

# Seed Potato Production



*Potato farmers involved in a field school grade seed potatoes.*

Potato (*Solanum tuberosum*) is one of the major crops in the highland areas of Kigezi in Uganda whose production and interest has boomed in the last ten years. It is a major food and income crop to majority of the households in the region<sup>1</sup>.

The baseline survey conducted in the two parishes of Kashasha and Kitojo results showed that potato production is an enterprise undertaken by both genders, irrespective of age. It is often practiced on low acreages with seasonal land hiring a major solution for inadequate household land ownership. Major potato varieties grown are Rwangume, Kinigi and Victoria with a diversity of varietal preferences. There was a low use of proper agronomic practices such as rotating the potato crop with other crops like beans, sorghum and sweet potato; rotation is useful in order to replenish soil nutrients.

The major potato seed sources are: seed saved from previous harvests, fellow farmers and open markets. However, all of these sources often provide low quality seeds. In a survey conducted in Kenya and Uganda (Kabale and Kisoro districts), only 4% of farmers reported using seeds from sources likely to provide high quality seed potatoes, such as trained farmers associations, seed growers and national research stations. According to 2005 FAO statistics, Uganda potato production yielded an average of 6.8 t/ha. This is far lower than the 25 t/ha that can be obtained in similar conditions. The yield gap can be attributed to two main causes: high incidences of diseases and use of low quality seed potatoes degenerated by virus, inadequate soil fertility management and poor general crop husbandry<sup>2</sup>. In Uganda, there is a good seed source, Kachwekano Zonal Agricultural Research and Development Institute (KAZARDI). However, there is an insufficient supply and a lack of access to KAZARDI by most farmers. EEEGL therefore decided that seed potato production was one of the key areas where there was a major opportunity for intervention.

## Impact on Poverty

206 farmers have been trained in the farmer field schools. There are a total of 36 farmers in UNSPPA. 1 of the field school trained farmers has now joined UNSPPA, increasing members from 35 to 36 farmers. The goal of farmer field schools was to train 120 farmers; subsequently, the longer term goal was to have at least 12 seed potato producers from the field schools meet eligibility criteria and be recruited by UNSPPA. The goals have been surpassed as now 165 farmers have been trained and 16 farmers trained in the field schools are now eligible to join UNSPPA.

In addition to the ability to produce quality seed potatoes, the techniques learned at the farmer field schools improved the yield of the farmers by almost a quarter, therefore significantly increasing their income.

## Impact on vulnerable or marginalized groups

165, or 80%, of the farmers trained at the field school are women. Of the UNSPPA trained field farmers, there are currently 26 farmers in leadership positions, or those on the Executive Committee. 14, or 54% of these leaders, are women.

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**Approach**

EEEGL conducted an Enterprise Mapping Study in order to assess which enterprises in Uganda had the most potential for intervention. Available opportunities, gaps in increasing productivity and commercialization, areas for intervention and required infrastructure were assessed. Seed potato production was selected as one of the four interventions which presented a major opportunity for intervention.

Kachwekano Zonal Agricultural Research and Development Institute of the National Agricultural Research Organization (NARO) works to address limited availability of adequate, good quality seed potato. The foundation/basic seed is available to uptake pathways for further multiplication. One such pathway in the Kigezi region (Kabale, Kanungu and Kisoro Districts) is the Uganda National Seed Potato Producers Association (UNSPPA) which started as a farmer group and later transformed into private sector association.

As part of the implementation strategy for increasing the number of farmers capable of producing high quality seed potatoes, CARE, under the Enterprise, Equity and Environment in the Virunga Landscape of the Great Lakes Region (EEEGL) project, and KAZARDI decided to form a partnership in order to strengthen the capacity of UNSPPA; the partnership aimed to increase high quality seed potato access in communities around Bwindi National Park. Within the partnership, UNSPPA is facilitated by CARE to mobilize and conduct training of farmers on the techniques of improved seed potato production using the farmer field schools approach while being backstopped by KAZARDI. KAZARDI provided technicians to make field inspections of all demonstrations, for purposes of quality control and technical support.

The methodology to increase the capacity of farmers to join UNSPPA was as follows:

- Hands on training using farmer field school approach
- Exchange visits between farmer field groups to trade experience and information
- Field days attended by farmer field groups, KAZARDI and UNSPPA and Local Governments
- Design of strategic business plan for UNSPPA

<sup>1</sup> CARE. Potato task baseline study. Uganda. 2010.

<sup>2</sup> Kaguongo, W.P, et al. Farmer practices and adoption of improved potato varieties in Kenya and Uganda. International Potato Centre. Social sciences working paper 2008-5. Peru. 2008.

<sup>3</sup> Cutting or killing by chemicals of haulms (stems) of the plants

<sup>4</sup> Other criteria including having a sufficient amount of land for harvesting and having the ability to pay joining fees.

**Impact, cont.**

**Impact on capacity building**

Farmer field schools taught a very large variety of skills to 206 farmers in 9 field groups.

These skills included:

- Garden site selection and land preparation
- Planting, fertilizer application and weeding
- Laying the garden
- Pest and disease identification, prevention and control
- Disease identification
- Dehauling<sup>3</sup>
- Harvesting and storage

The skills learned by the farmers enabled them to significantly increase the yield of seed potatoes that they produced.

**Economic impact on the seed potato value chain**

Improvement of the high quality seed potato value chain is the key goal of the EEEGL intervention. KAZARDI partnered with UNSPPA and EEEGL to improve the capacity of farmers in high quality seed potato production. With certain conditions met, farmers now have the skills and efficient production levels necessary to be able to join UNSPPA, as long as other conditions<sup>4</sup> can be met. An increased UNSPPA membership, coming from an increased number of farmers trained in proper seed potato production techniques, results in an increase of the availability of high quality seed potatoes on the market. This availability will improve the productivity of farmers utilizing the high quality seeds.



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**Lessons Learned**

**Partnerships and linkages between UNSPPA farmers, field school farmers, local governments and other development practioners need to be enhanced**

These partnerships and linkages are important in order to ensure sustainability of the activity. Once the EEEGL intervention is completed, if strong partnerships have been established, UNSPPA will continue to work with the local government and field school farmers will train others and join UNSPPA. Other development practioners can provide any needed assistance.

**Farmers can learn better from fellow farmers beyond “farmers field schools” through cross visits and field days**

Farmer field schools are important as they teach farmers necessary skills and demonstrate successful improved seed production techniques. However, this learning can be enhanced through other activities such as cross visits and field days which enable the trainee farmers to see other farmers implementing the techniques. For instance, trainee farmers are able to see the increased productivity levels when fertilizer is properly applied on other farmers’ fields.

**UNSPPA is able to mobilize membership through such training programmes**

The training programme has been successful in sufficiently training farmers so that they are able to join UNSPPA, as long as other pre-conditions can be met.

**Trainers produced from the field school can as community based trainers**

Community based trainers who have been trained in the farmer field schools can continue providing practical hands on training for the communities and willing farmers involved in seed potato multiplication. This will ensure that skills are passed on to other farmers and the knowledge learned from the field school is spread to more than just those directly involved.

**Looking Ahead**

UNSPPA’s business plan will be finalized and launched in November 2011. The writing of this plan is encouraging discussions with the leadership of the organisation about future plans. The final business plan will provide strategic direction of the organization.

UNSPPA has embarked on a vigorous mobilization effort to recruit at least 24 farmers (those who were trained as Training of Trainers) into UNSPPA. These 24 farmers were trained in the farmer field schools and were specifically trained as trainers. The joining of these 24 members will greatly strengthen the capacity of UNSPPA and will ensure great production levels of high quality seed potatoes. These 24 farmers can also serve as examples for the rest of the community. Other community members will be encouraged to undertake training with the trainers and eventually join UNSPPA.

*Farmers in a field school harvest potatoes.*



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**Case Study: Farmer-to-Farmer Training**

The farmer field schools focused on recruiting farmers from surrounding communities that were interested in producing high quality seed potatoes for themselves and also for sale. Farmers were connected with and learned from members of UNSPPA on basic potato production techniques as well as how to handle 'foundation' seed potatoes direct from the Kachwekano Zonal Agricultural Research and Development Institute (KAZARDI) and produce 'basic' seed potatoes that could be used by potato producers.

After two growing cycles were complete in the first farmer field schools, additional field schools were developed, utilizing the best performing students from the first fields as trainers in the new fields, after receiving additional training and with on-going technical backstopping from UNSPPA.

At the end of the EEEGL project, a mechanism of increased farmer-to-farmer training has been put in place with more direct connections between potato producers and UNSPPA, especially with more UNSPPA members in more rural locations within the two districts. It's with this continued connection to UNSPPA that potato producers in the southwest Uganda will be able to access better seed potatoes and therefore get better yields in their potato fields.

**Beneficiary Profiles**



**Innocent Tumuramye (left), Kinyogo, Uganda**

Innocent is 34 years old and has three children. He has four separate plots of land totaling about 4 acres. He is planting peas, beans, sweet potatoes, and irish potatoes. He joined the farmer field school so that he can produce seed potatoes and earn more money from his land.

**Nora Twehikire (right), Rwenshanju, Uganda**

Nora has eight children. She currently grows peas, potatoes, and beans. She joined the farmer field school so that she could produce more potatoes and earn more money.



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