Australian Government
Australian Centre for International Agricultural Research

Soil and Land Management

Management practices for profitable crop-livestock systems in Cambodia and Lao PDR

Overview

Despite making steady progress in reducing poverty, Laos remains one of the world's least developed countries, with an estimated one-third of the population (2 million people) living below the poverty line.

Similarly, Cambodia has made considerable progress in raising living standards, but it remains one of the poorest countries in South-East Asia. About one-quarter of its population lives in poverty, of those, 90% live in rural areas.

Farming practices in southern Laos and Cambodia revolve around subsistence (rainfed) rice crops and open grazing of livestock. Rainfed farming systems have high levels of risk due to low resilience, limited sustainability and low productivity. Agricultural profitability in Laos and Cambodia can be improved through greater intensification and integration of crop and livestock systems.

This research will evaluate limitations to crop and forage productivity and explore the potential to intensify systems through innovations and technological solutions. In addition, by working closely with farmers using participatory land use planning engagement, the project will identify community-endorsed opportunities for intensification of systems at both the farming system and community scales.

KEY FACTS

ACIAR Project No. SMCN/2012/075
Duration: March 2016 to February 2020 (4 years)
Target areas: Lao PDR and Cambodia
Budget: A$1.9 million

Project Leader
Dr Matthew Denton, The University of Adelaide

Key partners
- Murdoch University
- Research Planning and Cooperation Division: National Agriculture and Forestry Research Institute (NAFRI)
- Department of Agricultural Land Management (DALaM)
- Provincial Agriculture and Forestry Office (PAFO)
- Cambodian Agricultural Research and Development Institute
- Royal University of Agriculture, Cambodia

ACIAR Research Program Manager
Dr James Quilty

Objective

The project's aim is to improve the profitability of lowland, predominantly rice-based farming systems by conducting research that leads to increased resilience of crop and livestock production through improved forage and fodder production and improved use of water and nutrients.

The project's specific objectives are to:

- Determine the productivity potential for integrated crop/fodder/livestock production systems in sandy terrain in Cambodia and southern Laos.
- Define soil and water management practices in crop/livestock production systems that increase resilience and profitability, allow greater integration and diversify enterprises.
- Identify potential models for intensification of crop/livestock production systems on low fertility sands using a participatory methodology and evaluate the socioeconomic impacts of system changes.
- Extend new knowledge in integrated crop/livestock production systems and increase research capacity among stakeholders.

Expected scientific results

- Enhanced knowledge of the current constraints and appropriate strategies for integration, management and productivity of fodder and forages in cropping systems in six regions of southern Laos and Cambodia.
- Knowledge on how to design forage/fodder integration in farming systems and confirmation of the appropriate integration through community endorsement of the proposed land use change.
- Improved knowledge of the efficient use of soil, water and nutrients (particularly N and P) to underpin greater system productivity, and to quantify improvements in understanding constraints and limiting losses from systems on sand toposequences involving crops and forages.
- Improved knowledge regarding the productivity, water and nutrient use efficiencies resulting from integration of forages, including summer-active grasses, into southern Australian crop/pasture systems.
- Improved approaches to identifying acid tolerant germplasm of forage species and in alleviation of acidity on sands.
- Scientific impacts published in peer-reviewed journals and theses and presented at international conferences.

Expected outcomes

- 200 farming households benefitting from intensification of livestock in principally cropping-based systems.
- Greater resilience in smallholder farming systems and increased profits for smallholder farmers in Laos and Cambodia.
- Increased productivity and efficiency potentially leading to greater opportunity in education and training, and supporting gender equality.
- Increased farm income providing higher standards of living, with greater resources directed towards meeting education and health needs.
- Increased farm income to provide household needs, reducing the need for off-farm income and family fragmentation and strengthening the social fabric of rural communities.

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