



PLANT FACT SHEET

Carica papaya L.

GENUS *Carica* FAMILY Caricaceae

COMMON NAMES Pawpaw, Papaya

EDIBLE PARTS AND USES

Edible parts: Fruit, Flowers, Leaves, Vegetable, Seeds - spice

Fruit can be eaten ripe and raw.

Green fruit can be cooked as a vegetable.

The young leaves can be eaten cooked, but are bitter.

The flowers and the middle of the stem can be eaten.

Papayas contain papain which is a meat tenderiser.

The dried seeds can be used as a spice.

DESCRIPTION

Pawpaw is one of the very well known fruits of the tropics. The straight soft stemmed plant grows up to 3-5 metres tall and only occasionally has branches. The stem is softly woody and has scars from fallen leaves along it. At the top of the plant there are a clump of leaves. The leaves are large (50 cm wide) deeply lobed and on long leaf stalks. The leaf stalks are 90 cm long. There is a crown of leaves at the top of the trunk. Trees can be male, female or bisexual. The male flowers are small and white and on long stalks. Female and bisexual flowers are on short stalks. These have no fruit, round fruit and long fruit respectively. There are three forms of long fruit. The seeds are black.

HABITAT

It is a tropical plant. Pawpaws will grow from sea level up to about 1700 m altitude in the equatorial tropics. In cooler regions they have to be planted but in humid tropical regions are commonly self sown. Sunlight allows germination when forest is cleared. Plants cannot stand frost. A temperature of 25-30°C is suitable. They need a night temperature above 12°C. Also they cannot stand water-logging. Plants die after 48 hours in standing water. It needs a pH between 5-8. It suits hardiness zones 11-12. In XTBG Yunnan. At ECHO.

PRODUCTION

Cultivation

Pawpaw seeds grow easily and plants grow quickly. Fresh seeds can be used, or if dry seeds are used they should be soaked before planting. Seeds should be planted with a temperature of 24-30°C. To produce well they need a reasonably fertile soil. Seeds can be sown directly or the seeds can be put in a nursery and the seedlings transplanted. Seeds in a nursery should be about 1-2 cm deep. Seedlings can be transplanted when they are about 20 cm high. Plants should be about 3 m apart.

Continuous fruit production depends on fertility, temperature and moisture being adequate to maintain active growth. The fruit is produced year round but the growth and development rate decreases with temperature. Also the size and quality of fruit declines at lower temperatures. Pollination is by wind and insects. Normally cross and self pollination both occur. Pollination is not normally limiting. Seeds are widely dispersed by birds, bats and people. Seeds remain viable for a few months and also germinate freely.

Harvesting and Seed Production

Seeds emerge in 2 to 3 weeks. Vegetative growth before flowering is 4-8 months. Fruit is produced as one or more per leaf axil, about every 1-2 weeks, under good growing conditions. So with good growth 100 fruit can be produced from one plant in a year. Fruit development from pollination to maturity is about 2-3 months. On the coast in tropical equatorial regions, pawpaws start producing fruit after about 4 or 5 months but in the highlands this may not start for 12-18 months. The first fruit produced and ripe, are ready 6-11 months from planting. Practical tree life is about 2 to 3 years, although trees may live for 10-12 years.

Planting instructions

Pawpaw

Scientific name: *Carica papaya*

The Plant.

Pawpaw is one of the very well known fruits of Papua New Guinea. The straight stemmed plant grows up to 3-5 metres tall and only occasionally has branches. The stem is softly woody and has scars from fallen leaves along it. At the top of the plant there are a clump of leaves. The leaves are large (50cm wide) deeply lobed and on long leaf stalks.

Several kinds of fruit occur. They are normally oblong or round, and yellow. The breeding behaviour of fruit will be explained in a few moments. The fruit mostly have many seeds inside. (There can be 300-700 seeds). Most of the fruit in Papua New Guinea has yellow flesh but red fleshed kinds can occur. Yellow flesh colour will replace red flesh colour where both occur in the same group of interbreeding plants.

Fruit shape.

Trees of pawpaws can be of two separate sexes or they can have both sexes on the one tree. Then for the ones with both sexes on the one tree there are several different fruit shapes.

Male trees have flowers on long stalks and mostly don't produce any fruit although they sometimes fruit if the top is chopped off the plant.

Female trees only have female flower parts and when these are pollinated from a male tree will produce round fruit. But seeds saved from these fruit will come up half male trees and half female trees.

Other trees with both male and female flower parts produce long fruit. Whether the fruit is smooth around the fruit or has ridges or is twisted and what sort of plants grow when the seed is planted, depends on where the pollen comes from.

If people just want fruit to eat in their gardens or in the villages and they are not very fussy about the shape of the fruit, then the simplest rule is to just chop down all male trees and gradually develop all long fruited types. As these trees have both male and female parts they can fruit without male trees. And without male trees present, the seed which is saved and planted will all produce trees which have fruit.

This chart shows how the breeding behaviour occurs.

Parents Offspring

Female Male Bisexual

female x male 1 1 0

female x long bisexual 1 0 1

long bisexual x male 1 1 0

long bisexual self fertilised 1 0 2

To avoid male plants which don't bear fruit, pollen must come from bisexual fruit. Some of these types can be influenced by the environment at the time the flower buds form.

Mountain pawpaw.

In the highlands of Papua New Guinea another pawpaw plant has been introduced. It grows from 1650m altitude up to about 2200m. It can stand a light frost. The fruit are small. The scientific name of the plant is *Carica candamarcensis*.

Growing pawpaws.

In the lowland rainforest pawpaws just come up naturally when the forest is cleared. The sunlight allows the seeds which have been scattered by birds and flying foxes to start growing. So in the lowland forest areas people rarely plant pawpaws. As they are clearing the forest they look after female or bisexual trees and chop down male trees.

Sometimes people just casually plant trees by scattering pawpaw seeds from the fruit they are eating.

Pawpaw seeds grow easily and plants grow quickly. Fresh seeds can be used or if dry seeds are used they should be soaked before planting. To produce well they need a reasonably fertile soil.

Pawpaws will grow from sea level up to about 1700m altitude. In the highlands they have to be planted. Seeds can be sown directly or the seeds can be put in a nursery and the seedlings transplanted. Seeds in a nursery should be about 1-2cm deep. Seedlings can be transplanted when they are about 20cm high. Plants should be about 3m apart.

On the coast pawpaws start producing fruit after about 4 or 5 months but in the highlands this may not start for 12-18 months. With good growth 100 fruit can be produced from one plant in a year.

Using pawpaws.

Mostly in Papua New Guinea fruit are just eaten ripe as a snack. They can be eaten green by being cooked like a vegetable by boiling.

NOTES

Now only one species is included and the others are put in the *Vasconcellea*.

It possibly has anti-cancer properties.

Fruit are reasonably high in folates 62-97µg/100.

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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