

Extension of Appropriate Post-Harvest Technology in Sub-Saharan Africa: A Postharvest Training & Services Center (PTSC)



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Specific Project Objectives: Our objectives focused upon the accomplishment of three major activities, each contributing to the overall goal of building the capacity for long-term, sustainable local horticultural business development.

1. Train 30 persons (researchers, extension workers or development workers) from Rwanda, Ghana, Kenya, Tanzania, Benin and Gabon as postharvest specialists (Year 1).
 - **36 young people from seven SSA countries** (Rwanda, Ghana, Kenya, Tanzania, Benin, Ethiopia and Uganda) were successfully trained out of an initial group of 49 people. These 49 were selected out of a pool of **more than 200 applicants**.
 - **53%** of the trainees who completed the program were **women** (19 of 36).
 - Each trainee completed **10 assignments** (reading, fieldwork, written reports) on Commodity Systems Assessment (CSA), postharvest systems research (PSR) techniques, postharvest demonstration and extension program design, and cost-benefit analysis.
 - Each of the 36 who completed the program received a **Postharvest Tool Kit**, and **32 of the ToT** group attended a **week long closing workshop** at the PTSC in Tanzania in October 2012, where they participated in farmer training on site.
 - The same self-administered TNA was given to the 32 ToT group on their last day of the workshop, and analyses indicate that each of the trainees rated themselves higher on a wide range of **knowledge, skills and expertise related to postharvest training and extension work**.
 - More than 16,000 people in SSA received postharvest training as a result of the project. An additional 15,000 people to date have received postharvest training via the multiplier effect.
2. Design and set up a Postharvest Training and Services Center (PTSC) (Year 1/2).
 - During March 2011, three of the original PIs visited **Rwanda** to identify potential sites for the PTSC (Barrett, Kitinoja and McLean)
 - The first potential African partner organization identified (KIST in Rwanda) was not able to complete their negotiations to identify a site for the PTSC near Kigali, so we were given permission to **move the project to Tanzania in early 2012**.
 - The PTSC facility and demonstrations were successfully designed by Dr. Kitinoja and set up by an AVRDC team on the campus of **AVRDC just outside of Arusha, Tanzania**.
 - **Renovations** were completed in September and postharvest training programs there were launched in **October 2012** (the beginning of Year 3).
 - **A Tanzanian PTSC manager (Radegunda Kessy)** was hired by AVRDC and trained by Kitinoja and the project team during July 2012- December 2012 in basic skills of postharvest technology, center

management, program marketing, inventory control, staff supervision, inventory management/pricing, fee setting and recordkeeping.

- **Procurements for the PTSC shop**, demonstrations and training programs began in July 2012 and were successfully completed by July 2013.
- Legal issues prevented AVRDC from opening the PTSC shop therefore it was relocated to a nearby **Ministry of Agriculture and Food Security (MAFS) site in Njiro**.
- The PTSC shop in Njiro will generate a variety of **sources of income** if managed successfully, from **fees for services, sale of tools and supplies** such as temperature probes, refractometers, plastic crates and other improved packages, and **rent-to-own or leasing agreements** for the use of solar driers, cool storage space or shipping assistance.
- Earned funds will enhance the **sustainability** of the project, and will be put toward paying for training program costs, utilities and/or for inviting resource persons to visit the PTSC at Njiro to provide postharvest training as the need arises.

3. Provide demonstrations, training programs and conduct adaptive research on innovative small-scale appropriate postharvest handling, food safety and food processing methods at the PTSC in collaboration with Trainees and local extension personnel (Years 2 and 3).

- A wide variety of postharvest demonstrations were set up at the PTSCs in both Arusha and Njiro. These included appropriate, cost effective technologies such as **use of shade, improved packages such as plastic crates, field packing, grading/packing stations, simple postharvest equipment such as washing, evaporative cooling, portable FA cooler and small scale processing equipment and supplies, a zero energy cool chamber, and a small insulated cold room equipped with a CoolBot controller**.
- A series of postharvest training programs on a wide variety of topics were designed and implemented during October 2012 through September 2013 by project leaders and local postharvest trainers.
- More than **12 Tanzanian and international postharvest instructors provided 42.5 days** of training, with **637 participants (230 men, 407 women)**.
- The project leaders provided **on-going technical support** for project staff, association members involved in postharvest training programs and AVRDC staff involved in the day to day operation and management of the PTSC.
- **Graduate students** from UC Davis, UGA and AVRDC were involved in a variety of postharvest research activities associated with the project. AVRDC had a student intern during the summer of 2013 that assisted Ngoni with some simple data collection on the use of the ZECC.
- UGA graduate student Sara Sparks applied a **systems approach to postharvest handling** for two purposes: (1) characterization of all factors affecting quality, safety, economic and social aspects and (2) identification of key actors and actions within the system.
- **Adaptive research was planned** on pest control, low cost cool chambers, improved solar driers, cool transport in insulated containers, food safety and/or other topics but the research studies were not started by AVRDC staff until late in 2013.
- In June 2013 a **no-cost extension** was granted by Hort CRSP to AVRDC in order to allow them more time to carry out some of these research studies. All of the other project objectives were completed by the original end date of Sept. 30, 2013.



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