

Slide 1



Slide 2



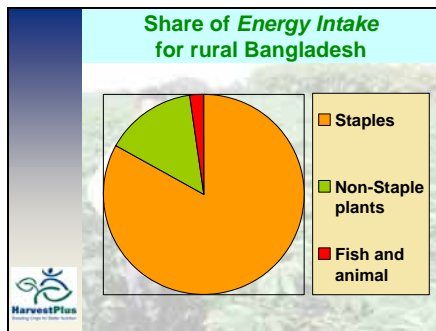
Slide 3



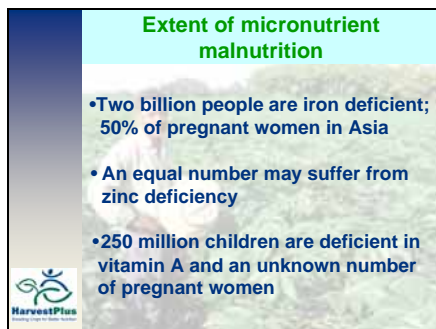
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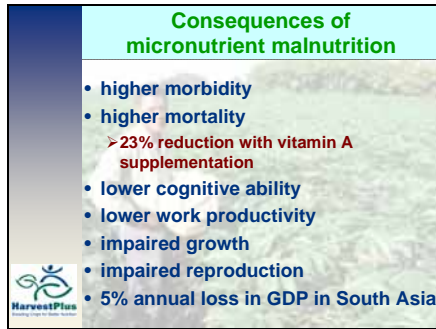
Slide 5



Slide 6




Slide 7



Consequences of micronutrient malnutrition

- higher morbidity
- higher mortality
 - 23% reduction with vitamin A supplementation
- lower cognitive ability
- lower work productivity
- impaired growth
- impaired reproduction
- 5% annual loss in GDP in South Asia



Slide 8

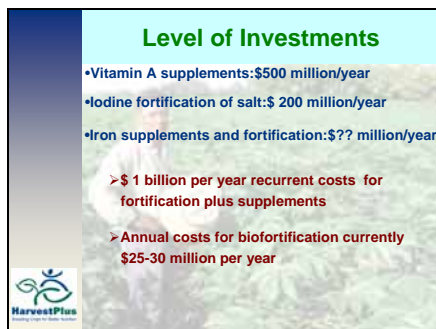


Niche and advantages of biofortification

- **Targets the poor** who eat high levels of food staples
- **Rural-based**; complements fortification and supplementation
- **Cost-effective**; research at a central location can be multiplied across countries and time
- **Sustainable**; investments are front-loaded, low recurrent costs




Slide 9



Level of Investments

- Vitamin A supplements: \$500 million/year
- Iodine fortification of salt: \$ 200 million/year
- Iron supplements and fortification: ??? million/year

- \$ 1 billion per year recurrent costs for fortification plus supplements
- Annual costs for biofortification currently \$25-30 million per year



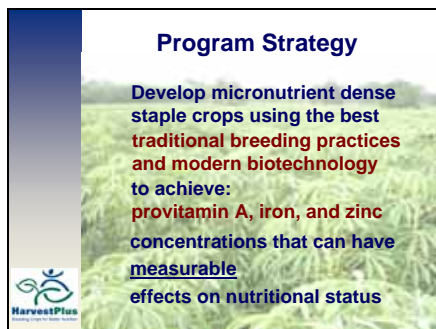
Slide 10



Slide 11

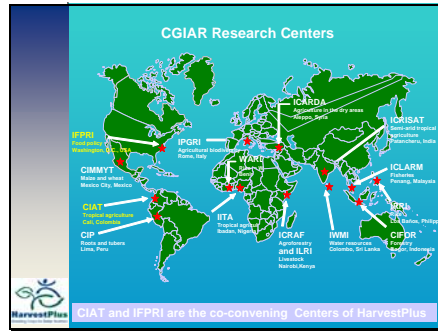


Slide 12

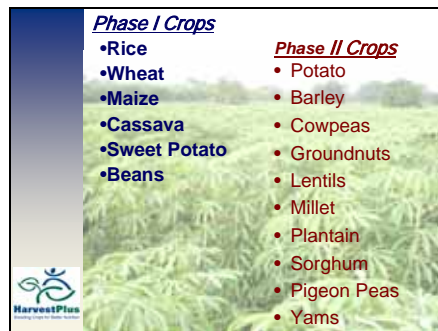


14th Symposium of the International Society of Tropical Root Crops (ISTRC), 20-26 November 2006, Mascot Hotel, Thiruvananthapuram, India. www.istrc.org

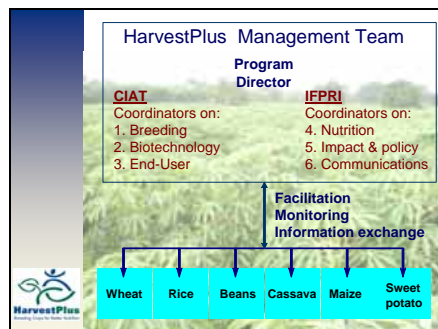
Slide 13



Slide 14



Slide 15



Slide 16

HarvestPlus: Coordinating a multidisciplinary program						
	Rice	Maize & wheat	Cassava	Sweet potato	Beans	
FUNCTION	IRRI	CIMMYT	CIAT IITA	CIP	CIAT	
1.Breeding						
2.Biotechnology						
3.Food processing						
4.Human nutrition						
5.Reaching end-users						
6.Impact & policy						
7.Communication						

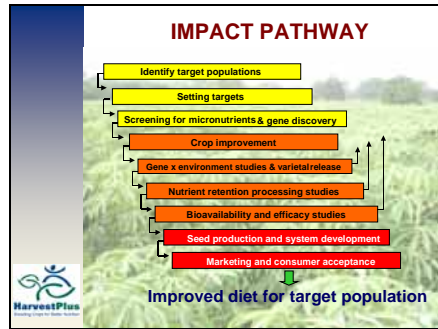
Slide 17

HarvestPlus: Coordinating a multidisciplinary program						
	Rice	Maize & wheat	Cassava	Sweet potato	Beans	
FUNCTION	IRRI	CIMMYT	CIAT IITA	CIP	CIAT	
1.Breeding						
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Slide 18

HarvestPlus: Coordinating a multidisciplinary program						
	Rice	Maize & wheat	Cassava	Sweet potato	Beans	
FUNCTION	IRRI	CIMMYT	CIAT IITA	CIP	CIAT	
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Slide 19



Slide 20



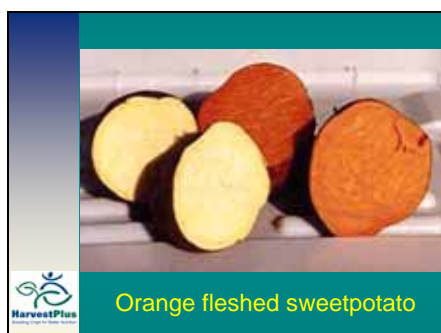
Slide 21



Slide 22

Milestones By Crop – Year 2.5 of 10				
Step	SwPo	Bean	Rice	Wheat
1. Breeding				
2. Bio-availability				

Slide 23



Slide 24

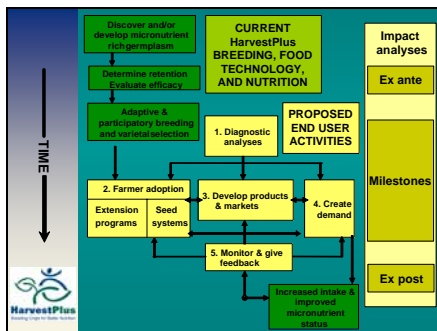
True Retention of β -Carotene after Cooking & Processing	
	Retention
Boiling	83-92%
Oven drying	
6 mm thick slices	47-48%
3 mm thick slices	34-37%
1x1 cm cubes	31-37%
Shade drying	18-23%
Sun drying	9-15%

Source: van Jaarsveld et al 2005

Slide 25



Slide 26



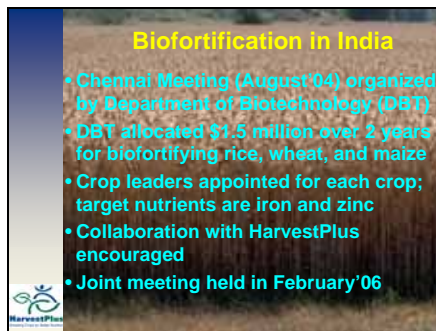
Slide 27



Slide 28



Slide 29



Slide 30

