IMPROVING THE SHELF LIFE OF SWEETPOTATO ROOTS IN THE MARKET AND HOUSEHOLD LEVEL IN UGANDA: A PROPOSED BUSINESS CASE

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Introduction

Sweetpotato is the third most important food security crop in Uganda after banana and cassava with production estimated at about 2.8 million tonnes (FAO, 2010). The crop is grown in all districts in Uganda occupying 55% of the arable land under tuber crops (FAO, 2010); with the eastern region producing 46.6% (MAAIF, 2011). In Kumi, one of the leading producing districts, 99% of the women farmers reported growing sweetpotato for commercial and food security purposes (Scoping study, 2014).

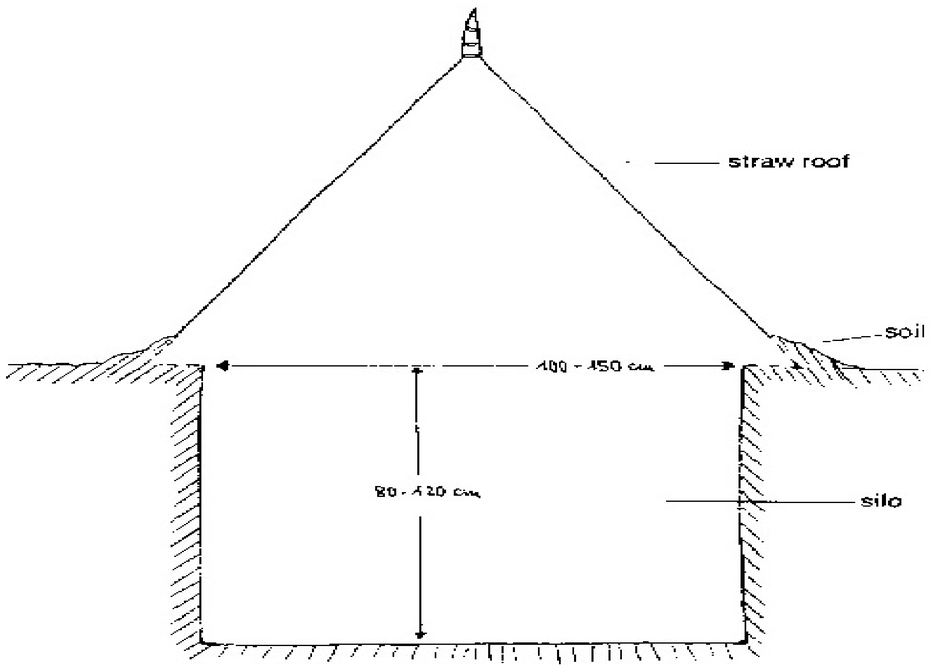
Unfortunately, normally, prior to the beginning of the long dry season (mid-November to mid-March) farmers harvest their plots to avoid losses due to weevil infestation and rotting. Inevitably, this results into excess supply which is either sold at very low prices or left in the field. Shortly after the glut period, fresh roots become very scarce and prices substantially increase.

Farmers lack appropriate storage methods to prolong the shelf life of harvested roots for extended utilization and marketing. Thus, this project is intended to validate clamp and silo storage innovations and subsequently promote adoption of the promising techniques for extended fresh root supply at household and market levels.

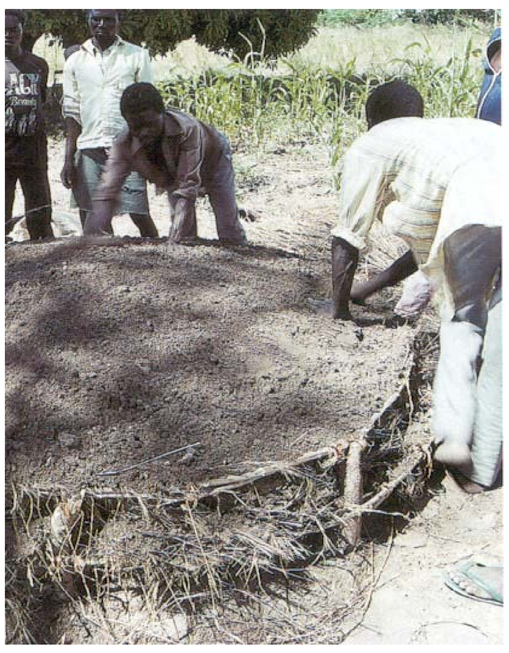
Approach

Fresh storage roots of three varieties with different shelf life periods will be stored under modified clamp and silo storage methods in Kamuli, Kumi and Masaka districts, key sweetpotato growing areas representing different faming systems. Both storage methods, with capacity of 2 and 1.2 tons for clamp and silo, respectively will be validated at three host farmers representing respective farmer groups in each district. Participatory assessment of stored roots under each treatment will be done on rotting, sprouting and weevil damage of stored roots. The most promising technologies will be disseminated using the existing extension services, NGOs as well as the multi-stakeholders platform. Using the PMCA approach (Phase 2), potential market opportunities will be assessed and the platform will identify appropriate gender-responsive strategies to target them.

SILO FOR STORAGE OF FRESH SWEETPOTATO ROOTS



CONSTRUCTION OF THE CLAMP



COMPLETE HARVESTING AT ONSET OF DRY SEASON

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Research questions

1. Which sweetpotato varieties retain the desired consumer attributes and economic viability for longer periods after storage?
2. Which storage methods are efficient and affordable for prolonging shelf life of harvested sweetpotato roots?
3. What market opportunities provide the best bet to enable female and male chain actors to benefit from improved storability of sweetpotatoroots?
4. What is the most appropriate dissemination model to upscale proven shelf life extension technologies to male and female actors?

Feasibility

a) Technical Feasibility

- The proposed technologies have been tried in different countries including Bangladesh, India, Kenya, Malawi, Tanzania (Tomlins *et al*., 2007) and Uganda on experimental basis (Hall and Devereau, 2000) with variable results.
- The techniques seem effective for storing fresh sweetpotatoes for up to 3 months, long enough to make a difference when local food security is most uncertain and it has been proved that improved storage offers benefits for food security as families can be able to access food three months after harvest.

b) Economic feasibility

- During peak harvest periods, sweetpotato as a food based commodity becomes minor and very less market competitive and un-preferred for consumption.
- Table 1 shows that storing 10 bags of roots under clump store for 3 – 4 months increase the farmers' incomes by at least 4 times.

HISTORICAL TREND ANALYSIS OF SWEETPOTATO PRICES IN UGANDA (FIT UGANDA, 2013)

TAB. 1 - FARM-LEVEL GROSS BENEFITS (UGX) FOR SWEETPOTATO DURING PEAK AND OFF PEAK HARVEST SEASONS IN KUMI IN YEAR 2014

Description	Peak harvest months (Sept – Dec)	Off harvest season months (Jan – Jun)
Cumulative total production costs (variable costs)	544,500	744,500
Estimated storage cost for 10 bag per season	0	600,000
Lost bags during storage (2%)	0	1
Av. yield per acre (bags)	27	27
Adjusted yield per acre (bags)	27	26
Av. farm gate price per bag of fresh roots at harvest/after storage	30,000	100,000
Gross income	810,000	2,600,000
Farmer's gross margin	**265,500**	**1,255,500**

Development goal

Goal: Increasing food security and incomes of sweetpotato farmers and traders in eastern and central Uganda through extended shelf life of harvested storage roots.

- Out of about 4 million total agricultural households in Uganda, 10 % are involved in sweetpotato production.
- The proposed intervention will increase food security of about 40,000 households (10%) involved in production of sweetpotato and increase their incomes by 20% in ten years .
- The proposed interventions will be of benefit to women (60%) and to men (40%) at market level and more than 50% women at production level.

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