

India

A\$0.7 million
investment in agricultural
research for development

5 projects



4

Bilateral and regional
research projects



1

Small project and research
activity



5

Regional projects

Note: Additional projects may be commissioned during 2024–25.



India accounts for 18% of the world's population and is the world's 5th-largest economy. India is emerging as a major agricultural exporter of several key commodities and globally, is often the largest exporter of rice and the second-largest exporter of cotton.

While the contribution of the agriculture sector to GDP is declining, agriculture is a major source of employment and accounts for 44% of the total national workforce.

Agricultural production has been increasing by an average of 3.6% per year since 2011, due to improved access to inputs such as fertiliser and seed, irrigation and credit facilities. The sector has also diversified from cereal grains to pulses, fruit, vegetables and livestock products, largely driven by evolving demographics, urbanisation and changing consumer demand patterns. However, the sector is still challenged by inefficient market mechanisms, subsidy distortions, lack of storage infrastructure, unsustainable use of natural resources and susceptibility to climate change and extreme weather events.

Rural communities

Agriculture accounts for nearly 50% of the geographical area of India, and approximately half of the agricultural area is irrigated. Two-thirds of India's population lives in rural areas, with landholdings averaging 1.1 hectares. The rural population is highly vulnerable to the impacts of a declining natural resource base, biosecurity threats and climate change.

Political and economic environment

The Government of India advocates mainstreaming the role of women in agriculture as part of all programs in the agricultural development agenda. Although 30% of budgetary allocations under various schemes are directed to women farmers (60% of all farmers), use of these funds has declined. Moreover, due to the complex and varied nature of agriculture in India, there has been a trend of defeminisation in certain pockets of the country. Although policy articulation by the government on the rights of women farmers has shifted, there is still a huge knowledge gap and limited resources to implement gender-inclusive agricultural development strategies.

Climate change

Climate change presents challenges to India's long-term food security. Climate is the most important determinant of crop productivity in India, where about 60% of the cultivated area is rainfed agriculture. Without implementation of adaptation measures, rainfed rice yields in India are projected to reduce by 20% by 2050 and 47% by 2080.

The main adverse impacts of climate change on agriculture are due to increased temperature, changes in rainfall patterns, weather hazards, decline in soil and water quality, intrusion of sea water on land, and biotic and abiotic stresses arising due to climatic extremes. Rural India is extremely susceptible to climate change, with 70% of the population living in rural areas and reliant on climate-dependent agricultural activities for their livelihoods.

Food insecurity

There is a significant change in consumer demand for food in India, with preferences shifting to healthy, safe, trait-based and quality food. These changes indicate that the future of agriculture (and those engaged within) will face profound transformation in the coming decades. There is a need to create an enabling environment for this transition, through appropriate policies and institutions, an enabling regulatory environment, development of frontier technologies, as well as public and private investments in agriculture and agribusiness.

Partnering with Australia

There is strong and sustained demand for partnerships and collaboration between India and Australia for agricultural services, consulting and technologies, in which Australia has expertise. In April 2022, the Australia-India Economic Cooperation and Trade Agreement was signed. The agreement includes a provision that both countries will cooperate to promote agricultural trade as part of the agreement and will work toward concluding an enhanced agricultural memorandum of understanding.

The present ACIAR engagement in India focuses on regional issues of natural resource management and climate change. In 2024-25, ACIAR will develop a new partnership strategy to guide our research-for-development program in India.

Country priorities

Agricultural research for development in India is not keeping pace with that of other major agricultural countries. This is evident from the rising yield gap, lack of adoption of precision and smart farming techniques, and lower application of innovation such as biotechnology, material sciences and data and digital technologies. With the exception of rice and wheat, India is not keeping pace with the world yield gains in crops cotton, soybean, groundnut and rapeseed mustard.

Modernisation of agriculture requires the introduction and promotion of knowledge and skill intensive practices, private and corporate sector investments in agriculture, new institutions of producers, integrated food system-based mechanisms and new types of linkages between producers and end users.

While Indian cropping systems are markedly different to those in Australia, there are common technical challenges, which Australian technology is well-suited to address. In consultation with research partners in India, ACIAR is supporting research that contributes to national agricultural research-for-development goals addressing:

- » management of agricultural water, including rainfed areas
- » sustainable intensification and diversification of cropping systems with support of conservation agriculture/zero tillage
- » breeding of improved varieties of wheat and mungbean
- » policy development for farmers' livelihoods and climate change.
- » post-harvest management.

The threat of biosecurity risks to countries such as India and Australia is increasing as a result of globalisation, tourism, migration and increased movement of agricultural commodities. Australia is a world leader in biosecurity, with a mature biosecurity system. There is strong demand from India for Australian experts to contribute to capacity development in biosecurity in India, particularly pest surveillance, monitoring, preparedness and traceability.

2024–25 research program

In 2024–25, ACIAR supports 5 agricultural research-for-development projects in India, all of which are part of regional projects.

The projects address the high-level objectives outlined in the ACIAR 10-Year Strategy 2018–2027, as well as specific issues and opportunities identified by partner countries and ACIAR.

All research investments have the underlying goal of contributing to:

- » agrifood systems and rural communities resilient to the impacts to climate change
- » equitable research benefits and outcomes for all community members
- » increased scientific and policy capability of individuals and partner institutions.




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Research Program Managers

Visit aciarc.gov.au for contact details

Current and proposed projects in India, 2024–25

Program	Project title & code	Country	Start	End	Total investment
	Crops				
	International Mungbean Improvement Network (Phase 2) CROP/2019/144	Bangladesh, India, Indonesia, Kenya, Myanmar	01/07/20	30/06/25	A\$2,257,184
	Additive intercropping in wide row crops for resilient crop production in Bangladesh, Bhutan and India CROP/2022/111	Bangladesh, India	01/06/23	30/06/28	A\$2,842,648
	Soil & Land Management				
	Assessment of the adoption and adaptation of conservation agriculture and direct seeded rice in South and Southeast Asia SLAM/2022/172	Bangladesh, Cambodia, India, Laos, Philippines, Vietnam	19/12/22	31/03/25	A\$357,424
	Water				
	Cropping system intensification in the salt-affected coastal zones of Bangladesh and West Bengal, India LWR/2014/073	Bangladesh, India	01/11/15	30/06/26	A\$5,556,589
	Transforming smallholder food systems in the Eastern Gangetic Plain WAC/2020/148	Bangladesh, India, Nepal	01/10/21	30/09/26	A\$4,693,755

Note: Additional projects may be commissioned during 2024–25.



More information about our projects is available on the ACIAR website. Search for the project title or project code.
www.aciarc.gov.au