

Integrating Orange - For higher sweetpotato production in the Eastern Province of Zambia

Access to timely, quality sweetpotato planting vines in the Eastern Province of Zambia can improve food security and nutrition, especially during times of drought, crop disease, and hunger. The Integrating Orange project has established at 37 sites fields across five districts with 37 recently trained decentralized vine multipliers (DVMs), who are currently receiving quality orange-flesh sweetpotato vines for multiplication and distribution next growing season. Working with the Katopolo Farm Institute and local extension services, the project aims to increase women's participation through vine multiplication, processing and preservation, as well as commercial production to include greater than 60% female participants.



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INTEGRATING
Orange
fleshed
SWEETPOTATO IN ZAMBIA

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❖ What is the problem?

Sweetpotato is a critical food security crop in the Eastern Province of 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 but since the local varieties are white fleshed, the benefits of the orange color must be explained. 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.

❖ Mary Namonje, CIP research assistant, educating national show attendants on the importance of Vitamin A in orange-fleshed sweetpotato varieties. Prepared foods such as chips, fritters, cakes, and juice were on display to create awareness on provitamin A sweetpotato. Lusaka, Zambia (credit C. Mweemba).

- 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 October 2015. This is being achieved through 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,

Partners include:

- Zambia Agricultural Institute (ZARI)
- University of Zambia
- Radio Breeze
- Ministry of Agriculture

- OFSP varieties with sufficiently high levels of beta-carotene to improve Vitamin A status,
- Disease-free planting material for vine multiplication and root production,
- Timely access to vines, early in the growing season,
- Training for DVMs and farmers on how to maintain vine quality longer, and conserve vines during the dry season, and
- Communication products to increase awareness of the benefits of using disease-free planting material, the benefits of OFSP varieties and where quality vines can be obtained.

✦ How are we making 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. Additionally, we are testing two vine conservation methods in order to understand which is more effective and sustainable for smallscale farmers to maintain quality vine material during the long, dry months. Vine planting material is traditionally produced from groundkeeper roots that have sprouted during the rainy season. Alternatively, another method which utilizes small roots (the Triple S method), is being compared to the traditional ratoon-crop means of vine production.

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. They include: CARITAS-Chipata, Rising Fountains (Lundazi), Rural Initiative for Children's Hope (Petauke, Sinda), COMACO, DAPP (Kapiri-Mposhi), and Green Living Movement.

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. Radio Breeze is bringing its expertise in communication to the project.

✦ Where are we working?

Since 2011, the project has been working in the Chipata, Katete, Lundazi, and Petauke districts of Eastern Province, Zambia, with recent expansion into Nyimba district in 2013. Kapiri-Mposhi in Central Province is the sixth district included in the project study.

✦ What have we achieved so far?

- Disease-free tissue culture plantlets of two of the five OFSP varieties have successfully been established at foundation and primary multiplication sites. The remaining three OFSP varieties have completed the final stages of virus eradication and clean plantlets are expected in September 2013.
- Due to the limits in soil sterilization and power instability, one screenhouse at Msekera Agricultural Research Station under the Zambia Agricultural Research Institute (ZARI), Chipata, has been converted to a sand hydroponic system in February 2013 for rapid, cost-effective OFSP vine multiplication in Eastern Province.
- A nutrition "training of trainers" workshop to educate 44 selected extension staff, farmers, and implementing partners on basic nutrition-related topics aimed to improve rural household diets and enhance Vitamin A intakes through proper preparation, storage and utilization methods for orange-fleshed sweetpotato.
- To improve multiplication efforts during the dry season, 40 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 within their communities.

✦ What are the next steps?

Preparations are underway so that by November 2013, a total of 20 DVMs within each target district will be ready to serve their communities with quality vines, backed up by training, advertising road signs, communication materials and activities. We are expecting to reach 4,000 households using the DVM approach and 3,000 households through mass multiplication from November 2013 to February 2014, with the remaining 8,000 households obtaining vines in 2015.



✦ Orange-fleshed sweetpotato varieties under multiplication at the screenhouse at the Msekera Research Station. Screenhouse technician, Moffat Lungu, is taking cuttings of quality vines for distribution to farmers in Eastern Province, Zambia (credit C. Mweemba).



✦ Orange-fleshed sweetpotato in prepared recipes for taste evaluations with farmers in Kuma village, Eastern Province, Zambia (credit J. Moyo).



✦ On-site demonstration of disease management of orange-fleshed sweetpotato with decentralized vine multiplier, Mr. Masiku, of Kapatamoyo village, Zambia (credit C. Mweemba).

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