Breaking postharvest bottlenecks: Long-term sweetpotato storage in adverse climates

"PROGRESS IN MALAWI"

Sweetpotato Profit and Health Initiative ERNA ABIDIN & team

SPHI

Malawian team: CIP, CRS, Mzuzu-CADECOM

A USAID-OFDA Disaster Reduction Research: Onfarm Sweetpotato Storage in Ghana and Malawi



Implementing organization and Project area:

- International Potato Center (CIP)
- Catholic Relief Services (CRS)
- Catholic Development Commission based in Mzuzu, North Malawi (Mzuzu-CADECOM)
- Three farmers' communities in Central and Northern Region of Malawi: Zombealaki, Kasungu District: S12° 24.684'; E 033° 24.666'; 1,176 m asl Chizerema, Kasungu District: S 12° 30.361'; E 033° 26.211'; 1,252 m asl Champira, Mzimba District: S 12°19.863'; E 033° 35.531'; 1,445 m asl These communities are under the supervision of CRS-CADECOM

Strategic plans



- Identifying the key individual farmers.
- > Getting an appropriate numbers of farmers.
- Refreshing the knowledge and skills of the NGOs and government extension and the farmers on sweetpotato production management, postharvest handling, and processing and utilization.
- Training on the data collection and management (extension & farmers).
- Setting up the trial at harvest and data collection.





> 3 villages/sites in 2 districts

- > 3 replicates per village
- ➤ 3 storages:

Afghanistan ventilated pit storage Ladder pit storage Granary

 \geq 2 types of sweetpotato:

Local varieties (white and yellow flesh) OFSP (Zondeni)

Data Collection



Test of consumer acceptance at

0 month: mid May 2014 1.5 months, end of June 3.5 months, end of Aug 2014 7 months, end of Nov 2014

Test on market orientation:

End June 2014 during the peak sweetpotato harvest period End Nov 2014 where the sweetpotato is scarce

Test on Beta-carotene for OFSP varieties: End of June and End of November 2014

Temperature and RH are measured using HOBO at each observation

What we have done at pre-trial? Trained farmers on negative selection for SPVD and pest incidence in March 2014



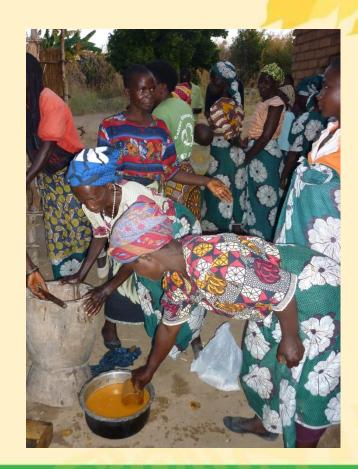




Trained farmers on Processing and Utilization in May 2014: Increase of knowledge on OFSP utilization and processing







What we have prepared?

SPHI



Mandazi, Juices (leaves and roots), One-pot meal (at least 3 food groups in a dish based on National Nutrition Policy guideline)

Number of participants



District	Site & EPA	Men	Women	Total
Kasungu	Chizelema- Kaluluma EPA	17	15	32
	Zombealaki –Kaluluma EPA	5	18	23
Mzimba	Njomani – Champhira EPA	7	19	26
Total		29	52	81

Data collected at harvest



Site	Yield Estimate Plot (kg/4 m ²)		Yield (t/ha)	
	Local	Zondeni	Local	Zondeni
Champira	6	24	15	60
Zombealaki	4	12	10	30
Chizerema	6	12	15	30
Average	5.3	16	13.3	40



Afghanistan Ventilated Pit Storage



Treatments





Size: 2x1x1 m Number of roots: 200 roots Weight: Local: 34 kg; Zondeni: 35.8 kg No dry sand

Ladder Pit Storage with "dry" sand









Size: 0.6 x 0.6 x 0.5 m Number of roots: 200 roots

Weight: Sand: 40 kg Roots: Local: 29.9 kg Zondeni: 28.3 kg



Size: Height: 1 m and Diameter: 1 m Number of roots: 100 roots Weight:

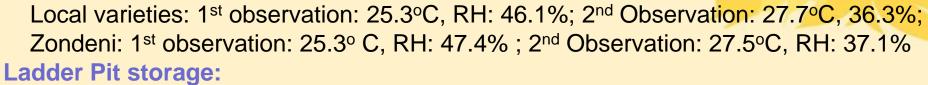
> Sand: 400 kg Roots: Local: 16.7kg; Zondeni: 34.5kg



Preliminary Results

Temperature and Relative Humidity (RH):

Granary:



Local varieties: 1st observation: 25.1°C, RH: 52.1%; 2nd Observation: 25.1°C, 45.3% Zondeni: 1st observation: 25.3° C, RH: 51.4% ; 2nd Observation: 26.1°C, RH: 50.3% Afghanistan pit Storage:

Local varieties: 1st observation:24.8°C, RH: 59.9%; 2nd Observation: 26.7°C, 45.5% Zondeni: 1st observation: 23.7° C, RH: 65.7% ; 2nd Observation: 26.8°C, RH: 47%

- We have done the sensory observation twice but we need to do one more observation in Nov for getting an accurate result.
- Shriveled, sprouting, rotten, bad smelling, sweetpotato weevils damage and reducing weight were recorded and we need one more observation, thus data are yet to be analyzed.
- Rats and termites are the serious problem for Afghanistan pit storage while termites are found to be a problem for Ladder pit storage. Some replicates do not have roots any more from the Afghanistan pit storage for the last observation in Nov.



Thank you very much for you attention





