Food and Agriculture Organization of the United Nations

BUILDING RESPONSIBLE GLOBAL VALUE CHAINS FOR SUSTAINABLE TROPICAL FRUITS

Technical webinar series on avocado and pineapple value chains

Webinar #12: Webinar on the presentation and validation of the technical guide on climate change adaptation for avocado and pineapple production

Summary report

Thursday, 13 April 2023, 17.00-18.00 Rome (UTC+2), on Zoom

Background

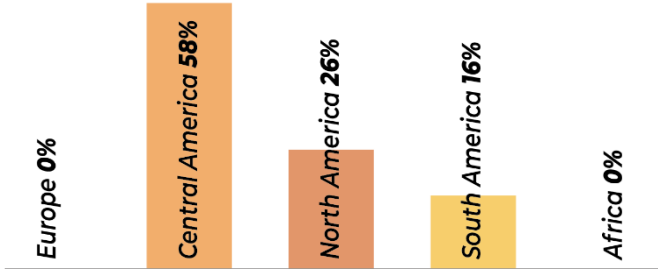
This webinar is part of a series of technical webinars organized by FAO's Responsible Fruits project in response to the priorities and interests of participants from the private sector. The webinars provide an opportunity for peer learning on precompetitive issues and the identification and sharing of good practices. To facilitate open discussion, there is no webinar recording and the event's report follows the Chatham House Rule of not identifying individual speakers, except for the industry speakers identified in the agenda who have consented to share information in advance.

Participation

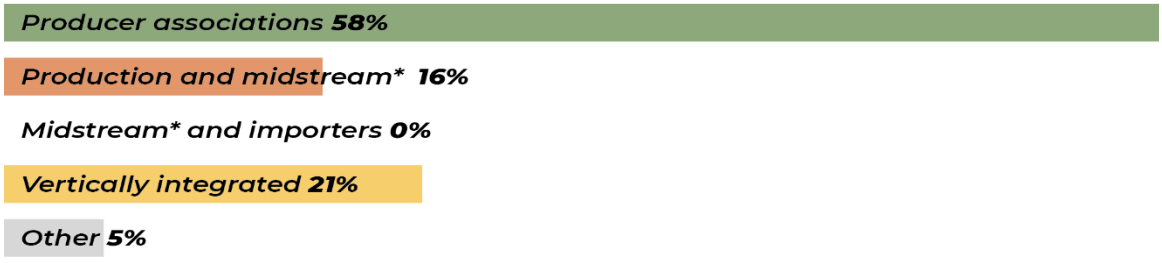
Nineteen participants based in Latin America and the Caribbean joined the webinar, representing producers and their organizations, packers, processors, exporters/importers and distributors.

Gender

Geographic origins



Industry groupings



*Companies active in the "middle" part of the value chain, including packers, processors, exporters and transporters.

Organizing this event online avoided the greenhouse gas (GHG) emissions that would normally be associated with travel for a face-to-face event. A preliminary estimate using the ICAO Carbon Emissions Calculator[1] indicates that this event saved over 17 751 kg of CO_2 emissions.

Session objectives

The purpose of the webinar was:

1. To present an overview of the Guide.
2. Share findings from Chapter 4 – climate adaptation strategies for avocado and discuss and validate these with relevant actors.
3. Share findings from Chapter 6 - climate adaptation Strategies for pineapple and discuss and validate these with relevant actors.

Summary

Participants were welcomed to the peer learning webinar. The event agenda is presented in Annex 1. All presentation slides are available by sending a request to Responsible-Fruits@fao.org. The event and its context in the framework of the Responsible Fruits project were introduced by FAO.

Climate change adaptation is the process of adjusting to actual or expected changes in the climate and its effects. The tropical fruit sector is particularly at risk of rising temperatures, more frequent and more intense extreme weather events and associated challenges such as water stress and plant diseases. Businesses and farmers in the tropical fruit sector can adapt to climate change by introducing practices to help them cope with these effects (e.g., drought-resistant varieties, irrigation technologies, integrated pest management and weather insurance among others). The technical guide on climate change adaptation highlights many adaptation practices available to producers and exporters of avocado and pineapple.

The webinar wrapped up with a summary of the feedback shared in the discussion session and presented a template to companies interested in sharing examples of good adaptation practices to be included in the guide. It also provided an update on the Responsible Tropical Fruit project's upcoming work to publish the technical guide on climate change adaptation. Participants were also informed of a planned event with the International Tropical Fruit Network (TFNet) taking place in September 2023, where the guide will be presented to the Asia and Pacific region.

- Part 1 – Overview of the Guide
  Valentina Pérez-Mardones, Communication Specialist, FAO

The impact of climate change on fruit crops is likely to be more detrimental than on annual crops. In comparison to annual crops, developing a new variety of a perennial fruit crop can take 15 to 20 years, making it more difficult for it to compete with obstacles brought on by climate change. Climate has an important role on plants physiology, phenology and fruit quality, among others, affecting production and thus continuity of business operations.

To respond to some of the climate challenges the avocado and pineapple sector are facing, the Responsible Fruits project is developing a technical guide focusing on climate change adaptation. The guide builds on existing research on the impact

[1] See https://www.icao.int/environmental-protection/Carbonoffset/Pages/default.aspx

and trends of climate change and analyses how these trends and risks impact on production. The guide is based on research to identify adaptation recommendations proposed in the scientific literature and collects information from companies to identify good adaptation practices already implemented, with the following outline:

- **Chapter 1** – Introduction to the Guide: Global significance of climate change and its impact on agriculture
- **Chapter 2** - Scope of the guide: Country selection and coverage (11 countries selected based on global production and export)
- **Chapter 3** – Climate change risks and effects on avocado production: What are the major risks for avocado production associated with climate change?
- **Chapter 4** – Climate change adaptation strategies for avocado production
- **Chapter 5** - Climate change risks and effects on pineapple production: What are the major risks for pineapple production associated with climate change?
- **Chapter 6** – Climate change adaptation strategies for pineapple
- **Chapter 7** – Discussion & Conclusions

- **Part 2: Findings and discussion from Chapter 4: Climate change adaptation strategies for avocado production**
  María Hernández Lagana, Resilience Officer, FAO

FAO shared insights on 12 climate risks and impacts identified as the most pressing for the avocado sector. These were identified through discussions with working group participants, bilateral meetings with companies and literature review. FAO also presented a short overview of 13 climate change adaptation strategies identified for avocado production, which are expected to help the sector to respond to the risks identified. The selected practices are aligned with principles related to conservation agriculture, climate-smart agriculture and agroecology.

FAO presented examples of good practices that some avocado companies are already taking to adapt to climate change. These included:

- Drainage systems to respond to increased rainfall and La Niña event.
- Mulching, cover crops and high-efficiency irrigation (e.g. drip irrigation) to respond to drought conditions and rising temperatures.
- Sustainable forest management to preserve forests and water resources and promote climate adaptation and mitigation.
- Conservation of pollinators to respond to declining pollinator populations due to warmer temperatures and extreme weather events.
- Use of agroforestry systems to promote environmental sustainability and economic feasibility of production.
- Use of anti-frost systems to protect avocado trees and fruits from low temperatures and frost events.

The selected adaptation practices highlighted in the guide address multiple climate risks and associated impacts simultaneously. For each practice, FAO discussed the adaptation and mitigation potential and other co-benefits (environmental, economic, social). Finally, FAO shared considerations for implementation to prevent potentially negative sustainability issues (e.g. water stress, conflicts with communities, deforestation, agrochemical reliance, displacement of local biodiversity and invasive species).

The participants were encouraged to share their feedback on the practices included in the chapter and highlight any important missing aspects. Representatives from companies and associations agreed on the selected practices presented.

Recommendations were received to further expand the topics included in the guide, including those related to integrated natural resources management, mainly soil, water and forests, as a way to protect biodiversity. In this regard, a company highlighted the importance of making flora and fauna inventories of native species where agricultural production takes place, taking into account those species that could be at risk due to climate change. With this information, companies would be able to develop and implement management plans. Also, the inclusion of considerations linked to waste management from agricultural production was advised by participants. Companies reflected on the fact that while climate change impacts are assessed and the adaptation practices highlighted are aimed at protecting the environment and crops, there needs to be a stronger focus on the risks for the workforce, which is also affected by climate change (e.g. dehydration, heat stroke due to increased temperatures, skin cancer, kidney damage).

Some suggested practices to address the variedty of risks described were:

- Protecting the workforce in both industries, by using measures such as analysis and medical-laboratory controls, rest periods, hydration with water and serum, adequate protective equipment, monitoring working hours, training, etc.
- Improving soil health through practices of integration of organic matter for moisture retention and reduction of water use.
- Protecting the biodiversity of buffer forests around the avocado zones (as a moisture retention mechanism) by creating biological corridors around and along avocado orchards. A company mentioned their ongoing work with the government to develop a certification system so that avocado production is sustainable, by protecting key resources such as forests and water.
- Promoting engagement with packers and other midstream actors, due to their important role as large employers of workers with the need for adaptation measures linked to social responsibility.
- Including a risk analysis of water stress linked to excess water, not only scarcity, as this is an area of concern in certain producing regions.

- Part 3 – Findings and discussion from Chapter 6: Climate change adaptation strategies for pineapple production
  Juan Mata, Agronomist, FAO

FAO shared insights on 12 climate risks and impacts identified as the most pressing to the pineapple sector. These were identified through discussions with working group participants, bilateral meetings with companies and literature review. FAO also presented a short overview of 11 climate change adaptation strategies for pineapple production, which are expected to help the sector to respond to the risks identified. The selected practices are aligned with principles related to conservation agriculture, CSA and agroecology.

FAO presented some examples of adaptation practices in the pineapple industry found in literature and through consultations with project participants in other regions. These practices included:

- Collecting climate data/using early warning systems to prepare for extreme weather events.
- Changing farming practices to improve soil and water conservation, such as introducing composting, cover crops, and mulching.
- Updating integrated pest management (IPM) solutions to control new pests/deal with greater intensity of outbreaks using microorganisms.
- Research into new climate-tolerant varieties.
- Managing excess water to prevent soil erosion and runoff – retention ponds, channels to divert water flow, etc.

- Diversifying production, inter-cropping or shifting production to new areas.
- Changing marketing practices to deal with reduced quality/quantity, such as increasing pineapple processing for juice.
- Changes to labour practices to protect workers such as protective clothing and rehydration stations in the field; shifting to mechanization to reduce exposure of workers to solar radiation.
- Use of climate insurance when available.

As for the avocado sector, the practices selected for pineapple production have the potential to address multiple climate risks and impacts simultaneously. Likewise, some provide not only adaptation benefits but also mitigation potential, and take into account the different dimensions of sustainability. Finally, FAO highlighted some considerations for implementation of these practices to prevent potentially negative sustainability issues. Some of these risks include, continued reliance on agrochemicals, displacement of local species and varieties and introduction of invasive species, risk of pollution due to plastic use in mulching, among others.

When asked about missing practices related to the main risks and impacts of climate change experienced in both sectors, participants stressed the importance of biodiversity management and conservation. Companies highlighted the need to better protect water sources and reduce groundwater stress. Participants mentioned the importance of implementing such practices, especially following the droughts that have affected the water levels of wells needed for supplementary irrigation.

FAO asked participants if they wanted to share any additional adaptation practices that their company is currently implementing. Companies and associations from the pineapple industry added:

- Efforts to improve soil regeneration through the use of stubble reincorporation practices with the application of biological decomposers and the use of micro-organisms.
- Putting up shade nets or agricultural nets to protect fruits and workers from sunburn.
- Keeping the countryside clean and protecting biodiversity.
- Incorporating waste management actions.
- Using water harvesting practices to collect water in dry seasons and to be used for irrigation and cleaning equipment.

- Part 4 – Wrap up and next steps
  Valentina Pérez-Mardones

The webinar wrapped up with a summary of the missing practices shared in the discussion and encouraged participants to share examples and photos of any good practices adopted by their companies to promote climate adaptation.

Participants were updated on the Responsible Tropical Fruit project's upcoming work to publish the technical guide on climate change adaptation and of the presentation of the guide to the Asia and Pacific region in an upcoming event with the International Tropical Fruit Network, taking place in September 2023. FAO also noted that the project will continue the peer learning webinar series. The project welcomed any additional inputs for the guide and suggestions on topics that are of interest to participants for future technical work and webinars.

As always, the project team welcomes suggestions or questions on the project's activities at any time. Please contact us at: Responsible-Fruits@fao.org

Annex 1

Working languages

The online session was held in Spanish.

Agenda

Section title	Speaker/Facilitator
Welcome and Introduction	**Valentina Pérez-Mardones**, Communication Specialist, RTF Project
Part 1: Overview of the Guide	**María Hernández Lagana**, Resilience Officer, RTF Project
Part 2: Findings and discussion from Chapter 4 - Climate change adaptation strategies for avocado	**María Hernández Lagana** / All participants
Part 3: Findings and discussion from Chapter 6 - Climate change adaptation strategies for pineapple	**Juan Mata**, Agronomist RTF Project / All participants
Part 4: Final comments and way forward	**Valentina Pérez-Mardones**

For more information about the project or the webinar series, please contact: Responsible-Fruits@fao.org