MANGO PRODUCTION



NATIONAL AGRICULTURAL RESEARCH ORGANIZATION (NARO)

HORTICULTURE PROGRAMME

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Introduction

The mango is an evergreen fruit tree. Most of the varieties grown in Uganda are consumed locally and are of inferior quality with little commercial value. In the early 1990's many improved varieties were introduced from Puerto Rico and are being promoted countrywide.

Climate

The mango is adapted to both tropical and subtropical conditions. Temperature range is 21-25°C. Rainfall of at least 600 mm/year and an altitude of 0-600 m are ideal for the crop. A dry period of at least 3 months is necessary for flowering. The tree requires plenty of sunshine for optimum growth and fruiting.

Soils and site selection

Mangoes require soils with good drainage not necessarily fertile.

Varieties

Some of the improved mango varieties cultivated in Uganda include: Tommy Atkins, Zillate, Keitt, Kent, Parvin, Glenn, Boribo and Apple. Bire, Ssejjembe, Ssu and Kate are some of the local selections.

Propagation

It is highly recommended that planting materials for the improved mango varieties should be grafted (shoot joined on rootstock). This practice reduces time to flowering to 2-3 years instead of 6-7 years if seed is planted. Suitable rootstocks are used which withstand soil born diseases.

Spacing
Mango spacing depends on the rainfall pattern and soil fertility. In Uganda, the recommended spacing for optimum plant population is 8m x 8m giving 156 plants per hectare (62 plants per acre).

Planting
Dig holes 60 cm deep and 60 cm wide while separating top soil from sub (red) soil. Mix about 10 kg of well decomposed manure with top soil and put back into the hole to cover the first 30 cm. The plastic bags used for potting should be removed before planting of rains. When covering the hole a basin should be made around each plant for harvesting water. Each plant should be mulched around and a cage or perimeter fencing put in place to avoid damage by animals. One month after transplanting, the grafting tape should be removed. Any shoots, which grow below the point of union should also be removed.

Watering
When planting is done during low rainfall season, the young plants should be watered at least once a week to avoid drying. It is also advisable to give water during flowering, where possible, to avoid flower abortion. Watering after fruit set reduces fruit abortion and increases fruit size.

Production
Depending on the variety, the time from flowering to maturity is 100-150 days. Under good management 400-600 fruits per tree per year can be produced. Yield range is 10-16 ton/ha depending on management, variety and age of orchard. In the case of improved varieties, fruits can weigh 0.3 – 2 kg each.

Diseases
Mango can be attacked by many diseases which reduce quality and yield. The major diseases of economic importance in Uganda are: anthracnose and powdery mildew.

Anthracnose
The disease attacks young shoots, flowers and fruits causing leaf spots, drying twig tips and dark spots on fruits. Black spots develop on fruits, which leads to cracking. Fruits infected at mature stage carry the fungus into storage and cause considerable loss during storage, transit and marketing. Wet conditions favour the disease.

Control
The fungus has along survival ability on dead plant parts. The diseased parts should be pruned and burnt. Where the disease is severe, apply fungicides before flowers set to reduce flower infection. Fungicide such as Ridomil and Antracol alternated at 10-15 day intervals at quantities indicated on the package are recommended.

Powdery mildew
The sign of the disease is the white powdery fungal growth on leaves, stalks and flowers. Rain and cool nights are favourable conditions for disease spread. Young leaves when infected develop white patches and later become curled and distorted. The fungus persists on older leaves and when conditions are favourable spores are blown onto susceptible tissue.

Control
Ridomil, Antracol or Thiovit sprays alternated with Dithane M45 at 10-15 day intervals at quantities indicated on the package is recommended for the control of the disease.
Spraying can start at the signs and repeated after 2 weeks until fruit set. Once young tissue has hardened it is no longer susceptible and spraying can be stopped.

Pests
The major pests attacking mangoes include: fruitfly and mango seed weevil. Minor ones are scales and mealy bugs.

Fruit fly
This is one of the most serious pest of mango in the country affecting the marketing of fresh fruits. The female punctures the maturing fruits and lays eggs in small clusters inside the fruit. After hatching, the larvae feed on the fruit that appears normal from outside. The maggots later fall on the ground for further growth. When infested fruits are cut open, maggots of the fruit fly are seen in the damaged flesh.

Control

Collection and burying of infested and dropped fruits

Spray suitable insecticide at quantities indicated on the package e.g Dimethoate, 7 weeks and 3 weeks before picking.

Mango seed weevil

This is a serious pest of mangoes in the tropics and it is a quarantine pest. The female lays eggs on partially developed fruits. The eggs hatch and the maggots bore through the flesh into the seed where they feed and develop damaging the seed. There is a discoloration at the point of entry.

Control

Burying by removing fallen fruits and burying them in a pit.

Spraying the trees, especially the stems, with a suitable insecticide e.g Dimethoate or Dursban at the quantity indicated on the package. Or placing a trap a round the track of the tree to prevent insect from climbing since it does not fly.