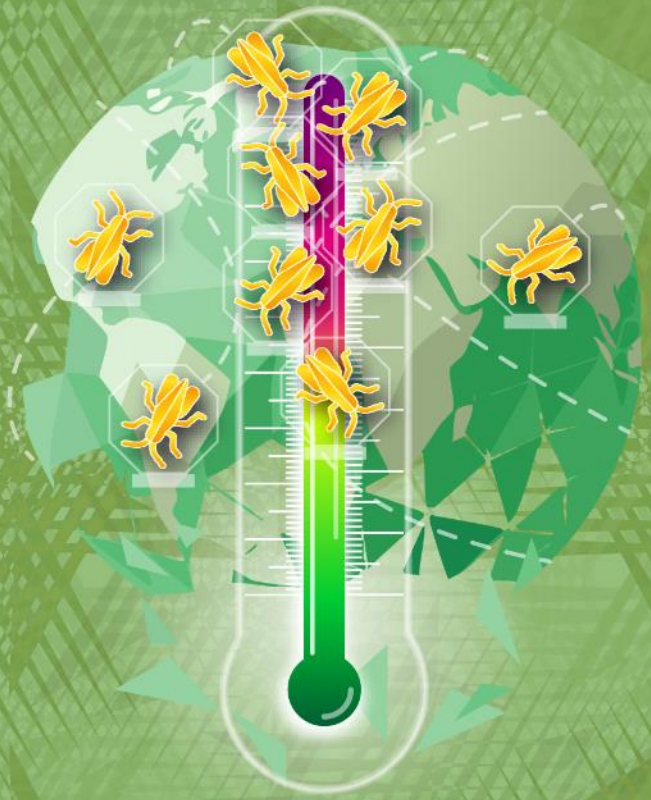
IPPC Webinar Series

Climate Change and Phytosanitary Issues

1–2 October 2025 | 14:00–16:00 CET



Climate-related pest emergence and risk analysis in developing countries

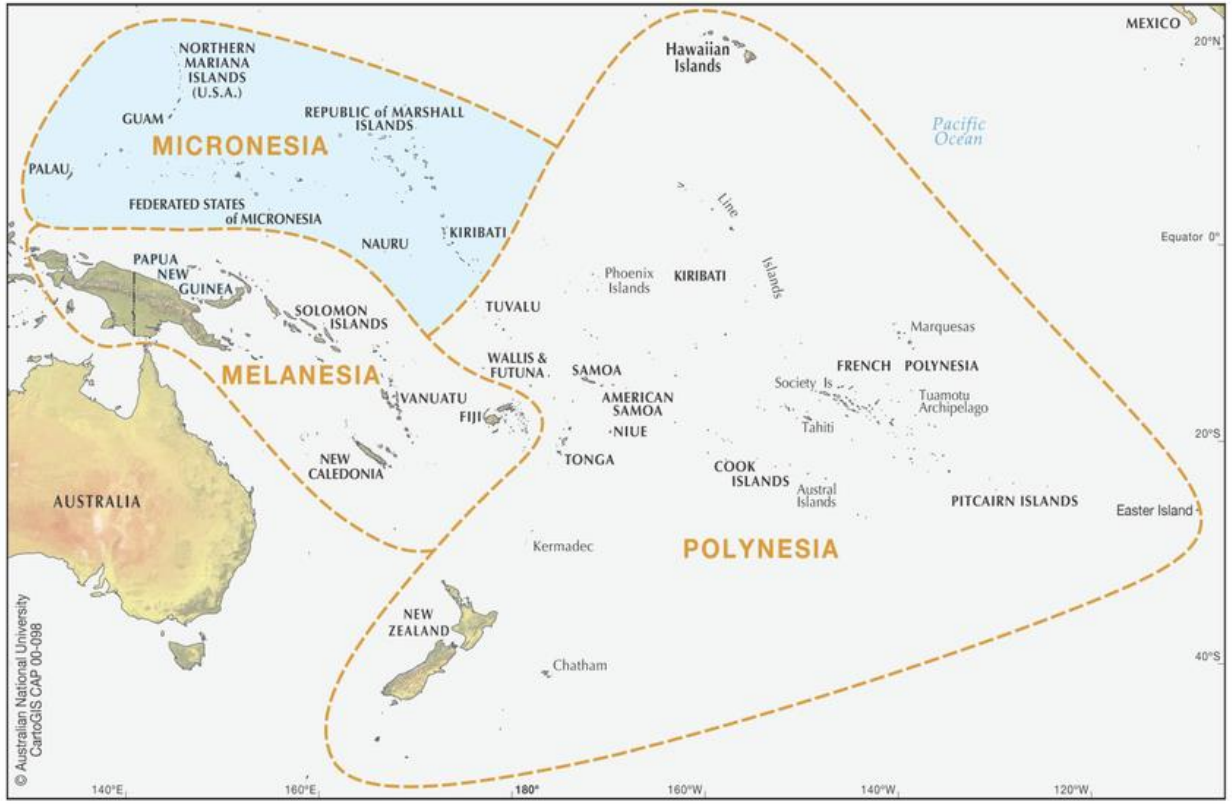
Sidney Suma, Team Lead for NRMP – SidneyS@spc.int

Riten Gosai, PPPO Coordinator – RitenG@spc.int

PPPO

Pacific Community
Communauté du Pacifique

Introduction



Introduction

Studies suggest that climate change is affecting Pacific agriculture by altering pest and disease dynamics, leading to increased spread and new introductions.

These changes threaten food security, small PICT economies and livelihoods, and biodiversity. Ongoing research is emphasizing the importance of integrated pest management and climate adaptation strategies.

Example 1

Spread of **Coconut Rhinoceros Beetle** (*Oryctes rhinoceros*), CRB

Source: Hao et al. 2022. Global potential distribution of Oryctes rhinoceros, as predicted by Boosted Regression Tree model. Global Ecology and Conservation, Vol. 22.

Increased temperatures and humidity have been linked to the expansion of the coconut rhinoceros beetle's range as seen across Pacific islands, damaging coconut palms (*tree of life*), which are vital for local economies and food security.

Recent introductions: Solomon Islands, Vanuatu and Marshall Islands (2024).

Example 2

Risk of **Taro Leaf Blight** (*Phytophthora colocasiae*), TLB due to Climate Variability

Source: Taylor et al. 2016. Vulnerability of Pacific Islands agriculture and forestry to climate change, SPC.

Increases in minimum night-time temperature have been linked to the spread of TLB, and therefore, projected temperature increases present risks for countries where the disease is currently not present (e.g. Cook Islands, Fiji, Tonga and Vanuatu and higher elevation areas of Papua New Guinea)

Taro trade stats: Fiji xxx.

Example 3

Re-emergence of the **Banana Bunchy Top Disease** (BBTD) and its **Vector** (*Pentalonia nigronervosa*)

Correlation: Bouwmeester et. al. 2023. Banana bunchy top disease in Africa – Predicting continent-wide disease risks by combining survey data and expert knowledge

Temperatures between 25 and 30°C have been reported to be conducive for aphid population build-up and BBTV transmission. Prolonged periods at this temperature

These factors threaten banana production in the region, a key staple and economic crop.

Example 4

Increased Incidence of **Cocoa Pod Borer** (*Conopomorpha cramerella*), CPB

Source: Taylor et al. 2016. Vulnerability of Pacific Islands agriculture and forestry to climate change, SPC.

-First discovered in East New Britain, PNG in 2006 (Reynolds et al. 2019) and has resulted in reduced yields

-Nil literature / studies showing a relationship between climate and the incidence and spread of CPB in the Pacific; hence the potential impact of future changing climate conditions on CPB and consequent effect on cocoa yield as well as spread in the region needs to be investigated

Example 5

Spread of the **Little Fire Ants / Electric Ants** (*Wasmannia auropunctata*), LFA

Correlation: Clarke and Loftus. 2025. Fire ants spreading on floodwaters after ex-Tropical Cyclone Alfred, ABC News


© Fijian Chiefs


© Fijian Chiefs

Affects access to farms and subsistence gardens that sustain livelihoods. Pacific way of life (traditional gatherings, festivities) also affected.

Health issues resulting from bites, particularly for small children. Pets and livestock also suffer. There are trade implications (contaminating pests).

Actively addressing the issue

-Climate-resilient crop production (salinity tolerant taro varieties in low-lying islands and atolls; drought tolerant staples – sweet potatoes, banana, cassava)

-Pest and disease and management, for example, use of pathogen-tested planting material (SPC's CePACT – also studying agronomic traits of the collections)

-Improved irrigation and increased utilization of soil improvement practices (cover cropping, mulching, inter-cropping and other traditional practices)

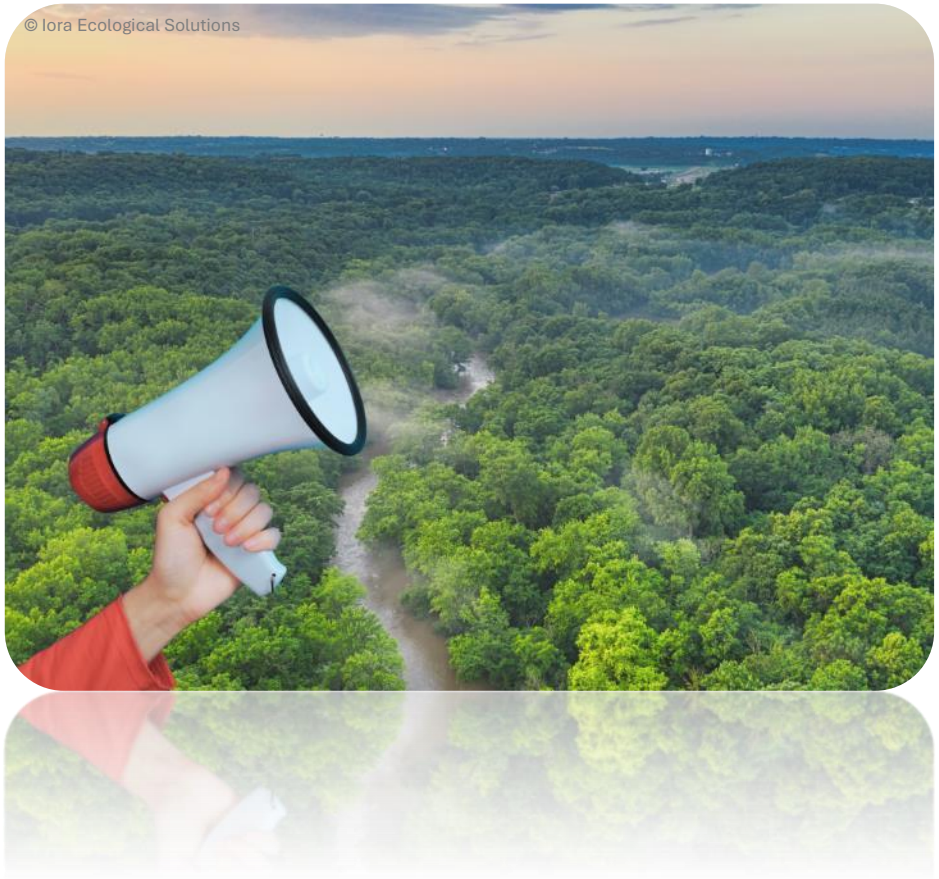
-Opportunities = growing lowland crops in higher elevations (therefore internal biosecurity is important in bigger countries like PNG which has specific climate zones – this is to prevent further spread of pests to uninfested areas in the wake of changing climate)

Call for action

-Because there is little work done across the Pacific, accessing climate finance to scale up research and adaptation is important.

-Robust plant health systems such as on-going pest surveillance to monitor changes, use of pathogen-tested planting material, use of technology and biosecurity protocols are critical to protecting food systems, trade and livelihoods.

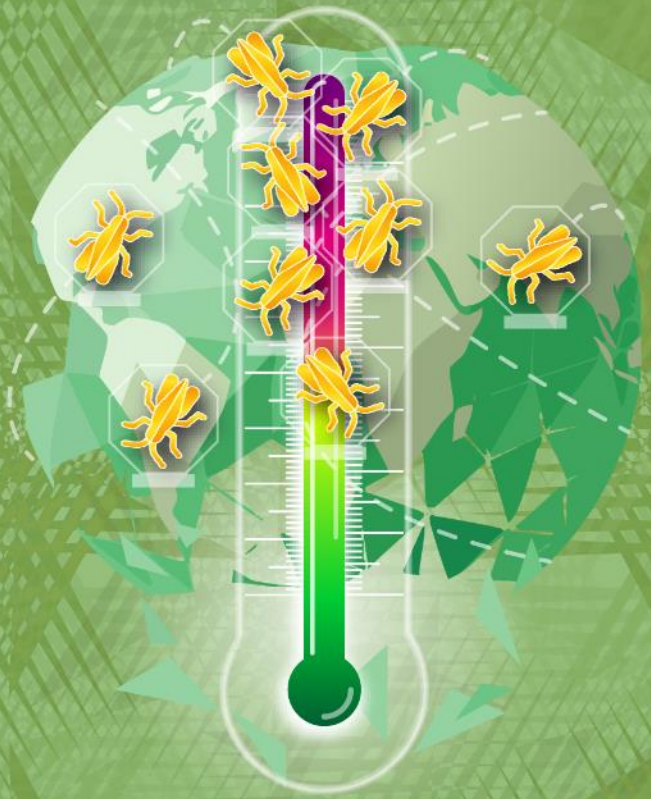
-Adoption measures must incorporate indigenous and traditional knowledge with science.



IPPC Webinar Series

Climate Change and Phytosanitary Issues

1–2 October 2025 | 14:00–16:00 CET



Thank you

CONNECTED, INFORMED and PREPARED
A PPPO family where no member is left behind

PPPO

Pacific Community
Communauté du Pacifique