

# COFFEE



**Designed by:**

**Crop Manager Team**

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## **Varieties**

There are two main coffee varieties grown in East Africa and especially Uganda that is Robusta coffee and Arabica.

## **Soil requirements**

The soils must be well drained fertile soils with a high organic content.

Mulching is advised since it helps not only to maintain the moisture but also enrich the soil's organic content.

## **Propagation**

The famous coffee berry tree is best planted using cuttings though even seeds can be used.

## **Planting**

You need to do proper field preparation because coffee production is going to be a long term investment.

Mark position where you are to put your coffee plants using pegs arranged in regular patterns to facilitate management.

Dig circular holes of 60 cm (2ft) in depth; this should be done at least 3 months before planting.

Obtain coffee seedlings for planting from reliable commercial nursery beds, make sure that the seedlings are disease free, not wilted or have no form of deformity.

Planting coffee seedlings should be at the onset of rains.

Put a small shade around each young plant to protect it from drought stress or scorching sunshine.

Also ring mulch to keep the soil around the plant moist.

Be sure to have a spraying routine against insect pests and disease.

## **Weed control**

Weeds should be controlled before planting either mechanically or with a registered herbicide. During the early stages and to facilitate establishment, mulch could be placed around the young seedling for weed control. Mulch should not be placed closer than 100 mm from the main stem. An integrated weed control method should also be considered. When land has been burnt, for the first two or three months there are practically no weeds to control, but after the first rains they appear. Hand weeding is generally sufficient.

## **Fertilization**

Coffee is among the tropical crops with the highest nutrient demands. The kind and quantity of fertilizer would vary depending on the type and initial fertility of soil, climate, plant age, cost and availability of fertilizer. Soil and leaf analysis is recommended once tree production begins. Fertilizer application should be done four to eight weeks after planting. Nitrogen is important to increase growth, prevent leaf fall thereby maintaining the photosynthetic area of the plant. Boron and zinc deficiencies result in shortening of internodes and smaller leaves. Potassium deficient plants defoliate. Boron is needed for cell division and it can be applied at the beginning and towards the end of the flowering period.

## Disease and Pest Management

### Common pests

#### White Stem Borer



#### Symptoms

- Yellowing and wilting of leaves and branches.
- Affected branches are easily broken off.
- Infested plants show externally visible ridges around the stem.
- When trees are first infested there maybe evidence of frass (sawdust-like residues) on the ground.
- The young plants (7 to 8 years old) attacked by the borer may die in a year, while older plants withstand the attack for a few seasons. However, such plants are less productive, yielding more of floats.

#### Control

Spraying of 10% Lime solution - 20 kg spray time along with 200 ml Fevicol DDL in 200 litre of water on main stem and thick primaries coinciding with the flight periods is found to be useful in the control of white stem borer.

Regarding the use of pesticides for the control of white stem borer, pesticides like Lindane 20EC (1300 ml per 200 litre of water) and chlorpyrifos 20EC (600ml per 200 litres of water) were found to be effective against the borer.

## Antestia Stink Bug



### Symptoms

- Drop of young, immature berries or rotting of the coffee beans.
- When the insect is feeding with berries it can transmit fungi to the seeds, which may lead to rot.
- The affected flower buds turn brown or black while affected seeds are usually malformed and produce lighter berries.
- In the absence of coffee berries, the insect feeds on the growth tips, leading to a fan-shaped growth habit, which is very detrimental because the tree can assume a dense, bushy shape, resulting in crop losses.

### Control

Spray with contact insecticides.

Cultural practice: by keeping the plants open through maintenance pruning, Antestia bugs will do less damage.



### Symptoms

- Dark brown dead patches on the upper surface of the leaves occur.
- On close inspection, H-shaped white silken cocoons are often found on the underside of the leaves which leads to sunburn on shoots and berries.
- If branches are shaken early in the morning the tiny grey-white moths will be observed.
- Severe outbreaks of leaf miner usually coincide with heavy foliar spraying and could cause total defoliation.

### Control

Use registered chemicals and insecticides.



### Symptoms

- Symptoms are mainly confined to the leaves and start as small, yellow spots on the under surface of the leaves.
- As the spots increase in size, they darken to a typical orange color. Brownish blotches eventually make their appearance on the upper surface of the leaves.
- As the spots mature, the centre on the lower surface becomes necrotic. Heavy infections can lead to the defoliation of the trees. The orange powdery spots which cover the lower surface remain green for some time.

### Control

- Use recommended fungicides in your locality.
- Use plant resistant varieties.





### Symptoms

- Dark-brown rot, which destroys the beans and causes the berries to dry out.
- The spots appear on the lateral surface of the green berry, which enlarges rapidly to produce roughly circular, slightly sunken, dark-brown spots.
- Several spots develop on the fruit to form irregular, necrotic areas. Infection can also start at the base of the berry.
- Diseased berries, with or without their fruit stalks, often drop. Lesions, which tend to become ash grey (except for a dark brown margin) tend to develop at the onset of the dry season and are referred to as scab lesions.

### Control

The use of fungicides for the control of this disease is recommended. The use of resistant cultivars is also effective.



### Symptoms

- The symptoms are yellowing and collapsing of the berries.
- The disease enters through a low surface wound or a shallow root. Afterwards the connecting vascular strands in the stem are discolored violet brown to black in a broad, hardened band.

### Control

The best control is to choose the correct environments for cultivation of coffee, to use mulches and to cultivate coffee with implements. A sharp look-out should be kept for infected trees and they should be thoroughly uprooted at once. All infected material should be burnt to fine ashes.

## American Leaf Spot



### **Symptoms**

The young spots destroy the leaf tissue. Defoliation can be severe; branch tips are killed off and the fruit may also be affected.

### **Control**

The only effective method of control is choosing the correct environment for cultivation of coffee and the use of proper cultivation practices. The use of fungicides for the control of this disease is recommended.

### **Harvesting**

With an average of 1000 coffee trees of say Robusta coffee in an acre you can harvest about 8,000 kg in a year.

Harvest coffee beans when their color changes from green to ripen red.

This is important because when you mix in unripe beans, on drying they will spoil the quality of the beans.