

Mangosteen - The Queen of Fruits

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ABSTRACT

Mangosteen is one the important warm humid region fruit crop which is a ready source of glucose in the plant kingdom. It is an evergreen slow growing tree bears highly delicious fruits originated from South East Asia. The fruit id formed without fertilisation and plants obtained from seeds are true to type.

INTRODUCTION

Mangosteen, (*Garcinia mangostana*) which grows in tropical regions and is considered the most delicious fruit in the world, is also known as the queen of fruits. The sweet aroma of mangosteen fruit is similar to the scent of honey in flowers. And mangosteen is the only fruit that can directly provide the nutrient required by the body called glucose. Mangosteen is widely cultivated in countries like Indonesia, Philippines, Malaysia, Vietnam, Sri Lanka, Moluccas and Sunda Islands. This crop is introduced to India hundreds of years ago, and mangosteen is now commercially cultivated in the Nilgiris hills, Kutralam, hilly areas of Kanyakumari, Lower Pulney hills of Tamil Nadu and in Kerala.

Growth Habit

Mangosteen is an evergreen tree with broad glossy leaves. It belongs to the family guttiferæ which contains other popular crops

like Malabar Tamarind (*Garcinia cambogia*) and Kokum (*Garcinia indica*). It grows into a dense pyramidal tree that can reach a height of 10 to 25 m at maturity. Its fruits are orange in shape with a reddish purple slightly thick skin. The pods are divided into 4 to 6 segments and two of them contain seeds. The pulp is very soft and juicy with a nice aroma and taste.

Uses

Very soft and delicious mangosteen contains most of the nutrients and minerals required to maintain good health. Like some medicinal fruits, mangosteen is also rich in anti-inflammatory factors known as Anti Oxidants. These help maintain body health by combating disease-causing molecules known as Free radicals.

Mangosteen fruit is low in calories and high in dietary fiber, is also used to control appetite and body weight. Mangosteen also contains

Vitamin C, a powerful soluble antioxidant that helps to boost the body's immune system and prevent flu fever. Mangosteen is a fruit rich in B complex-vitamins. These are necessary factors for the body's starch, protein and fat reactions. Mangosteen also contains minerals such as potassium, magnesium, and manganese, which are necessary for the body. Potassium is used to treat high blood pressure and heart related diseases. Thus, mangosteen containing these nutrients helps to prevent rheumatism.

Table 1. Nutrients and mineral content of Mangosteen

Nutrients	Quantity per 100g of fruit
Energy	63 calories
Carbohydrate	15.6 g
Protein	0.50 g
Dietary fibre	5-10 g
Fat	0.0 g
Vitamins	
Vitamin A	35 IU
Vitamin B	72 mg
Folate	31 µg
Vitamin B complex	0.460 mg
Minerals;	
Potassium	48.0 mg
Sodium	7.0 mg
Calcium	5.4. mg
Copper	0.069 mg
iron	0.17 mg
Manganese	0.10 mg
Magnesium	0.10 mg
Phosphorous	9.21 mg

Cultivation details

Climatic conditions

Mangosteen is a subtropical fruit crop that can be cultivated in areas with temperature range between 5°C and 38°C. Best performance of mangosteen is noticed in areas with temperatures between 18°C and 30°C. It generally thrives and produces good quality fruits in areas with high humidity, annual rainfall of 1500 mm and moist soil throughout the year. Areas up to about 1500 m above sea level are suitable for mangosteen cultivation.

Soil requirements

Fertile, well-drained soils with a soil depth of at least 50 cm should be selected for mangosteen cultivation. Grows well in clay soils with little silt and gravelly sand. Waterlogged, poorly drained areas should be avoided.

Propagation

Mangosteen is mostly propagated from seed. Since the seeds (hypocotyls tubercles) are formed without fertilization, the seedlings produced from the seeds often resemble the mother tree.

Although other vegetative methods of crop propagation like patch budding are followed, seed propagation is practiced commercially.

Pit preparation

One cubic meter pits at 8 to 10m spacing should be prepared in selected land one month before planting. The pits prepared in this way should be filled half full with topsoil and compost and allowed to cool.

Planting

One and a half to two-year-old seedlings should be selected and planted in the middle of prepared pits. Care should be taken not to damage the roots during planting. In the initial periods of growth arrangements should be made to provide partial shade. Also, the transplanted seedlings should be protected by tying sticks with sticks so that they are not damaged by wind.

Irrigation Management

Mangosteen plant needs proper water and irrigation. This plant requires moisture throughout the year and will produce good fruit if a moisture stress condition is established before the flowering period. The basin of the tree can be covered with organic mulch materials like leaf moulds and other farm wastes for better retention of soil moisture.

Nutrient management

Mangosteen is mostly cultivated in rain fed condition and nutrients are provided twice a year during pre and post monsoon periods. Since crops requires good organic matter content in the soil application of organic manures may be followed every year with the inorganic fertilizers of 20: 20: 20 NPK complex as mentioned in the table 2.

Table 2. Nutrient schedule for mangosteen.

Age of the Tree	20: 20: 20 (N:P:K complex fertilizer /tree /year) (Kg)	Farmyard Manure /tee/year (Kg)
1-2	0.25	20
2-4	0.50	20
4-6	1.00	40
6-8	2.00	50
8-14	4.00	60
15 year and above	7.00	60

Tree management

No regular pruning is practiced. But the dried, pest and disease infested and overgrown branches should be removed periodically and the cut areas should be treated with fungicide like copper oxy chloride to prevent the cut ends from fungal attack.

Harvest and yield

Well-maintained mangosteen plants begin to bear fruit from the seventh year after planting. Usually starts bearing good fruit in 8 to 10 years. It varies depending on the sea level where the crop is grown and the shade.

Fruiting in mangosteen mostly seen once a year, comes to harvest in the Nilgiris Hills during the main season of August-October and sometimes the off season of April-June. On an average 500 to 1500 fruits are produced per year from a well-maintained tree depending on the growth of the tree

CONCLUSION

Though Mangosteen is a nutritious fruit, development of suitable varieties and technologies for commercial cultivation in India has not been standardised which need to be attended.

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