

Arenga pinnata

(Wurmb.) Merr.

Areaceae

LOCAL NAMES

Burmese (taung-ong); English (arenga palm, sugar palm, sagwine); French (palmier areng, palmier à sucre); German (Zuckerpalme); Indonesian (ejow, gomuti, aren, kaong); Italian (palma dello zucchero, palma arenga); Lao (Sino-Tibetan) (taw tad); Spanish (palma azucarera); Thai (tao, chok); Vietnamese (doasc, busng basng)

BOTANIC DESCRIPTION

Arenga pinnata is a solitary, unarmed, pleonanthic, monoecious feather palm. The bole is solitary, unbranched and usually reaches a height of 15-20 m, with a diameter of about 30-40 cm.

Leaves pinnate, ascending, up to 8.5 m long. Leaflets dark green above and whitish beneath, giving the trees a dirty greenish appearance. The leaf sheaths cover the stem; their margins are fibrous with black hairs. Young leaf sheaths are usually covered on their lower surfaces with an abundance of soft, mosslike white hairs.

The first inflorescence arises from a node near the top meristem. Inflorescences appear in descending order from the uppermost leaf axil and continue for about 2 years until the palm is exhausted and dies. Each node bears only one inflorescence.

Fruits are yellow when mature, about 5 cm in diameter, with 2-3 seeds each.

BIOLOGY

This monoecious palm first flowers when around 10-12 years old; however, sometimes it flowers as early as 5-6 years. Maturity is indicated by simultaneous appearance of 2 short leaves at the top of the stem. The average flowering period of an untapped tree is 4-6 years.



Young plant. (Haynes J.)



Detail of trunk covered in fiber. (Haynes J.)



Young plant with six leaves. (Huntington T.)

ECOLOGY

Native to southeast Asia, occurring in tropical rainforest and dry forest. Usually it grows close to human settlements where anthropic propagation plays a major role. Otherwise it prefers secondary forest at the border of primary rainforests.

BIOPHYSICAL LIMITS

Altitude: 0-1 400 m

DOCUMENTED SPECIES DISTRIBUTION

Native: Bangladesh, Brunei, Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Papua New Guinea, Philippines, Singapore, Sri Lanka, Thailand, Vietnam

Exotic:



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: *A. pinnata* is a popular plant because of its year-round food production, especially in the dry season when other food is scarce. Its most important product is sweet sap, called saguer, which is used as a drink and as the raw material for sugar production. Fruits contain 6.8% moisture, 7.9% ash, 16.2% crude fibre, 10% crude protein and 1.5% fat.

Trees more than 15 years old produce, which people in some parts of Indonesia use like rice as a staple food. A sago-like flour can be ground from the trunk pith and used for cakes, noodles and other dishes.

A product typically made from *A. pinnata* in West Java is kolang kaling, the cooked endosperm of young sugar palm fruits. One infructescence yields about 4 500 endosperms. It is used for a cocktail and local refreshment known as kolak. The stem is a form of sago, which is converted into sugar when the palm first begins to flower. Palm cabbage is eaten raw as a salad or cooked.

Apiculture: The flowers are a good source of nectar for honey production.

Fuel: Old woody leaf bases as well as the long leaves, can be used for fuel. The hairs found on the base of the leaf sheaths are very good tinder for igniting fire.

Fibre: The leaf sheath is a source of a tough, black fibre (gomuti or yonot fibre). It is used chiefly for a durable rope tolerant of both fresh and salt water and of fire; it is used for marine work, thatching and brushes. The split petioles are used for basketry and a form of marquetry. The youngest leaves are sometimes used as cigarette paper.

Timber: The very hard outer part of the trunk is used for barrels, flooring and furniture. Posts for pepper vines, boards, tool handles and musical instruments like drums are all made from the wood of *A. pinnata*.

Alcohol: A simple distillation process applied to the fermented sugar sap produces tuak, a beverage containing over 30% alcohol.

Poison: The roots of *A. pinnata* are a useful insect repellent.

Medicine: Roots provide medicinal products, such as a tea decoction used to cure bladder trouble.

Other products: The pith of the leaf rachis is an ideal shape for use as a drinking cup.

SERVICES

Erosion control: Root up to 3 m deep and 10 m wide contribute to soil stabilization.

Intercropping: Although sugar palm grows very well among larger trees when there is sufficient overhead light, very few plants thrive under it. Coffee and pineapple survive under these palms but hardly yield. The tree has a relatively short life span, which must be considered when promoting it as a species for agroforestry or any programme directed towards its propagation. The life span, however, fits well into the practiced rotation cycles of shifting cultivation in Indonesia, which are usually between 12 and 15 years in traditional systems.

TREE MANAGEMENT

Depending on altitude and temperature and to a lesser degree on factors such as soil fertility, climate and competing vegetation, the palms will stay in the rosette stage for 3.5-6 years, and then grow to full size in another 3-9 years. Usually after 5-6 years, the fibres can be collected for the first time and after that, every 2 years. When the palm begins flowering, tapping for the sweet sap can start, but farmers usually wait for the first male flowers. The sap is usually tapped only from male inflorescence stalks, because female inflorescences are said to produce sap of inferior quality, and the more fibrous stalk of the females requires extra effort to prepare. Usually, the closer to the ground the male inflorescence arises, the less sap it produces. One inflorescence can produce about 5 litres of sap a day. An inflorescence of sugar palm can be tapped for 1-2 months, and 2-4 inflorescences may be tapped at a time. Since sago, the starchy layer on the inner part of the trunk, is obtained only by cutting trees, it is usually the last product obtained; trees are usually cut for sago when they are more than 30 years old.

As the heavy shade and the dense root system of the sugar palm limit its combination with other crop plants, it is best planted on steeper slopes, easily eroding lands, or in single or double rows near the boundaries of fields, where it contributes to soil stabilization without taking up considerable land area.

GERMPLASM MANAGEMENT

Behaviour of seed in storage is recalcitrant; the seed is short-lived, and only 25% survive for 3 months in open storage.

PESTS AND DISEASES

A. pinnata is rarely attacked by pests or diseases.

FURTHER READING

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SUGGESTED CITATION

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