



**BUILDING RESPONSIBLE  
GLOBAL VALUE CHAINS  
FOR SUSTAINABLE  
TROPICAL FRUITS**

**Technical webinar series on avocado and pineapple value chains**

**Webinar #16: Participatory and innovative approaches to soil mapping**

**Summary report**

Friday, 10 November 2023, 16.30--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 speakers highlighted in the agenda who have consented to share information in advance.

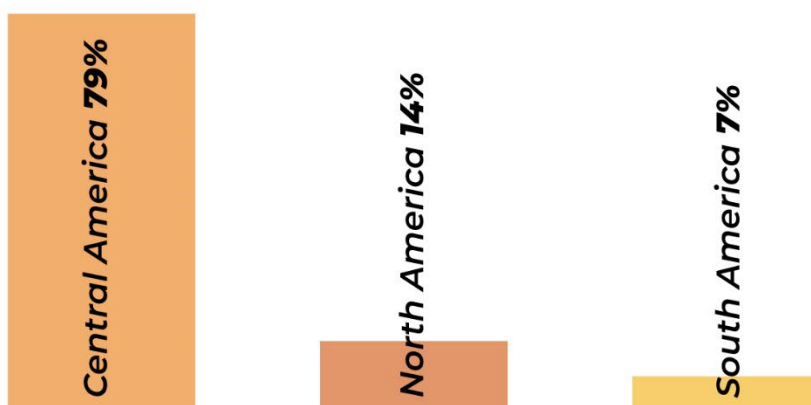
Participation

Fourteen participants based in the Americas, joined the webinar, representing producers and their organizations, researchers and other value chain actors.

*Gender*



*Geographic origins*



## Industry groupings

**Producer associations 43%**

**Production and midstream\* 7%**

**Midstream\* and importers 7%**

**Vertically integrated 36%**

**Other 7%**

*\*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](#) indicates saving 16 446 kg of CO<sub>2</sub> emissions

### Summary

This webinar was a follow up to the webinar “Soil health and soil degradation” held 31 January 2023, during which participants discussed how healthy soil constitute the basis and are a fundamental axis of food production, including tropical fruits. Participatory and innovative approaches to soil mapping and sustainable approaches to soil management can help avocado and pineapple producers, companies and associations to preserve both soil and water quality, increase productivity and safeguard ecosystems. Soil maps categorize soil types and its properties including health indicators and their distribution over a landscape. Soil mapping can be done by gathering and analysing data through field surveys, remote sensing, expert opinion and laboratory analyses. Successful soil mapping approaches can include advanced technologies as well as cooperation between producers, communities, national and international soil specialists and other stakeholders.

The event agenda is in the Annex and the presentation slides are available by sending a request to [Responsible-Fruits@fao.org](mailto:Responsible-Fruits@fao.org).

- **FAO’s support to soil and nutrient mapping soil nutrients at different scales**  
Marcos Angelini, Soil mapping expert, Global Soil Partnership, FAO

The speaker introduced FAO’s support to map soil nutrients at different scales. FAO’s decentralized global soil information platform, [GLOSIS](#), connects soil information from different countries and helps countries to develop their own national soil maps. Priorities for GLOSIS are decided by governments and other institutions from different FAO member countries that participate in the platform.

FAO provides tools and training to member countries to enable them to create national and local maps for different purposes. During 2023, over 400 people participated in map creation training. GLOSIS can be used to create maps that are useful at the individual farm level up to continental and global levels.

The data created at the national level are sent by member countries to FAO, which uses it to compile global maps. So far, GLOSIS has created a global soil organic carbon map, carbon sequestration potential map, a salt affected soil map and a black soil distribution map. A global soil nutrient map and soil nutrient budget map are under construction. A global soil erosion map will be relaunched in 2024.

The different soil maps can be used to assess the limitations and potentials of different areas to produce different agricultural products, to identify vulnerabilities in soils in different areas, and to determine what inputs are required to produce in sustainable ways. For example, by combining knowledge of crop properties with soil maps, farmers can calculate how much fertilizers should be used.

- **Tools for soil mapping in the pineapple sector**

**César Alberto Barrantes Jara, Environmental Manager, COOPEPIÑA**

Coopepiña R.L., a cooperative of smallholder pineapple producers in the northern region of Costa Rica, supports soil mapping at the regional and local levels in combination with sustainable production methods to help its members to manage their soil responsibly. Mr. Barrantes mentioned the importance of protecting the soil, as the use of inadequate practices in agricultural production could threaten access to water and damage soil to the extent that it cannot be used productively. He highlighted the importance of having detailed information on the practices used and soil quality for decision making.

Coopepiña focuses on four key actions when supporting their members to map the soil and improve its management holistically: 1) use of georeferencing tools for soil characterization of soils of different farms; 2) determining the physical, chemical and microbiological characteristics of the soil through lab analyses; 3) identifying pathogens and developing integrated strategies for their control, such as the use of compost, soil-improving microorganisms and micro-biological pest management; and 4) capacity development through conferences and trainings to keep members up-to-date regarding sustainable production methods and to use technological tools to analyse changes over time.

Additionally, Coopepiña uses maps in its efforts to reforest areas considered as environmentally fragile and protect water resources in the region. Combined, the speaker reported that these efforts have resulted in measurable improvements in soil quality in the cooperative members' farms and in the preservation of natural resources.

- **Closing remarks and conclusion**

**María Hernández Lagana, Project Officer, Responsible Fruits Project, FAO**

The Responsible Fruits Project thanked Marcos Angelini and César Alberto Barrantes Jara. Their presentations will be available on request through the project email. Participants are also welcome to contact GLOSIS.

Participants were updated on the Responsible Fruits Project's upcoming work and publications. Two guides on responsible business conduct aiming to help avocado and pineapple companies to identify and manage environmental and social risks will be published in early 2024. A tool for measuring carbon and water footprints for the pineapple industry will also be published in 2024. New briefs on [how avocado and pineapple businesses shape the fate of Sustainable Development Goals](#) and on how to comply with [maximum residue limits \(MRLs\)](#) are now available on the project [website](#).

The Responsible Fruits Project reminded participants that the current phase of the project will conclude in June 2024 and that the project team is seeking information on participants' needs for further assistance for a possible second phase. Participants were encouraged to reach out to the project team to share their needs or for any questions or suggestions at [Responsible-Fruits@fao.org](mailto:Responsible-Fruits@fao.org).

## Annex 1

### Working languages

The online session was held in English and Spanish with simultaneous interpretation.

### Agenda

Section title	Speaker/Facilitator
Housekeeping, welcome and introduction	María Hernández Lagana, Responsible Fruits Project, FAO
<i>FAO's support to soil and nutrient mapping at different scales</i>	Marcos Angelini, soil mapping expert, Global Soil Partnership, FAO
Q&A and discussion	María Hernández Lagana, Responsible Fruits Project, FAO
<i>Tools for soil mapping in the pineapple sector</i>	César Alberto Barrantes Jara, Environmental manager, COOPEPIÑA, R.L.
Q&A and further discussion	María Hernández Lagana, Responsible Fruits Project, FAO
Closing remarks and conclusions	María Hernández Lagana, Responsible Fruits Project, FAO

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