KEYNOTE PRESENTATION

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ADDRESSING THE IMPACTS OF CLIMATE CHANGE ON THE TROPICAL FRUIT INDUSTRY

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The world still faces the challenge of ensuring food security to a growing population. Some 815 million people suffered from hunger last year, up from 778 million in 2015. This accounts for one person out of nine and is unacceptable. The world's population is projected to increase to 9 billion by 2050, which means that agricultural production should be raised substantially to meet the challenge of feeding everyone. However, there is limited scope for expansion of natural resource use due to the current high pressure on these resources in many areas. The tropical fruit sector can play a role in achieving food security.

International trade in tropical fruits is significant and has been growing steadily in the past decades. FAO reckons that global trade of major tropical fruits reached a new peak in 2016, with exports estimated at nearly 7 billion tonnes. Tropical fruits account for close to 3% of world fruit and vegetable exports in volume. While tropical fruits play a comparatively small role in global trade in volume terms, their high average unit value of export (over US$1000 per tonne) places them as the third most valuable fruit group. With a total export value estimated at some US$7 billion, major tropical fruits rank behind bananas (close to US$10 billion) and apples (some US$8 billion). The bulk of tropical fruit trade originates in developing countries. Tropical fruits generate substantial export earning for many of these countries, thereby contributing to their food security. For example, tropical fruits account for 21%, 6%, and 5% of agricultural export values of Costa Rica, Mexico, and the Philippines respectively.

However, climate change and the associated extreme weather phenomena in tropical areas are threatening the tropical fruit industry. There is global consensus that climate change will generate more extreme weather phenomena in tropical areas. The recent string of devastating hurricanes in the Caribbean and torrential rains in South Asia, which have caused considerable losses of life and damage to the tropical fruit industry, may be viewed as an ominous confirmation of this forecast. Some analysts estimate the total economic costs of hurricane Irma at over US$300 billion. Climate change could increase poverty by between 35 and 122 million people by 2030 according to UN projections. Tropical regions are particularly exposed to its impacts, and adverse effects are expected on tropical fruit production

Indeed, global production of major tropical fruits, which include mango, pineapple, avocado, and papaya, experienced significantly slower growth in 2015/2016 than the average over the previous decade. The slowdown in the pace of production growth is mainly attributable to adverse weather conditions in the main producing regions. Reports from the first half of 2017 point to a continuation of slow production growth in the short to medium term future. According to the most recent information, production of mangoes, the largest tropical fruit in volume terms, has been affected by drought in some of the major producers in South America and Africa, while pineapple production has seen damage from flooding in the major producers in Central and South America. Drought has also hampered the production of papaya in the largest producing regions in South America, as well as the production of avocado in the southern part of Africa.

Trade volumes of major tropical fruits were less affected by the effects of weather changes on a global level as only a small fraction of total production are traded in international markets. On a regional level, however, exporters affected by drought and flooding did report supply

shortages and subsequent disruptions to shipments. In terms of the drivers of trade, rising demand in developed markets can be considered the main factor stimulating the expansion in global shipments. Particularly in the United States and the European Union, an increasing health consciousness and more widespread awareness of the nutritional benefits of tropical fruits are contributing to strong demand.

Production systems for tropical fruits will have to evolve in order to adapt to climate change and become more resilient. The industry should increase its preparedness by incorporating the effects of climate change into its strategies and business plans. It should assess and map the risks and vulnerabilities in order to address them in a systematic manner and reduce its vulnerability. The development of early warning systems will be crucial. The industry will need to adopt climate smart agricultural technology and systems. Climate change makes a holistic approach to fruit production even more necessary than before. The sustainable management of natural resources, integrated pest management, and integrated crop nutrition can play a critical role for producers. The selection of heat tolerant and drought resistant plant varieties is essential. Substantial investment will be needed to adapt to climate change. For example, investing in water efficient systems, windbreaks, and drainage infrastructure is critical. Modern technology for precision agriculture can be part of the solution. The development of insurance schemes at national level (e.g., weather related crop insurance systems) could help shield producers from part of the climate risk.

For example, in key avocado producing regions in Latin America where producers have widely installed more weather resilient systems, output has seen strong growth. This provides food for thought on the potential that climate change adaptation offers. The potential of organic agriculture techniques and agro-ecology could be considered, as some studies suggest that such cultivation systems are more resilient.

In addition to adaptation efforts, the industry will also need to contribute to global efforts to mitigate climate change by adopting production and trade methods that reduce the emission of greenhouse gases. Overall, the agriculture sector (including land use change and forestry) accounts for over 20% of greenhouse gas emissions. For example, it will need to reduce the use of inputs whose production and use generate significant quantities of greenhouse gases and to reduce the use of fossil fuels. It will have to increase the use of renewable and clean energy in its cultivation and processing systems. Photovoltaic energy has a considerable untapped potential in tropical countries and its costs have decreased significantly in recent years. The industry will also need to partner with the transportation companies to promote the use of renewable energy in sea transportation and favour maritime over air freight.

Climate change will also exacerbate current challenges including: the spread of new pests and diseases; the depletion of natural resources; conflicts over these resources; the banning of unsustainable inputs and methods; rising consumer preference for locally-produced foods; and downward pressure on prices and carbon-labelling schemes by large-scale retailers. It will accelerate the recent trends observed in major developed markets for promoting ‘low food miles’. A growing share of consumers are reluctant to purchase fruits that have been imported from far away and instead prefer buying locally-produced fruits. Climate change will alter the agricultural productivity and thereby cause a shift of relative competitiveness across producing areas. Some areas will lose competitiveness while others will become more competitive. Producers and exporters must anticipate these shifts and invest in order to maintain or even increase their competitiveness.

In the long run, global warming may also generate new competitors to those countries which have traditionally supplied tropical fruits, as countries which had a temperate climate could become increasingly capable of producing such fruits. As a result, tropical fruit producers will need to explore the possibilities for expanding their domestic and regional markets in order to

reduce the risks linked to international markets.

Climate change and all the above challenges are complex, multi-faceted, and global. Consequently, they cannot be addressed by the industry alone or by a single country. They will only be solved through the international cooperation of all stakeholder groups including governments, companies, producer organizations, research and training institutes, worker unions, and other civil-society organizations. Establishing mechanisms for such international multi-stakeholder collaboration is the most effective approach to reducing the impacts of global warming on the tropical fruit industry.

A concrete example of this type of collaborative mechanism is the World Banana Forum (www.fao.org/wbf). FAO facilitated the negotiations of the main stakeholder groups of the global banana sector from 2007 to 2008 and held the conference that led to its establishment in December 2009 in conjunction with the meeting of the Intergovernmental Group on bananas and tropical fruits. The Forum operates through specialized working groups and task forces which reflect its multi-stakeholder composition. Since its creation, the Forum has set up a portal of best practices for sustainable production and trade, produced a guidebook for measuring carbon and water footprints, developed manuals for occupational health and safety and coordinated international activities to limit the propagation of the Fusarium wilt TR4 disease. It has also facilitated multi-stakeholder collaboration on important issues such as costs of sustainable production, decent work, living wages, gender equity, and pesticide reduction.

The Forum held its third global meeting in Geneva on 8 and 9 November 2017. Over 200 persons representing governments, companies, producers, workers, research institutes, and civil society debated the solutions to challenges such as low prices, climate change, combating diseases, reducing the quantities of agrochemicals, improving occupational health and safety, distribution of value along the supply chain, living wages, and gender equity. A global statement was adopted unanimously and practical recommendations will be disseminated to the whole sector worldwide. With its unique multi-stakeholder structure, the World Banana Forum can be a useful model for the tropical fruit sector.