



International Mungbean Improvement Network 2

Overview

Declining crop yields increased agricultural risks, diminished soil fertility and environmental degradation are significant threats to the societal goals of improved food, income and nutrition security, especially for smallholder farmers.

Sustainable intensification is a viable climate-smart agricultural practice that significantly increases productivity and resilience in smallholder farming systems. There is strong demand for sustainable intensification of tropical cropping systems in Africa, South Asia and Australia. Mungbean, a short duration legume crop, has demonstrated great value as a warm-season rotation crop between the major crops of wheat, rice, sorghum and sugarcane.

In Australia, improved varieties, best management practice and increasing global demand for pulses, have supported the transition of mungbean from an opportunity crop to a central part of dryland tropical farming enterprises.

The International Mungbean Improvement Network makes improved varieties available to the estimated 10 million smallholder farmers growing mungbean across seven million hectares in Asia and Africa. The project is increasing the effectiveness of mungbean breeding programs in Bangladesh, India, Indonesia, Kenya and Myanmar by providing new germplasm for multi-location evaluation and sourcing favourable traits for breeding, building the capacity of plant breeders and deploying modern breeding methods supported by Information Technology tools for data capture, sharing and analysis.



KEY FACTS

ACIAR Project No. CROP-2019-144

Duration: July 2020 to June 2025 (5 years)

Target areas: Bangladesh, India, Indonesia, Kenya, Myanmar

Budget: A\$2,187,090

Project Leader

Dr Ramakrishnan Nair, World Vegetable Center

Key partners

- Bangladesh Agricultural Research Institute
- Indian Institute of Pulses Research
- Indonesian Legume and Tuber Crop Research Institute
- Kenya Agricultural and Livestock Research Organisation
- Myanmar Department of Agricultural Research
- Queensland Department of Agriculture and University of Queensland

ACIAR Research Program Manager

Dr Eric Huttner

Objective

The aim of the International Mungbean Improvement Network is to increase farmer income, productivity and food security by delivering high-yielding, disease and pest-resistant mungbean varieties to smallholder farmers.

The objectives are to:

- Develop and provide access to a rich annotated germplasm collection of diverse mungbean accessions.
- Develop and release improved mungbean varieties with farmer-required and consumer-preferred traits in each partner country.
- Increase the scientific and policy capabilities within partner countries through the development of improved and more efficient mungbean breeding programs.

Expected scientific results

- New traits and methods for improvement of mungbean varieties through genomics assisted breeding.
- Increased knowledge of legumes and legume traits, including identifiers for agronomic performance and nutritional quality to enable more rapid generation of better, market-oriented lines.
- Identification of genetic markers for pest and disease resistance, and for abiotic stress tolerance.

Expected impact/outcomes

- Strengthened capacity of national programs in Bangladesh, India, Indonesia, Kenya and Myanmar to use modern breeding methods, including genomic tools, digital data collection tools and product profile designs.
- Strengthened seed delivery systems in the partner countries through the involvement of private companies, farmer associations and non-government organisations.
- Higher incomes and enhanced soil fertility on smallholder farms growing mungbean.
- Improved nutrition and food security for mungbean farmers and consumers.

