

**THE PRODUCTION OF SWEET POTATOES IN  
NIGERIA**

**Extension Guide No 5  
(Revised)**

*Produced and Distributed by*

**National Agricultural Extension and Research Liaison Services  
Ahmadu Bello University  
P.M. B. 1067  
Zaria, Nigeria**

By

Chris Chinaka NAERLS/ABU Zaria  
In co-operation with: NRCRI Umudike.

1996

## **Introduction**

Sweet potato (*Ipomoea batatas*) is a starchy vegetable crop belonging to the family Convolvulacea, commonly known as the morning glory family. Many authorities share the view that the crop is indigenous to tropical America from where it was disseminated, first to the tropical Islands of the Pacific and Northern New Zealand, and later to tropical Asia and Africa by Spanish and Portuges explorers and traders. Today, sweet potato is widely grown as one of the important staple food crops in many of the tropical and sub-tropical world, and in the warmer areas of the temperate regions.

## **Site Selection:**

Select well drained fertile soil, preferably a sandy loam. Avoid heavy clay soils that have the tendency of water logging with poor aeration. Sweet potato fits into many rotational systems. The crop can open the land (where evidence of excess organic matter is not established) and it can also be a terminal crop in a rotation. Sweet potato should not be grown continuously on the same piece of land to avoid field pests and diseases building and should not follow cocoyam where evidence of cocoyam root rot has been established.

In its cultivation, sweet potato can be grown sole or mixed with upland rice, maize, guinea corn, soybeans, plantains and cocoyam. In permanent crop plantations like coca, oil palm and rubber, it can be cropped in alleys as a cover crop and for weed control.

## **Variety**

For high yield of tubers, it is recommended to plant improved varieties adapted to your location. These improved varieties can be obtained from the National Root Crop Research Institute (NRCRI) Umudike or any of the Institute's

three substations – Vom (Jos – Plateau); Otobi (Benue) or Igbariam (Anambra). The ADPs, Ministries of Agriculture, the National Seed Service and Agro-service Centres (where they exist) can help farmers source for improved planting materials from any NRCRI varieties like TIS 8164 and TIS 87/0087 have wide ecological adaptations. The following varieties have been recommended for the corresponding major ecological zones where they have been tested.

Table 1: Recommended Sweet Potato Varieties.

Ecological zone	Varieties	Average yield t/ha	Skin Colour	Flesh colour
Rainforest zone And Derived Savanna	TIS 8164	25.00	Purple	White
	TIS87/0087	42.00	Pink	Cream
	TIS 8441	15.00	Yellow	White
	TIS 2534	21.00	Purple	Orange
	TIS 87/0183	25.00	Yellow	White
	Ex-Duncan	25.00	Orange	Orange
	TIS 1176	37.00	Purple	White
	TIS 83337	25.00	Yellow	White
Guinea savanna And Sudan savanna	TIS 8164	15.00	Yellow	White
	TIS 87/0087	42.00	Pink	Cream
	TIS 8441	15.00	Yellow	White
	TIS 1176	37.00	Purple	White
	TIS 8504	21.00	Purple	Orange
	TIS 2534	21.00	Purple	Orange
	TIS 87/0183	25.00	Yellow	White

### Land Preparation:

Deep plough and puullvaries the soil to a fine tilth. Make good raised seed beds. The seed beds could be ridges (1 m x 1m). mounds or beds.

**Time of Planting:**

This depends on the onset of rains. Plant when the rains stabilize. In the Southern parts of Nigeria, plant between May – June. In the Northern states, plant between late June – July. With irrigation, sweet potato can be planted any time of the year.

**Method of Plantation**

Plantvine cuttings slanted at an angle of 45° at 30 cm along ridges in apart. This gives a “seed” rate of 33,000 stands.ha. On beds. Planting in done 30 cm within and you cm between rows. On mounds, 1 or vines could be planted per mound (50 cm mounds). Length of vines is about 20 cm with 4 – 5 active nodes. The planting depth is 8 – 10 cm. Ensure that at least 2 nodes are buried in the soil. Press the oil around the planted vine to make it firm. Plant only one cutting per stand.

**Weed Control**

Keep sweet potato plants weed free for the first 42 days after planting ( 6 weeks after planting). One or two hand weedings (3-4 weeks after planting and 8-9 weeks after planting) may be carried out. No weeding is required after full vegetable cover. The following Pre-emergence herbicides or combinations are recommended:-

Table 2. Pre-emergence herbicides for weed control in sweet potatoes

Herbicide	Ecological Zone	Rate of application (kg ai/ha)	Time of application
Fluometuron (Cotoran)	Rainforest and Derived Savanna	2.5	*Pre-emergence
	Guinea and Sudan Savanna	2.00	
Primextra (Atrazine + Metolachlor)	Rainforest and Derived Savanna	2.5	Pre-emergence
	Guinea and Sudan Savanna	2.00	
Diphemamid (Eride)	Rainforest and Derived Savanna	5.00-6.00	Pre-emergence
	Guinea and sudan Savanna	4,00-5.00	
Metalochlor (Dual)	Rainforest and Derived Savanna	2.8-3.0	Pre-emergence
	Guinea and Sudan Savanna	2.00-2.2	

\*Pre-emergence herbicides should be applied on clean fields preferably at planting or not later than 1 or 2 days after planting.

## Fertilizer Application

The following rates and types of fertilizer are recommended:-

Table 3: Compound Fertilizers and Rates for Sweet Potato

Types(NPK)	15:15:15	20:20:10	25:10:10	27:13:13
50kg bags/ha	13	10	8	7

Table 4: Single Straight Fertilizers for Sweet Potato

Type of Soil*	Rate of application.ha
a. Soil fairly good in "N" and low in "k"	45kg N + 30kg p + 90 kg k
b. Soil poor in "N" and fairly good in "k"	0 kg N + 13 kg p + 70 kg k.

\*Farmers can use the inherent native vegetation and previous cropping history to estimate the fertility status of the soil where soil testing facilities are absent. For example, soils that produce luxuriant and greenish vegetative growths could be said to be good in "N". Soils where crops vitually grow well but produce very poor tubers could be said to be low in "g".

Apply fertilizers either by controlled broadcast or by band application on both sides of the ridge 4-5 weeks after planting i.e after first weeding.

## **Harvesting:**

Signs of maturity include:

- i. Yellowing of leaves
- ii. Dying of vines
- iii. Sap exudation from mature tubers

Harvest early maturing varieties 3-4 months and the late maturing varieties 5-6 months after planting. Harvest timely to avoid tuber cracking and attack by weevils. Mature tubers are harvested by lifting with the aid of a digging fork or sharp strong stick at the base of the plant.

## **Storage:**

Do not store diseased or braised tubers. Leave tubers in the sun to cure naturally for 4-6 hours. Dust tubers with wood ash and store in pits in layers separated by dry grass. Cover the pits with dry grass and top soil. Protect the pit from rain water by finally covering with mat or a piece of zinc. Another storage method is by use of saw dust. Place a heap of saw dust about 10cm thick at the corner of the storage house or in baskets or wooden trays. Arrange the cured and ash treated tubers on the saw dust. Cover with about 4 cm of dust. Other layers or sweet potato tubers for storage can be so arranged.

## **Disease and Pests:**

### **Pest:**

1. Sweet potato weevils (Cylas Puncticolits: Cylas Brunners and Aicidodes spp)  
Adults damage the leaves and vines while the adults and larvae damage the tubers and permit entrance of fungi. Control: - (a) Cultural – Use of clean and tolerant cultivars; crop rotation; early planting; earthening up and covering exposed tubers; and timely harvesting. (b)

Chemical – Basudin C sprayed at planting intervals (0.5-0,45kg ai/ha): beginning from the first month after planting. Decamethrin sprayed 3 times at monthly intervals (14kg ai/ha) and Carbafuran applied at 2.7kg ai.ha; starting from the first month after planting.

- ii. Sweet potatoes Hornworms (*Agrius Convolvuli*) and the sweet potato beetle (*Acrasis acerata*). These are foliage pests. Their larvae eat up and defoliate the leaves of sweet potatoes.  
Control: - As in the control of the sweet potato weevils.
- iii. Storage Pests: - These are carried from the field and they are the sweet potato weevils.  
Control: - store only clean tubers; store in clean environment, immerse infested tubers in water for 24 hours to suffocate the pests and dry after.
- iv. Pests of processed Materials: -  
These attack processed chips, flakes and flour. They feed on the chips and flour and cause deterioration by their feces and dead bodies deposited in the product.



They include:- the flour beetle (*Tribdium sasanum* and the cigarette beetle (*Lasioderaa cerriaone*). Control Process in insect free environment; use good storage/ packaging material and store in air tight container.

#### **Disease:-**

1. Sweet potato virus diseases:- These are caused by a complex of viruses transmitted by the white flies (*Bemisia tabasi*) and Aphids (*Myzus persicae* and *Aphis gassypit*). The virus diseases are:- Weet potato feathery mottle diseases; Weet potato internal cork virus disease; sweet potato mosaic virus A; Sweet potato mosaaic virus B and sweet potato rosette crack virus. Infected plants have vein clearing on the leaves, chlorosis and stautned growth.  
Control: Use of resistant varieties.
- ii. Fungal disease:- These include fusarium wilt, black rot, soft rot, scab, blight and surface rot.  
Control:- Use of clean planting material, crop rotation; control of sweet potato weevil, timely harvesting; avoiding water logged areas; removal and burning, deeo burrying of affected tubers.
- iii. Nematodes:- Root knot nematode – This causes tuber malformation and cracking.  
Control: Crop rotation and use of resistant varieties
- i.v Bacterial wilt:- This causes the plant to wilt and die.  
Control:- Crop rotation,use of clean and resistant varieties.

## Summary

- Select a well drained sandy loam soil
- Plant high yielding improved varieties
- Plant in a well prepared seed bed
- Plant disease – free vines (20cm long with 4-5 active nodes) at 30cm on 1 meter ridges
- Plant when rainfall is steady or use irrigation water
- Keep sweet potato weedfree for the first 40 days
- Harvest timely and carefully
- Do not store bruised or diseased tubers
- Practice continuous crop rotation.