

Dimocarpus longan

Lour.

Sapindaceae

LOCAL NAMES

English (lungan, longan tree, longan, dragon's eye); French (longanier); German (Longanbaum); Spanish (mamoncillo chino, longan)

BOTANIC DESCRIPTION

Dimocarpus longan is handsome, erect, 9-12 m in height and 14 m in width, with rough-barked trunk 76.2 cm thick and long, spreading, slightly drooping, heavily foliated branches.

Leaves evergreen, alternate, paripinnate, 4-10 opposite leaflets, elliptic, ovate-oblong or lanceolate, blunt-tipped; 10-20 cm long and 3.5-5 cm wide; leathery, wavy, glossy-green on the upper surface, minutely hairy and greyish-green beneath. New growth is wine-colored and showy.

Flowers pale-yellow, 5-6-petalled, hairy-stalked, larger than those of the closely related species, *Litchi chinensis* (lychee), are borne in upright terminal panicles, male and female mingled.

Fruits, globose in drooping clusters, 1.25-2.5 cm in diameter, with thin, brittle, yellow-brown to light reddish-brown rind, more or less rough (pebbled), the protuberances much less prominent than those of the lychee. The flesh (aril) is mucilaginous, whitish, translucent, somewhat musky, sweet, but not as sweet as that of the lychee and with less "bouquet".

Seed round, jet-black, shining, with a circular white spot at the base, giving it the aspect of an eye.

BIOLOGY

Fruits ripen from early to mid-August in China, August and September in Florida.



Detail of fruits and leaves. (Choo W.K.)



Relative of the commercial longan - *Dimocarpus longan* sp. *malesianus* var. *malesianus* (from left to right: 'kakus', 'isau' and 'sau'). Detail of fruits. (Choo W.K.)



Tree with terminal inflorescences. (Choo W.K.)

ECOLOGY

The longan is native to southern China, in the provinces of Kwangtung, Kwangsi, Schezwan and Fukien, between elevations of 150-450 m. It thrives much better on higher ground than the lychee and endures more frost. It is rarely found growing along the dykes of streams as is the lychee but does especially well on high ground near ponds. The longan appears in these regions more often but it, too, cannot stand heavy frosts. After a long period of cool weather over the 3 winter months, with no frost, longan trees bloom well. Blooming is poor after a warm winter.

BIOPHYSICAL LIMITS

Altitude: 150-450 m

Mean annual temperature: 15 deg C

Soil type: The longan thrives best on a rich sandy loam and nearly as well on moderately acid, somewhat organic, sand. It also grows to a large size and bears heavily in oolitic limestone. In organic muck soils, blooming and fruiting are deficient.

DOCUMENTED SPECIES DISTRIBUTION

Native: China, India, Myanmar

Exotic: Bermuda, Cambodia, Cuba, Laos, Mauritius, Puerto Rico, Reunion, Taiwan, Province of China, Thailand, United States of America, Vietnam



The map above shows countries where the species has been planted. It does neither suggest that the species can be planted in every ecological zone within that country, nor that the species can not be planted in other countries than those depicted. Since some tree species are invasive, you need to follow biosafety procedures that apply to your planting site.

PRODUCTS

Food: Longans are much eaten fresh, out-of-hand, but some have maintained that the fruit is improved by cooking. In China, the majority are canned in syrup or dried. The canned fruits were regularly shipped from Shanghai to the United States in the past. Today, they are exported from Hong Kong and Taiwan. For drying, the fruits are first heated to shrink the flesh and facilitate peeling of the rind. Then the seeds are removed and the flesh dried over a slow fire. The dried product is black, leathery and smoky in flavor and is mainly used to prepare an infusion drunk for refreshment.

Fuel: The seeds and the rind are burnt for fuel. The wood is not highly valued for fuel.

Timber: While the tree is not often cut for timber, the wood is used for posts, agricultural implements, furniture and construction. The heartwood is red, hard, and takes a fine polish.

Alcohol: A liqueur is made by macerating the longan flesh in alcohol.

Medicine: The flesh of the fruit is administered as a stomachic, febrifuge and vermifuge, and is regarded as an antidote for poison. A decoction of the dried flesh is taken as a tonic and treatment for insomnia and neurasthenic neurosis. In both North and South Vietnam, the "eye" of the longan seed is pressed against a snakebite in the belief that it will absorb the venom. Leaves and flowers are sold in Chinese herb markets but are not a part of ancient traditional medicine. The leaves contain quercetin and quercitrin. Dried flowers are exported to Malaysia for medicinal purposes. The seeds are administered to counteract heavy sweating and the pulverized kernel, which contains saponin, tannin and fat, serves as a styptic.

Other products: The seeds, because of their saponin content, are used like soapberries (*Sapindus saponaria* L.) for shampooing the hair.

SERVICES

Shade or shelter: The longan is cultivated in Bengal and elsewhere as a shade tree.

Ornamental: The tree is widely cultivated as an ornamental.

TREE MANAGEMENT

A tree can be converted to a preferred cultivar by cutting it drastically back and veneer-grafting the new shoots. In China, if the longan is raised on the lowlands it is always put on the edges of raised beds. On high ground, the trees are placed in pre-enriched holes on the surface. The trees are fertilized after the fruit harvest and during the blooming season, at which time the proportion of nitrogen is reduced. Fresh, rich soil is added around the base of the trees year after year. The longan needs an adequate supply of water and can even stand brief flooding, but not prolonged drought. Irrigation is necessary in dry periods.

Pruning of many flower-bearing twigs where 3/4 of the flower spikes in the cluster are removed is essential. Later, the fruit clusters are also thinned, in order to increase the size and quality of the fruits.

In China, full-grown trees given sufficient room—at least 12 m apart—may yield 180-225 kg in good years. Crops in Florida from trees 6 m tall, have varied from light 22.5-45 kg—to medium—68-113 kg, and heavy—135-225 kg. Rarely such trees may produce 272-317 kg. Larger trees have larger crops but if the trees become too tall harvesting is too difficult, and they should be topped. A serious problem with the longan is its irregular bearing—often one good year followed by 1 or 2 poor years.

GERMPLASM MANAGEMENT

Seeds are recalcitrant. They lose viability at 18 % moisture content. There is 70 % survival after 7 weeks storage with anesthetic substances such as moist storage at 8-10 deg C with 100 % relative humidity and with 80 % nitrous oxide + 20 % oxygen, but no viability when water is used; and 67 % germination after 250 days moist storage in moist (20 % moisture content) perlite + 4 % chlorthalonil, at 15 deg C.

PESTS AND DISEASES

The longan is relatively free of pests and diseases. At times, there may be signs of mineral deficiency which can be readily corrected by supplying minor elements in the fertilization program.

FURTHER READING

Chen GY and Fu JR. 1989. Deterioration of some recalcitrant seeds. *Plant Physiology Communications*. 3:11-14.

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SUGGESTED CITATION

Orwa C, A Mutua, Kindt R, Jamnadass R, S Anthony. 2009 *Agroforestry Database: a tree reference and selection guide version 4.0* (<http://www.worldagroforestry.org/sites/treedbs/treedatabases.asp>)