

Key Yam Varieties



Dioscorea alata
var. Akaba



Dioscorea alata
var. Matches/ Seidu Ble



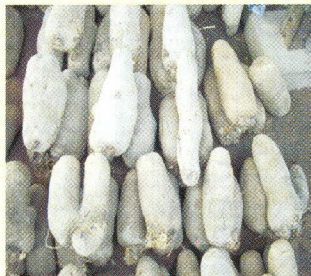
Dioscorea rotundata
var. Ponjo



Dioscorea rotundata
var. Asobayere



Dioscorea rotundata
var. Dente



Dioscorea rotundata
var. Lariboko



Dioscorea rotundata
var. Pona



Dioscorea rotundata
var. Serwah

Testing The Effectiveness of Curing To Reduce Losses During On-farm Storage of Farmers' Key Yam Cultivars/Species

In order to arrive at an effective curing to reduce losses during on-farm storage of farmers key yam cultivars/species, curing protocols have been developed for studies in November at Atebubu in the Brong Ahafo region. The improved storage structure has been cleared and cleaned for the subsequent experiment. These will be conducted as follows:

- 200 tubers each of the 7 selected cultivars will be acquired.
- For each cultivar, six sets of 31 tubers will be selected randomly from the purchased tubers.
- The samples of 31 tubers will be arranged within the barn (5 tubers sideways and 6 tubers by height).
- One tuber per sample will be artificially wounded at six different positions and placed with the stack.
- Temperature/humidity probes will be placed at different positions in the barn, and within tuber samples.

The Yams Will Be Treated In Two Ways

- Controls will be left uncovered, throughout.
- Cured yams will be covered over the top and down the sides with jute sacks for 10 days after which the sacks will be removed.
- The artificially damaged yams will be removed at the end of the curing period and taken to FRI for assessment of wound-healing using phloroglucinol staining test.
- After one month and for every successive month each sample will be assessed for rots. Whenever a rotten tuber is found, it will be removed, recorded, and also weighed before and after cutting out the rot.

REDUCING POST HARVEST LOSSES IN FRESH YAM

- Practicing Proper Storage



CSIR-FRI



UNIVERSITY OF GREENWICH
Natural Resources Institute



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SEVENTH FRAMEWORK PROGRAMME

GRATITUDE, an EU funded project in collaboration with CSIR-Food Research Institute (FRI) and NRI of University of Greenwich focuses on gains from losses of roots and tubers along the value chain.

Yam (*Dioscorea* spp.) is a high value crop and a significant source of dietary energy in Ghana. Its production is concentrated in Brong Ahafo, Northern, Western and Eastern regions of Ghana.

About one-third of the edible parts of the food produced for human consumption is estimated to be lost through the value chain from production to consumption (FAO, 2011). Locally, yam is either boiled and eaten with stew or pounded and eaten with soup.



Minimising Losses in Yam

Yam losses are caused by pests and diseases, sprouting during storage, mechanical damage from mishandling and fungal rots as well as respiration and evaporation due to excessive heat conditions.

Losses in yam is minimized if the strategies listed below are observed and put to practice:-

- *Timely harvesting.*
- *Use of experienced harvesters.*
- *Regular removal of rotten and sprouted yams during storage.*
- *Use of well ventilated storage barns.*
- *Application of improved yam storage technology.*
- *Proper handling during loading and off-loading.*
- *Access to and use of quality yam seed.*
- *Transfer of improved planting and harvesting technologies.*
- *Introduction of yam processing technology (High value yam products in Ghana)*

Yam Storage In Ghana

- Storage structures on the farm

Storage structure	Description	Advantages/ Disadvantage
Pit	The pit is a cylindrical hole dug in the ground and lined with dry grass on the floor and sides of the hole. Tubers are covered with dried grass.	Protection from high temperature Tuber loss is low Poor aeration for tubers High nematodes infection of tubers
Under shady tree	A shady tree on farm is identified. The ground is cleared and lined with dry grass. Tubers are clamp on the tress and covered with dry grass.	High aeration reduce rot of tubers Cost effective Easy control of sprout Rodents /pest attack Stealing Bush fires
Local barn	A rectangular wooden hut consisting of woven straw. The floor is lined with dry grass to cushion the tubers.	Tubers inspection is easy Cost effective High aeration Rodents/pest attack is high Requires labour for stacking
Improved barn	The improved barn storage structure is a regular hut raised above the ground. It is well aerated with shelves for the tubers. Metal plates on the stands prevent rodents entry. (L=19ft 17"; H=12ft 4"; B=19ft)	Tubers inspection is easy High aeration Rodents/pest attack is very low Tubers protected from solar radiation Requires labour for stacking Not cost effective



Yam Stored In Pit Under Shady Tree Local Barn

Preference is for Improved Yam Barn

The Improved Yam Barn is a storage structure that was constructed to study the storage durability of yam and their dormancy of the identified key yam varieties of farmers. Using an RCBD techniques of 3 replicates (20 tubers each) of 7 key yam varieties of farmers (*pona, lariboko, dente, mutwumudoo, serwah, akaba and matches*), the yams were stored for dormancy studies for a period of 5months.



Improved Yam Barn

Terminologies In Post Harvest Yam Studies

- I. **Dormancy:** day of harvest to day of first appearance of bud.
- II. **Wholesome:** Perfect rind, rind intact, apparently healthy tuber.
- III. **Sprout:** a growing structure from the bud of a tuber, 1 to 3 sprouts, 0.1 cm to 3.0 cm in length occurring at one end of tuber.
- IV. **Fungal infested:** patches of black and brown moulds on outer covering of tuber and presences of dirty white fluffy mycelium spreading on outer covering, presence of wet and dry rot on tuber.
- V. **Insect/pest and rodent damaged:** Presence of insects and rodents bites on tuber.

Yam storage study parameters monitored included

- i. Day of breaking of dormancy (bud formation)
- ii. Number of buds
- iii. Day of sprout
- iv. Rate of generation of sprout from buds

Key Yam Varieties Identified In The Yam Value Chain In Ashanti and Brong Ahafo Regions In Ghana Under The Gratitude Project

No.	Key yam varieties (local names)	On farm storage duration (months)	Tuber loss (%)	Sprout control	Physical X'ties
1.	<i>Pona</i>	3	20	Breaking of sprouts weekly	w, l, sh, mc, sc
2.	<i>Lariboko</i>	3	20	-do-	
3.	<i>Dente/Ponjo</i>	6	30	-do-	
4.	<i>Mutwumudoo/Moonye Asana/Araba/Mmoniyi</i>	6	30	-do-	
5.	<i>Serwah</i>	6-8	30	-do-	
6.	<i>Akaba</i>	6-8	30	-do-	
7.	<i>Matches/Seidu Ble</i>	6-8	30	-do-	