incompatible with the agreement in question. Even if the exception has been favorably received by the Panel, this does not mean that the measure becomes compatible, but rather that, despite the fact that the measure violates the agreement, it is justified.[812]

632. Thus, if the Panel were to conclude that one or both of the measures at issue in this dispute were justified under Article 32.5 of the USMCA, this would imply the incompatibility of the measures themselves with a provision of the agreement. Consequently, it would be legally impossible for the United States' claim under Article 31.2(c) of the agreement to succeed due to an alleged nullification or impairment arising from these measures, as the right of either Party to bring such a claim is limited to measures that are not inconsistent with the USMCA.

VI. CONCLUSION

633. For the foregoing, the request presented in Mexico's Initial Written Submission is reiterated,[813] that is, Mexico respectfully requests that the Panel determine that the measures identified by the United States comply with the provisions of the USMCA; in the alternative, that they are exempted by Articles 32.1 and 32.5 of the Treaty; and that the measures could not cause nullification or impairment in the context of Article 31.2.

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[812] Panel Report, *US — Tariff Measures (China),* ¶ 7.103. **MEX-335**. Appellate Body Report, *Indonesia — Import Licensing Regimes*, ¶ 5.94. **MEX-336**. Appellate Body Report, *US – Gasoline*, p.15, **MEX-269**

[813] Mexico's Written Submission, ¶ 551.

TABLE OF CASES

Short Name	Large Name
Argentina — Textiles and Apparel	Appellate Body Report, *Argentina — Measures Affecting Imports of Footwear, Textiles, Apparel and other Items*, WT/DS56/AB/R and Corr.1, adopted on April 22, 1998.
Australia — Apples	Appellate Body Report, *Australia — Measures Affecting the Importation of Apples from New Zealand*, WT/DS367/AB/R, adopted on December 17, 2010.
Australia — Salmon	Appellate Body Report, *Australia — Measures Affecting Importation of Salmon*, WT/DS18/AB/R, adopted on November 6, 1998.
Awas Tingni vs. Nicaragua	Inter-American Court of Human Rights, *Case Awas Tingni vs. Nicaragua*, Judgment, August 31, 2001 (Merits, Reparations and Costs).
Brazil — Retreaded Tyres	Panel Report, *Brazil — Measures Affecting Imports of Retreaded Tyres*, WT/DS332/R, adopted on December 17, 2007, modified by the Appellate Body Report WT/DS332/AB/R.
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Brazil — Taxation	Panel Reports, *Brazil — Certain Measures Concerning Taxation and Charges*, WT/DS472/R, Add.1 and Corr.1 / WT/DS497/R, Add.1 and Corr.1, adopted on January 13, 2019, modified by the Appellate Body Reports WT/DS472/AB/R / WT/DS497/AB/R.
Canada — FIRA	GATT Panel Report, *Canada – Administration of the Foreign Investment Review Act*, L/5504, adopted 7 February 1984, BISD 30S/140.
EC — Asbestos	Panel and Appellate Body Reports, *European Communities — Measures Affecting Asbestos and Products Containing Asbestos,* WT/DS135/R y WT/DS135/AB/R adopted on April 5, 2001.
EC — Approval and Marketing of Biotech Products	Panel Reports, *European Communities — Measures Affecting the Approval and Marketing of Biotech Products*, WT/DS291/R, Add.1 a Add.9 and Corr.1 / WT/DS292/R, Add.1 a Add.9 and Corr.1 / WT/DS293/R, Add.1 a Add.9 and Corr.1, adopted on November 21, 2006.
EC — Computer Equipment	Panel Report and Appellate Body Report, *European Communities — Customs Classification of Certain Computer Equipment,* WT/DS62/R, WT/DS67/R, WT/DS68/R, WT/DS62/AB/R, WT/DS67/ AB/R, WT/DS68/ AB/R adopted on June 22, 1998.

Short Name	Large Name
EC — Hormones	Panels Reports, *European Communities — Measures Concerning Meat and Meat Products (Hormones)*, WT/DS48/R/CAN (Canada) y WT/DS26/R/USA (United States), adopted on February 13, 1998, modified by the Appellate Body Reports WT/DS26/AB/R, WT/DS48/AB/R.
EC — Hormones	Appellate Body Report, *European Communities — Measures Concerning Meat and Meat Products (Hormones)*, WT/DS26/AB/R, WT/DS48/AB/R, adopted on February 13, 1998.
EC — Hormones (Canada)	Panel Report, *European Communities — Measures Concerning Meat and Meat Products (Hormones), Canada Claim*, WT/DS48/R/CAN, adopted on February 13, 1998, modified by the Appellate Body Report WT/DS26/AB/R, WT/DS48/AB/R.
CE — Hormones (United States)	Panel Report, *European Communities — Measures Concerning Meat and Meat Products (Hormones), United States Claim*, WT/DS26/R/USA, adopted on February 13, 1998, modified by the Appellate Body Report WT/DS26/AB/R, WT/DS48/AB/R.
EC — Seal Products	Panel Reports, *European Communities — Measures Prohibiting the Importation and Marketing of Seal Products*, WT/DS400/R and Add.1 / WT/DS401/R and Add.1, adopted on June 18, 2014, modified by the Appellate Body Reports WT/DS400/AB/R / WT/DS401/AB/R.
EC — Seal Products	Appellate Body Reports, *European Communities — Measures Prohibiting the Importation and Marketing of Seal Products*, WT/DS400/AB/R / WT/DS401/AB/R, adopted on June 18, 2014.
China — Raw Materials	Appellate Body Reports, *China — Measures Related to the Exportation of Various Raw Materials*, WT/DS394/AB/R / WT/DS395/AB/R / WT/DS398/AB/R, adopted on February 22, 2012.
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TABLE OF EXHIBITS

EXHIBIT	NAME OF EXHIBIT
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MEX-027	CONABIO, "*Patrimonio biocultural*".
MEX-028	Cristina Barros. El maíz nuestro patrimonio.
MEX-029	Sader, "*La riqueza de México es el maíz*", 30 de marzo de 2021.
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MEX-042	UNESCO, "*La cocina tradicional mexicana: Una cultura comunitaria, ancestral y viva y el paradigma de Michoacán*".
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MEX-070	Dionglay, C., "*Commercially Available Biotech Crops and Where to Find Them*", 2022, ISAAA.
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MEX-072	GLP, "*Luxembourg's parliament votes unanimously to prohibit farmers from growing GMO corn*", 26 de junio de 2017.
MEX-073	FOEN, "*Biotechnology: In brief*", 19 de diciembre de 2022.
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MEX-081	USDA, "*Recent Trends in GE Adoption*".
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MEX-085	Conahcyt, "Expediente científico sobre el glifosato y los cultivos GM", 2020.
MEX-086	Serratos Hernández, J. A., "*Bioseguridad y dispersión de maíz transgénico en México*", 2009, Revista Ciencias.
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MEX-240	Codex Alimentarius, adoptado por México desde 1969.
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MEX-244	Ley del desarrollo rural sustentable del estado de Guerrero.
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MEX-246	Ley de fomento y protección del maíz criollo en el estado de San Luis Potosí.
MEX-247	Ley de fomento y protección del maíz nativo del estado de Sinaloa.
MEX-248	Ley de fomento y protección del maíz nativo como patrimonio biocultural y alimentario del Estado de México.

MEX-249	Ley de Fomento y Protección al maíz como patrimonio Originario, en Diversificación constante y Alimentario para el Estado de Tlaxcala.
MEX-250	Ley de Bioseguridad.
MEX-251	Reglamento de la Ley De Bioseguridad.
MEX-252	**[Omitido intencionalmente]**
MEX-253	Ley de Desarrollo Rural Sustentable.
MEX-254	Ley General de Cultura y Derechos Culturales.
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MEX-270	Informe del Órgano de Apelación, *India - Patentes (Estados Unidos).*
MEX-271	Informe del Órgano de Apelación, *Argentina - Textiles y prendas de vestir.*
MEX-272	Informe del Órgano de Apelación, *Estados Unidos - Acero al carbono.*
MEX-273	Informe del Grupo Especial, *Costa Rica — Aguacates (México).*
MEX-274	Informe del Grupo Especial, *Corea — Radionúclidos (Japón).*

MEX-275	Informe del Grupo Especial, *CE — Hormonas (Canadá)*.
MEX-276	Informe del Grupo Especial, *CE — Hormonas (Estados Unidos)*.
MEX-277	Informe del Grupo Especial, *CE — Aprobación y comercialización de productos biotecnológicos*.
MEX-278	Informe del Grupo Especial, *Estados Unidos — Aves de corral (China).*
MEX-279	Informe del Órgano de Apelación, *Australia — Manzanas*.
MEX-280	Informe del Grupo Especial, *Rusia — Porcinos (UE)*.
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MEX-292	Informe del Órgano de Apelación, *Australia – Salmón.*
MEX-293	Informe del Órgano de Apelación, *Japón — Productos agrícolas II*.
MEX-294	Informe del Órgano de Apelación, *Estados Unidos — Mantenimiento de la suspensión.*
MEX-295	Informe del Grupo Especial, *Australia — Salmón.*
MEX-296	Informe de Grupo Especial, *India — Productos agropecuarios.*
MEX-297	Informe del Órgano de Apelación, *Brasil – Neumáticos recauchutados.*
MEX-298	Informe del Órgano de Apelación, *Estados Unidos – Juegos de azar*.
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MEX-329	Grupo Especial, *Canada – FIRA.*
MEX-330	Grupos Especial, *Brasil — Neumáticos Recauchutados.*
MEX-331	Informe del Grupo Especial, *India – Restricciones cuantitativas.*
MEX-332	Diccionario del Español de México, restricción.
MEX-333	Diccionario del Español de México, restringir.
MEX-334	Informe del Grupo Especial, *Indonesia — Materias primas.*
MEX-335	Informe del Grupo Especial, *Estados Unidos — Medidas arancelarias (China).*
MEX-336	Informe del Órgano de Apelación *Indonesia — Régimenes de Licencias de Importación.*
MEX-337	Informe del Órgano de Apelación, *CE—Productos derivados de las focas.*
MEX-338	Informe del Grupo Especial, *CE—Productos derivados de las focas.*
MEX-339	Informe del Grupo Especial, *China – Publicaciones y productos audiovisuales.*
MEX-340	Informe de Grupo Especial *Estados Unidos — Juegos de azar*.
MEX-341	Informe del Grupo Especial, *Colombia — Textiles.*
MEX-342	Informe del Grupo Especial, *Brasil — Tributación*.
MEX-343	Informe del Grupo Especial, *Indonesia — Régimenes de Licencias de Importación*.
MEX-344	Informe del Órgano de Apelación, *China — Tierras raras*.
MEX-345	Informe del Órgano de Apelación, *China — Materias primas.*
MEX-346	Informe del Órgano de Apelación, *Estados Unidos — Camarones.*

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