

Integrating Orange - For better access to vitamin A rich sweetpotato in the Eastern Province of Zambia

In its third year, over 5,500 households have been reached with quality sweetpotato planting vines. The project has established a sand-ponic foundation multiplication system with more than 150 recently trained decentralized vine multipliers (DVMs) across eight districts, who are currently maintaining quality orange-flesh sweetpotato vines for multiplication and distribution next growing season. Fresh root and vine sale campaigns helped raise awareness about the benefits of orange-fleshed sweetpotato.

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Disease-free foundation vines maintained under sand-ponic system (credit M. Nkoma)



What is the problem?

Sweetpotato is a critical food security crop in Zambia. It supplements maize and cassava and serves as a stand-by when other staples fail due to drought or disease. The orange-fleshed varieties (OFSP) offer high beta-carotene levels to combat vitamin A deficiency. Sweetpotato has a short growing season and produces yields even under unpredictable rainfall patterns. But its potential is compromised due to lack of sufficient and timely access to disease-free or "clean" planting material. Because sweetpotato is vegetatively propagated, the usual source of planting material for farmers without access to areas with residual moisture during the dry season is the vines left in the field from the previous season's crop. But in areas with a long dry season, the vines become desiccated. Leftover roots re-sprout with the onset of rains but up to two months are then needed to produce sufficient vines for planting. As a result:

- The amount of planting material is limited, restricting the total area that can be planted.
- Sweetpotato is planted late, reducing the potential for high root production.
- There is a greater risk of transmitting pests and diseases from one season to the next through using planting material from old fields.

The combination of these factors leads to lower yields, decreased production, and enormous lost opportunity for bridging the chronic hunger period and improving food security and nutrition.



What do we want to achieve?

The aim of Integrating Orange is to increase availability and timely access to clean planting material of existing and new improved varieties to 15,000 farmer households by June 2015. To do so requires strengthening the seed system to be able to multiply and distribute seed to farmers effectively.

Specifically, the project seeks to provide:

- Higher yielding sweetpotato varieties, with leaf and root characteristics preferred by consumers. Sweetpotato leaves are widely consumed in Zambia.
- OFSP varieties with sufficiently high levels of beta-carotene to improve Vitamin A status linked to projects/programs promoting improved dietary practices, especially for young children and their mothers.
- Disease-free planting material for vine multiplication and root production
- Timely access to vines, early in the growing season (December).
- Training for DVMs and farmers on how to maintain vine quality longer, and conserve vines during the dry season.
- Improve marketing opportunities for sweetpotato to generate income for committed OFSP producers and stimulate commercial demand for quality vines.



Where are we working?

Since 2011, the project has been working in the Chipata, Katete, Lundazi, Nyimba, and Petauke districts of Eastern Province, Zambia, with recent expansion into Sinda and Mambwe districts in



Partners

- Agribusiness in Sustainable Natural African Plant Products (Eastern Province)
- Catholic Relief Services (Chipata, Lundazi)
- Rural Initiative for Children's Hope (Petauke, Sinda)
- Community Markets for Conservation (Chipata, Lundazi)
- Every Home for Christ (Katete).





Promotional market stand selling OFSP vines and roots in Katete district (credit E. Mueller)



Market women trained in making chips and fritters for sale in Chipata district (credit E. Mueller)

2014. Kapiri-Mposhi in Central Province is the eighth district included in the project.



How are we going to make it happen?

We are training decentralized vine multiplier (DVM) farmers and farmer groups within target districts to establish, maintain, and conserve quality OFSP planting material to be made available to neighboring community members. We are monitoring whether distributed material has been planted, noting whether further distribution through cultural traditions of vine-sharing is occurring. Zambia Agricultural Institute (ZARI) is the in-country lead, working with local government extension services (Ministry of Agriculture and Livestock) to support the training and establishment of DVMs. Local partners have also been essential with training additional DVMs and expanding OFSP distribution efforts.

Another key component of the work is to increase awareness about the potential benefits of sweetpotato. These include its food security and nutritional benefits (particularly OFSP), its income-generation potential, and the yield benefits from planting clean planting material. Adding value to OFSP fresh produce is an additional primary project objective and to accomplish this, CIP are training women traders and retailers in producing OFSP-based products, like hot chips, fritters, and sweetpotato buns, which are popular among urban and peri-urban consumers throughout the country.



What have we achieved so far?

- Eleven improved clones have been developed and prepared for public release. Disease-free tissue culture plantlets of five OFSP varieties have successfully been established at foundation multiplication sites. All varieties have been formally submitted to the Seed Control and Certification Institute and await public release by September 2014.
- Six partner organizations have been brought into implementing OFSP-targeted activities that include DVM training, nutritional education to mothers and other vulnerable groups on the importance of vitamin A, and commercialization of sweetpotato markets

through smallholder farmer contracts with large-scale supermarkets.

- To date, a total of 5,594 [2,305 women and 3,289 men] resource-poor individuals have received quality OFSP planting material to help combat VAD at household level in Eastern and Central Provinces. Most households are purchasing these vines.
- Since 2011, the rate of OFSP adoption has increased every growing season – from 0 to 21% farmer acceptance within two years.
- Two screenhouses have been converted at Zambia Agricultural Research Institute (ZARI) stations (one at Msekera; one at Mansa) to sand-ponic system for maintenance of disease-free germplasm of local and OFSP clones for conventional breeding purposes.
- To improve multiplication efforts during the dry season, a total of 140 treadle pumps have been distributed to quality DVMs under individual contract agreements to supply quality OFSP vines by the onset of the rains (November/December) for a minimum of 200 households per DVM within their communities.
- Messages about the benefits of OFSP have been widely distributed through agricultural field days, engaged partner organizations, and mass media radio programming from local stations established within project areas.
- Orange-colored stands were constructed in each town center of target districts to create public awareness and promote sales of vines and fresh roots of nutritious Vitamin-A rich sweetpotato.



What's next?

Trainings are on-going to increase the number of DVMs capable of multiplying quality OFSP planting material within their communities. Preparations are underway so that by December 2014, a total of 20 DVMs within each target district will be ready to serve their communities with quality vines, backed up by nutritional training, advertising road signs, communication materials and OFSP market-based activities. We are expecting to reach 3,000 households directly by field extension staff and 5,000 using the DVM approach through implementing partners from November 2014 to March 2015, followed by vitamin A nutritional messages to OFSP vine beneficiaries in April and May 2015.



Felistus Chipungu and Emily Mueller of CIP visiting owner Joyce Mvula at her Golden Energy restaurant in Katete (credit J. Low)



Giant root of Olympia variety in Lundazi (credit M. Nkhoma)