

# Reaping the benefits from investments in breeding in Mozambique

This five year project (2009-2014) financed by the Mozambique USAID mission, together with support from the Office of Disaster Assistance for 2 years, supplied at least 200,000 households in 7 provinces of Mozambique with improved, pro-vitamin A rich sweetpotato varieties.

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Roots of the 15 drought tolerant OFSP varieties released in 2011 (credit M. Andrade)

## What is the problem?

**Sweetpotato is a short maturity crop that** provides reliable yields under a variety of adverse conditions. Grown widely in seven of Mozambique's ten provinces, the government has recognized the significant contribution of the sweetpotato to increase food security and nutrition. In fact, about 69% of children under five suffer from vitamin A deficiency in Mozambique. Medium to deep orange-fleshed varieties of sweetpotato (OFSP) are extremely rich sources of beta-carotene, the precursor to Vitamin A. Just ½ cup of boiled and mashed OFSP can meet the recommended daily intake requirements of a young child under 5 years of age.

The value of OFSP was recognized in 2000 when it was used as a disaster mitigation crop after the massive floods in Southern Mozambique. From 2003 to 2005, a CIP led collaboration with 124 partners, financed by USAID, provided more than half a million households with OFSP planting material. Severe drought in 2005,

however, resulted in the loss of about half of all the sweetpotato material planted. Thus, a need for drought-tolerant OFSP (with stronger vine vigor, appropriate dry matter content, and high content of beta-carotene) was recognized and resulted in the initiation of a breeding program for drought-tolerant OFSP with the support of the Rockefeller Foundation, USAID, AGRA, and HarvestPlus.

## What do we want to achieve?

**Among others, the project will help:** (i) Create a sustainable decentralized vine multiplication system in the major sweetpotato-producing provinces; (ii) Evaluate new drought-tolerant clones leading to the release of new varieties; (iii) Multiply and distribute drought-tolerant OFSP varieties, backstopped by a demand-creation campaign, in collaboration with at least 10 different partners to reach 138,000 households by the end of 2014; (iv) Improve access to new



### Key Partners

- IIAM (Instituto de Investigação Agrária de Moçambique)
- DNEA (Direcção Nacional de Extensão Rural)
- DNSA (Direcção Nacional de Serviços de Agrários)
- UEM (Universidade Eduardo Mondlane)
- IAB (Instituto Agrário de Boane)
- ISPG (Instituto Superior Politécnico de Gaza)
- FAC (Faculdade de Agricultura de Cuamba)
- NGOs (World Vision, ADRA, Lutheran World Federation, Save the Children, and Helen Keller International)
- Individual small holder farmers, commercial farmers, farmer associations and industries



SETSAN's Marcela Limbombo & Maria Andrade (CIP) launching of the new Kitchen Lab at IIAM (credit B. Rakotoarisoa)

production, storage, and processing technologies, to increase revenues from OFSP production through improved marketing linkages; (v) Ensure the sustained capacity of the national research institute, IIAM, to provide virus free clean, planting material of existing and new sweetpotato varieties through their tissue culture facilities, (vi) Improve information dissemination through collaboration with IIAM, partners, and other CGIAR communication efforts.

### Where are we working?

**In Mozambique, the project has directly been implemented in 7 provinces, Maputo, Gaza, Inhambane, Manica, Sofala, Tete, and Zambezia.** However, the spillover effect reached the Nampula and Niassa provinces, as most of the varieties developed under the project have been multiplied and disseminated in those provinces.

### How are we making it happen?

**An integrated Agriculture-Marketing-Nutrition approach** has been implemented to develop new technologies and mechanisms for their dissemination. This process has been conducted by CIP and IIAM, in collaboration with several partners including farmers, NGOs, government agencies and business. Furthermore, a strong marketing and communication strategy has been implemented to reach all segments of the society.

### What have we achieved so far?

- **Variety selection: Eighteen (18) new varieties** released, and among them 15 drought-tolerant OFSP (with additional financial support from the SASHA project).
- **Support facilities and infrastructure:** About 20 conventional screen houses were built to complement the laboratory basic seed multiplication. One quality laboratory and kitchen lab were constructed to assist breeders in selecting for quality traits. Five (5) crossing blocks were built.

- **Production, storage, and processing technologies:** About 8 improved technologies including the Accelerated Breeding Scheme (ABS), intercropping practices, net tunnels, and modified decentralized vine multiplications were tested. On processing, different recipes such as juice, bread, cakes, leaves were refined and disseminated.
- **Seed system:** About 353 decentralized vine multipliers (DVM) in 63 districts were effectively established. More than 0.5 million direct beneficiaries with 200,000 direct beneficiaries received clean planting material.
- **Marketing and farmer empowerment:** More than 100 display sessions covered by local media were conducted. More than 40 field days were carried out, and about 4,000 farmers (60% female) were trained on production, multiplication/DVM, on-farm, agro-processing, and marketing related technologies.
- **Other capacity building and trainings:** About 800 technicians (37% female) were trained on production/plant breeding, on-farm, agro-processing, virology, and data management, use of CloneSelector for organizing selection trials, accessing information on the Sweetpotato Knowledge Portal and quality analysis using NIRS. Thirty technicians from the Southern Africa Region were trained on sweetpotato production and dissemination related technologies. Twenty-three students (2 Masters; 9 BScs and 12 medium level agrarian technicians) conducted and finished their final work under the support and guidance of CIP. Three papers, 2 book chapters, 16 posters/leaflets, and 12 abstracts were produced.



Irene de Souza with her freshly made OFSP salad on sale at Maputo food fair (credit HKI)