



PLANT FACT SHEET

Abelmoschus manihot (L.) Medik.

GENUS *Abelmoschus* FAMILY Malvaceae

COMMON NAMES Aibika, Edible Hibiscus

EDIBLE PARTS AND USES

Edible parts: Leaves, bud, Vegetable, Root, Fruit, Pods

Young leaves are cooked and eaten. They are slimy unless steamed or fried.

They can be eaten with papaya leaves to remove the bitterness of the papaya.

The root is boiled with pork to make a broth.

The young fruit are cooked and eaten. They can be dried and also ground to a powder. The fruit make dishes go slimy.

DESCRIPTION

A branched shrub up to 2 m or more high. It has rounded twigs which are green and smooth. The leaves are simple, smooth and with 3 to 5 lobes. The leaves are large and can vary in shape. Normally the leaves are very dark green, but occasionally pale green types occur. The leaf stalks are 6 to 13 cm long. The stalks can be green or have red colours on them. The flowers are borne singly and are yellow with dark purple centres. They are produced on mature bushes and the flowers are hibiscus like. The fruit pods are rather stiff or with bristly hairs. They are a dry capsule with many small seeds. Plants can last for a year or for several years. Old plants produce a hibiscus type flower.

HABITAT

A tropical plant. It is well suited to the tropical lowlands but grows only poorly at 1800 metres. It needs fertile soil. The plant occurs in countries from India, China, Japan, Malaysia and Indonesia to the Pacific Islands. Plants will withstand occasional short-lived temperatures down to about -5°C so long as they are in a very well-drained soil. It suits areas with high humidity. It does not do well on atoll soils. It grows in humid places in Africa usually between 12°N and 12°S. It does best in well drained sandy loams. It suits hardiness zones 10-12. Hobart Botanical Gardens. In Sichuan and Yunnan.

PRODUCTION

Cultivation

It is grown from cuttings. Cuttings with 2-3 nodes are sufficient. It can be grown from seeds. The narrow leafed types tend to compete less well with weeds. In some areas people tend to put the narrow leafed types in the middle of the garden, intercropped with sweet potato, and the broad leafed kinds near stumps or logs and around the edges of gardens. The pale green leafed kinds that occur only grow very slowly. Aibika is normally grown from cuttings. Lengths of about 25 cm (2 or 3 leaf joints or "nodes") of fresh green stem cuttings are used.

These are simply stuck in the ground. A fertile soil is needed. Therefore Aibika can be planted in good soil in a newly cleared garden site, or it can be planted near houses where the soil fertility can be built up by adding scraps and compost and ashes. The growth and colour of Aibika leaves can be improved greatly by spraying the leaves each 2 or 3 weeks with a very small amount of the nitrogen fertiliser called urea, dissolved in water. (A 0.5% solution). This uses less fertiliser than putting it on the ground where it can wash away in the rain. Picking out the tips off branches of Aibika plants encourages the plant to produce more branches and therefore more leaves. But when you are harvesting leaves, you should not pick too many off the one bush at the one time. This is because it slows down the growth of more leaves. If the soil is very fertile, older bushes, which are only growing a few leaves, can be chopped off. The stump left in the ground can then re-grow into a new bush.

Harvesting and Seed Production

Leaves are ready to harvest after about 80 days. Yields of 6.7-7.3 tons/ha/crop have been recorded. It flowers in 50-110 days. This gets longer with increasing daylength. Plants can take 4 to 12 months until fruit are ready. Production can continue to an extended time.

Planting instructions

Aibika

Tok Pisin: Aibika Scientific name: *Hibiscus manihot* L.

The aibika plant.

The aibika plant is a shrubby plant which can grow up to 1.5 or 2 metres tall. The leaves are large and can vary in shape. The bush produces a number of branches and when it is old it sometimes produces yellow hibiscus type flowers and seed pods. The stalks can be green or have red colours on them. Normally the leaves are very dark green, but occasionally pale green types occur.

Where is aibika grown?

Aibika is very common and popular in Papua New Guinea. It is also grown in a number of the island countries of the Pacific, and in Indonesia. It is a plant well suited to hot tropical countries. In Papua New Guinea it grows quickly and easily in coastal areas, but grows more slowly in the highlands. Above 1800 metres altitude above sea level, it only grows poorly and is often eaten by insects as fast as it grows.

Different kinds of aibika.

Aibika plants vary in the shape of the leaves and in the amount of red colouring on the stalks and leaves.

Some of the leaf shapes look like this:-

The narrow leafed types tend to compete less well with weeds. In some areas people tend to put the narrow leafed types in the middle of the garden, intercropped with kaukau, and the broad leafed kinds near stumps or logs and around the edges of gardens.

The pale green leafed kinds that occur only grow very slowly.

How do you grow aibika?

Aibika is normally grown from cuttings. Lengths of about 25 cm (2 or 3 leaf joints or "nodes") of fresh green stem cuttings are used. These are simply stuck in the ground.

A fertile soil is needed. Therefore aibika can be planted in good soil in a newly cleared garden site, or it can be planted near houses where the soil fertility can be built up by adding scraps and compost and ashes.

The growth and colour of aibika leaves can be improved greatly by spraying the leaves each 2 or 3 weeks with a very small amount of the nitrogen fertiliser called urea, dissolved in water. (A 0.5% solution). This uses less fertiliser than putting it on the ground where it can wash away in the rain.

Picking out the tips of branches of aibika plants encourages the plant to produce more branches and therefore more leaves. But when you are harvesting leaves, you should not pick too many off the one bush at the one time. This is because it slows down the growth of more leaves.

If the soil is very fertile, older bushes, which are only growing a few leaves, can be chopped off. The stump left in the ground can then regrow into a new bush.

What insects damage aibika?

As aibika is such a nice food, it is not surprising that quite a few insects also enjoy it!

The insects damaging aibika can be sorted into 3 groups:-

1. Leaf chewing insects.

Cluster caterpillar *Spodoptera litura*

Cotton leaf roller *Sylepta derogata*

Shot hole weevil *Oribius* spp.

Small black flea beetle *Nisotra* spp.

Giant grasshopper *Valanga* sp

Short horn grasshopper *Phaneroptera brevis*

2. Stem boring insects.

Aibika shoot boring grub *Earias vitella*

3. Sap suckers.

Nigra scale *Parasaisettia nigra*

Cotton aphid *Aphis gossypii*

A small flatid *Colgar tricolor*

A small leaf hopper *Euricania discigutta*

Hibiscus meal bug

The most common insect, which can almost always be found on aibika in the highlands, is the small shiny black flea beetle. It jumps when it is disturbed and chews small round holes in the leaves.

In the Highlands, small grey long nosed weevils (*Oribius* spp.) also commonly chew irregular shaped holes in the leaves.

Because aibika is related to cotton, three similar moths have grubs which damage both cotton and aibika. These are the cotton looper, cluster caterpillar and the cotton leaf roller. The grubs of the first one move by forming loops, the grubs of the second one group together in clusters, and the grubs of the third one roll the leaf by turning it downwards. They all chew leaves.

The aibika shoot boring grub (*Earias* sp.) is the grub of another similar moth. The moth lays eggs on the young parts of the plants and then when the grubs hatch they burrow into the stem.

The nigra scale is a small black scale like insect that gets on the top stems of the plant. It sucks sap weakening the plant. The hibiscus mealy bug has a white floury type growth over the insect. It gets on the stems, sucks the sap and can weaken plants.

How do you control the insect damage?

One simple sensible way to make the damage due to insects less serious, is to grow the plants as well as possible so that the plant grows faster than the insects damage it. Remember aibika likes warm places and fertile soil.

Oribius weevils are hard to kill with chemicals, but they can be caught and drowned in a tin of water which has a little kerosene on the top. As these insects breed slowly taking about one year for their life cycle, they can't breed up very quickly.

There are over 20 different kinds of aibika in Papua New Guinea and they all don't suffer the same amount of insect damage. So it is possible to pick out kinds that will be less damaged.

Chemicals to kill insects can be used but as they will also kill people, they are dangerous. The chemical called carbaryl will kill larvae of cotton aphid, aibika shoot boring grub, cluster caterpillar and probably cotton looper and cotton leaf roller. But before you use chemicals you must know a lot about them and how to use them. Also you mustn't eat any leaves for 7 days after spraying. It may be as simple, and safer, to pick the grubs off the plants.

What diseases does aibika get?

Aibika doesn't suffer from a lot of diseases. It can get a leaf spot due to a fungus, and it can get a white powdery mildew, also due to a fungus. But these don't seem to cause too much trouble and are not often seen. Sometimes the leaves get an irregular pattern of pale yellow patches amongst the green colour of the leaf. This is due to a virus but it does not seem to stop the growth very much. Cuttings rot off near ground level particularly if they are in wet ground. This is probably due to bacteria and fungi in the soil. In villages people plant a few extra plants to allow for this type of problem.

Other pests.

On coastal areas near the main towns the giant African snail badly eats aibika. It is not known in the Highlands Provinces and would only survive in lowland areas.

Harvesting and using aibika.

The young leaves and shoots are picked. They can be boiled, steamed or fried. Cooked aibika leaves can be very slimy. If it is preferred to have them less slimy, they need to be steamed, such as in bamboo, or fried.

The food value of aibika.

Aibika is a very good quality edible green. Not only does it have high amounts of protein, minerals and vitamins, the protein and energy proportions are in a good ratio. This means that it is balanced in a way that makes it easy for the body to use it efficiently.

In a 100 gram portion of the leaves that are eaten, there are the following amounts of the different types of food nutrients.

moisture energy protein calcium iron proVitA provitC

% cals g mg mg µg mg

leaves 47-103 2.6-5.7 580 3 90 118

How much food is produced?

At the University of Papua New Guinea at Port Moresby, Dr Kesavan has measured yields of leaves of about 7 tons over an area of one hectare for one crop. This would be equal to harvesting 7 kg of leaves from a plot 10 square metres in size.

NOTES

There are about 15 *Abelmoschus* species. They are tropical and subtropical. It is high in folates.

PICTURES



Credit: Food Plants International (Bruce French)



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