Australian Government
Australian Centre for International Agricultural Research

Crops

Sustainable intensification and diversification in the lowland rice system in north-west Cambodia

Overview

North-west Cambodia is home to nearly half a million farming families, with mostly small or medium-sized farms. Generally, one rice crop is grown per year in the region's rainfed lowlands. Where irrigation is available, two rice crops can be grown per year.

Low rice yields and frequent crop failures have disheartened many farmers in the region, forcing them to seek employment in towns and cities. But by intensifying and diversifying farming in the rainfed lowlands, farmers could increase crop yields and produce high-value crops such as vegetables.

The project is looking at the many challenges holding back adoption of innovative intensification and diversification of crop production methods. These include biotic and abiotic crop yield constraints, inadequate availability of rice seed of suitable varieties and lack of market access for non-rice crops. Compounding this is a general lack of knowledge, insufficient skills to intensify and diversify cropping, limited training in rural subjects in the educational system, limited business and financial expertise, and uncoordinated educational and extension infrastructure.

The project's vision is to increase the adoption of new technologies for sustainable intensification and diversification (SID), contributing to increased income for farmers and stronger businesses that are more sustainable and resilient.

KEY FACTS

ACIAR Project No. CSE/2015/044
Duration: November 2016 to October 2021 (5 years)
Target areas: Cambodia
Budget: A$2,101,682

Project Leader
Daniel Tan, University of Sydney

Key partners
- Mean Chey University (MCU)
- Cambodian Agricultural Research & Development Institute (CARDI)
- Syngenta Foundation for Sustainable Agriculture (SFSA)
- Asian Institute of Technology
- Gansu Agricultural University (GAU)

ACIAR Research Program Manager
Dr Eric Huttner

Objective

The project's specific objectives are to:

- Identify the local socioeconomic and agronomic trends, constraints and opportunities for SID adoption for small and medium farm households.
- Establish participatory on-farm trials to test SID innovations and approaches at field scale and evaluate which approaches are most effective for farmer adoption.
- Do a comparative evaluation of different scaling models for SID adoption at village and community level.
- Build the capacity of local farming communities and tertiary agricultural educational institutions to implement SID technologies and approaches beyond the life of the project.

Expected scientific results

- On-farm evaluation and development of more intensive and diversified cropping systems based on the optimal use of SID innovations, such as mechanised sowing, best management practices and high-value crops.
- Replicated field experiments to define the best fertiliser and integrated pest management practices for north-west Cambodian lowland rice farmers.
- A survey of the households and farming systems of north-west Cambodia, identifying the influence of environmental and technical constraints on social system behaviour, thereby contributing to knowledge on social transition and adaptation.
- Social network analysis of the local value chain network, providing insight on how integrated community engagement can promote adoption of SID.
- Empirical data to generate novel crop calendars, crop sequences and labour patterns to increase crop intensity and diversity for rice farmers in the region, with implications for improved fertiliser use efficiency and efficacy.
- Research published in at least six peer-reviewed scientific papers, conference articles, theses or monographs.

Expected outcomes

- More sustainable rice farming systems in north-west Cambodia, providing avenues for intensification (through more crops per year) as well as diversification into higher value crops, resulting in higher incomes for family farmers.
- Collaboration with private sector input and machinery service sectors as well as the public sector to provide an ideal pathway for extension of the ideas far beyond the life of the project.
- Greater capacity among local institutions to carry out socioeconomic surveys, farm-based and simple laboratory studies from the more established CARDI, SFSA, GAU and Australian universities.
- Farmers encouraged to practise sustainable and profitable rice and rotation crop production, helping to reduce the frequency of crop failures and increase food security in north-west Cambodia.
- Farm SID benefiting small and medium farmers, especially women, through: reductions in time spent on manual farm work, freeing up time to engage in other types of employment; higher off-farm income to enable better education opportunities for children; and crop diversification providing more diverse and nutritious diets for women and children.

Australian Aid

ACIAR
aciar.gov.au