

ROOT CROP BULLETIN #1

A GUIDE TO GROWING CASSAVA SUCCESSFULLY

*Prepared by Anthony Seesahai (Agronomist, MALMR), Mynie Ramlal-Ousman(AO1)
and Manmohan Lalchan Vine(ATA)*

GENERAL INFORMATION

Cassava, rice and wheat are important suppliers of calories in the diets of Trinbagonians. Cassava is grown mainly by small farmers and is consumed boiled and fried or in soups and pastries. In Tobago farine, made from cassava, is a popular processed product. Consumption is not limited to the home since many fast food outlets do have cassava on their menu on a daily basis. This bulletin is intended to provide agronomic information for the successful cultivation of cassava.

VARIETIES

There are more than 40 varieties of cassava (*Manihot esculenta*) held at the Research Division, Centeno. Some of the local and introduced varieties were characterized and evaluated for yield, pest and disease tolerance and cooking quality. This information is available to farmers upon request from the Research Division, Centeno ¹.

Recommended Local varieties: *Maracas Black Stick, White Stick, Butter Stick, Blue Stick and Butter Stick*

Recommended Introduced varieties: *M Col 22, CIAT Hybrid, CMC 40, M Mex.*

ENVIRONMENTAL CONDITIONS

- 1. Soil type:** Cassava can be grown on most soils, however the best soils are sandy clay loams that are well drained without a fluctuating water table. Proper soil management practices, adequate soil drainage and limestone applications at 2-4 t/ha incorporated into the soil 3 to 4 months before planting are necessary for the successful cultivation of cassava in the following "sugarcane" soils: Washington Series, Waterloo Series, Couva Series, Freeport Series, McBean Series, Cunupia Clay and Princes Town Clay. These soils are mostly acidic, high in nitrogen with high aluminum levels that stunt plant growth and reduce the formation of tuberous roots.
- 2. pH:** 5.5 - 6.5

¹ Ministry of Agriculture Land and Marine Resources
Research Division Tel: 646-4335/7

3. **Rainfall:** Cassava thrives best when rainfall is well distributed throughout the growing period and is not erratic. Cassava cultivars such as the *M Mex*, *CIAT Hybrid* and *CMC40* cannot withstand flooding or prolonged waterlogged conditions. The tubers deteriorate rapidly under these situations and are not marketable.
4. **Shade:** The cassava crop is highly sensitive to shade leading to low yields and must be grown under full sunlight. However, cassava can be successfully used as a shade plant in young cocoa plantations.
5. **Temperature:** Maximum root production occurs within a temperature range of 25° to 32 °C. Higher temperatures slow photosynthesis and food produced by the leaves are used for vegetative growth and not tuber filling.

LAND PREPARATION

1. Clear land of all grass, brush and trees
2. Plough, rotovate and ridge
3. Apply limestone at 2-4 t/ha before rotovating
4. Form ridges 1m apart and 25-40 cm high
5. Plough along the contour in hilly areas and ensure proper drains are formed

PLANTING MATERIAL CHOICE, SELECTION AND TREATMENT

1. Choose healthy, disease free planting material (setts) from vigorously growing plants 8-15 months old.
2. Select cuttings from the middle stem portions, 30 cm long with an average of 9-12 nodes. Cut setts using a handsaw or clean, sharp cutlass sterilized in a 1% Sodium hypochlorite (commercial bleach) solution.
3. Bundle setts and dip in a fungicide/insecticide solution for 10-15 minutes.
4. Allow the solution to drain off before planting.

PLANTING

Setts are planted 50 cm to 90 cm on the ridge at a 45° angle leaving 2-3 nodes above ground. Cassava is normally planted in May at the beginning of the rainy season. However, earlier plantings in March and April can significantly increase tuber yields.

WEED MANAGEMENT

Use a contact and/or pre-emergent herbicide to control weeds for the first three months of growth (vegetative stage).

Hand-weeding using hoes are normally recommended after 3 months, if necessary, since the enlarged crop canopy should limit weed growth after 3 months.

FERTILIZING

A SOIL TEST SHOULD ALWAYS BE DONE TO DETERMINE FERTILIZER TYPES AND RATES.

1. When soil tests are not done, a general recommendation for fertilizing cassava can be:
 - a. *NPK (12:24:12) applied at the rate of 336 kg/ha at 6 weeks after planting followed by 16:8:24 at 16 weeks after planting*
 - OR*
 - b. *Mixtures of single fertilizers such as Calcium Nitrate, Muriate of Potash and Triple Super Phosphate at 114-209 kg/ha N, 25 - 37 kg/ha P and 240 - 335 kg/ha K also applied at 6 and 16 weeks after planting*
2. Average quantities work out to be one handful (85gm-113gm) of fertilizer per plant at each application.
3. Place fertilizers 15cm to 45cm from the base of the stem in drill holes. Drill holes should be 10cm to 15cm in depth. Placement of fertilizers in drill holes reduces fertilizer loss through runoff water.
4. Fertilizing plants 16 weeks after planting enhances tuber bulking.

PEST AND DISEASE MANAGEMENT

The major pests and diseases of cassava are:

1. **Thrips and Mites:** Can be controlled using a recommended miticide and Insect Growth Regulators. These pests are prevalent during dry periods and decreases as rainfall increases.
2. **Cassava Shoot Fly:** Systemic insecticides should be used only during heavy infestations.
3. **Chinch bugs:** *Crotalaria* can be used as a trap crop for this bug as well as crop rotation practices which break the life cycle of the bug.
4. **Cassava Bacterial Blight, Rust and Super Elongation Disease:** Contact the Ministry for advice on proper control measures.

HARVESTING

Cassava matures between 8 to 12 months after planting. Cutting back plants 2 weeks before harvesting should cause tubers to mature and increase yields by 10%. Do not weed before harvesting.

Excess soil should be removed from the harvested tubers and tubers carefully packed in crates or bags for transport. Bagged cassava tubers prior to sale can be covered with moist jute bags. This reduces vascular (blue) streaking. Contract farmers should follow guidelines for harvesting, sorting, storing and transportation of tubers as directed by the contractor.