Addressing malnutrition and improving public health in India
HarvestPlus has operated in India for nearly nine years, in close collaboration with partners in the public and private sector, to improve nutrition and public health by developing and promoting biofortified crops and building out biofortified seed and crop value chains. Biofortification is endorsed at the highest levels of government as a strategy to address widespread micronutrient deficiencies and their serious health impacts.

The cost of iron and zinc deficiency in India

Nearly every third child in India is undernourished, causing widespread micronutrient deficiency.

Iron deficiency is a leading cause of anemia. **58 percent** of children under five are anemic.¹

**43.8 percent** of children under five are estimated to be zinc deficient.²

**53 percent** of women ages 15-49 years are anemic.

**Zinc deficiency can cause stunting, which affects more than 38 percent of children under five.**

**India loses over $12 billion** in GDP annually to vitamin and mineral deficiencies.³

Biofortified Crops in India

**IRON PEARL MILLET:**
- **Nutritional benefits:** Provides up to 80% of daily iron needs
- **Farmer Benefits:** High yielding, mildew resistant, short duration, drought tolerant
- **Focus states:** Maharashtra, Karnataka, Rajasthan, Uttar Pradesh

**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
- **Focus states:** Uttar Pradesh, Bihar, Punjab

**ZINC RICE:**
- **Nutritional Benefits:** Provides up to 60% of daily zinc needs
- **Farmer Benefits:** Early maturation, high yields and strong agronomic performance.
- **Focus states:** Odisha, Bihar, Chhattisgarh, Jharkhand
In addition to reaching and empowering farmers, HarvestPlus provides technical, logistical, training, and marketing support to a wide array of partners in seed and food value chains to build strong biofortified food systems.

**Crop Development:** HarvestPlus supports the Indian Council of Agricultural Research-National Agricultural Research System (NARS), state agricultural universities (SAUs), and international agricultural research organisations such as ICRISAT, CIMMYT, and IRRI in breeding, testing and release of zinc wheat, zinc rice and iron pearl millet.

**Seed Production and Commercialisation:** HarvestPlus works with private seed companies, farmers, non-governmental organizations, farmer producer organisations, state seed corporations such as the Karnataka State Seed Corporation (KSSC) & Maharashtra State Seed Corporation (MSSC), and national seed corporations to develop quality-controlled seeds.

**Seed Distribution:** HarvestPlus India collaborates with key stakeholders for the distribution of seeds. Mini-Kit trial packs are provided to farmers for the initial testing and evaluation.

**Value Addition:** HarvestPlus is engaging with key food companies and processors to create value-added products and build supply chains for biofortified crops. The plan is to support commercialisation of different value-added products to increase the consumption of biofortified food and combat micronutrient deficiencies.

**Policy Engagement:** HarvestPlus India is working on the inclusion of biofortified grains in government schemes to reach communities with nutritious crops.

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### Projects and Programmes

**Bihar-Odisha Project**

*Focus:* To establish a sustainable system of production and consumption of nutrient rich, biofortified zinc wheat, zinc rice, and iron lentils to improve the nutritional status of the people of Bihar and Odisha.

*Funder:* The Bill & Melinda Gates Foundation (BMGF)

*HarvestPlus Role:* Technical partner on biofortification. Biofortified crop promotion and distribution is being piloted in 33 districts of Bihar.

The Government of Bihar has also partnered with Rural Development Council and HarvestPlus to make Kukribigah village in Bihar a model “nutritional village,” where the 475 rural households will only cultivate biofortified crops using organic methods.

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### Commercialisation of Biofortified Crops Programme

*Focus:* This partnership programme with the Global Alliance for Improved Nutrition (GAIN) provides targeted support and addresses challenges and constraints of commercialization. The overall vision of this program is to scale up the commercialisation of biofortified foods. To realize this vision the program aims to improve access to inputs and markets for biofortified seeds and food products, generate demand for these nutrient-rich staple crops, and provide advocacy, catalytic financing, and technology licensing services.

*Focus Crops:* Zinc wheat, iron pearl millet

*HarvestPlus Role:* Provide technical, commercial and strategic leadership to scale commercialization of biofortified crops.

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### Prime Minister Shri Narendra Modi endorses biofortification

Hon’ble Prime Minister, Shri Narendra Modi, on World Food Day 2020, during a ceremony to mark the 75th anniversary of the United Nations Food and Agriculture Organization (FAO), dedicated 17 new biofortified varieties of eight crops to the nation. This is an important step in strengthening the government’s campaign to improve nutrition and to scale-up production of biofortified crop varieties and integrate them in government support programs, such as midday meals for school children, to reach the most vulnerable population groups.
Partner with us to make food systems more nutritious, inclusive, and sustainable.

“I am very happy with the performance of high zinc wheat crop of last year. The grain is bold and golden, the wheat quality is great. It is well adapted to our soil and climate. Seeing it grow brings great joy to me as a farmer.”

— Rameswar Rajwar, Village - Ruknnadih Village, Buxar District, Bihar

CURRENT PARTNERS IN INDIA