



ICRISAT in India



Country Overview

Agriculture, with its allied sectors, is the largest source of livelihoods in India. **70%** of rural households depend primarily on agriculture for their livelihood, with **82%** of farmers being small and marginal. While achieving food sufficiency in production, India still accounts for a quarter of the world's hungry people and home to over **190 million** undernourished people. As per the Global Nutrition Report (2016), India ranks 114th out of 132 countries on under-5 stunting and 120th out of 130 countries on under-5 wasting and 170th out of 185 countries on prevalence of anaemia. Anaemia continues to affect **50%** of women including pregnant women and **60%** of children in the country. - FAO

Government of India has been provocatively launching schemes and programmes to strengthen the agriculture sector. Schemes such as the Minimum Support Price (MSP), crop insurance, doubling farmers income are aimed at supporting the farmers and de-risking agriculture. ICRISAT's work has significantly contributed to government of India's flagship programmes such as pulses self-sufficiency, millet movement and biofortification for nutrition security. ICRISAT also signed a Memorandum of Agreement (MoA) with

[the Indian Council of Agricultural Research \(ICAR\)](#), for a five-year plan for Indian agricultural research in 2019.

Partnerships

ICRISAT works closely with ICAR and ICAR institutes such as Indian Institute of Millets Research (IIMR), State Agricultural Research Institutes and Universities. ICRISAT and Government of India have a long-standing partnership of several decades with Secretary, Department of Agriculture and Secretary of ICAR spearheading ICRISAT's commitment to dryland farmers as Governing Board members. Similarly, ICRISAT's research has also contributed to the governments mission towards strengthening agriculture and overcoming malnutrition. The UN endorsement to India's proposal for "International Year of Millets" is an outcome of this fruitful partnership.

ICRISAT has worked with a number of state governments, civil society organizations, NGOs, and private players to develop and release improved crops, revive rain-fed agriculture, undertake watershed management and accelerate Millet Movement. ICRISAT has a strong network of CSR partners, farmer producer organizations, women cooperatives and agribusiness startups.

Milestones

- ▶ **1976 – 2014:** ICRISAT in association with Government of Andhra Pradesh (now Telangana) with support from Asian Development Bank worked with the stakeholders on holistic Watershed Management in Kothapally, Nizamabad. The project spanning over 40 years in Telangana witnessed a complete revival of
- ▶ **In 1975:** ICRISAT initiated village level studies to understand farming systems in rural areas and identify the socio-economic constraints faced by the farming community in the semi-arid tropics. In 2009, ICRISAT teamed up with the Bill & Melinda Gates Foundation (BMGF) to engage stakeholders worldwide in Village Dynamics Studies to understand the dynamics of rural poverty. The data received over **10,000 citations** as of 2008.
- ▶ **2007 – 2019:** In India, the Tropical Legumes initiatives prioritized improved high-yielding and climate-resilient chickpea, groundnut, and pigeonpea. The projects were able to achieve notable increases in the production of seed for groundnut and pigeonpea. Pigeonpea seed production increased from an annual average of **3 tons** in 2008–2009 to over **1,000 tons** in 2012–2013
- ▶ **Between 2005 and 2007:** ICRISAT scientists, along with partners, worked to better pearl millet seed production and on upscaling efforts to encourage adoption amongst resource-poor farmers in the drylands with a view to generating higher incomes through better yields. By 2010, HHB 67 Improved was grown on more than **850,000 ha**, attesting to the impact of crop research and acceptance amongst farmers.
- ▶ **In 2009 – 2016:** ICRISAT, working with the Government of Karnataka, conceived, developed and implemented a project called Bhoochetana (Revival of the Soil). Starting with six districts and **200,000 farmers**, the project reached over **26,000 villages** and **4.2 million** farmers over the next nine years. With the use of science-backed innovations, millions of farmers experienced **20-66%** higher crop yields and obtained a net benefit of **US\$ 453 million**.








Ongoing Projects

- 2021 – 2025:** Identification of Markers and Genomic Regions Associated with Aflatoxin Resistance in Peanut funded by Mars Chocolate North America, LLC
- 2018 – 2023:** Pest and disease management for climate change adaptation funded by Department of Science & Technology, Government of India
- 2021 – 2026:** Agri Monitored Re-Engineering and Transformation (AMRT) funded by Government of Odisha
- 2021 – 2024:** Developing double herbicide tolerant pigeonpea for improved weed management using two-way approach from haplotype mining in native germplasm and CRISPR-Cas9 mediated genome editing funded by the Department of Biotechnology, India
- 2019 – 2024:** Development of Waxy Sorghum breeding lines for diverse food, feed, and fermentation applications funded by the University of Nevada-Reno
- 2021 – 2024:** Integrated Watershed Management projects in villages of Andhra Pradesh, Telangana, Karnataka and Maharashtra funded by CSR partners - Trident Sugars Ltd, Ramco Cements Limited, UltraTech Cement Ltd, JSW foundation

Key Outcomes



-  **54** varieties of Sorghum
-  **183** varieties of Pearl millet
-  **52** varieties of Chickpea
-  **54** varieties of Pigeonpea
-  **37** varieties of Groundnut

High-Iron pearl millet variety ICTP 8203Fe was released as Dhanshakti in Maharashtra state of India in 2013. Dhanshakti is the first mineral biofortified crop cultivar to be officially released and reaching farmers' fields in India.

About **6.0 million** ha area in India is under pearl millet hybrid cultivation, and **60%** of about **100** pearl millet hybrids developed since **2000** by the NARS and seed companies in India are based on ICRISAT-bred material

Efforts by ICRISAT and partners have led to a chickpea revolution in Andhra Pradesh, where production increased 8-fold in 15 years. ICRISAT-India partnership varieties (JG 11, JAKI 9218, KAK 2, and Vihar) were instrumental in the success. They cover over **90%** of the chickpea area in Andhra Pradesh.