

# **Emergency Response with Potato and Sweetpotato among Drought-Affected Farmers in SNNP Region Ethiopia Informal Update (Jan.–July 2017)**

## **1. Introduction**

In 2015/2016, Ethiopia experienced the worst drought in more than five decades, exacerbated by the phenomenon of El Niño. The drought resulted in significant crop and livestock losses nationwide, with the Southern Nations Nationalities and People's Region (SNNPR) as one of the regions most affected. This caused farmers in the region to lose their most adaptive and productive crop varieties, including those of potatoes and sweetpotatoes.

Subsequently, the United States Agency for International Development's Office of U.S. Foreign Disaster Assistance (USAID/OFDA) supported the International Potato Center (CIP) to implement the Emergency Response project. The goal of the project was to restore the lost planting materials of productive and locally adapted potato and sweetpotato varieties, and to improve food and nutrition security of drought-affected communities in the project's intervention areas in SNNPR. This one-year project started on 24 June 2016 and was supposed to end on 23 June 2017. CIP, however, received a no-cost extension up to September 2017 but with an agreed end date of 31 August (phase 1). The project was extended again, from 1 September 2017 to 30 June 2018 (phase 2).

The first semiannual report for the period 24 June–31 December 2016, was submitted to OFDA/USAID. Since the first phase will end on 31 August, a final phase 1 project report will be submitted in September. This present, short informal project update gives progress on activities and accomplishments since January 2017.

### **1.2 Project Goal and Objectives**

To improve food and nutrition security of drought-affected farm households (HH) by providing immediate access to seed potato and sweetpotato planting material of productive and locally adapted varieties.

#### **1.2.1 Objective**

To support 12,000 drought-affected potato and sweetpotato farmers in SNNPR through provision of emergency seed potato and sweetpotato planting materials and training farmers on production and postharvest technologies.

#### **1.2.2 Project components**

The project seeks to accomplish its goal and objective through two components: (1) emergency seed supply of potato and sweetpotato and (2) farmer training and awareness creation.

## **2. PROJECT MANAGEMENT AND INTERVENTION AREAS**

### **2.1 Project Intervention Areas**

Since the first semiannual report (31 December 2016), the project has been implemented in 35 potato kebeles in five woredas in Belg 2017 (short rain season starting in March) and 31 sweetpotato kebeles in seven woredas in Meher 2017 (main rain season starting in June). Of the 31 sweetpotato kebeles, 20 are

new and will be taken up in phase 2; the remaining 11 kebeles are from the Meher 2016 intervention kebeles. This time, however, high-quality foundation orange-fleshed sweetpotato (OFSP) planting material was given to selected farmers and cooperatives with access to irrigation. The purpose was to further multiply quality planting material quickly and sell to the surrounding communities to renew their seed stock and get higher yields, hence more nutritious food per unit area.

## **2.2 Inception Workshop**

Inception workshops for Belg activities were held for potato woredas and a newly selected sweetpotato woreda in February and June 2017, respectively. Twelve agriculture officials from potato woredas and 13 officials from regional, zonal, and woreda agricultural offices and health offices participated in the inception workshops. These were presided over by a representative of the Regional Bureau of Agriculture and Natural Resources Development (RBoANRD). The purpose of the workshops was to get a buy-in and commitment from the officials for effective implementation of the project. The officials fully owned the project and took responsibility to work toward achieving project objectives in their woredas; they thanked both the donor (OFDA/USAID) and CIP for the support at the time of real need. The participants also prepared an action plan.

## **3. ACCOMPLISHMENT OF PROJECT ACTIVITIES**

The Belg 2017 season activities focused on seed supply, training on potato and sweetpotato production and postharvest technologies, and nutrition. They were conducted in eight zones, 12 woredas (5 potato, 7 sweetpotato), and 66 kebeles (35 potato, 31 sweetpotato). Highlights are given below.

### **3.1. Emergency Seed Supply of Potato and Sweetpotato**

#### **3.1.1 Sources of planting material**

In collaboration with Input Supply, Monitoring and Distribution Core Process of the RBoANRD, seed potato producer cooperatives and commercial sweetpotato planting material producers that undergo quality declared seed (QDS) inspection were identified and invited for bidding. The winner was identified through a transparent bidding process and quality planting material was purchased. The foundation sweetpotato planting material was sourced from the Southern Agricultural Research Institute (SARI), the only qualified supplier, following a contract agreement between CIP and SARI.

#### **3.1.2 Distribution of planting material**

Quality seed potatoes of 'Gudene' and 'Belete' varieties were distributed in the first week of March 2017, after potato pre- and postharvest management trainings were provided for woreda and kebele level agricultural experts, development agents (DAs), and farmers. A total of 3,498 potato farmers (one farmer representing a HH) in 35 kebeles of the five project intervention woredas received 174.9 t of seed potato, with 50 kg/farmer. This represents 100% achievement of the target. Planting was completed before the end of March 2017; at the time this report was prepared, harvesting was underway.

In addition, 50.6 t of second generation seed (G2), counting from tissue culture in-vitro plantlets, was distributed to 29 seed producer cooperatives to renew their stock; all this is beyond the targets as planned. These cooperatives will further multiply seed and sell to potato farmers in order to give smallholder farmers access to high-quality seed—a prerequisite for high productivity.

Similarly, 200,000 high-quality foundation planting material of the 'Kulfo' variety (OFSP) was given to two decentralized vine multiplier cooperatives and another 1,266,667 foundation planting material to 74 farmers organized into 10 groups in 10 kebeles in the five existing project woredas. The cooperatives and the farmers have access to irrigation to further multiply the most needed planting material. The purpose was to renew sweetpotato planting material that has been under multiplication for several cycles so that farmers, public organizations, and nongovernmental organizations who buy seed from these cooperatives and farmers get access to high-quality planting material, leading to increased yields. This achievement, too, is beyond what was planned.

### **3.2 Training and Awareness Creation**

Capacity building and awareness creation are key to the project accomplishing its objectives and sustainability of achievements beyond its lifespan. Training of farmers on production and postharvest technologies enables them to increase productivity, leading to improved food and nutrition security. Since the plan was to reach a large number of male and female farmers with training and awareness creation in a short period of time, we used an approach that proved highly effective.

#### **3.2.1 Approach followed to provide production and postharvest technologies and nutrition trainings**

A training of trainers (ToT) approach was used, whereby woreda agricultural experts and DAs were given a ToT course on potato and sweetpotato production and postharvest technologies. Similarly, health experts, rural women extension experts (RWEs), and health extension workers (HEWs) were given a ToT course on OFSP nutrition. The trainings had both theory and practical sessions, to improve not only knowledge but also skills of the participants. The trained experts and DAs cascaded the training to target farmers in their respective kebeles between 20 February and 7 March 2017, for potato and in June for sweetpotato.

##### **3.2.1.1 Potato and sweetpotato ToT**

A ToT course was given to 71 participants, of whom 45 were involved in potatoes and 26 in sweetpotatoes. Topics included potato and sweetpotato seed/planting material management, agronomy, integrated pest management (IPM), postharvest handling, and the Triple S system (sand, storage, and sprouting) to conserve sweetpotato planting material using sweetpotato roots as a vine source, where the dry spell between seasons is long. The training covered both theory and practical sessions and was given by senior crop experts of the RBoANRD and CIP staff. During practical sessions, emphasis was given to water conservation techniques, as drought has been a major challenge since 2015.

##### **3.2.1.2 Model farmers' training**

Advanced training on different aspects of production and postharvest management, including nutrition, was given to 158 individuals (120 males, 38 females), of whom there were 105 model farmers and 53 DAs in both potato and sweetpotato woredas on 6–9 April 2017. These model farmers will provide technical support to other farmers in their kebeles going forward, and will follow the government extension structure to enhance farmer-to-farmer knowledge sharing and backstopping approach. Using model farmers to train/backstop other farmers is very important because they do not leave their kebeles. This differs from agricultural experts and DAs, who change their areas of work or change jobs in search of better opportunities.

##### **3.2.1.3 Nutrition ToT**

A ToT course on OFSP nutrition was given to 55 participants (8 males, 47 females) by RBoANRD's nutrition experts supported by CIP staff. The trainees were composed of zonal- and woreda-level health experts and RWEs as well as kebele HEWs. The theory covered basic nutrition, diet diversity, food

security, malnutrition and nutrition deficiency with a focus on vitamin A deficiency, and OFSP as a source of vitamin A. During practical sessions, the participants practiced the knowledge they gained to prepare various nutritious foods that contained sweetpotato leaves or roots or both leaves and roots by preparing different nutritious foods. Participants also came up with a knowledge-cascading action plan to create awareness among 5,000 mostly women beneficiaries.

#### 3.2.1.4 Cascading training

- **Potato and sweetpotato.** Trainees of potato and sweetpotato production and postharvest ToT courses further cascaded the knowledge to 8,678 beneficiary HH (5,180 sweetpotato HH, 3,498 potato HH) in 12 project woredas prior to the distribution of planting materials. In this way the planting material received sufficient care during transportation storage and planting to minimize losses.
- **Nutrition.** Trainees of the nutrition ToT course cascaded theoretical knowledge to 5,000 farmers in 20 kebeles, with 250 mostly women farmers per kebele before planting material was distributed so that OFSP could be planted on fertile soil. The lesson learned from last year showed that farmers planted OFSP on fertile parts of their plots only after they had known about its importance, as the crop was new to them. Practical training on preparation of traditional foods mixed with OFSP leaves and roots will be given to same farmers during the course of plant growth.

### 3.3 Crop Field Performance

#### 3.3.1 Potato

- **Planting and crop survival.** Potato planting in Belg 2017 was done at different times in project intervention woredas, depending on onset of rain but completed before end of March 2017. Although rainfall was erratic at the time of planting and resulted in delayed emergence, it soon stabilized and crop emergence was almost 100%. Crop stand was excellent: farmers reported that it was one of the best they had ever experienced. Farmers therefore expected much higher yields than they usually get, with some farmers estimating that they would get 10,000 kg from the 50 kg they planted, corresponding to 40 t/ha. Harvesting started late in July and is now ongoing. Before the end of August, we hope to get complete yield data.

#### 3.3.2. Sweetpotato

- **Retaining planting material from Meher 2016 season and farmer-to-farmer vine transfer.** Recently distributed planting material is at early stages of growth, so no growth and yield performance can be reported from the current crop. Farmers who got planting material last year did retain vines to use for themselves and give to fellow farmers. The continued drought in Belg 2017 significantly affected the initiative, however, and we are still gathering reliable data. Nonetheless, 769 farmers replanted the 'Awassa-83' variety they retained from Meher 2016 on about 60.8 ha of land. They obtained an estimated root yield of 1,787.2 t (at 29.4 t/ha) in addition to maintaining planting material for subsequent planting. Similarly, 564 farmers replanted OFSP from their stocks on 24.6 ha and obtained an estimated 571.6 t (at 23.2 t/ha) root yield in addition to retaining planting material for subsequent planting. In subsequent seasons, area under each variety will significantly increase.

Through a farmer-to-farmer dissemination approach, 272 farmers gave 'Awassa-83' vines to 272 farmers and 202 OFSP farmers gave OFSP cuttings to 202 farmers, with an average of 50 cuttings/farmer. Some received the planting material for free, others paid a small fee.

It is because of the significant negative effect of drought on maintaining planting material that we decided to give foundation seed to farmers and cooperatives that have access to irrigation only. Using this approach, the project's beneficiary farmers and many others beyond the project intervention areas will have planting materials of these varieties fairly soon—within 2 years.

#### **4. NEXT STEPS**

In the coming months, the following activities will be implemented:

- Data on potato yields will be gathered.
- Mentoring newly planted sweetpotato fields and backstopping DAs and farmers will continue.
- Phase 1 report (23 June–31 Aug.) will be prepared and submitted.
- Phase 2 (1 Sept. 2017–30 June 2018) will be officially launched.
- OFSP nutrition trainings and awareness creation will be given to beneficiary farmers (>90% women).
- A potato ToT course on seed potato management, agronomy, IPM, and postharvest technologies will be given to woreda agricultural experts and DAs of the new kebeles that will plant in Belg (Mar.) 2018.
- Arrangements for procuring 125 t of seed potato will be made to distribute to 2,500 HH with 50 kg/HH in 25 new kebeles of Gumer, Geta, Alichu Weriro, Misha, Bule, and Gedeb woredas.
- Conserving sweetpotato planting material from one season to another poses a major challenge, especially in areas with long dry spells. To overcome this constraint, CIP and partners have successfully piloted a technology for on-farm conservation of sweetpotato planting material known as Triple S. The Triple S technology is an innovative technology that ensures a more sustainable supply of planting material in drought-prone areas using roots as a “seed” source. The Triple S method will be demonstrated at representative locations in sweetpotato-producing woredas.
- Special attention will be given to backstopping farmers and cooperatives who use irrigation for multiplication of planting material for farmer-to-farmer distribution through selling.