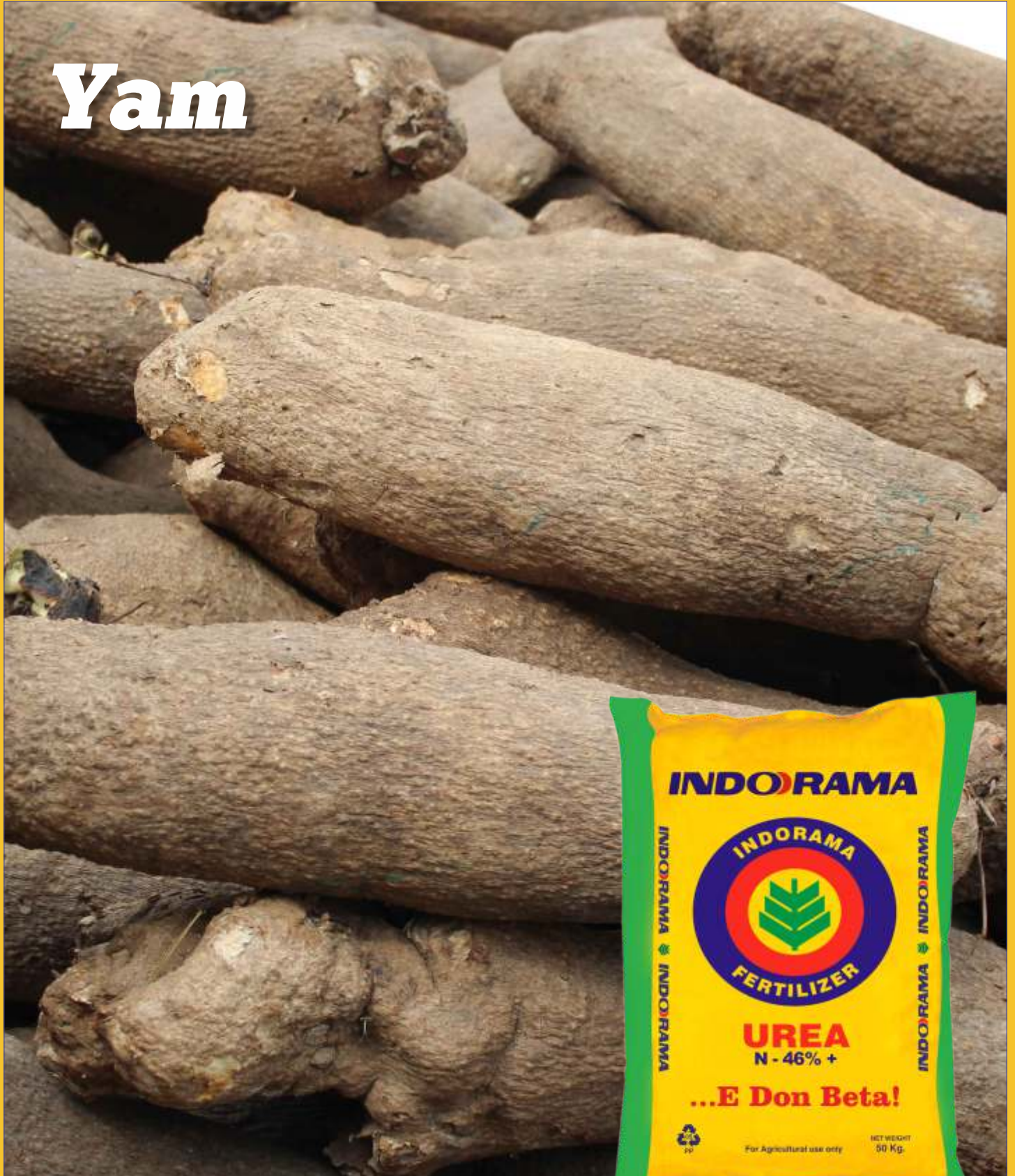




# Crop Management Practices

An Agricultural Extension Initiative of **INDORAMA**

## Yam



# Yam



## Introduction

Yams are starchy staples in the form of large tubers produced by annual and perennial vines grown in Africa. Worldwide Yam production in 2007 amounted to 52 million tons, of which Africa produced 96%. Most of the world's production comes from West Africa representing 94%, with Nigeria alone producing 71%, equalling more than 37 million tons, the remaining 30 per cent is shared among Ghana, Côte d'Ivoire, Togo and Benin Republic"

## Soil

The best soils for growing Yams are the sandy clay loams. However, Yams can be cultivated on most soil types once the Yam holes are properly dug and filled with organic material. Organic matter improves soil structure, acts as a slow release Fertilizer and allows for optimal growth of the tubers. Adequate drainage, proper aeration, friable soil and sufficient moisture (not waterlogged) are other critical requirements for yam growth.

## Land and Setts Preparation

Plough or dig the land up to a depth of 15-20 cm. Dig pits of size 45 x 45 x 45 cm at a distance of 1 x 1 m. Fill up three fourth of the pits with 1-1.25 kg cattle manure or compost and mix with topsoil. Plant the cut tuber pieces and completely cover the pit with leafy materials to conserve soil moisture and maintain optimum temperature.

**Setts** are whole tubers or tuber that is cut in pieces used for planting. If the tuber is small, it can be planted whole, but if it is big, it has to be cut in pieces to the size of 60g to 100g. As a rule, the bigger the sett used, the higher is the expected yield but shouldn't be too big, else, you will be wasting resources. Setts should be taken from healthy tubers of healthy plants. Appropriate Sett size are not sliced while larger tubers are sliced into the desired Sett size so that each Sett has sufficient skin surface area. Thus, four types of Setts are obtained and are named according to their positions on the tuber as follows: Head Setts, Middle Setts and Tail Setts for the tuber pieces and whole Setts for the whole tubers. Cut sides of the Setts are treated with ash or with fungicide and air dried. After air drying, Setts are either pre-sprouted or planted directly.



## Pre-Sprouting of Setts

Because the emergence period of most freshly prepared setts in the field lasts from three to twelve weeks, it is desirable to pre-sprout the setts before they are planted. This procedure assures the emergence of setts when planted and minimizes expenses on weeding before sett emergence. To pre-sprout a sett, a shallow ditch is dug in a clear shaded area under trees, under bananas, or under a shed constructed for the purpose. Setts are placed side by side in the ditch and covered with dry grasses or dry banana leaves. In cases where no ditch is dug, the setts can be placed side by side on the ground instead.

## Fertilizer Application

A hectare of Yam will need about **128kg Nitrogen (282 Kg of Indorama Granular Urea)**, 17kg Phosphorous and 162kg Potassium from the soil. The level of soil fertility in the field and the amount of Fertilizer required can be determined by submitting the soil samples to the any Agricultural Institute or to IITA for analysis. The assistance of the local Farm Management Technician should be sought regarding this.

**Application of Inorganic Fertilizer.** The recommended amount of Fertilizer is split into two, one-half applied about one month after emergence and the other half applied about two months after the first application. The band

method of Fertilizer application is used, with the Fertilizer being placed about 10 cm away from the plants.

**Application of Compost.** Yams respond well to Organic Fertilizers like compost – a mixture of decayed organic matter composed of plant parts and animal manures. The compost is mixed with the soil while the field is being prepared or it is placed just below the spot where Setts are to be planted.

## Trailing

Trailing is essential to expose the leaves to sunlight. Trailing has to be done within 15 days after sprouting by coir rope attached to artificial supports in the open areas or to trees where they are raised as an intercrop. When grown in open areas, trail to a height of 3-4 m. Trail the vines properly as and when side shoots are produced.

## Weed Control

Controlling weeds for the first 6-8 weeks after planting is important. Use a contact herbicide in the furrows during growth and manually remove weeds from around the plant. Selective herbicides can be used to control grass weeds and manual methods can be used to control broad-leaved weeds.

## Major Pests and Diseases Attacking Yam and their control



Yam (Leaf) infected by Yam Mosaic Virus



Yam infected by Anthracnose



Yam (left) infected by Nematodes



Yam infected by Rot and Anthracnose



Yam infected by Dry Rot

## Pest and Diseases

The major disease problem is Anthracnose (*Colletotrichum gloeosporioides* Penz.). Anthracnose is normally seen as small, black spots between the leaf veins. Some infections can coalesce to form massive blighted lesions. This disease can be significantly managed using a number of cultural practices with a combination of timely chemical controls as listed hereunder:

1. Soak the Yam Sett with recommended copper fungicides prior to planting and drench the planting holes with the fungicide after planting.
2. Spray the vines upon shoot emergence.
3. Alternate fungicides to prevent the build up to chemical resistance.
4. Encourage healthy plants by ensuring adequate levels of nutrients.
5. Sanitize the field by raking and removing fallen leaves prior to cultivation to reduce the source of the inoculum (spores of the fungus).
7. Inter-crop with corn. The corn crop helps to move the spores up and away from the yam leaves reducing the infection rate.
9. Inspect the field continuously and rogue out infected plants, especially at the windward side of the field.

## Harvesting

Yams mature between 9-10 months after planting when the vines are completely dried up. Dig out the tubers without causing injury. Generally, a yield of 10–15 tonnes per ha for White Yam and 16–25 tonnes for Water Yam are obtained by following prescribed management practices. The harvested Yams are stored by tying them with ropes. They have a shelf life of about 5 months. Warehouses where they are

stored should be made rodent-proof with a metal base and wire netting. Rotten buds and sprouted buds should be removed.

**Important Note:** Tubers, especially those intended to be used as Setts for next season's planting are harvested at the later part of the period. Tubers intended for consumption or for the market are sometimes harvested earlier, even before foliage yellowing Sets in.

A hoe or a similar hand tool is used to dig around the tuber to loosen it from the soil. Then the tuber is lifted and clinging soil particles are removed. The vine is cut at the base to complete the harvesting.

For sandy soil, sturdy stick sharpened at one end is sometimes used to dig out the tuber. For clay soil and for varieties with deeply buried tubers, other specialized harvesters like shovel may be used. Whatever tool is to be used to harvest the tubers, it is important that care should be exercised so as not to injure Yam while digging as that may reduce the market value and hasten its decay.

After tubers are cleaned, they are collected and placed in rattan baskets or bamboo or wooden crates lined with soft materials such as banana leaves, paper or grass straw. Healthy and diseased tubers are placed in separate containers. The container is then covered with paper or Banana leaves and a string net is woven over the mouth of the container if the tubers are to be transported immediately to the market. No cover is provided for the container if the tubers are to be transported to a nearby storage place.

When you are done harvesting, take your product to the market and make sales. Yam farming is lucrative as Yam is a very important commodity in the market and sells very fast.

