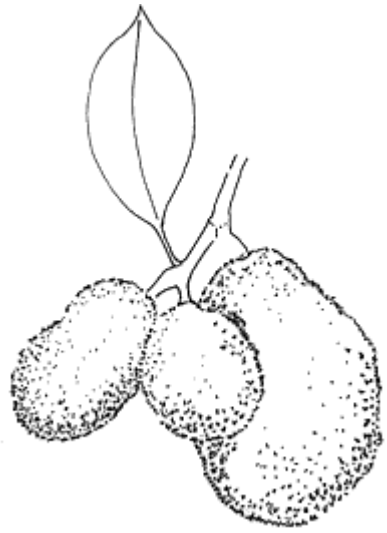
Tree Species No. TTS2

Artocarpus heterophyllus, Family Moraceae

Synonyms: *Artocarpus integrifolia, A. integra, A. brasiliensis, A. maxima, A. philippensis.*

Common names: Jak, jack fruit, jacquier, jaca, po-lo-tan, nangka.

Distribution: It is native to India and Malaysia and was spread to Africa by the Arabs and subsequently to South America. It is widely cultivated in South East Asia but less so in Africa.



Ecology

Rainfall: 1083-2409mm.

Temperature: 16.4-32° C.

Altitude: 0-1500m, however yields decline after 1200m.

Soil type: Prefers deep, well drained alluvial soils but will tolerate most fertile soil types.

Botany

Height: 15m, sometimes reaching 20m.

Diameter at breast height: 30-50cm.

Flowers: Flowers of both sexes can be found on the same tree and the flowers have either male or female parts. The male flowers are drooping, crowded green flowers that can reach 10cm long and the female flowers are small and occur on a short stout branchlet.

Fruit: The barrel/pear shaped edible fruits occur on the trunk of the tree and weigh 10-30kg, sometimes reaching 50kg, and sizes up to 90x50cm have been recorded in extreme cases. The fruits are usually half this size. They are golden yellow on the surface and cream within.

Uses

Main: The jack fruit is mainly grown for its edible fruits however it has also been used as a shade crop for coffee and sometimes in association with pepper (*Piper negrum*). The latex can be used in pottery repair and the jak fruit is also used for furniture, shade and forage.

Others: The leaves are used in indigenous medicines and a yellow dye can be taken from the wood.

Yield: The trees usually produce fruit from the 8th year of growth although the Singapore Jack variety begins after 3 years. Trees produce fruit for 4 months. 250-750kg fruit per tree can be expected.

Cultural instructions

Seeds: To store the seeds, cover in sand or coir dust at room temperature, where they can be stored for up to 1 month and retain a viability rate of up to 80% Care should be taken that the seeds do not dry out. Alternatively, store in clean, airtight containers at 18° C, this allows seeds to be stored for up to 6 months while still maintaining viability.

Pre-treatment: Once the jacket has been removed soak the seed for 24 hours in cool water. This can increase the germination period from two weeks to 3-5 days.

Germination: The seeds lose viability quickly if allowed to dry out, making storage difficult.

Nursery: Grow from seed, these can be sown directly into the soil or in poly bags. Due to variability, grafting can be advantageous.

Planting out: Transplant with care because the tap root is very fragile.

Spacing: 12 x 12m or 80 plants per hectare.

Management: Seedlings prefer direct sunlight therefore limiting light competition by regular weeding is important.

Storage of fresh fruit: Store in conditions where relative humidity is 85-90% and temperature is 11-13° C. Fruits can then be stored for up to 42 days.

Other

Pesticidal properties: The aerial parts and leaves act as an antifeedant on *Attagenus piceus*, a dermestid and the shoots, buds and tops have anti-nematodal properties effecting the spiral nematode (*Helicotylenchus indicus*), *Hoplolaimus indicus*, the reniform nematode (*Rotylenchulus reniformis*), the stunt nematode (*Tylenchorhynchus brassicae*) and *Tylenchus filiformis*.

Pests and diseases: Black root rot (*Rosellinia pepo, R. bunodes*) causes wilting and death of the host and is characterised by a mycelial fan surrounding the stem at ground level. Control by removing infected material from the soil. Leaf spot (*Cercospora artocarpi*) causes black spots to appear on the leaves. Fruit rot (*Phytophthora palmivora*) cause water soaked lesions with brown centres which results in mummification of the fruit and soft fruit rot (*Rhizopus stolonifer, R. artocarpi*) causes the fruit to rot. This can be controlled by strict sanitary measures. It is also effected by the coco scale (*Aspidiotus destructor*), a sucking insect that causes the leaves to become discoloured, this is commonly controlled by natural predators.

Limitations: The taproot is fragile making transplanting difficult.

HDRA - the organic organisation, Ryton Organic Gardens Coventry, CV8 3LG, UK.
Tel: +44(0)24 7630 3517 Fax: +44(0)24 7663 9229 Email: ove-enquiry@hdra.org.uk www: http://www.hdra.org.uk

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