DELIVERY

Delivery of Iron Beans in Democratic Republic of Congo (DRC)

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Staple Food	Daily Per Capita Consumption (all age groups, grams/day)[1]	Total Annual Production (thousand metric tons)[2]
Cassava	Data not available for DRC	16,000
Maize		1,200
Rice		350
Sweet Potato		265
	Daily Per Capita Consumption (grams/day)[3]	**Iron Density and Iron Intakes**
Beans	Children (3-5 years): 65 g/d Women: 123 g/d *From Rwanda	Conventional Bean: 50 parts per million (ppm) Iron Target Increment: +44 ppm Biofortified Bean Target: 94 ppm
		At the target level, biofortified beans provide about 60% of the Estimated Average Requirement (EAR).

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

Current Iron Status

Prevalence of anemia (2007 DHS)	Children 6–59 months: 71% Women: 53%

Varietal Release: To date, 10 1st- and 2nd-wave varieties with up to 100% of the iron target have been disseminated to more than 150,000 households. Three fast-track varieties (2 bush, 1 climber) were released in DRC in 2008, one bush bean was released in DRC in 2011, and one climber variety was released in 2012; these varieties were identified for 1st-wave seed multiplication and dissemination. Five 2nd-wave varieties with 60–100% of the iron target were released in 2013. Varieties combine competitive yield with farmer-preferred end-use quality and cover major market classes. Seed dissemination channels include direct marketing, farmers associations/community-based organizations (CBOs), and nongovernmental organizations (NGOs); partners are also trained in promotion.

Varieties Released in DRC

Variety Name	Release Year	Country	Iron Content* (% target)	Altitude Range; Color; Disease Reaction
First Wave (fast-track): 50–60% target increment				
RWR 2245 (Bush)	2011	DRC	76 ppm (59%)	Low to mid altitude; color red mottled; AB, AC resistance; ALS, RR tolerance
COD MLB 001 (Bush)	2008	DRC	64 ppm (32%)	Low to mid altitude; color red mottled; AB, AC resistance; ALS, RR, drought tolerance
Hm 21-7 (Bush)	2008	DRC	62 ppm (27%)	Low to mid altitude; color red mottled; AB, AC, RR resistance; ALS, drought tolerance
COD MLV 059 (Climber)	2012	DRC	84 ppm (77%)	Mid to high altitude; color red mottled; AC, CBB, RR resistance; ALS tolerance
VCB 81013 (Climber)	2008	DRC	69 ppm (43%)	Mid to high altitude; color white; AC, CBB, RR resistance; ALS tolerance
Second Wave: 80–90% target increment				
PIGEON VERT (Bush)	2013	DRC	80 ppm (68%)	Low to mid altitude; color yellow; AC, BSM, CBB, RR resistance; LSF, drought tolerance
PVA 1438 (Bush)	2013	DRC	79 ppm (66%)	Mid to high altitude; color red kidney; CBB, RR resistance

COD MLB 032 (Bush)	2013	DRC	76 ppm (60%)	Mid to high altitude; color sugar; AB, AC resistance; ALS, RR, drought tolerance
CUARENTINO (Climber)	2013	DRC	100 ppm (114%)	Mid to high altitude; color white; AC, CBB resistance; RR tolerance
NAIN DE KYONDO (Climber)	2013	DRC	76 ppm (60%)	Mid to high altitude; color white; ALS, RR resistance; AB tolerance

*Average across four seasons, ICP and XRF data.
Notes: AB: Ascochyta blight; AC: Anthracnose; ALS: Angular leaf spot; BCMV: Bean common mosaic virus; RR: Root rot

Strategic Factors Driving Delivery: Awareness and demand for iron seeds are created by educating household decisionmakers on the health benefits associated with consuming iron beans. Building product acceptance is further facilitated by the agronomic superiority of recently released iron varieties compared to older varieties currently farmed.

Seed Commercialization: Initially, demo seed packs were offered for free to farmers. Based on this experience, seed dissemination was scaled up for sale at either market or subsidized prices. In 2012 and 2013, bean packs were distributed: 25% for free (in the area with insecurity) and 75% sold. Beans were distributed by 31 partners in 4 provinces. The pack size distribution was approximately 50%, 30%, 20% for 250g, 500g and 1kg packages, respectively, but these proportions may be changed in the future based on delivery experience. Different seed package sizes are required for different regions of the country, with the Eastern DRC requiring small packs of 250 grams to 5 kg and other regions of DRC requiring larger packs of 10–50 kg. Two high-value varieties have been identified, and these will be targeted for seed commercialization through agrodealer networks, merchandisers and mobile sales.

Marketing: HarvestPlus initially focused on seed sales. With increasing market presence, HarvestPlus has now initiated demand creation for iron bean grain. Test markets are used to generate diagnostic information, allowing for revising and refining of the marketing plan prior to national rollout. This includes testing which messages and product benefits resonate best, communication channels and their effectiveness, and selection of the brand name and specific promotional messages, activities, and advertising.

Stakeholders: Partnerships are extremely important to the delivery efforts in DRC, and HarvestPlus works closely in strong cooperation with the INERA (DRC NARS), the DRC National Seed Services (SENASEM), extension services, farmers associations/CBOs, and several NGOs.

Potential Impact: At the end of 2013, a cumulative total of 150,000 farm households in DRC had been reached with iron bean seed. HarvestPlus plans to develop sustainable markets for seed and grain and reach a market share of >45% of iron bean by 2018. It is estimated that approximately 1,375,000 farming households will have access to iron beans by 2014.

Cost: HarvestPlus will spend an estimated total of US$2.5 million for bean delivery activities, 2013–2018.

Delivery Challenges and Recommendations:

- Most farmers typically purchase grain to use as seed; purchasing iron bean seed requires a change in mindset.
- Different marketing approaches are needed to increase demand for iron bean seed and iron bean grain; HarvestPlus has primarily focused on seed demand to date.
- There is need to build and strengthen strong alliances on sustainable seed systems with many key players including government, NGOs, the Food and Agriculture Organization of the United Nations (FAO), and the World Food Programme (WFP) to recognize the agronomic and nutrition value of iron beans.