

## HORTICULTURE NOTE NO 12

### Mangosteen

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Common Name: Mangosteen  
Botanical Name: *Garcinia mangostana*

#### WHAT THE PLANT LOOKS LIKE

The mangosteen is a small slow-growing tree with shiny dark green leaves. The flowers are yellow with four thick sepals and are borne at the end of young branches. The fruit is yellowish until it ripens at which stage it turns a purple red colour. It is about the same size as a tennis ball, and inside are white segments of flesh which can be separated like a tangerine. The fruit is said to be one of the finest tropical fruit and has a very distinctive slightly acid flavour.

#### WHERE MANGOSTEEN GROWS

The mangosteen is a lowland humid tropical crop. It requires a temperature of at least 17°C to grow and regular rainfall. It will grow on a fairly wide range of soil types but will not tolerate waterlogged areas. However trees will recover from temporary water-logging and prefers a high water table (1.5 - 2m below the surface). While trees are still in the seedling stage shade is required.

#### HOW IT IS GROWN

Mangosteen trees are extremely difficult to propagate vegetatively and are generally grown from seed. The seed will breed true to type but is extremely short lived once removed from the fruit.

In experimental work done by the late Kana Aburu at Kerevat no vegetative propagation technique was successful except grafting mangosteen onto mangosteen rootstock. The other difficulty with mangosteen is that it takes a long time to start bearing. The fastest trees to come into bearing in Papua New Guinea were eight years old. Grafting did not reduce the length of the juvenile period.

The seed is planted in polybags in a nursery. Seedlings must be given plenty of water. Seedlings are generally transplanted out when they are about eighteen months old. Alternatively seedlings are transferred to large (coconut size) planting bags at eighteen months old and planted out when two



The leaves and fruit from the mangosteen tree

years old. At this stage trees should be about 80cm tall. Such trees appear to establish better in the field.

#### TRANSPLANTING AND ORCHARD MANAGEMENT

Field planting should be done at the start of the wet season as it is important that there is adequate moisture available to stimulate the growth of roots.

Planting holes are prepared at a 6m by 6m spacing giving a total of 280 trees per hectare. The area around the planting hole should be well cleared of vegetation. The planting hole is dug larger than the bag which contains the seedling, usually 0.5m deep and 0.5m wide. The tree is planted and the hole is filled with topsoil to which additional organic matter (compost or well-rotted manure) should be added if available. The addition of 500 grams (1 large fish tin) of nitrophoska blue at planting helps the plant to get an early vigorous start. The mangosteen should initially be planted under shade trees to reduce

post-planting losses. These are gradually removed after a year until the tree is hardened off.

The orchard should be ring weeded to prevent the cover crop or undergrowth from choking the young trees.

### FERTILIZER APPLICATION

Mature trees require 2kg per tree (4 large fish tins) 12:12:17 fertilizer twice a year, in April and again in October. Fertilizer rates can be gradually increased from 100 grammes per tree per application in the first year after planting to the full rate for trees of 10 years or older.

### PEST AND DISEASES

At present there appears to be no pest or disease which causes commercial losses of mangosteen. However a general policy of keeping the orchard clean helps to keep down rats which could pose problems. Prompt harvesting also prevents damage by flying foxes.

### HARVESTING

A well tended orchard should commence production in eight to ten years after planting. At each harvest 400 to 900 fruit can be expected from mature trees. Records for thirteen trees at Kerevat in 1981 showed an average of 640 fruit per tree weighing 56 kilograms. There is little spread in harvest as all the fruit are mature at roughly the same time and generally there is only one crop per year. Near Rabaul fruit is mostly ready in December and January. The ripe fruit fall from the tree facilitating harvesting although they can be picked before this. If the fruit are to be picked from the tree, this should be done as soon as they are ripe, not before, as mangosteen will not ripen after harvesting. Fruit should be handled carefully to prevent post harvest damage.

### MARKETING

For shipping the fruit can be packed in cardboard tomato cases. Because of the thick shell fruit are easily transported.

For further information and availability of mangosteen trees/seeds contact:

- (1) Regional Horticulturist  
Lowlands Agricultural Experiment Station  
P.O. Kerevat  
East New Britain

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