

Scaling-Up Sweetpotato through Agriculture and Nutrition (SUSTAIN) in Rwanda

The project has set up 39 DVMs (46% male, 54% female). After four years, we have reached 102,038 beneficiaries in 8 districts with an adoption rate of 96% measured as those are still growing OFSP at least two years after receiving the vines. Average yields have increased from 3-5 t/ha to 12 -15 t/ha. During the past year (1st July 2016 to 30th June 2017), agro-processors marketed processed products worth US \$199,723 and DVMs sold vines worth US \$41,114.

AUGUST 2017



Fig 1 Sweetpotato roadside market in Ruindo (credit K. Sindi)

What is the problem?

Rwanda's investment in agriculture program targets five crops, mainly maize, rice, beans, banana and potato. However, in terms of metric tons produced, sweetpotato is the number one crop in the country, accounting for 13.4% of all crop production in 2014, yet only 5.2% of cultivated land (Table 1). Rwandans consume over 88 kg per capita of sweetpotato per annum, with the dominant varieties being white-fleshed. The major complaint of farmers is lack of market.

In addition, the level of stunting remains high (38% in 2014-15 DHS). Combatting malnutrition is a high government priority. Biofortified orange-fleshed sweetpotato (OFSP) can provide a year-round source of vitamin A in the diet while continuing to be central to ensuring food security of rural Rwandese households.

Table 1. Production of Key Roots & Tubers in Rwanda in 2014 Seasons A, B, & C

Crop	Total metric tons	% of all crop production	% of all area cultivated
Sweetpotato	940,787	13.4	5.2
Cassava	900,227	12.8	22.8
Banana for beer	854,710	12.2	11.7
Cooking banana	865,629	12.3	8.3
Irish potato	719,006	10.3	4.1

Source: National Institute of Statistics of Rwanda: Seasonal Agricultural Survey 2014

What do we wanted to achieve?

Biofortified, pro-vitamin A rich OFSP varieties are a proven tool for reducing vitamin A deficiency (VAD) among children under five years of age, the group most at risk of VAD. Under the SASHA project (2010-2014), we demonstrated that through an effective public-private partnership with Urwibutso (SINA) Enterprises, it is possible to build a sweetpotato value chain that is pro-poor and pro-women. Through the SUSTAIN project, we are scaling-up this model and strengthening the nutrition component.

We intend to reach at least 60,000 direct smallholder beneficiaries and 250,000 indirect beneficiaries by 2018 with improved varieties and appropriate nutrition information and counseling for caregivers of infants and young children. We aim to contribute to improving dietary diversity through increasing the consumption of OFSP and other vitamin A rich foods at the household level. The impact of the project will be evaluated using a robust randomized control trial (RCT) design, led



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Our Partners

- Rwanda Agriculture Board (RAB)
- Young Women Christian Association (YWCA)
- IMBARAGA Farmers Syndicate
- United Nations Children's Fund (UNICEF)
- World Vision
- One Acre Fund
- Gardens for Health
- Caritas
- Catholic Relief Services (CRS)
- Local Governments
- Rwanda Cooperative Agency

SUSTAIN is a 5-year program (2013-2018), coordinated by the International Potato Center (CIP) with support from UKAid, to scale up the nutrition benefits of biofortified orange-fleshed sweetpotato (OFSP) to 1.2 million households with children under five years of age in children in Kenya, Malawi, Mozambique, Rwanda, and Bangladesh. SUSTAIN supports an integrated set of interventions in agriculture, nutrition, and marketing to increase production and consumption of OFSP. SUSTAIN emphasizes rigorous monitoring, operational research, and independent evaluation to assess the scalability of these interventions and contribute to global evidence on achieving large scale nutrition outcomes through biofortified crops.

by Michigan State University. By demonstrating diverse use of sweetpotato, we aim to change the image of sweetpotato in the country from being a poor person's crop to OFSP being a health food for all.

Where are we working?

SUSTAIN is working in 8 districts (Gicumbi, Ruhango, Kayonza, Rwamagana, Gakenke, Rulindo, Kamonyi, and Muhanga). The project is part of a wider CIP Rwanda sweetpotato program that is currently covering 18 districts.

What have we achieved so far?

Between December 2015 and April 2017, the project produced and distributed over 20.4 million OFSP cuttings to 102,038 eligible households in 8 districts. Each recipient also received an integrated nutrition-agriculture brochure which provides information on nutrition, agronomy and use of OFSP. The project set up 39 Decentralized Vine Multipliers (DVMs) who are the backbone of the OFSP seed system in Rwanda. Over the past two years, DVMs produced and sold cuttings valued at about US \$81,591 and cooperatives sold roots worth US \$25,160, with 400 smallholder farmers (70% females) linked to markets (Fig. 1). From July 2015 to April 2017, Urwibutso Enterprises sold OFSP-based bakery products worth US \$522,989. During the last two years, eight farmer cooperatives have produced and sold OFSP products worth over US \$20,000.

We distributed over 300 nutrition counseling cards to project partners, government staff and other NGOs who employed community health workers (CHWs) and agriculture promoters in the field. The cards were used extensively in step-down trainings over the last 3 years. Between July 2016 to June 2017, 101 community-level infant and young child feeding (IYCF) events, 125 agricultural events (Fig. 2) and 107 cooking and processing events were undertaken.

We monitor yields of different varieties on farmer's fields and in demonstration plots. Compared to the local white-fleshed check variety (10.1 t/ha), the average yield of all of the following OFSP varieties have been superior: Gihingamukungu (14.8 t/ha), Vita (14.1 t/ha), Kabode (13.9 t/ha), and Terimbere (13.1 t/ha).

From September 2014 to June 2017, the project has prioritized awareness creation, demand creation, and advocacy activities. To date, 103,000 brochures, 103,000 OFSP variety labels, and 103,000 cooking flyers have been distributed to farmers. Roadside signs advertising vines at 14 DVMs help link farmers to quality vine suppliers. To reach both rural and urban consumers, 20 TV and 26 radio programs have been aired. 2,800 flyers were distributed to donors and policy makers. So far, 22 stories have appeared in the print media and 30 on-line.



Fig. 2 Promotion event for OFSP (credit A. Ndayisenga)

But the great accomplishment has been the transformation of government policy towards OFSP. OFSP is now recognized as a nutritious food security crop to be incorporated into all food security project efforts. The fresh root and processed product marketing efforts have positioned OFSP as a cash crop. OFSP now appears in rural markets and shops and supermarkets in selected urban centers.

Efforts to develop a sustainable seed system initiated during SASHA Phase 1 (in 2011) have continued to develop. The OFSP seed system is being used as a model for all other clonally propagated crops in Rwanda by the Ministry of Agriculture and Animal Resources.

What's next?

The SUSTAIN project has achieved its goals as planned. A major remaining task is for Michigan State University to implement the endline RCT survey that will be done from December 2017 to February 2018. The endline will cover 1,560 households in 252 villages from 42 sectors in 8 districts survey. The RCT is designed to measure the total number of beneficiaries reached/impacted by different types of interventions, namely 1) Base model: All the components of the integrated Agriculture, Nutrition and Marketing approach; 2) Base model less nutrition counseling; 3) Base model less marketing; 4) Base model less nutrition counseling and marketing; 5) Base model, but only one season; and 6) Base model with the second-time vine distribution at a higher price. The RCT is designed to show the type of interventions that have greater impact per unit cost.

In the remaining time, the project will continue backstopping DVMs and marketing activities, including demand creation campaigns in support of processors, while the final project report is prepared.