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 #8: Biodiversity and climate change adaptation

Summary report

Wednesday, 13 September 2022, 16.30-18.00 Rome (UTC+2), on Zoom.

Background

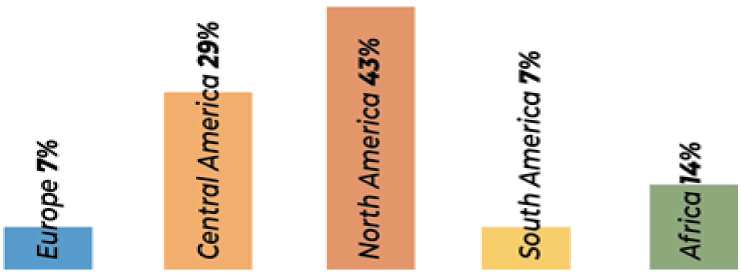
This webinar was the eighth event in a series of technical webinars organized by FAO's Responsible Fruits project in response to the priorities and interests of participants from the private sector. The webinars provide an opportunity for peer learning on precompetitive issues and the identification 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

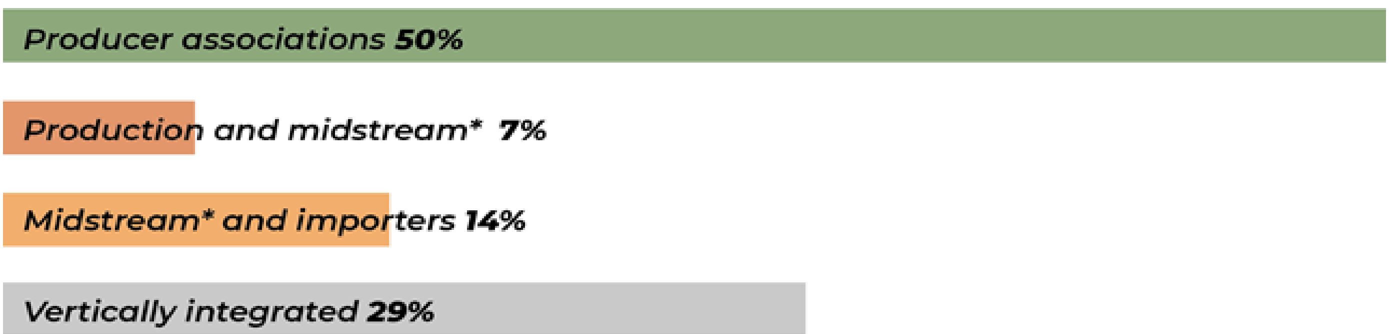
Fourteen participants joined the webinar.

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 16 185 kg of CO_2 emissions.

Summary

- **Welcome and introduction**

Participants were welcomed to the peer learning webinar. The event's agenda is presented in Annex 1. All presentation slides are available by sending a request to Responsible-Fruits@fao.org.

Agriculture, including the tropical fruit sector, depends on biodiversity and the services biodiversity provides, such as soil and water conservation, maintenance of soil fertility, resistance to pests and diseases, and pollination, among others. Production practices that contribute to the regeneration of biodiversity can help producers become more resilient to economic, social, and environmental shocks and stresses including the effects of climate change. Whereas biodiversity loss threatens the productivity and adaptive capacity of orchards and plantations at a time when this capacity is particularly important due to the changing climate.

At this webinar, FAO, producer organizations, associations and companies from the avocado and pineapple sectors discussed how to avoid negative impacts on biodiversity, how certain production methods can take advantage of and strengthen biodiversity, and how biodiversity conservation can help value chain actors adapt to climate change.

- Session 1: **How can agroecological approaches and biodiversity help producers adapt to climate change?** – Soren Moller, Agroecology and Food Systems Consultant, FAO

The speaker began by referencing the 2022 IPCC Sixth Assessment Report on impacts, adaptation, and vulnerability, which identifies the interlinked challenges of water security and food security resulting from changes in precipitation. He also noted the important role of biodiversity in agriculture. Biodiversity is the source of all cultivated and domesticated species and varieties, and associated biodiversity provides ecosystem functions and services (e.g. pollination, pest control, water cycling, etc.).

Biodiversity loss is driven by unsustainable agricultural practices, including nutrient and pesticide pollution, and deforestation. The challenge now is to mitigate these drivers without reducing food production. Scientific studies demonstrate that agricultural diversification promotes multiple ecosystem services without reducing yield. The speaker presented a meta-analysis of 5 160 studies, which indicates that in the majority of cases, diversification has a positive or neutral effect on crop yields. At the same time, diversification benefits ecosystem services including soil fertility, nutrient cycling, and carbon sequestration, which are all important for climate change mitigation and adaptation.

There are different explanations for the mechanisms by which biodiversity supports agriculture, including complementarity. Complementarity enables crops to outperform monocultures through: Resource partitioning; modifying the physical environment; reducing the effects of pests and diseases; and enhancing mutualism. It was explained that mutualism is two or more species cooperating for mutual benefit, such as the relationship between mycorrhiza fungi and the root system of certain plants. The speaker presented examples of diversification to achieve the aforementioned benefits. In one example, a plantation intercropping pineapple plants and rubber trees demonstrated resource partitioning and modifying the physical environment.

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

Agroecology is an approach that can guide diversification and transitions to sustainable agriculture. To support this approach, FAO has developed the Ten Elements of Agroecology Framework to facilitate transitions to agroecology. Such transitions will lead to enhanced efficiency of resource uses, and enhanced resilience to climate shocks. More information can be found in the FAO Agroecology Knowledge Hub.

Further details from the presentation may be found in the speaker's slides.

Following the speaker's presentation, a quick poll was conducted asking: "Do you think agroecological practices can help you adapt to climate change?"

- 78 percent of the respondents indicated "Yes".

During the open discussion that followed the presentation, the FAO speaker noted that ICRAF has a database on the benefits of tree species used in diversification in agroforestry systems and that there are other databases focusing on cover crops such as the ECHOcommunity tool for SE Asia and the UC Davis database for California. He emphasized the importance of co-creation of knowledge between scientists and producers to identify the benefits of working with various species and varieties in local contexts. Currently however, a general lack of data for diversified production systems (for example, on the carbon sequestration potential of different species) limits the creation of an enabling environment to facilitate the transition to agroecology.

- Session 2: **How can tropical fruit companies integrate biodiversity in their sustainability strategies?** – Simon Derrick, Blue Skies

The speaker introduced the Blue Skies Company, stating that the company aims to make finished products in the location (country or region) where the fruit is grown. He also noted that the company follows many voluntary certification standards, both to meet the requirements of retailers and based on the company's own decisions.

The speaker noted that Blue Skies considers biodiversity important because the quality and availability of fruit is dependent on biodiversity. The company believes that preserving biodiversity is integral to sustainability, and thus considers biodiversity important to all businesses, not only those directly dependent on nature. However, Blue Skies believes this is not widely understood. A particular challenge is the difficulty in measuring one's impact on biodiversity. (The speaker contrasted this to climate change where greenhouse gas emissions can be readily measured.)

The speaker stated that Blue Skies has prioritized biodiversity as one of its four main sustainability goals. By prioritizing biodiversity, the company aims to raise awareness and stimulate good practices in their own business and beyond. Blue Skies expects to achieve their biodiversity goal by: Creating habitats for nature and wildlife to thrive around the supply chain (farms and factories); by preventing deforestation that might result from the way the company makes its products and sources its materials; by preventing pollution through waste management; and by actively protecting wildlife.

In practice, the company reports following the Linking Environment and Farming (LEAF) standard, creating natural habitat areas around its factories, introducing a simple biodiversity policy, conducting training, holding a Blue Skies Biodiversity Awareness Day with support at the highest levels of management, and through corporate initiatives and contests.

A biodiversity measurement framework is being piloted by Blue Skies. This framework was introduced by its developer, James Garnett-Letts of Birmingham University. The framework aims to enable anyone to conduct a biodiversity survey in a simple, cost-effective manner. An example of the ongoing pilot was presented. Ultimately the University aims to make the tool and methodology widely available.

Further details from the presentation may be found in the speaker's slides.

Following the speaker's presentation, a quick poll was conducted asking: "Has climate change negatively impacted biodiversity in your geographic areas of production?"

- 50 percent of the respondents indicated "Yes, severely" and the other 50 percent indicated "Yes, moderately".

During the discussion period, the speaker from Blue Skies highlighted the importance of having clear support from the founder of the company. In the company's experience, this is more important than having a written biodiversity policy.

It was clarified that the biodiversity framework being piloted by Blue Skies and Birmingham University is not yet publicly available. After a process of validation, the framework could be made available, however, there are no plans for benchmarking or an open database of results. It was also noted that any framework may need to be adapted for different contexts (e.g. seasons, agro-ecological zones, etc.).

In addition to the role of companies, the possible role of governments and policy was discussed. It was noted that legislation to drive action on climate change could be a good practice for how legislation on biodiversity could also drive positive change. In this context the importance of being able to measure impacts on biodiversity was again highlighted. It was suggested that many existing frameworks are too complex and/or too resource intense to be practical for producers and companies to use.

- Session 3: **How can producer and trade associations address threats to biodiversity and encourage adaptation of sustainable practices?** – Armando Garcia Angulo, APEAJAL

The speaker began by highlighting the importance of natural ecosystems for avocado production. He linked this to soil fertility and stability, the regulation of climate, habitat for pollinators and natural predators of avocado pests, and as carbon sinks that help mitigate climate change.

The speaker continued by sharing observations on the critical impacts of climate change on avocado production in Mexico. APEAJAL expects climate change will have numerous detrimental effects on avocado production including: Altering the productive regions for avocado in Mexico; reducing the overlapping period of male and female flowers resulting in less pollination; accelerating ripening and reducing the harvest period, which would have a negative impact on product supply; causing more days of heat-related stress, which will negatively impact the quality and quantity of fruit production; and increasing pest and disease activity in growing areas.

It is known that avocado production depends on insect pollination. Research in Mexico indicates at least 52 species pollinate avocado crops, but these populations are declining due to inappropriate use of pesticides and reduction of habitats. To address this biodiversity loss, the speaker stated that APEAJAL is taking several actions. For example, APEAJAL is propagating native trees in a joint venture with the government and is planting native trees in 23 municipalities in Jalisco. The planted trees are expected to provide wind breaks for soil protection, improve nutrient absorption, conserve humidity, protect crops, provide fauna refuge and generally improve the landscape.

With respect to carbon sequestration, a table was presented showing the sequestration potential of various types of tree species, including avocado, wild forest trees, and others. This information is indicative of the value of adding indigenous trees in and around plantation areas and preserving existing forest areas to help mitigate climate change.

To address the loss of essential pollinators, the planted trees aim to maintain pollinator habitats. A study conducted by APEAJAL identified a greater number and diversity of pollinators in avocado orchards nearer to natural habitats. This support for natural habitats is expected to have a positive impact not only on avocado production, but also other crops such as berries. APEAJAL is also working with other stakeholders such as beekeepers to preserve pollinators and reduce biodiversity loss. At the same time, APEAJAL reports working with its members to raise awareness of agricultural techniques to improve the environment for pollinators, including more selective chemicals, adjusting spray times, etc.

Further details from the presentation may be found in the speaker's slides.

In the discussion that followed, it was noted that raising awareness and clearly explaining the benefits of biodiversity to growers is essential. By making a clear link between biodiversity and production, APEAJAL found that producers have become quite open to adapting their practices in order to support biodiversity.

Other producer organizations also shared information about their own initiatives to support biodiversity. This includes the development of "biological corridors" to connect forests around plantations both for endemic and migrating pollinators; the use of Italian beehives; and, keeping grass levels relatively high (up to 40 cm) to support pollinators.

When asked about strategies that packers can adopt, the speaker explained that APEAJAL has been working with Rainforest Alliance to support producers and packers obtaining certification since 2017. This certification includes the requirement that at least 10 percent of area is devoted to preservation of natural habitats.

- Wrap-up and next steps

FAO announced that the first working group on the climate change adaptation guide would be held on 13 October instead of 21 September 2022. Participants were invited to provide input into the design of the climate change adaptation guide to ensure it meets their needs. Details about the working group would follow by email. Any interested parties should contact the Responsible Fruits team.

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

English and Spanish with simultaneous interpretation.

Agenda

Section title	Speaker/Facilitator
Housekeeping, welcome and introduction	**Valentina Perez-Mardones**, Responsible Tropical Fruits (RTF) Project, FAO
Session 1: FAO - How can agroecological approaches and biodiversity help producers adapt to climate change?	**Soren Moller**, Agroecology and Food Systems Consultant, Plant Production and Protection Division, FAO
Q&A	**Jesper Karlsson**, Responsible Tropical Fruits (RTF) Project, FAO
Session 2: How can tropical fruit companies integrate biodiversity in their sustainability strategies?	**Simon Derrick**, Head of sustainability, Blue Skies
Q&A	**Marlo Rankin**, Responsible Tropical Fruits (RTF) Project, FAO
Session 3: How can producer and trade associations address threats to biodiversity and encourage adaptation of sustainable practices?	**Armando Garcia Angulo**, Director General, APEAJAL
Q&A and further discussion	**Maria Hernandez Lagana**, Responsible Tropical Fruits (RTF) Project, FAO
Closing comments	**Valentina Perez-Mardones**

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