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Page: 1/9

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NEW OPPORTUNITIES AND EMERGING CHALLENGES IN INTERNATIONAL TRADE IN FOOD, ANIMALS, AND PLANTS

COMMUNICATION FROM AUSTRALIA, BELIZE, CANADA, CHILE, COLOMBIA, COSTA RICA, DOMINICAN REPUBLIC, ECUADOR, JAPAN, MEXICO, NEW ZEALAND, PARAGUAY, PERU, SINGAPORE, THE UNITED STATES OF AMERICA, URUGUAY AND VIET NAM

The following communication, received on 13 October 2021, is being circulated at the request of the delegations of Australia, Belize, Canada, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, Japan, Mexico, New Zealand, Paraguay, Peru, Singapore, the United States of America, Uruguay and Viet Nam.

Chapeau: The purpose of document G/GEN/SPS/1960 is to elaborate on several of the concepts contained in the *Sanitary and Phytosanitary Declaration for the Twelfth WTO Ministerial Conference: Responding to Modern SPS Challenges* (G/SPS/GEN/1758/Rev.7). The document serves to highlight the relevance of the SPS Declaration and the importance of adopting a forward-looking workplan to appropriately consider common challenges in the implementation of the SPS Agreement and the mechanisms available to address them, and the impacts of emerging pressures on the application of the SPS Agreement. This document does not represent additional text to be included in the Declaration.

1. The proposed **Sanitary and Phytosanitary Declaration for the Twelfth WTO Ministerial Conference** (MC12 SPS Declaration), with document symbol G/SPS/GEN/1758/Rev.7, notes that the agricultural landscape has changed significantly since the adoption of the SPS Agreement in 1995. This evolution has brought about a variety of new opportunities and emerging challenges for international trade in food, animals and plants. Specifically, the Declaration mentions the following as some examples:

- expanding global populations, as well as increased movement of agricultural products to address changing population structures and distributions;
- increased pace of innovation in tools and technologies;
- changing climatic conditions and associated stresses on food production;
- growing importance of sustainable agricultural practices;
- shifting pressures due to the spread of pests, diseases, disease-carrying organisms, or disease-causing organisms; and
- continued application of SPS measures that would constitute a disguised restriction on international trade.

2. In order to advance discussions around the specific concepts contained within the MC12 SPS Declaration, this paper elaborates on several opportunities and emerging challenges for international trade in food, animals and plants, including: population growth and distribution; climate change and its impact on agriculture; pressures related to pests and diseases in agriculture; and the policy challenges and opportunities related to increased pace of innovation in tools and technologies.

1 POPULATION GROWTH AND DISTRIBUTION

3. The world's population is expected to grow to almost 10 billion by 2050, boosting agricultural demand by approximately 50 percent compared to 2013, even in a scenario of modest economic

growth. Income growth in low- and middle-income countries may hasten a dietary transition towards higher consumption of meat, fruits and vegetables, requiring commensurate shifts in output (FAO, 2017). Long term population trends exhibit strong but slowing growth in Asia, and continued rapid growth in Africa, while populations in Latin America and the Caribbean, North America, and Oceania are projected to increase slowly; populations in Europe will likely contract by 2050 (FAO, 2020).

4. The interaction between population growth and demographic changes affects food demand, trade, and markets in important ways. While population growth drives the demand for, and trade of food, urbanization is associated with considerable changes in lifestyle and is a key driver of changes in consumption patterns (FAO, 2020). FAO has identified the emergence of a middle class in many developing countries as the most significant factor driving not only the demand for food but also its composition, leading to changes in food procurement systems. The rise of an urban middle class in Africa, for example, resulted in an increase in calories consumed overall and a higher demand for processed foods, meat, fruit and vegetables. Middle class consumers are also more likely to shop in supermarkets or other types of convenience stores and spend a higher share of their income eating in restaurants. Dietary shifts spurred by income growth also affect trade (FAO, 2020).

5. Since 1995, when the SPS Agreement was adopted, international trade in food and agriculture has more than doubled in real terms, though its growth rate has been slower since the 2008 financial crisis. Developing countries and emerging economies are increasingly participating in global markets, and their exports make up more than one-third of global agri-food trade. Global exports of food and beverages are approximately twice as large as those of agricultural commodities. During the 1995–2018 period, food exports grew at an average annual rate of 3.4 percent, while those of agricultural commodities increased at an average annual rate of 1.9 percent (FAO, 2020).

6. Global value chains are widespread in food and agriculture, and approximately one-third of global agricultural and food exports are traded within global value chains that involve at least three countries (World Bank, 2019). Though these value chains are complex, because production is separated in different stages, farmers and businesses can more easily participate in the stage(s) where they can best leverage their comparative advantage (FAO, 2020). Types of participation can include selling seeds and fertilizers; producing, selling, and buying primary agricultural commodities (such as grains); processing and fabricating intermediate products (such as soybean oil or milk powder); and may also include services and industrial inputs that are exchanged between different stages of production that span multiple countries.

7. As we move into the future, trade in agricultural goods will likely increase based on the demands of population growth and projected changes in consumer diets and preferences. To accommodate these increases, countries will need to continue to develop and implement risk-based control, inspection, and approval procedures that facilitate trade while ensuring food safety and protecting plant and animal health. In particular, countries will need to ensure that they have appropriate processes to assess market access requests for new products and products produced differently than how they are produced domestically, with a particular focus on ensuring that scientific uncertainty does not unnecessarily limit trade. Taking into consideration that processed products may contain ingredients from increasingly diverse sources, countries will need to use a common language and shared concepts to discuss risks to human, animal, and plant life and health. Finally, countries will also need to explore further risk-based strategies and technologies to better target products while expediting at-border processes without comprising the efficacy of SPS measures.

2 CHANGING CLIMATIC CONDITIONS AND ASSOCIATED STRESSES ON FOOD PRODUCTION

8. Climate change affects agriculture most directly through the impact of changing temperatures and precipitation patterns on the growth of crops (IFPRI, 2021). In the crop sector, climate change has already negatively affected wheat and maize yields in many regions and at the global level (Lobell et al., 2011). The Intergovernmental Panel on Climate Change (IPCC) warns that decreases in crop yields of 10 to 25 percent or more may be widespread by 2050. The increased frequency of warmer nights is already having a negative effect on rice yields and quality in some regions of the world (FAO, 2017), and Trnka et al. (2019) project that up to 60% of the current wheat-growing area will face severe water shortages by the end of this century, compared to 15% today.

9. The livestock sector contributes to the livelihoods of approximately 1.7 billion vulnerable people, and 70 percent of those employed in the sector are women (FAO, 2021). As reviewed by Rojas-Downing et al. (2017), climate change will likely affect livestock production by adding additional stress to competition for limited natural resources, quantity and quality of feeds, livestock diseases, and heat stress. The effects, taken together and individually, will increase the costs and financial risks associated with raising livestock, both for sustenance and for the market. Increased temperature and heat stress have also been linked to losses in poultry production from death, low egg production (quantity and quality), and reduced growth rate in farming systems commonly found in Africa and Asia (Bhadauria et al., 2014; Liverpool-Tasie et al., 2019). Further, indirect effects of climate change may affect livestock and poultry production. Maize is a key ingredient in poultry feed and lower maize yields due to climate change will likely affect the availability and price of feed and the profitability of animal production (Liverpool-Tasie et al., 2019).

10. With increasing temperature, special consideration should also be given to food safety controls, food production systems and supply chains. For example, shifting patterns of algal blooms are expected to expose new countries to ciguatera fish poisoning, a severe food-borne illness. Higher temperatures and humidity can increase the risk of fungal growth and may exacerbate contamination of stored cereals and pulses with mycotoxins (FAO, 2008, 2017).

11. The impacts of climate change on food and agriculture are interconnected across environmental, social and economic dimensions (FAO, 2017). The International Food Policy Research Institute (IFPRI) IMPACT model projects that prices for most food commodity groups will rise by approximately 50% by 2050 due to the direct and indirect effects of climate change, nearly double the increase projected in the absence of climate change (Rosegrant et al., 2021). Low-income producers and consumers may be particularly susceptible to challenges associated with adaptation to new climatic conditions and resource limitations, although all aspects of food security are expected to be affected by climate change (IPCC, 2019). Further steps will need to be taken to protect the livelihoods of low-income producers and small-scale farmers, as they work to address climate-related risks and challenges.

12. As the global agricultural landscape evolves in response to changing climate, it is evident that agricultural producers around the world will need to adapt their production practices and adopt new approaches to address the challenges they will face. In addition to novel production techniques, innovative tools and technologies will play a central role in helping farmers maintain the productivity and profitability of their production systems, and countries will need to ensure that their agricultural producers have access to these important resources. While climate change affects the entire planet, effects will be felt and managed differently in different countries and regions. Despite these differences, countries will need to understand and recognize the safety of approaches that are appropriate in other parts of the world in order to facilitate sustainable intensification of agricultural production while maintaining and strengthening international trade.

3 SHIFTING PRESSURES DUE TO PESTS, DISEASES, DISEASE-CARRYING ORGANISMS, OR DISEASE-CAUSING ORGANISMS

13. Changing climatic conditions can also affect the distribution of plant and animal pests and diseases (IPCC 2019). Since 1960, crop pests and diseases have moved at an average of 2.7 km a year in the direction of the earth's north and south poles, and this movement is associated with increases in global temperatures (Bebber et al., 2013). The spread of pests and disease agents into new environments is also increasing (Bebber et al., 2014). Warren et al. (2018) estimates that the ranges of approximately fifty percent of insect species, some of which may be pests or disease vectors, will shift by nearly fifty percent by 2100 under current trajectories for greenhouse gas emissions. Climate change is modifying the dynamics of pest populations, such as locusts, and may create new ecological niches for the emergence or re-emergence and spread of pests and diseases (FAO, 2017). Overall, the effects of climate change may be felt in a number of ways, such as increases in the frequency of outbreaks, expansion of pest ranges into new environments, evolution of new pest strains and types, and increases in the vulnerability of plant defense mechanisms (FAO, 2017).

14. Changes in temperature and rainfall can contribute to the evolution of new and more aggressive strains and types of plant pests and diseases, which may affect crop varieties that are now resistant or tolerant to pests. For example, strains of wheat yellow rust have adapted to higher temperatures and damaged wheat crops in the Near East, Central Asia, Australia and the Americas in the 2000s

(Milus et al., 2009). Recent reports indicate that stem rust emerged in the United Kingdom for the first time in 60 years and that climate changes over the past 25 years likely led to conditions being favorable for infection (Lewis et al., 2018). Wheat rusts are among the most significant threats to global wheat production, and are also adapting to warmer climates and becoming more aggressive (CIMMYT, 2020).

15. Climate change has also been shown to affect intensification and expansion of cassava virus diseases and the banana top disease virus in some environments of the tropics, and these dynamics are linked to the increased mobility of their insect vectors. Complex interactions among biotic and abiotic factors may further complicate the challenge of addressing the impacts of climate change. While drier conditions might suppress some pests and diseases they can, at the same time, make crops more vulnerable to others.

16. Certain plant diseases, such as wheat and coffee rusts, and pests, such as locusts, are airborne or can fly and easily spread across borders. Insect vectors also play an important role in the local spread of many viral and bacterial disease agents, such as the banana bunchy top disease, cassava mosaic diseases and maize lethal necrosis disease, which are major threats to key staple crops for millions in Africa, Asia, and Latin America (FAO, 2017). The increased incidence and intensity of tropical storms and floods can spread certain soil- and waterborne plant diseases (FAO, 2017). Rising carbon dioxide concentrations and temperatures may also provide a more favorable environment for pathogens like fungi (IPCC, 2019). With regard to animal health, research models of Blue-tongue virus, which is spread by biting *Culicodes* midges, suggest that the distribution of this virus will likely increase, particularly in central Africa, the United States, and western Russia (Samy and Peterson, 2016).

17. In addition to changes in distribution caused by changing climate and natural spread, the movement of planting materials, trade in agricultural products, and passenger travel can also facilitate the long-distance movement of plant pests and diseases, including invasive species. Pest and diseases can become invasive when they are introduced or spread into new areas or habitats. The SPS Committee has discussed a number of invasive pests and disease, including African swine fever, brown marmorated stink bug, fall armyworm, desert locust, and some types of highly pathogenic avian influenza.

18. To address these issues, countries will likely require timely access to new pest management tools and production strategies that they can adopt and deploy to manage plant pests in a sustainable manner. In addition, the adaptation of SPS measures to regional conditions, including pest or disease-free areas and areas of low pest or disease prevalence may help countries address threats to their agricultural production. Scientific evidence and international standards will be particularly important and relevant as countries, particularly those with limited human and financial resources, determine the most appropriate and effective means by which to address the challenges they face while maintaining the economic opportunities afforded through trade.

4 INNOVATION IN TOOLS AND TECHNOLOGIES

19. Throughout history, humans have improved and honed their abilities to produce food. Whether through the collection and replanting of especially hearty or productive varieties or through mechanization, such as that offered by tractors, agricultural production has never been a static enterprise. And while these innovations have been very different from one another, their goals have nearly always been the same: increase yield and/or decrease costs and the amount of inputs required for a productive harvest and, more recently, ensuring long-term sustainability. As populations and economies have expanded, innovations and new technologies have also made products more competitive in local and international markets and improved the overall economic opportunities for agricultural producers.

20. The widespread use of integrated pest management (IPM) is a tangible example of an innovation that has helped increase yields and reduce input costs. IPM uses prevention, such as: certified pest-free seeds and quarantine; avoidance – such as crop rotation and varieties chosen for pest resistance; monitoring – through proper identification of pests by trapping, weather monitoring, soil testing; and suppression, if an infestation occurs, such as through chemical or biological pesticides, use of pheromones to disrupt mating, and preserving or releasing beneficial organisms (Farrar, et al. 2015).

21. IPM technology was first introduced 40 years ago and, while farmers were at first slow to adopt IPM practices, it is now accepted as the main strategy for managing pests throughout much of the world. IPM practices reduce pest management risks to people and the environment, but adoption of the technology was neither fast nor easy. As we move forward into a future with increased on-farm automation, widely available global position satellite technology, and inexpensive and highly advanced sensing equipment, agricultural producers are well-positioned to leverage the knowledge and experience they have gained through use of IPM to further evolve precision agriculture.

22. New digital technologies are also changing the way we use data collection and analysis to produce, trade, and consume food and other primary products. These technologies are being applied to improve product traceability, further develop data-driven decision making, strengthen secure data sharing along complex agricultural value chains, as well as integrate digital trade finance platforms and e-commerce to connect producers to consumers. Digital trade certificates can also facilitate trade by eliminating paper documentation, reducing fraud and enabling faster border procedures, all of which reduce costs (OECD/FAO, 2020).

23. Scientific and technological advances will improve global capability to address future challenges facing agriculture and trade. For example, rapid advances in the fields of plant genetics and breeding, including gene editing, and ongoing research in practices such as no-till agriculture, nutrient-use efficiency, cover-crop management, and precision agriculture, offer a great deal of promise. However, these technologies will not meet their promise if countries limit access to the products they yield. Advances in research approaches and the availability and use of large quantities of data ("big data") may contribute to efforts by countries to address uncertainty and gaps in knowledge, and both strengthen and accelerate their science-based risk assessment processes. Countries will be faced with complex but critical decisions about how to adopt, manage, and regulate the approaches that will be needed to maintain the viability of agricultural production and feed the world in the future, and transparent, collaborative communication around those decision-making processes will be essential to ensure that SPS measures facilitate safe trade without unnecessarily restricting the flow of goods.

5 ENHANCING IMPLEMENTATION OF THE SPS AGREEMENT

24. Through this brief summary of opportunities and emerging challenges for international trade in food, animals and plants, we have only started to touch on the complexities of these timely issues. Changes in population size, climate, and pest and disease distribution, among other factors, will affect agricultural production and trade, but the global community has and will develop the tools and technologies necessary to address challenges and maximize opportunities. National and international approaches to the development and implementation of SPS measures will play an important role in supporting innovation and access to new technologies, as well as facilitating safe trade as population distributions and demand changes. Better understanding of these issues, achieved through discussion and deliberation, can help us strengthen our collaborative work as Members of the SPS Committee, keeping in mind that the proper implementation of the SPS Agreement by Members supports rural livelihoods, facilitates trade, and supports sustainable agricultural growth.

25. To this end, the MC12 SPS Declaration proposes that the SPS Committee further enhance the implementation of the SPS Agreement in an effort to better manage issues related to international trade in food, animals and plants. This will be accomplished by undertaking a work program, open to all Members and Observers, consisting of new efforts to identify: (1) common challenges in the implementation of the SPS Agreement and the mechanisms available to address them; and (2) the impacts of emerging pressures on the application of the SPS Agreement.

26. Moving forward, we welcome discussions in the SPS Committee, as proposed in the work program of the MC12 SPS Declaration (G/SPS/GEN/1758/Rev.7), to explore the themes that are and will be particularly relevant to the effective implementation of the SPS Agreement in the coming years.

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