



Crop Management Practices

An Agricultural Extension Initiative of **INDORAMA**

Cassava



Cassava



Introduction

Cassava (Manioc) is the most important food Crops for Southern Nigeria with production capacity of 33.1 million tons (highest in the world and 20% of global production).

Soil

Cassava can be grown on a wide range of soil but best on deep, free draining soils with reasonable fertility levels.

Choose well-drained, deep, loamy soils. Where such is not available sandy and clayey soils can be managed intensively for cassava production. However, very sandy and clayey soils should be avoided.

Cassava is one of the most drought tolerant food crops and can be successfully grown on marginal soils, giving reasonable yields where many other crops do not grow well. Cassava is adapted in temperatures ranging from 18 to 25°C, rainfall of 50 to 5000 mm annually, and poor soils with a pH from 4 to 9.

Rainfall: Cassava is highly drought resistant and grown in many parts where rainfall is low and unreliable.

Propagation

Cassava is propagated vegetatively, using stem cuttings. A variety of stem cuttings are carefully selected with multiple pest and disease resistance, high and stable root yields and acceptable quality characteristics that meet end users' requirements for food (Gari, Fufu, Fermented flour etc) and Industrial raw materials (starch, chips, pellets, unfermented flour etc). The major genetic factor that determines quality of roots is dry matter content.

Land Preparation

Cassava seed bed requires deep cultivation to a depth of 25 cm. A rough seed bed is preferred. Ridges or mounds are used in other areas and it encourages tuber development. Planting on ridges or mounds is a general practice in the rain forest and derived savanna zones in Nigeria.

Planting

Planting is done by use of Cuttings. These are parts of the stem which should be from a mature plant, especially the middle part. They should be 30 – 45 cm long with buds above the leaf scar.

Planting method and spacing: Cuttings may be buried in a horizontal position 7.5 – 10 cm deep or buried half way into the soil.

Plant population: The optimum plant population for high root yield is 10,000 plants per hectare obtainable when plants are spaced at 1 x 1 m. This population is seldom achieved at harvest due to losses caused by genetic and environmental factors. In order to harvest a plant population near the optimum an initial plant population/ha of 12,300 at 0.9 x 0.9m is recommended. The quantity recommended for 1 ha is 60 bundles of cassava stem. Maintain 100% planting rate by replacing dead or non-viable stems.

Stem Storage

Keep bundles of stems stacked vertically on the soil under a shade. The distal end of the stem should touch the soil. Moisten the soil regularly and keep the surrounding weed free. This way you can store your stems for more than 3 months. Under low relative humidity and heat stress store your stems in pits under shade. Stem quality Cassava stakes (cuttings) for planting should be taken from plants 8 – 18 months old. Stakes taken from older plants are lignified and they perform poorly due to delayed sprouting and rooting.

Agronomic Practices

Although Cassava is an easy Crop to cultivate, most farmers tend not to manage the Crop properly. Most of the time, cassava is planted on exhausted soils. Studies show that infertile soils produce 40% less Cassava storage root yields and the same trend can be observed in Cassava shoot yield. In areas where crop rotation is practiced, Cassava is usually grown at the end of the cycle, when the soils have already been exhausted. The production of Cassava is dependent on a supply of quality stem cuttings. In addition, Cassava stem cuttings are bulky and highly perishable as they dry up within a few days. Late planting of the Cassava crop is also a problem, even though Cassava is drought tolerant relative to other

arable Crops. Studies have shown that cassava planted earlier gives higher yields than those planted late.

Liming:

It is recommended that 5 (50kg) bags of agricultural lime be applied /ha during land preparation.

Fertilizer Application

It depends on soil fertility. Ideally, Fertilizer recommendations should be based on soil analysis, but when this is not done, one can then use the land history and vegetation as a guide.

For best yield, apply approximately 60Kg N (132Kg Indorama Granular Urea), 40Kg P₂O₅ and 40Kg K₂O. Apply Fertilizer at 8 weeks after planting. Apply Fertilizer in a ring, 6 cm wide and 10 cm from the plant or broadcast with care around the plant, making sure the fertilizer does not touch the stem or leaves.



Weeding

This is one of the major limiting factors to production accounting for more than 25% of the total cost and time of production. Integrated weed control (cultural, mechanical and chemical) is recommended. Keep the Crop weeded in the early first 3 months. Intercropping also helps to suppress weeds. A total herbicide – Round up (a glyphosate) should be applied at the rate of 4-5l/ha 10 days before land preparation. Post-planting weed control where a total herbicide was not used before land preparation, it is recommended that a selective pre-emergence herbicide be applied within three days after planting. Five litres of Primextra is recommended /ha.

Pests and Diseases Management

Pests:

Cassava mealy bug: Attacks mainly the growing points of the plant causing stunting, leaf and shoot deformation. Severe damage leads to tuber quality deterioration.

Control: Use clean and resistant varieties like Nase 1. Biological Control is also being tried in some districts.

Cassava green mite: It is a sucking pest which leads to reduced growth, scorching of leaves, tiny leaf production, leaf fall and eventually a plant without leaves. This causes great yield reduction or loss.

Diseases:

The Cassava Mosaic Disease (CMD) is the most feared virus disease at the moment. It causes reduced leaf size, malformed and twisted leaves with yellow areas separated by areas of normal green color. Severely affected plants are stunted.

Yield

Cassava takes 8 – 36 months to mature depending on the variety and yield vary depending on variety and soil type. Average yields are 10 –30 tons/ha. of 25 t/ha and above can be obtained with good agronomic practices and management.

Harvesting

Cassava harvesting may be done piecemeal (one by one) or by uprooting whole plants. A stick or hoe may be used to remove the tubers. Cassava cannot be stored fresh for a long time. It is therefore sliced and dried in the sun. In dry form, it can be kept for long periods of time in a dry bag in a place such as granary or other food stores. The dry cassava may also be pounded into flour which can be stored for a long period of time in a dry place.

