HarvestPlus: Progress To Date and Future Challenges

CAADP Nutrition Meeting
February 26, 2013
What is biofortification?

- Biofortification is an agricultural approach to better nutrition.
- Uses **conventional breeding** to select for higher vitamin and mineral contents in staple crops (is not GM).
- Focuses on 3 micronutrients that are most limiting: vitamin A, zinc, and iron.
- Targets people who eat large amounts of staple foods daily and who mostly live in rural areas.
- Offers a one-time research investment to develop crops; recurrent costs are low.
#1 Can **Breeding** increase nutrient to levels that improve nutrition?
Biofortified Crops for Africa

Cassava
Provitamin A
DR Congo, Nigeria

Beans
Iron (Zinc)
DR Congo, Rwanda

Maize
Provitamin A
Zambia

Sweet Potato
Provitamin A
Mozambique, Uganda
#2 Are extra nutrients bioavailable at sufficient levels to improve micronutrient status?
#3 Will Farmers adopt crops and consumers buy & eat these?

Photos: Neil Palmer (CIAT)
2007-09

Orange Sweet Potato (OSP)

Vitamin A

Mozambique

Uganda

Pilot Delivery (highly evaluated) ...

24,000 Households reached

Up to 68% of project HHs adopted OSP.

Up to 47% increase in share of OSP in total sweet potato area.

Up to a 100% increase in vitamin A intakes for infants, children and women.
Impact on vitamin A intakes

Figure 5: Impact of REU Intervention on mean vitamin A intakes (μg Retinol Activity Equivalents (RAE)/day), Mozambique and Uganda

- **Mozambique**
  - Children 6-35 mths.
  - Children 3.5-6 yrs.
  - Women

- **Uganda**
  - Children 6-35 mths.
  - Children 5-7 yrs.
  - Women

- Color codes:
  - Impact
  - Control at project end
Case study: High Iron Beans in Rwanda
Breeding Research in Rwanda

• Close collaboration between CIAT and RAB

• Ten high-iron varieties have been released

• Biofortified varieties have 40% more iron than typical bean varieties
Goals for Delivery in Rwanda

- Develop a self sustaining seed market that serves the needs of small farmers on an ongoing basis
- Develop a bean brand for grain market
- Develop effective distribution channels that will promote high iron beans
- Develop/increase health and nutrition awareness
- Develop best farming techniques, e.g. climbers, and promote the use of fertilizers (and other approaches to increase productivity)
- Develop a market information channel that helps small farmers improve their production and market planning
Understand Market Behaviors

• Most farmers who sell beans do so immediately after harvest and may later purchase beans for food and even seed.
• Most (88%) of farmers cite their social networks (neighbors, extended family and friends) as their main sources of information about new varieties,
• The majority of seed "recyclers" and new seed acquirers got their (original) seeds from local markets. All identified sources of seed are within half an hour (or 6 km) distance.
Value Chain

- Beans are being sold to primary traders on rural markets at small distances from the farm.
- Wholesalers are based in and around Kigali and receive their supplies from a network of traders.
- Typically, retailers will collect beans from the wholesalers, but they may also collect them directly from primary traders.

**Input Supply**  
**Production**  
**Consumption**

*Subsistence cultivation of beans in Rwanda.*

**Input Supply**  
**Production**  
**Primary trader**  
**Consumption**

*Commercial cultivation in rural areas*

**Input Supply**  
**Production**  
**Primary trader**  
**Wholesale**  
**Retail**  
**Consumption**

*Commercial cultivation of beans for urban areas*
Value Chain Strategies HarvestPlus Pursues

• Cost effective channels in bean trade and dissemination of market information
• Improving the availability, accessibility and quality of seed under small-scale seed systems
• Linkages between formal and small scale (informal) seed systems
• Grades and standards for beans that enhance bean trade
• Appropriate climbing bean varieties for low and medium altitude areas as well as for rural, urban and peri-urban agriculture
• Strong partnerships & networks across the bean value chain linking production to consumption
In 2012, HarvestPlus sold, at a subsidized price, beans to 60,000 subsistence farming households.

Marketing Channels

Four marketing channels were used:

1. Direct marketing
2. Agrodealers
3. Cooperatives
4. Churches
Lessons Learned

Marketing
• Different package sizes are required for different regions of the country, with the east requiring the largest packs of up to 50Kg and the north the small packs

Agrodealers
• More aggressive marketing on the radio of the varieties promotes sales for agro dealers
• More training on data collection for agrodealers is needed because sales personnel turnover is high

Churches
• They can disseminate more as they have huge followings and can be a valuable channels

Farmers
• Expressed that they buy grain for seed as they can not find good seed