



# Digital solutions to promote nutritious food value chains for biofortified staples

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[www.HarvestPlus.org](http://www.HarvestPlus.org)



RESEARCH  
PROGRAM ON  
Agriculture for  
Nutrition  
and Health

Led by IFPRI

# Overview

- What is biofortification?
- Delivering seeds, grains and foods to farmers and consumers
- Digital solutions to build scale and expand reach
  - Building global standards
  - Promotions to farmers
  - Digital marketplaces
  - Supply chain integrity



## Biofortification: Nutrient Enriched Crops



Biofortification is a process of **increasing the density** of vitamins and minerals in a crop through **plant breeding** or **agronomic practices**, so that the biofortified crops, when consumed regularly, will generate measurable improvement in vitamin and mineral nutritional status.

**The HarvestPlus program uses varieties from conventional plant breeding, it is not GM**

# Biofortified crops



Sweet Potato  
Vitamin A



Banana/  
Plantain  
Vitamin A



Maize  
Vitamin A  
Zinc



Cassava  
Vitamin A



Beans  
Iron



Pearl Millet  
Iron



Cowpea  
Iron  
Zinc



Irish Potato  
Iron  
Zinc



Sorghum  
Iron  
Zinc



Lentil  
Iron  
Zinc



Rice  
Zinc



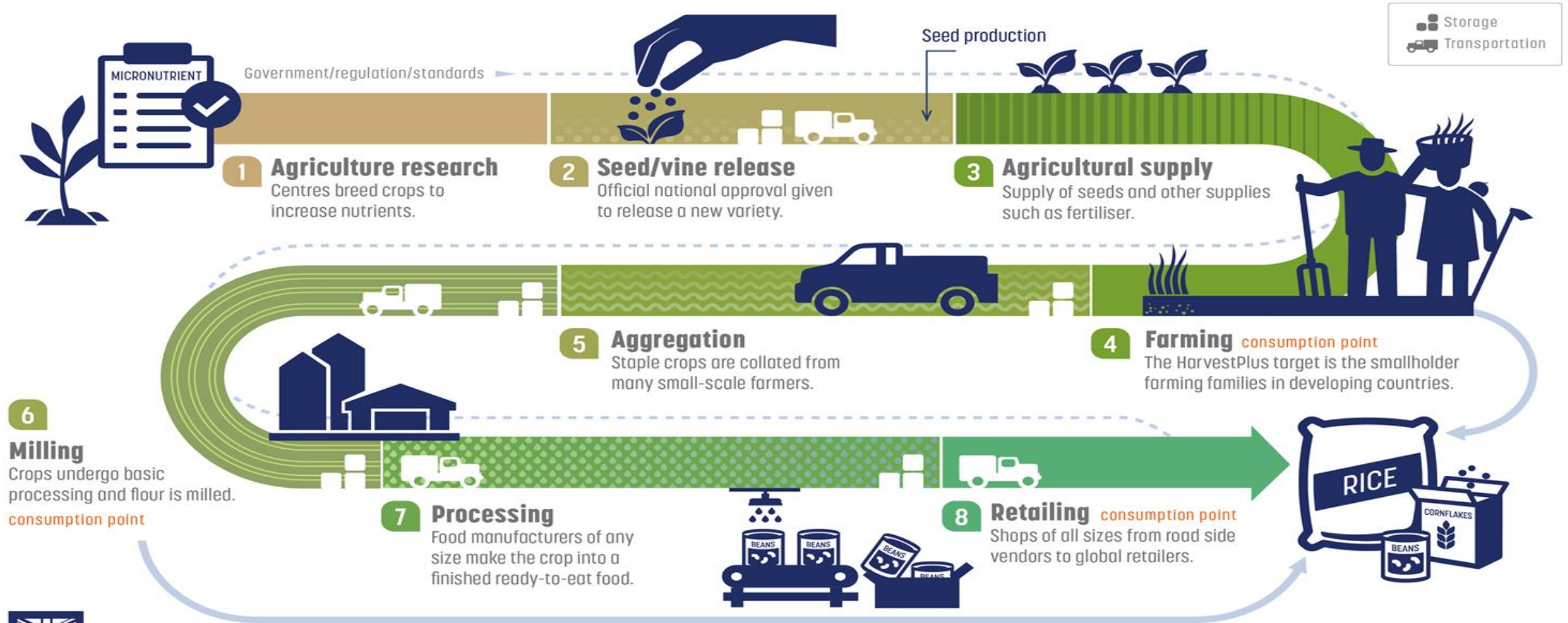
Wheat  
Zinc

Currently, over **42 million** people are benefiting from biofortified crops throughout Africa, Asia, and Latin America and the Caribbean.

# Ending Hidden Hunger

## A Value Chain for Biofortified Foods

How do we partner for a biofortified food system across the globe? Beginning at the research phase, knowledge, education and partnership are required at every step so that we can scale up and embed biofortified foods into the food chain. By working together we can reach one billion malnourished consumers by 2030.





## Building Global Standards with a virtual expert group

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- Lack of standards for Nutrient Enriched Crops holds back scale at grain trade level.
- Normally standards take many years to complete with extensive global travel.
- Create and disseminate the first globally created and market led Publicly Available Standard completely on-line.





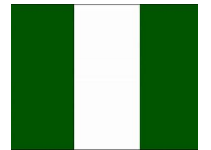
# Digital Market Places for Nutrient Enriched Commodities

## On-line purchases for the supply chain

- Seeds and agricultural inputs
- Off takers and aggregators
- Grain trade
- Milling
- Food processing



On-line forecasting  
“BiofortStat” collates data on biofortification activities (e.g., households reached) with biofortified planting material quantity harvested and market prices





# Promotions to Farmers

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- Reaching 100,000 Pakistani Farmers Remotely Through a unique partnership.
- Customized agricultural information and services through mobile devices.
- Formally we would hold in person meetings with up to 7000 farmers in one venue.







# Supply Chain integrity - Blockchain Nigeria

- Vitamin A deficiency costs Nigeria \$183 Million annually
- Deficiency can be alleviated through regular consumption of vitamin A Orange Maize
- The barriers to scale and for the food industry to adopt biofortification is the inability to distinguish from standard.
- Project developed from pilot to full roll-out to digitize the entire orange maize supply chain.



**THE NEW FORK**  
Global Food Integrity

 **El-kanis & Partners**  
Agriculture. Technology. Innovation



# Conclusions

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- The use of digital tools are essential for HarvestPlus to reach 2 billion consumers by 2030.
- Don't forget the basic digital tools we all have available to us.
- We adopt digital tools at every step of the value chain with a network of brilliant, nimble partners to help us.
- Take risks! Innovation, by definition, is unproven.
- Be thorough in your risk assessment, but also be prepared for failures and to learn quickly from them.
- Communicate unfinished ideas – crowd in more minds and find like-minded, solution driven partners and sponsors.

# Thank you!

[UNSCN-Nutrition-45-WEB.pdf](#)

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