

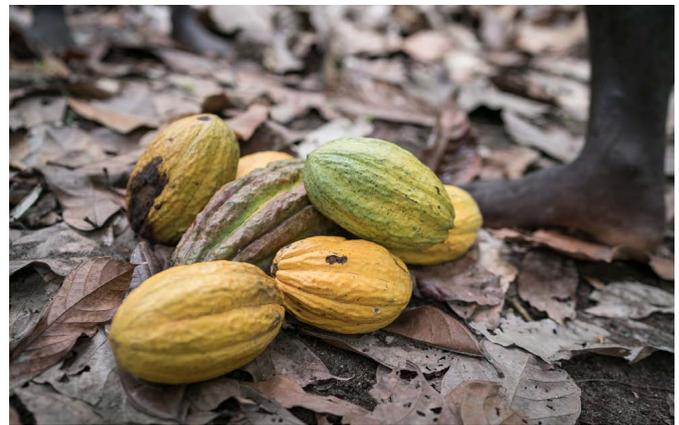


Australian Government

Australian Centre for
International Agricultural Research

Soil and land management

Optimising soil management and health in Papua New Guinea integrated cocoa farming systems – Phase 2



Overview

Cocoa is one of the most significant cash-crops for smallholders in PNG, producing around 36,000 tonnes and earning more than A\$90 million annually.

The *PNG Cocoa Industry Strategic Plan 2016–2025* has set an ambitious target of 310,000 tonnes of annual cocoa exports by 2030. This will require an approximately 8-fold increase in production. However, reaching this target is constrained by low average yields, limited opportunity for expansion, and competition with other commodities for land use. Tackling soil condition and capability constraints on cocoa production will help to overcome these issues.

Chemical and physical properties of soils across PNG vary considerably. Soil management can also impact on cocoa quality, access to inputs to effectively manage cocoa soils varies widely, and acquiring soils information is not financially viable for smallholder farmers.

Phase 1 of this project focused on green waste management as a source of soil nutrients for cocoa; capacity building in soil sampling, analysis, and interpretation; and targeted training strategies. Phase 2 aims to develop scientifically robust and actionable advice on sustainable site-specific soil management strategies which will help cocoa smallholders to support the PNG Cocoa Industry Strategic Plan.

KEY FACTS

ACIAR Project No. SLAM-2019-109

Duration: 21 June 2021 to 30 May 2026
(5 years and 1 month)

Target areas: Papua New Guinea

Budget: A\$2,600,000

Project Leader

Prof Damien Field, University of Sydney

Key partners

- University of Sydney
- Agricultural Research Centre for International Development (CIRAD)
- Indian Institute of Technology Kharagpur (IITK).
- La Trobe University
- PNG Cocoa Board
- University of Canberra
- University of Natural Resources and Environment (Vudal, East New Britain).

ACIAR Research Program Manager

Dr James Quilty

Objective

This project has four key objectives:

- Evaluate the efficacy of conventional and novel soil management options to improve the soil's condition towards intensified cocoa farming.
- Determine the regionally specific opportunities for developing and managing cocoa soils sustainably, with a particular focus on lifting the status of women smallholders.
- Determine the implications of alternative soil management options on the development of cocoa qualities of market concern.
- Develop scientifically rigorous and actionable management strategies that can be promoted through public and private extension networks and adopted and adapted by cocoa smallholders.

Expected scientific results

- Expanding research on the benefits and risks to soil fertility and soil health of alternative cocoa intercrop species (i.e. galip, vegetables, maize).
- Adding to our knowledge of the chemical, physical and particularly the biological response of soils to changes in soil management.
- Contributing to resolving the extent to which soil biology can be influenced concerning its role in increasing and sustaining higher cocoa yields.
- Expanding a previously established soil spectral library while continuing to develop a soil calibration set for cocoa-producing regions in PNG.
- Contributing to scientific knowledge overall for PNG cocoa producers and other stakeholders.

Expected impact/outcomes

- Increasing profitability and smallholder household incomes through higher yields, with more efficient use of resources, lower input costs, and potentially higher quality-related prices.
- Increasing the profitability and sustainability of smallholder cocoa production systems in PNG.
- Improving the opportunities and potential for women and girls to participate in farm-level decision-making and benefit more equitably from increased profitability.
- Expanding the focus of diversification for smallholder households to include foods crops additional to cocoa to further increase their income and nutritional security.
- Providing locally suitable advice to cocoa smallholders on sustainable intercropping practices.
- Developing scientifically robust and actionable advice on options to sustainably manage soils in cocoa smallholdings in PNG and support the ambitions of the Cocoa Industry Strategic Plan 2016 - 2025.

