HarvestPlus: Biofortification of Staple Food Crops Program in Pakistan
Agriculture Development

- Nature
- Policy
- Technology
- Management
• Agriculture
• Food Security
• Nutrition
• **Malnutrition** refers to deficiencies, excesses or imbalances in a person’s intake of energy and/or nutrients.

• **Under-nutrition** includes stunting (low height), wasting (low weight), lack of vitamins and minerals.

• **Over-nutrition** results in the overweight, obesity and diet-related diseases.
Alleviate Malnutrition

- Diversification
- Supplementation
- Fortification
- Biofortification of staple food crops
HarvestPlus Program

• Biofortification of staple food crops to address malnutrition in the country
• Nutrition enhancement: Zinc; Iron; Vitamin A
• Biofortified high Zinc wheat variety “Zincol-2016”
  – 37 microgram zinc per gram (+12 over the baseline)
  – Resistant to diseases
  – Competitive in yield
Research & Development

• Leadline NR-443, National Testing- Completed
• Leadline NR-488, National Testing- 2\textsuperscript{nd} year
• Leadline NR-514, National Testing- 1\textsuperscript{st} year
• Leadline NR-515, National Testing- 1\textsuperscript{st} year
• Leadline V-16202, Regional Trial
• Evaluation under different agro ecologies
• Varietal approval process
• Demonstration Trials and Field days
Stakeholders

- Ministry of Planning, Development and Reforms
- Ministry of National Food Security & Research
- Ministry of National Health Services, Regulation and Coordination
- Pakistan Agricultural Research Council
- National Agricultural Research System
- Provincial Food, Agriculture and Health Departments
- Public and Private Seed Industry
- Fertilizer Industry
- Flour Milling & Processing Industry
- Farmers & Consumers
- SUN Movement-Pakistan
## Collaboration

<table>
<thead>
<tr>
<th>Collaborator</th>
<th>Activities</th>
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<tbody>
<tr>
<td>NARS, PARC</td>
<td>• Research &amp; Development</td>
</tr>
<tr>
<td>FFC</td>
<td>• Demo Plots and Field Days</td>
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<tr>
<td>FFC</td>
<td>• Multiplication &amp; Dissemination</td>
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<tr>
<td>FFC</td>
<td>• Dissemination</td>
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<tr>
<td>FFC</td>
<td>• Multiplication, Dissemination, Demonstration &amp; Field Days</td>
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<tr>
<td>Seed Multipliers</td>
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<tr>
<td>NGO</td>
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<td>Farmers</td>
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<td>World Vision, Canada</td>
<td>• ENRICH Project in district Sukkur</td>
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<tr>
<td></td>
<td>• Farming household oriented program</td>
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<tr>
<td></td>
<td>• 50 tons (25 kg package) seed distributed</td>
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<td>2000 beneficiaries (1030 male, 970 female)</td>
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<td>during 2017-18</td>
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Multiplication "Zincol-2016"

<table>
<thead>
<tr>
<th>Year</th>
<th>Production (tons)</th>
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<tbody>
<tr>
<td>2015</td>
<td>60</td>
</tr>
<tr>
<td>2016</td>
<td>400</td>
</tr>
<tr>
<td>2017</td>
<td>2,000</td>
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- 2000 tons of seed disseminated among farmers, seed multipliers and promotional partners during the year 2017-18
<table>
<thead>
<tr>
<th>Year</th>
<th>Household Reached</th>
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<tbody>
<tr>
<td>2016-17</td>
<td>40,000</td>
</tr>
<tr>
<td>2017-18</td>
<td>142,000</td>
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</tbody>
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Advocacy

• Sensitizing statesmen, planners, executives, seed multipliers, promotional partners, input dealers, farmers, flour millers, food processors and consumers for production and consumption of biofortified wheat to address zinc malnutrition

• **Recognition of the Program:**
  – Government of Pakistan owns biofortification of staple food crops program
  – Biofortification of Staple Crops, an integral part of Pakistan Vision 2025
  – Draft National Food Security Policy
  – 5 year Plan & Annual Development Program
  – Multisectoral strategy in the provinces
ENRICH Project:
Cultivation, quality seed production, harvesting, storage & consumption of Zincol-2016

• 600 farming families (438 male:162 female) during 2016-17
• 2000 farming families (1030 Male: 970 Female) during 2017-18
IEC Material

- Landscape Assessment Study of District Sukkur under ENRICHH project
- Compendium “Fruits, Vegetables and Medicinal Plants in Agroecological Region-IIIa Sandy Deserts of Pakistan”
- Leaflets on “Cultivation of Biofortified High Zinc Wheat” in Urdu and Sindhi languages
- Kitchen Gardening Brochure in English, Urdu and Sindhi languages
- Wheat Production Training Manual in Urdu and English languages (under process)
- Essentiality of zinc nutrition in humans and crop plants
A Compendium
Fruits, Vegetables & Medicinal Plants in Agro-Ecological Region-III (A) Sandy Deserts of Pakistan

The Landscape Assessment Study of District Sukkur, Sindh

HarvestPlus, Pakistan, National Agricultural Research Center, Park Road, Islamabad

March, 2017
Visit to Seed Multiplication Blocks

- Team of World Food Program, DFID, USAID, IFPRI, CIMMYT, Nutrition International visited seed multiplication block of Zincol-2016 at NARC, Islamabad
Visit of Dr. H. Bouis to Pakistan
BiZiFED Launch Meeting 2017
HPlus Meeting with Chairman
PARC
Farmers Trainings
Field Visit and Training Program