



HarvestPlus improves nutrition and public health in India by promoting **pearl millet** that provides more **iron** and **wheat** that provides more **zinc** in the diet. We work with more than 70 partners drawn from government, business, and civil society.

Better Crops for Better Nutrition

We use a process called biofortification to conventionally breed staple food crops that are richer in essential minerals and vitamins and can be grown by rural communities that are often missed by other interventions, such as supplementation and food fortification. Our food-based approach relies on familiar staple foods that people already eat regularly and that can be part of other efforts to improve nutrition, such as dietary diversification.

The Costs of Iron & Zinc Deficiencies

- Iron deficiency impairs mental development and learning capacity, increases weakness and fatigue, and may increase the risk of women dying during childbirth.
- 70% of Indian children under 5 are estimated to be iron deficient (*DHS*).
- Zinc deficiency causes stunting, lowers immunity, and increases risk of diarrheal disease and respiratory infections.
- 48% of Indian children under 5 are estimated to be zinc deficient (*WHO*)*.
- Annually, India loses over \$12 billion in GDP to vitamin and mineral deficiencies (*World Bank*).

Crops for India

Iron pearl millet is one of the staple foods in arid and semi-arid regions of India. Wheat is the most important food grain of India.



Iron Pearl Millet

India ranks number 12 out of 55 countries suitable for investing in iron pearl millet.

Nutritional Benefits: Provides up to 80% of daily iron needs

Farmer Benefits: High yielding, mildew resistant, short duration, drought tolerant

Biofortified Varieties: ICTP 8203-Fe-10-2 (Dhanashakti), ICMH 1201 (Shakti-1201)



Zinc Wheat

India ranks number 9 out of 73 countries suitable for investing in zinc wheat.

Nutritional Benefits: Provides up to 50% of daily zinc needs

Farmer Benefits: High yielding, adapted to the target area of eastern gangetic plains, disease resistant

Biofortified Varieties: BHU-3, BHU-6 (Chitra)

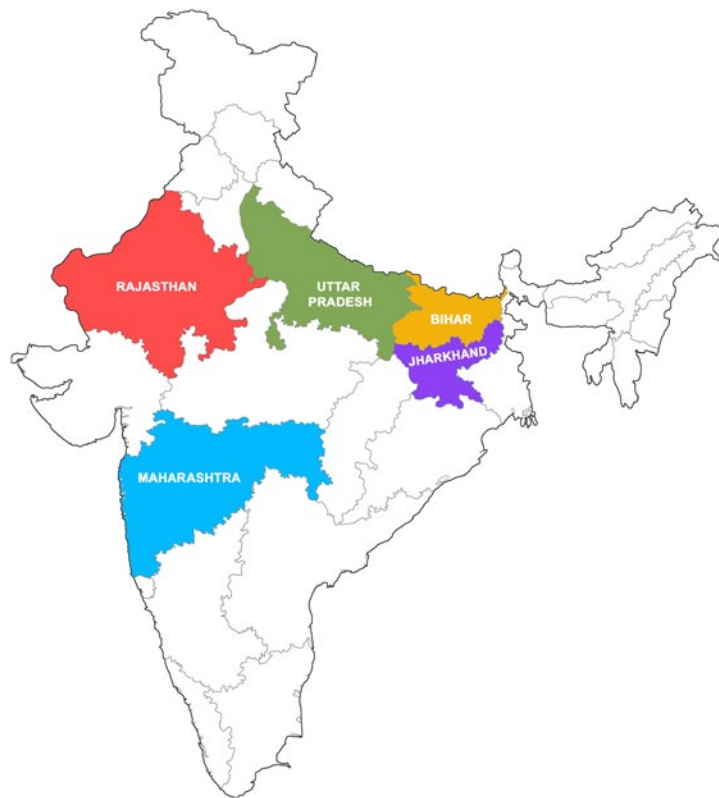
*Based on stunting as a proxy for risk of zinc deficiency

On the Ground

HarvestPlus and its partners work in five states of India to promote the availability, adoption, and consumption of biofortified pearl millet and wheat. The goal is that more than 1 million Indian farming households will be growing these crops by 2018.

How We Work

HarvestPlus supports the National Agricultural Research System in India to breed, test, and release biofortified pearl millet and wheat developed through our partnership with the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) and the International Maize and Wheat Improvement Center (CIMMYT). Public and private seed companies play a critical role in commercializing seed for distribution to farmers. We support these companies with market research, nutrition studies, branding, and promotional strategies. Our partnerships also train farmers, retailers, and distributors on the benefits of biofortified pearl millet and wheat. Public awareness campaigns leverage the power of the media and national public health experts to highlight micronutrient deficiencies and promote adoption of nutritious crops. Our advocacy seeks to strengthen central and state-level ownership of biofortification through effective integration into nutrition and agricultural policies.



“Partnering with HarvestPlus gave us an opportunity to use our experience and distribution channels to serve our farmers by providing them with high-zinc wheat variety.”

~ Sandeep Goel
Managing Director, Astha Beej Co. Pvt. Ltd.

Partners

CGIAR: International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) • International Food Policy Research Institute (IFPRI) • International Maize and Wheat Improvement Center (CIMMYT) • International Rice Research Institute (IRRI) • **Local:** Aarti Flour Mill • Ajeet Seeds Limited • All India Coordinated Pearl Millet Improvement Project (AICPMIP) • Ankur Seeds • Astha Beej Pvt. Ltd. • Banaras Hindu University • Bayer BioScience Pvt. Ltd. • Bioseed Research India Pvt. Ltd. • Birsra Agricultural University • CCS Haryana Agricultural University • DevGen Seeds and Crop Tech Pvt. Ltd. • Dhule College of Agriculture • Ganga Kaveri Seeds Pvt. Ltd. • Grameen Development Services (GDS) • Gramin Uthan Evam Vaikalpik Vikas Samiti • Hytech Seed India Pvt. Ltd. • IMRB International • India Biofortification Program • Indian Agricultural Research Institute • Indian Council on Agricultural Research • Indian Institute of Rice Research • Indian Institute of Wheat and Barley Research • Indira Gandhi Krishi Vishwavidyalaya (IGKV) University • J Nehru Medical College • JK Agri Genetics Ltd. • Junagadh Agricultural University • Karnataka State Seed Corporation (KSSC) • Kaveri Seeds Co. Ltd. • Kesar Enterprises Ltd. • Mahatma Phule Krishi Vidyapeeth • Maharashtra State Seeds Corporation (Mahabeej) • Mahyco Metahelix Lifesciences Pvt. Ltd. • Ministries of: Agriculture, Health, and Education • Nath Biogene Pvt. Ltd. • National Institute of Nutrition • Nirmal Seeds Pvt. Ltd. • Nuziveedu Seeds Pvt. Ltd. • PAANI • Pioneer Overseas Pvt. Ltd. • Rasi Seeds • SHDA • Shakti Vardhak Hybrid Seeds Pvt. Ltd. • SNDT Women's University, Maharashtra • Sood Seeds • Sri Sai Seeds • St. Johns Medical Research Center • Swami Keshwanand Rajasthan Agricultural University • Syngenta India • Tempest Advertising Pvt. Ltd. • TNS Global • Utthan • **Other:** Children's Hospital Oakland Research Institute-CHORI • Commonwealth Scientific and Industrial • Cornell University • Flinders University • Harvard School of Public Health • Johns Hopkins Bloomberg School of Health • North Atlantic University of Adelaide • North Dakota State University • Ohio State University • Penn State University • Research Organization • Swiss Federal Institute of Technology (ETH-Zurich) • The Kiel Institute for the World Economy • United States Department of Agriculture, Agricultural Research Service (USDA-ARS) • University of Colorado, Denver • University of Georgia • University of Michigan • University of Oklahoma • Waite Analytical Laboratory • Western Human Nutrition Research Center

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HarvestPlus improves nutrition and public health by developing and promoting biofortified food crops that are rich in vitamins and minerals, and providing global leadership on biofortification evidence and technology. HarvestPlus is part of the CGIAR Research Program on Agriculture for Nutrition and Health (A4NH). CGIAR is a global agriculture research partnership for a food secure future. Its science is carried out by its 15 research centers in collaboration with hundreds of partner organizations. The HarvestPlus program is coordinated by two of these centers, the International Center for Tropical Agriculture (CIAT) and the International Food Policy Research Institute (IFPRI).



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Nutrition
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