

The Climate-Smart Pacific Food Systems Programme – Tonga



The goal is to build the wellbeing and resilience of communities to the impacts of climate change through Pacific-led, climate-smart food systems.

The Bioeconomy Science Institute is partnering with Pacific government agencies, civil society and industry to implement the four-year, Climate-Smart Pacific Food Systems Programme.

- The programme began in 2024 and is operating in Tonga, Solomon Islands, Papua New Guinea, Fiji, and Samoa and is funded by the New Zealand Ministry of Foreign Affairs and Trade
- The Climate-Smart Pacific Food Systems Programme has three themes:
 - Climate-smart food production
 - Stewardship of water, land and waste
 - Sustainable, resilient food value chains
- The programme is focusing on integrating scientific innovation with community-driven solutions to build food security, reduce postharvest losses, and improve agricultural sustainability and climate resilience.

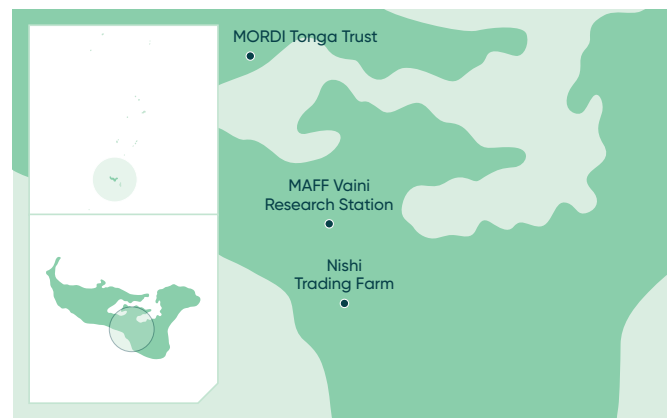
ABOUT TONGA

- 172 volcanic and coral islands
- **Land Area:** 718 km²
- **Population:** 100,179
- **Agricultural Status:** Accounts for 19.6% Tonga's GDP, major agricultural products include root crops like taro, yams, cassava, and cash crops such as kava and watermelon



In Tonga

- This exciting initiative is being delivered through a partnership between Nishi Trading, the Ministry of Agriculture, Food and Forests (MAFF), Mainstreaming of Rural Development Innovation Tonga Trust (MORDI TT) and the Bioeconomy Science Institute
- Bioeconomy Science Institute expertise combined with the experience, networks and knowledge of the local partners will create country-relevant solutions and enable them to be scaled up
- A participatory action research (PAR) approach enabled commercial farmers to identify technical challenges for the programme to respond to, including the cost and shortage of labour, the need for more irrigation, crop damage by pests and diseases, and the use of agrichemicals for weed management
- To address labour shortages, BSI and Nishi Trading have trialled the use of plastic mulch to reduce the need for manual weeding
- To address emerging challenges in pests and diseases, BSI together with Nishi Trading and MAFF have been working together to strengthen good nursery practices, disease surveillance and Fusarium (Fon) disease mapping
- To reduce inappropriate agrichemical use, BSI and our Tonga partners have been conducting and participating in raising awareness on safe agrichemical use through trainings with partners and farmers



- To address the high cost of seeds and input materials, BSI and Nishi Trading have been trialling quick soil tests to guide fertilizer use on farm
- BSI and Nishi Trading have been testing the efficacy of plastic mulch, soil moisture sensors and drip irrigation to address challenges around irrigation and droughts
- Through our newly signed collaboration with MORDI TT's, we have co-designed interventions into four workstreams based on Tonga's Community Development Plans, to address challenges in soil health, soil diagnostics and nutrient systems, agricultural economics and farm enterprise systems, climate-smart mechanisation and labour productivity, and climate-resilient production systems

Climate Change Challenges Identified from PAR



Labour
Availability



Pests &
Diseases



Seeds & Planting
Materials



Agrichemical
Use



Water &
Irrigation

Year 2 Highlights

- Soil remediation trials testing mucuna and guinea grass
- Developing soil health cards that are easy to interpret and understand with recommendations, for farmer use
- Fon disease mapping and surveillance, and producing a safe guide for crop rotation
- Picking up pace on the four MORDI workstreams

Next 6-12 months

- Soil remediation trials testing mucuna and guinea grass
- Developing soil health cards that are easy to interpret and understand with recommendations, for farmer use
- Fon disease mapping and surveillance, and producing a safe guide for crop rotation
- Picking up pace on the four MORDI workstreams



What is the Bioeconomy Science Institute?

The Bioeconomy Science Institute is a New Zealand Government-owned Public Research Organisation. It brings diverse scientific expertise, including skills in land use suitability, achieving ecosystem balance, quantifying impacts and adapting to change, nutrient management, efficient water use, pest and disease management, and the reduction of postharvest losses and waste.

The organisation leverages its technical capabilities to drive its international development initiatives and has a long-standing history of working with Pacific partners to support sustainable and resilient food systems.



Applying research to support economic growth and resilience, a healthy environment and beneficial social outcomes

For more information

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