



PLANT FACT SHEET

Averrhoa carambola L.

GENUS *Averrhoa* FAMILY Oxalidaceae

COMMON NAMES Carambola

EDIBLE PARTS AND USES

Edible parts: Fruit, Flowers, Leaves, Spice

Fruit can be eaten raw or used for drinks. They are used in curries.

They can be used for souring dishes. They are also used for jams, jellies, preserves and pickles.

(They are also useful for cleaning brass.)

The acid flowers are eaten in salads or made into conserves.

Leaves have been eaten as a substitute for sorrel. They can be eaten with coconut milk sauce.

CAUTION The fruit contain soluble oxalates.

DESCRIPTION

A small evergreen tree up to 6-12 m high. The trunk of the tree is short and crooked and has branches near the base. The bark is smooth and dark grey. A leaf is made up of 2 to 11 leaflets with a leaflet at the end. The leaves are darker and more shiny on the top surface. The flowers are small (8 mm long) and red and white in clusters on the small branches. The fruit are star shaped with five or six angled ridges. They are yellow and up to 16 cm long and 9 cm wide. The flesh is white. There are one or two shiny light brown seeds about 1 cm long, in the bottom of each lobe. Some carambola have short styles (female flower parts) and these types need to be cross pollinated by insects. This means two types need planting. Long style types can fertilise themselves. Fruit flavour can vary from very acid to very sweet. There are several named cultivated varieties.

HABITAT

A tropical plant. Five corners need a warm tropical climate so they are mostly seen in the coastal lowlands below about 500m altitude. They will grow up to 1200m in the equatorial tropics. Mature trees can tolerate slight frost. Five corner can grow on several different types of soil. The soil should be well drained. It will grow on alkaline soils but is better in acid soils. Plants cannot stand water-logging. It is suited to moist places but performs better in areas where there is some dry season rather than in places with heavy, constant rain. Trees are fairly wind resistant providing the winds are not cold. Trees are stressed by temperatures near 0°C as well as above 37°C. It grows in Nepal to about 300 m altitude. In XTBG Yunnan. At ECHO. It suits hardiness zones 10-12.

PRODUCTION

Cultivation

Trees are grown from seed. Seeds grow easily but in fact only a small number of seeds are fertile. Well developed seeds should be chosen. Seeds are planted in a seed bed and planted out when 15-20 cm high. Because seeds are produced by cross pollination, variation is common. It is therefore better to use budding or grafting. Taking buds off good trees, or grafting twigs from them, onto 1 year old seedling roots, is the commonest method. Marcottage or air layering can also be used, although it is difficult. A spacing of 6 m x 6 m is suitable. Trees need to be grafted if sweeter kinds of fruit are to be selected. Because the seeds are covered by a fatty layer, washing them with soap improves the germination.

Harvesting and Seed Production

Seedling trees fruit after 4-5 years. They can produce 400 fruit per tree. Flowers open after 14-21 days and fruit mature after 14-15 weeks. Trees live for a long time and some fruit is produced at most times of the year. Flowers and fruit can be found on the tree at most times, although there is often 2 or 3 main flushes of flowering and fruiting. Fruiting tends to be seasonal about March to May in the southern hemisphere. The tree does not require pruning or any special care once established. Flowers are cross pollinated by bees, flies and other insects. Hand pollination does not help fruit set much. Fruit once ripe will keep for 7-20 days but can be stored longer at 12°C.

Planting instructions

Five Corner or Carambola

Scientific name: *Averrhoa carambola*

What is the tree like?

The five corner tree is a small tree which can grow up to 12m tall. It has a nice shady crown of leaves. The trunk of the tree is short or crooked and has branches near the base. The bark is smooth and dark grey. The tree has many branches and the twigs bend easily and tend to hang down.

A leaf is made up of 2 to 11 leaflets. There is a leaflet at the end so that an uneven number of leaflets occurs. The leaves are darker green and more shiny on top. The leaflets don't occur exactly opposite each other along the stalk. Also leaflets get larger as they go along the stalk. The leaflets are uneven in shape, one side being broad and the other narrow. The leaves tend to hang flat if the tree is shaken and at night the leaves also hang close together.

The flowers are small (8mm long) and red and white in clusters or groups on the small twigs and branches. The flowers have 5 petals and 5 sepals. The flowers have a sweet smell.

The fruit is a star shaped or 5 angled fleshy fruit. The colour becomes yellow to orange as fruit ripen. The fruits are waxy in appearance and you can almost see through them. They are smooth and thin skinned. Fruit can be 10cm or more long. The flesh of the fruit is very juicy with a sweet sour taste. They also have a scented perfume or smell.

In the bottom section of each lobe of the fruit there are 1 or 2 seeds. The seeds are shiny, thin, light brown and about 1cm long.

Where do five corners grow?

Five corners need a warm tropical climate so they are mostly seen in the coastal lowlands below about 500m altitude. They will grow up to 1200m.

Five corner can grow on several different types of soil. The soil should be well drained.

It is suited to moist places but performs better in areas where there is some dry season rather than in places with heavy, constant rain.

Trees are fairly wind resistant providing the winds are not cold.

Trees can start bearing after 3-4 years.

How do you grow five corner?

Many five corner trees in Papua New Guinea have been grown from seeds. This is the easiest way to grow a tree but sometimes the fruit is sour and not as enjoyable to eat. Seeds grow easily but in fact only a small number of seeds are fertile. Well developed seeds should be chosen. Because seeds are produced from pollen coming from other flowers (cross pollination), not all the seedlings which grow will be the same.

To avoid this problem and to produce fruit of the better, sweeter kinds it is necessary to use specialised vegetative methods of growing new trees. Taking buds off good trees, or grafting twigs from them, onto 1 year old seedling roots is the commonest method.

Trees live for a long time and fruit is produced at most times of the year. Flowers and fruit can be found on the tree at most times of the year. Flowers and fruit can be found on the tree at most times although there is often 2 or 3 main flushes of flowering and fruiting.

The tree does not require pruning or any special care once established.

Flowers are cross pollinated by bees, flies and other insects. Hand pollination does not help fruit set much.

NOTES

There are 5 *Averrhoa* species.

It contains 29.25 mg alpha-tocopherol (Vitamin E) per 100 g in the leaves.

PICTURES



Credit: Food Plants International (Bruce French)



Credit: Food Plants International (Bruce French)



Credit: Food Plants International (Bruce French)



Credit: Food Plants International (Bruce French)

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