



Delivery of Vitamin A Maize in Zambia

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DELIVERY

Staple Food	Daily Per Capita Consumption (all age groups, grams/day) ¹	Total Annual Production (thousand metric tons) ²
Maize	302 g/d	2,853
Cassava	237 g/d	1,300
	Daily Per Capita Consumption (grams/day) ²	Provitamin A Density
Maize	Children (2-5 years): 172 g/d Women: 287 g/d	White Maize: 0 parts per million (ppm) Provitamin A Target Increment: +15 ppm Biofortified Maize Target: 15 ppm
		At the target level, biofortified maize provides about 50% of the Estimated Average Requirement (EAR).

¹FAO Stat 2009; ²FAO Stat 2012; ³HarvestPlus Surveys

Current Vitamin A Status

Prevalence of Vitamin A Deficiency (NFNC 2003)	Children 6–59 months: 53%
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Varietal Release: After four years of plant breeding research, the first wave of orange colored vitamin A maize hybrid varieties, which provide 50% of the full target provitamin A level, were released in September 2012. As a precursor to the release of orange maize, 500 demonstration plots were planted by lead farmers in November 2011, intended to create awareness and allow farmers to evaluate the varieties. In November 2012, close to 1,000 lead farmers planted orange maize in plots large enough to feed a family of five over six months. Future breeding efforts focus on developing higher yielding, more robust hybrids exploiting specific adaptation for the different agroecological zones in Zambia.

First Wave Varieties of Maize Released in 2012 in Zambia

Variety Name	Release Year	Vitamin A Content	Comments on Agronomic Properties
<i>First Wave (fast-track): 6–8 ppm Vitamin A Content</i>			
GV662A	2012	7 ppm	Medium maturity hybrid of medium tall plant stature; semi-flint grain, good resistance to GLS and turicum blight; highly ranked in farmer preference; yellow orange grain; competitive yielder
GV664A	2012	7 ppm	Medium maturity hybrid of medium tall plant stature; semi-flint grain, good resistance to GLS and turicum blight; highly ranked in farmer preference; orange grain; competitive yielder
GV665A	2012	8 ppm	Medium maturity hybrid of medium tall plant stature; flint grain; good resistance to GLS and turicum blight; highly ranked in farmer preference; orange grain; competitive yielder; double cobbing tendency

Notes: GLS: Gray leaf spot

Strategic Factors Driving Delivery: Maize is the primary food staple consumed in Zambia and is by far the most important agricultural crop, allowing significant potential for market share. The inherent nutritional superiority of orange maize is a compelling product benefit.

Seed Commercialization: The current seed market for maize hybrids in Zambia is estimated at 15,000 tons per year and is projected to increase to 18,000 tons by 2018. Achieving a 10% market share for orange maize seed by 2018 constitutes the minimum HarvestPlus target. To ensure long-term sustainability and competitiveness, seed companies have plans to engage in vitamin A maize breeding, thereby establishing their own vitamin A maize product lines. Seed is produced by seed companies, which employ experienced seed growers in seed production; training in seed

multiplication is conducted within companies. HarvestPlus will partner with private seed companies for quality seed production, sales, and marketing of vitamin A maize varieties, while continuing its partnerships with public institutions.

Marketing: Creating demand for orange maize through nutrition information dissemination and market stimulation for grain constitutes the main thrusts of the marketing campaigns. As studies have shown that nutrition campaigns can translate into improved acceptance and willingness to pay for orange maize, information dissemination on the comparative advantage of orange maize will be a major marketing campaign initiative. Print media and radio (both local community and national radio) are being used throughout the country and, on a preliminary basis, look effective. The national and regional agricultural shows have been used as promotional platforms. Overall, HarvestPlus marketing activities are complementary to private sector marketing campaigns; seed companies and processors undertake their own marketing campaigns whenever they are introducing a new product on the market.

Stakeholders: Partnerships are extremely important to the delivery efforts in Zambia, and HarvestPlus works closely with Zambia Agriculture Research Institute (ZARI), World Bank AgResults project, Zambia Ministry of Health and several NGOs, among others. A partnership is in the pipeline with the World Food Programme Purchase-for-Progress program (WFP-P4P) to supply orange maize grain to school-feeding programs in the future.

Potential Impact: At the end of 2013, a cumulative total of 10,000 farming households in Zambia had been reached with vitamin A maize. It is projected that vitamin A maize in Zambia will be transitioning from the saturation to the anchoring stage of delivery by 2018. The projected market share by 2018 will be 10%; it is estimated that approximately 500,000 farming households will have access to vitamin A maize.

Cost: HarvestPlus will spend an estimated total of US\$5.3 million for maize delivery activities, 2013–2018.

Delivery Challenges and Recommendations:

- The partnership with private seed companies to commercialize orange maize seed has the advantage of creating sustainability in seed supply system but also a challenge of remaining dependent on their performance in meeting farmers' seed needs.
- The color barrier whereby consumers prefer white maize over yellow and orange maize is being crossed with aggressive nutrition information dissemination. Acceptance studies indicated that once growers and consumers appreciate the nutrition benefits of orange maize, they place a premium on the crop above the white varieties.