

Rooting Out Hunger in Malawi Transitioning into a National Roots and Tuber development program

AUGUST 2015



Fig. 1 Newly constructed OFSP screen house under sand-based irrigation for rapid vine multiplication at DARS-Bvumbwe (credit E. Mueller)

What is the problem?

More than 70% of the 218 million residents of Malawi live below the poverty line, with 58% of poverty-stricken households being female-headed. Although the Government of Malawi is committed to poverty reduction, progress has been slow in recent years. The struggle with extreme poverty is reflected in rural communities, where malnutrition rates are extremely high, especially among women and young children. Currently, it is estimated that 800,000 children under the age of five suffer from under nutrition and one million are vitamin A deficient. Many of the people affected by poverty depend on agriculture for sustenance and income. This presents an opportunity to use an integrated nutrition-agriculture food-based approach to address major challenges in improving the livelihoods of vulnerable households in Malawi.

What do we want to achieve?

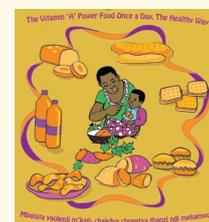
Roots and tubers (RTC), particularly sweetpotato, cassava, and potato, are staple food crops for Malawians, complementing the dominant maize crop. They are relatively easy for resource-poor farmers to grow and serve as important sources of energy and nutrition. The first phase of the Rooting Out Hunger project (ROH 1) focused on promoting the adoption and appropriate use of orange-fleshed sweetpotato (OFSP) as a food-based approach in reducing malnutrition and poverty levels in Malawi. As the project transitions

into the second phase that will run from 2016 to 2020, we aim to scale up and expand production of OFSP as well as cassava and potato. We will incorporate successful nutrient-oriented models used in ROH 1 to develop a national root-and-tuber program. Focusing on the OFSP component in this development phase, we plan to expand dissemination of OFSP varieties released in 2011 – Ana Akwanire, Chipika, Mathuthu, Kadyaubwere, and Kaphulira – into communities in neighboring extension planning areas (EPAs) of Southern Malawi, so as to improve the seed system and increase production by smallholder farmers. Our objectives are to:

1. Improve the sweetpotato germplasm maintained in-vitro at the Department of Research Services at Bvumbwe (DARS-BRS) as a source of breeding materials and clean, quality 'seed' for smallholder farmers.
2. Increase vine multiplication capacity for all six OFSP varieties under controlled environments for farmer participatory characterization assessments and identification of best-adapted OFSP varieties within season-specific agro-ecological zones.
3. Strengthen quality vine multipliers linked to foundation seed to provide clean sweetpotato planting material to collaborating partners invested in promoting OFSP for distribution to farmers.
4. Improve access of OFSP roots to commercial and informal markets through collaboration with private agro-processing industries committed to developing OFSP-based products.

Where are we working?

Currently we work in Chikwawa, Phalombe, and Zomba districts and we are extending into neighboring Blantyre, Chiradzulu, Mwanza, and Nsanje districts; all located in Southern Malawi. For OFSP promotion at national level, our efforts are also linked to two other on-going OFSP projects – Scaling up Sweetpotato through Nutrition and Agriculture (SUSTAIN) and Feed the Future Malawi's Improved Seed Systems and Technologies (MISST) – which operate in the Northern and Central Regions.





How are we going to make it happen?

We will continue to work in close collaboration with DARS to develop improved OFSP varieties for farmers and provide quality planting material for further multiplication by private, decentralized vine suppliers located within the operational districts. We are working to provide sufficient starter material for OFSP vine dissemination in the Southern Region. At the Bvumbwe Research Station, OFSP is maintained and multiplied using micro-propagation techniques, sand-based irrigation (sandponics) in the screen houses, and rapid multiplication under field nursery beds (Fig. 1). We are also implementing demonstration plots that include all six OFSP varieties using the 'mother-baby' approach as a way of creating public awareness on the new OFSP varieties and characterize their agronomic performance under varying micro-climate conditions. We are working with Universal Industries, a private processing company, to develop commercial products for all three RTCs that include OFSP and potato crisps, OFSP and cassava biscuits, high quality cassava flour, and OFSP puree (Fig. 2). All these products promote national expansion of nutritive foods comprised of roots and tubers.



Who are we working with?

The Department of Agricultural Research Services (DARS) leads the breeding research and germplasm maintenance of pre-basic planting material for sweetpotato and potato at the Bvumbwe Research Station. Major implementing partners that incorporated OFSP into their on-going projects in the Southern Region in 2015 include: Catholic Relief Services (CRS), Concern Worldwide (CWW), Sustainable Rural Community Development Organization (SRCDO), Department of Agricultural Extension Services (DAES), Millennium Villages Project (MVP), Catholic Development Commission (CADECOM), and Concern Universal (CU).



What have we learned so far?

In the 2014/2015 growing season, 16 trained vine multipliers supplied more than 220,000 cuttings of the recently released OFSP varieties from their multiplication fields to farmers. They also supplied quality planting material to 27 implementing partners working with ROH, MISST and SUSTAIN projects. Vines were packaged using a standard count of 100 cuttings at 30cm lengths, with an identification tag indicating the variety and the vine supplier contact details (Fig. 3). This approach improved awareness of the variety names and supplier information among recipient farmers.

Results from the 23 established on-farm demonstration plots reveal that OFSP yield performance and consumer acceptance varies across districts and planting seasons (rainy vs. dry). For most southern districts, top-yielding varieties include Kadyaubwere and Chipika. Palatability studies from the OFSP crisps and biscuits under



Fig. 2 Universal Industries packaging design for the release of OFSP crisps (credit J. Pankuku)

development at Universal Industries indicate high consumer preference for crisps made from the Kadyaubwere variety. As the OFSP-products become available to the public in September 2015, this information will be important for coordinating root production of the preferred OFSP varieties.



What is planned for the year ahead?

In preparation for the 2015/2016 growing season, we will continue to support multiplication of foundation material of all six OFSP varieties at DARS-BRS and provide technical backstopping to commercial-oriented vine suppliers within the target districts. As the demand for OFSP vines increases in rural communities, our main focus will be to coordinate with commercial agro-processing industries, such as Universal Industries, to enhance market opportunities for smallholder OFSP producers. We will carry out public awareness on the importance of Vitamin A and OFSP through farmer trainings, field days, and trader education. By 2016, a three-crop program will be established to scale up RTC development across the nation for the next five years.



Fig. 3 OFSP root producers receive disease-free planting material for root production for Universal Industries (credit J. Sayles)