

# Additive intercropping in wide row crops for resilient crop production in Bangladesh, Bhutan and India



## Key details

### Location

Bangladesh, Bhutan, India

### Duration

**Start** Jun 2023

**End** Jun 2028

### Budget

AUD 2,842,648

### Commissioned organisation

International Maize and Wheat Improvement Center

### Partners

Bangladesh Agricultural University; Bangladesh Wheat and Maize Research Institute; Bihar Agricultural University; Indian Council of Agricultural Research; International Fertilizer Development Centre; University of Western Australia; Uttar Banga Krishi Vishwavidyalaya

### Project Leader

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### ACIAR Research Program Manager

Dr Eric Huttner

### Program

Crops

### Project code

CROP/2022/111

## Overview

**This project aims to identify options for smallholder farmers to sustainably intensify wide-row crop production through the addition of short-duration, high-value intercrop species.**

The focus is on intensification of wide-row planted crops: primarily dry (rabi) season maize in Bangladesh, eastern India and Bhutan. Other potential main crops will also be considered to demonstrate that additive intercropping is possible where crops are grown in wide-row spacings and with relatively cool temperatures. The primary focus is to sustainably improve cropping system productivity, however, the effects of wide-row, additive intercropping at the smallholder farm level will be considered, including potential food and nutrition benefits for the household.

There are many potential benefits of wide-row, additive intercropping, beyond increased cropping system

productivity and profitability: water-, labour- and energy-use efficiencies; improved nutrition and food security for rural households; empowerment for women; and (over the longer term) increased soil health.

Little research has been conducted to date into wide-row, additive intercropping (as distinct from traditional replacement intercropping) in South Asian agroecologies. To successfully and sustainably integrate wide-row, additive intercropping into farmers' cropping systems a range of challenges must be resolved, including optimal agronomic management and crop geometry, household- and farm-scale implications, and potential off-farm bottlenecks.

This project aims to identify practical methods to overcome these challenges for farming households from Bangladesh, Bhutan and north-eastern India. Focusing on existing wide-row field crop production systems, the project aims to enable farmers to increase their cropping system productivity sustainably and in a manner that requires relatively few additional inputs.

## Project activities and expected outcomes

- Evaluating farming households' initial perspectives on wide-row, additive intercropping.
- Conducting on station replicated field trials into wide-row, additive intercropping, focusing on those aspects of agronomic research difficult or unethical to undertake on farms.
- Conducting on farm replicated field trials into wide-row, additive intercropping.
- Determining how wide-row, additive intercropping could empower women. Quantify the long-term benefits, risks and trade-offs of wide-row, additive intercropping.
- Describing key value/supply chains for wide-row, additive intercropping. Determine pathways to scale research to maximise impact.
- Quantifying changes in household dry season nutrition for households representative of key typologies in each agroecological zone.