Mangosteen

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Free

A delicacy in a fine case

Referring to as ‘the queen of fruits’ in English and ‘the king of fruits’ in French, this distinction comes from both its delicate pure white flesh of the fruit and the superb reddish purple casing that surrounds it.

Shop

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In his book ‘Les plantes alimentaires chez tous les peuples’, published at the beginning of the twentieth century, Désiré Bois wrote that ‘mangosteen is certainly the most precious fruit tree in hot countries […] white, semi-transparent mangosteen flesh is extremely succulent; it releases a perfume which is some people believe they recognise raspberry, peaches and grapes all at once. I find that it can be compared above all with a delicious Chasselas… ’. And in a book published in 1892, Bayard Taylor wrote that the fruit appeared too beautiful to eat, seeming to hold the sweetest and rarest essence of the tropics, melting in the mouth and seducing the palate! Although its taste qualities are indisputable, unfortunately they fade very fast, just a few days after ripeness if the fruit is not kept well. This is one of the reasons why mangosteen is still too little known outside production regions. But there are others. You gave to be quick but not in a hurry with mangosteen! Quick because the seeds must be sown as soon as possible after extraction from the fruit, and not in a hurry because several years elapse before this royal plant gives its first fruits—at least 8 years and sometimes 15 to 20! The fruits are extremely perishable, the seeds have a limited germination life and so the mangosteen does not possess all the aces to become the emperor of the fruit department. However, it has made progress in recent years, in particular thanks to its recently identified nutritional and antioxidant qualities.

Ecology and cultivation

The mangosteen tree (Garcinia mangostana L.) originated in South-East Asia. Linné gave it the generic name Garcinia in honour of the work carried out on the species by the French botanist Laurent Garcin in the eighteenth century. It is grown from the southern Philippines to southern India but is seen above all in Indonesia and the south of the Indochinese peninsula. Nearly 100 000 tonnes is grown on nearly 25 000 hectares in Thailand and Malaysia alone. Its reputation has also assured the fruit broad distribution throughout the tropics and it is now seen in Central America (with production exported to the United States), Brazil, Madagascar and Queensland in Australia. A few specimens are found in the French overseas departments, but mangosteen is not grown there as a serious crop.

The tree grows to a height of 10 to 15 metres. It has a magnificent slim pyramidal habit, gaining volume with time. The upper surface of the leaves is glossy green while the underside is greenish-yellow and matt. The flowers grow at the extremity of the previous year’s shoots and have four tough-looking wax petals. The fruit is round, slightly flattened at the top and the bottom, with a thick smooth corky skin; this is pale green to yellow, turning purple-violet when the fruit is ripe. The sepals are evergreen. The interior of the fruit consists of 6 to 8 white segments that separate like those of a mandarin and contain one or more seeds.

Mangosteen is a tropical tree and requires heat and moisture. Annual precipitation of more than 1 500 mm, well distributed throughout the year, is essential. However, a short period of drought is beneficial for floral induction. The optimum temperature for growth is about 25 to 30°C. The young trees cannot stand direct sunlight well and so are grown with companion crops that provide shade. Combining the trees with bananas can be a good choice in the early years as the bananas provide the shade needed. However, care must be taken to avoid any competition from the companion crop as regards water and nutrients.

Multiplication is easy by means of seeds although these are not real seeds as they are formed without pollen and so without pollination! A form of vegetative multiplication takes place. The germination capacity of the seeds removed from the fruit is very short-lived. They must be sown quickly or pre-germinated on moist cotton wool performed until a shoot appears. The seedlings can then be transplanted delicately to a pot containing a light substrate rich in organic matter. It is possible to take cuttings but this is very difficult as it must be performed in a
saturated environment. Whatever the propagation method, this phase in a shade house is long as it takes to two or three years to grow a mangosteen ready for planting.

There seems to be only one main mangosteen variety although several mutations have been reported around the world. The tree grows very slowly and the first fruits are borne after eight to ten years. Many planters are discouraged by this long non-productive period. This is why the species us rarely planted in orchards in its region of origin but often with other trees such as durian or rambutan. An adult tree may yield 200 to 2 000 fruits. However, average yields in Asia are more like 4 to 6 tonnes per hectare. The fruits are picked two or three days after they have changed colour—from green to violet. This harvest stage determines the final quality of the fruits. Picking too early (greenish yellow peel with no pink patches) affects the flavour of the flesh.

A few pre- and postharvest features that affect mangosteen quality

Unsuitable cultivation conditions such as poor drainage or mineral deficiency (mainly calcium and zinc) can affect fruit quality and make them unsuitable for sale (translucent pump). Likewise, certain pests cause serious indirect effects: pricking by fruit flies or bugs cause flows of yellow latex that make the white flesh the fruit bitter if they touch it. Thrips seem to be main pests of mangosteen and repeated pricking strongly affects the fruit colour that is a major selling point.

At postharvest stage, the fruits will keep for only a few days at ambient temperature while at 10-12°C (with 85-90% relative humidity) they can keep for three weeks without quality being affected. Storage temperatures lower than 10°C cause serious physiological damage. Finally, even though the pericarp of mangosteen seems strong, impacts during fruit handling result in much loss.

Use

The delicacy of mangosteen flesh is incomparable when the fruit is perfectly ripe and freshly cut. In Thailand, the fruits are picked when they begin to turn pink (de 5 to 50% of the surface). They are opened delicately with care taken to prevent latex from touching the pulp and placed in acid juice (lime juice for example) for 30 minutes to prevent browning. The Thais like this very much even though the lifetime of the product is limited to 5 hours, making daily preparation necessary.

Mangosteen can also be processed. The main products are fruit jelly, dried fruits, fruits frozen whole and juice. The latter are much appreciated for their antioxidant content and their presumed role in human health such as the lowering of fat levels in blood. As the colour of mangosteen juice is too pale, a colorant extracted from the pericarp is added. This gives a pinkish hue and also tannins that are also beneficial for health. These tannins are found in fruit skins and also the bark of the tree. They have anti-inflammatory properties and are reported to be effective in the treatment of amoebic dysentery. Finally, mangosteen wood is red, hard and strong. It is appreciated in
Mangosteen remains an ethnic fruit in Europe, with a market base consisting of Asian clientele. Most sales are in shops specialising in products from Asia and these are often supplied by special channels that obtain produce directly. Mangosteen is not sold in supermarkets and is only seen by the general public in displays of exotic produce during the Christmas period.

South-East Asia dominant in trade

A small number of South-East Asian countries reign over the international trade in mangosteen. Thailand is the key supplier with the largest crop in the world. Another strong point is its long production calendar, with fruits from the east of the country from the spring to the beginning of the summer and then from the south in winter. Vietnam, with a smaller number of operators, is present on the market from May to the end of the summer. Malaysia also supplies the international market but its produce is less sought-after by European importers as the fruits are generally smaller.

Suppliers other than this Asian foursome are rare. Colombia provides complementary supply, mainly during the winter. Regular shipments arrived from Africa in the 1980s and 1990s but these are now very sporadic. The fruits from all sources are packaged in filmed 1 kg trays that generally contain 10 to 12 fruits. Each box contains two trays.

MANGOSTEEN ASIA SITUATION IN 2009

Fine flavour is an advantage, but there are serious obstacles to development

Everyone appreciates the fine, fruity flavour of mangosteen and certain enthusiasts describe it as ‘the best fruit in the world’. But there is unlikely to be a sales boom tomorrow. Mangosteen is still an expensive fruit sold at a fairly steady 7 to 8 euros per kg wholesale throughout the year. The price hardly ever falls to less than 6 euros even in the summer when peak production in Thailand and summer fruits coincide. The high cost of transport (air freight only) comes over and above a fairly high production cost because of the very slow build-up of fruiting and the small yield of the trees. The fruit must also be sold fairly quickly before the skin hardens. Finally, in some seasons internal quality problems (blackening) occur and this slows the development of a fruit whose retail price is very high.
MANGOSTEEN NETHERLANDS MONTHLY WHOLESALE PRICE 2010 TO 2012

MANGOSTEEN ASIA SITUATION IN 2009

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*2012 FAO estimate

MANGOSTEEN NETHERLANDS MONTHLY WHOLESALE PRICE 2010 TO 2012