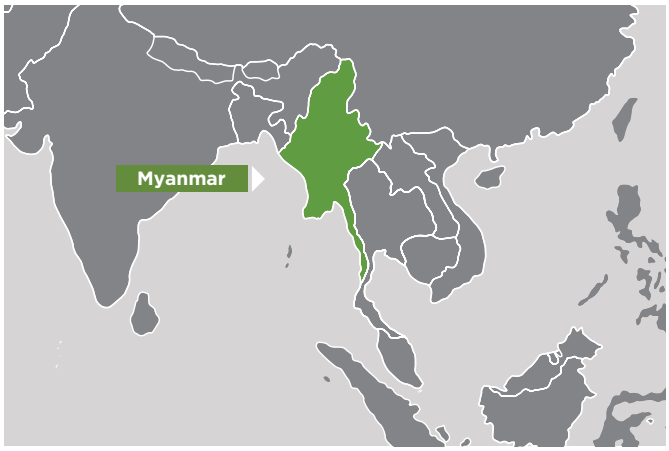
Australian Government
Australian Centre for International Agricultural Research

Soil and Land Management

Management of nutrients for improved profitability and sustainability of crop production in Central Burma



Overview

In Burma, rice growers have shifted from subsistence to semi-subsistence production, growing rice for household consumption and selling any surplus to boost their income.

With good prospects for increasing rice exports and profits, there is incentive to improve rice yields. The same is true for maize, a higher value crop.

But the country grapples with widespread crop underperformance, which is linked to an inadequate supply of nutrients, particularly nitrogen (N), in the soil. Earlier projects revealed large tracts of rice in central Burma showing typical symptoms of yellowing associated with N deficiency.

Given the well-known benefits of fertiliser use it may be expected that fertiliser research and utilisation would be widespread in Burma; however, there is surprisingly little local scientific information, and very little economic information, on efficient and cost-effective fertiliser use in central Burma.

KEY FACTS

ACIAR Project No. SMCN/2014/044
Duration: February 2016 to December 2019 (4 years)
Target areas: Myanmar
Budget: A$2 million

Project Leader
Professor Deli Chen, The University of Melbourne

Key partners
- Yezin Agricultural University (YAU)
- Department of Agriculture (DoA)

ACIAR Research Program Manager
Dr James Quilty

Objective

The project's overall aim is to increase the incomes and strengthen local food security of small-scale farmers and their families in central Burma through improved fertiliser use and associated crop management practices.

The project's objectives will be achieved through four integrated sub-projects for research, development and extension (RD&E) in Burma, with supporting activities in Australia:

- Establish the biophysical basis for appropriate fertiliser use for rice and maize crops in central Burma.
- Determine and address economic and policy-related constraints to adoption of improved rice and maize production by fertilisation.
- Build capacity for the long-term improved nutrient management at farm level, through training of YAU staff.
- Develop decision support systems for rice and maize in central Burma and for intensive vegetable production in Victoria, Australia, by integrating the results of the biophysical and social-economic sub-projects.

Expected scientific results

- Better understanding of the mechanisms of unusually high efficiency and recovery of N in the low-input paddy rice systems of central Burma.
- Impacts of low or high fertiliser inputs on soil fertility and soil health, and links between soil microbial properties and nutrient efficiencies.
- Yield responses based in rice leaf colour and integrated into nutrient management guidelines that include an economic framework.

Expected outcomes

- Smallholder farmers and villagers benefitting economically through increased efficient use of N fertiliser, and improved understanding of the requirements and management options for better agronomic performance and profitability.
- Greater household income translating to improved nutrition of women and children, improved health and greater school attendance of children.
- Improved N use efficiency leading to reduced N contamination of the environment, reflected in N footprints of agricultural products.
- Greater capacity among Burma's agricultural scientists and academics to sustain and promote improved management practices, contributing to improved livelihoods.

Australian Aid

ACIAR
aciar.gov.au