HARVESTPLUS enhancing on-farm access to vitamin A sweetpotato pathogen-tested planting material in Uganda: Strategies for sustainable adoption

- On-farm performance of sweetpotato pathogen-tested (PT) planting material has been reported giving over 80 percent yield increase, especially in sweet potato virus disease (SPVD) susceptible varieties.
- Inspection and certification guidelines to support the current Seeds and Plant Regulations (2017) have been revised to ensure quality control along the sweetpotato seed system.
- More seed entrepreneurs enlisted, regional seed associations formed and linked to private sector laboratories for technical guidance and sourcing of PT planting material
- Partnerships for promoting biofortified crops in Uganda widened with cross linkages between ministries culminating into the formation of the National Biofortification Technical Working Group

SPHI Sweetpotato for Profit and Health Initiative

HarvestPlus Better Crops • Better Nutrition

USAID FROM THE AMERICAN PEOPLE

AUGUST 2019

Fig 1. Certified sweetpotato field at entrepreneur Echabu's site

What is the problem?

Prior to the biofortification intervention by HarvestPlus in Uganda, sweetpotato seed systems were largely informal, dominated by non-orange-fleshed sweet potato varieties without beta-carotene—a precursor for vitamin A. They were inefficient in ensuring timely, quality and adequate supply of planting material of desired varieties especially in regions with prolonged dry periods or high SPVD —namely northern and central regions, respectively. Information on the relationship between yield and PT tested material in sweetpotatoes was scarce and the use of PT material was largely limited to research stations. There were no private sector laboratories dealing in sweetpotato planting material. Additionally, vegetative propagated crops including sweetpotato were not recognized for formal inspection and certification by the Ministry of Agriculture Animal Industry and Fisheries (MAAIF).

What did we want to achieve?

HarvestPlus-Uganda sought to progressively transform the informal sweetpotato seed system in Uganda into a formal one by establishing and enhancing of critical seed chain segments including: capacities to produce pre-basic and basic planting material and establishing decentralized vine multipliers (DVMs) for production of certified planting material. This was envisaged to arise from strengthening of on-farm low cost conservation and multiplication approaches using mini-screen shade nets (Fig. 2) for early generation planting material to ensure easy access of PT planting at affordable prices. This enhanced on-farm wide-scale distribution and timely planting using PT planting material for improved root yield for consumption and marketing. The established seed chain segments facilitated development, testing and institutionalization of the formal sweetpotato seed system in Uganda.

How are we making it happen?

- Identified key actors that would build a replenishing system and build interest among potential market actors. Key actors include laboratories both in public and private sectors, seed entrepreneurs (Fig. 1), inspection and certification directorate, marketers, extension service providers, Makerere University, National Agricultural Research Institute and the International Potato Center (CIP).
- Conducted on-farm participatory validation trials to enable farmers to appreciate the yield advantage of using PT planting material.

Fig 2. Secondary net shade operators get first hand training on viruses at Makerere

- Developed DVMs' technical capacities through seed system trainings (Fig. 2) and exposure during exchange visits, provision of reference guidelines and infrastructural support to obtain insect-proof nets.
- Developed multi-stakeholder district platforms composed of agricultural officers, policy makers and health workers/practitioners, farmer representatives and implementing organizations as community-based springboards for promoting biofortified crops.
- Worked on accreditation of inspectors for the sweetpotato industry and ratification of standards by the Ministry of Agriculture.
- Worked on certificates, branding, in preparation of official launch of the innovations by MAAIF.
- Integrated information and communications technologies and field diagnostic tools to quicken the traceability and certification process, paving way for further commercialization by creating awareness among all stakeholders in the industry.

What are key outcomes?

Linkages between quality seed system value chain actors have been established between two private labs, disease screening facilities at Makerere and DVMs. In addition, we have:

- Four regional seed associations formed and trained on importance of PT planting material and different seed classes (pre-basic, basic, and certified seed).
- A National Seed Policy (2018) including vegetative material launched by MAAIF.

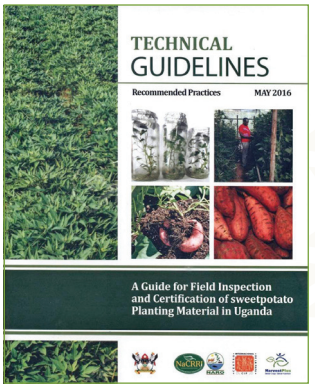

Fig 3. A snapshot of the Inspection and Certification Guidelines published in 2019

- Inspection and certification guidelines (Fig. 3) reviewed and published (Mukasa et al., 2019).
- Seven government inspectors trained.
- Findings on performance of PT planting material and guiding information on sourcing and replenishment published in Crop Protection Journal (Namanda et al., 2019).
- More partners enlisted such as Catholic Relief Services (CRS) and Mercy Corps, for promoting sweetpotato PT planting materials.

Key challenges and lessons learned?

- Limited production capacity of pathogen-tested planting material.
- Building joint value preposition among the different market actors is key in influencing the direction and acceptance of these interconnected innovations.
- Use of low-cost materials like wooden poles in net shade construction is more expensive in the long run than high cost materials like metallic poles.
- Traceability, branding and promotions are key in enabling going to scale with PT planting materials.
- Matching of market preference to variety attributes is key to growing local demand for PT planting material.

What next?

- Investigate and promote technologies for synchronization of timely production of planting material with demand or planting periods.
- Increase production efficiency and scale to reduce cost per unit by using larger screen houses and rapid multiplication.
- Sustain awareness campaigns and benefits of using quality planting material.
- Improve interaction among actors to ensure interdependence through more frequent stakeholder meetings.

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Acknowledgements • MENU project implemented by HarvestPlus with funding from USAID Bio innovate project implemented by Makerere University with funding from SIDA

CIP thanks all donors and organizations which globally support its work through their contributions to the CGIAR Trust Fund. https://www.cgiar.org/funders/