

RARE FRUIT COUNCIL

OF AUSTRALIA
P.O. BOX 707,
CAIRNS Q. 4870
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MANGOSTEEN (PURPLE)

FACT SHEET NO. 3

Compiled: J.R. & J. Marshall

Experts: B.J. Watson, H.R. Bosworth, J.R. Marshall



BOTANICAL NAME: *Garcinia Mangostana*.

FAMILY: Guttiferae

ORIGIN: Malaysia and Sumatra

TREE DESCRIPTION

Attractive broad leaved evergreen tree with short columnar or pyramidal form of medium size.

HEIGHT — 12 to 20 m.

FRUIT DESCRIPTION AND FLAVOUR

The fruit are round with slightly flattened ends. When mature, the skin is reddish purple to black, 40 to 80 mm in diameter and 80 to 180 grams in weight. The pericarp is thick, 5 to 7 mm. Edible portion approx 30% by weight. The aril is white and juicy and consists of 4 to 8 segments, with usually one to two seeds.

Flavour is sweet, delicate, slightly acid and melting. Generally described as the tropics' most delicious fruit.

FRUITING AGE

From seed, plants commence bearing in 9 to 12 years if very well grown, and up to 20 years in poorer conditions. In North Queensland, top grafted plants have fruited in one to two years, but no sustained bearing pattern has yet emerged.

CLIMATE, RAINFALL AND TEMPERATURE

The tree grows best in a wet tropical climate, with 1500 to 3000 mm of rain well distributed throughout the year, and preferably within 20° north and south of the Equator, with minimum temperatures not below 5°C. Altitude to 800 m. Irrigation can remove some limitations in dry areas.

FROST TOLERANCE

Intolerant of frost. Some defoliation at air temperatures below 7°C and the tree may die at temperatures below 3°C.

SUN OR SHADE

30 to 50% shade for the first 4 years, then gradually full sun,

SOIL PREFERENCE

Moisture-holding clay loam with a high organic content.

DRAINAGE

Tolerant of comparatively poor drainage and short term flooding.

PH PREFERENCE

Mildly acid, 5 to 6

WATER

Requires constant soil moisture except prior to flowering.

MULCHING

Regular light mulching with compost or straw to 100 mm is beneficial to both growing and fruiting trees.

FERTILIZING

70 grams N., 6 grams P., 50 grams K., per tree per year of age and constant after year 15; applied after harvest. Also 0.2 Kg. of Dolomite per tree per year of age and constant after year 15.

Some growers prefer 20 mm of chicken manure spread around the drip line annually, after harvest.

FLOWERING

The large greenish yellow flowers tinged with red are 20 to 30 mm in diameter, and emerge singly or in pairs on the older, more hidden branchlets. Flowers are unisexually dioecious. Fruit develops parthenocarpically. First flowering usually occurs after a dry season and before the monsoonal rains. Second flowering usually occurs at the end of the first crop. Several months of dry weather will also induce flowering and the resultant fruit contain two to four seeds, whereas normally they have only one to two seeds. Anthesis to fruit maturity usually takes 110 to 145 days.

FRUIT DEVELOPMENT

Fairly even development over 4 months if soil moisture and nutrition are sufficient. Under drought conditions some fruit turn brown instead of purple, but still reach maturity.

FIELD PLANTING

Plants should be at least 0.5 m high when planted out in previously manured moist soil, with 30 to 50% shade and wind breaks. Spacing at 8 to 10 m, (110 to 140 trees per ha.) or 11 to 12 m if mechanical harvesting is anticipated.

PRUNING

Only inside shoots and dead branchlets.

YIELD

Malaysian figures show up to 15 tonnes per hectare, with individual trees varying from 400 to 2,000 fruit per tree, per year, and some trees producing up to 3,000 fruit in one year.

PROPAGATION

Mostly by seedlings, but because of the long juvenility stage, grafting methods are being researched. Marcotting is possible but takes about 2 years to develop roots, and the resulting tree tends to grow asymmetrically. Bud grafts and approach grafts are also possible. In North Queensland top wedge grafting techniques have advanced to a very successful rate all throughout the year.

Garcinia mangostana (purple mangosteen) has so far proved to be the best root stock.

HARVESTING

Presently picked singly by hand, when the fruit is soft and dark purple.

POST HARVEST TREATMENT

No treatment is necessary for a shelf life of 2 to 3 weeks, but for longer periods up to 8 weeks, cool storage at 10° C and fungicide dips to prevent storage rots.

TRANSPORTABILITY AND PACKAGING

Ripe fruit travel well, although they are soft to touch and need individual wrapping to prevent skin damage. Pre-cooling and tray packs are advantageous for market presentation. Fruit grading to eliminate any unattractive fruit is important.

MARKETS

Fresh fruit.

PEST AND DISEASES

Few pests attack the tree because of the very bitter sap. A small number of fruit bleed yellow sap (gamboge) due to insect stings or wind damage. Some fruit split and bleed in very hot weather. Lepidopterous caterpillar larvae and grasshoppers cause some leaf damage.

SEED VIABILITY

Three days for air-dry seeds, and up to 3 weeks in slightly moist peat moss or like medium. Germination takes 2 to 3 weeks.

POPULAR VARIETIES

Cross-pollination does not occur and only one variety is recognised, even though skin colouring, size and flavour vary slightly in some districts.

COMMERCIAL POTENTIAL

The Purple Mangosteen is grown commercially in S.E. Asia, India and to some extent in Central America. It is highly regarded for its flavour and is popularly referred to as the "Queen of tropical fruits". Whilst short term prospects for seedling trees are poor, long term prospects could be good, if market returns are high. Grafting may improve the short term prospects, but this aspect is not yet proven. What is yet to be resolved, is whether grafting will increase precocity without reducing tree size to the extent that in latter years grafted trees may yield less than seedlings.

