

LOCAL NAMES

Afrikaans (borassuspalm); Amharic (zembaba); Arabic (deleib, delieb); Bemba (kambili, chibangalala, kakoma); English (ron palm, borassus palm, African fan palm, fan palm, palmyra palm, deleb palm); French (palmier ronier, rônier); Fula (dubbe, dubbi); German (palmyrapalme); Hausa (giginya); Igbo (ubiri); Lozi (mukulwani, kankoma, mulala); Luganda (katuugo, katugu, ntunku, ntungo); Mandinka (sibo, rhun, nyalango); Nyanja (kakoma, mlaza, chipamba); Swahili (mvomo, mchapa, mtappa); Tongan (mapokwe, muhuma, kankunka, kahuma, kalala, mulala); Wolof (ron); Yoruba (abgon-eye)

BOTANIC DESCRIPTION

Borassus aethiopum is an unbranched palm growing up to 20 m tall, characterized by a crown up to 8 m wide; young palms are covered with dry leaf stalks, showing gradually fading leaf scars; trees over 25 years old have a swelling of the trunk at 12-15 m above the ground (at 2/3 of the height); bark is pale grey in older palms and is more or less smooth.

Leaves very large, fan shaped, bluish-green, 15-30, up to 3.5 m long, including petiole which is marked with sharp, black thorns; leaflets symmetric at the base.

Flowers dioecious, yellowish; male flowers clustered in a branched spadix, 0.8-1.8 m long. Female flowers with unbranched and shorter spadix, 1.3-2.6 m long.

The fruit a large drupe, diameter about 15 cm, ovoid, orange to brown when ripe; fibrous pulp contains 3 woody kernels with an albumen that becomes hard when ripe.

This genus is probably the only tropical species that bears a generic name so old that its meaning has been lost in time. The name 'flabellifer' means 'fan shaped' and refers to the shape of the leaves.

BIOLOGY

B. aethiopum is dioecious. Flowering and fruiting take place whole year round. Pollination is largely done by insects. Elephants are fond of the fruit and are reputed to help in dispersing the seed.



B. aethiopum in Kabalega Falls National Park, Uganda. (Robert Zwahlen)

ECOLOGY

Distributed in the Guineo-Congolian and Sudanian savannahs, *B. aethiopum* is abundant and characteristic in all types of savannah of the region, occurring at low altitudes along rivers and in coastal woodlands. It can tolerate high temperatures and will grow in areas with rainfall less than 500 mm/yr if the groundwater table is high. It is often in dense stands. The palm can serve as an excellent firebreak, especially in the arid regions of West Africa, which are prone to wildfires.

BIOPHYSICAL LIMITS

Altitude: 0-1200 m, Mean annual rainfall: 500-1400 mm, Mean annual temperature: 20-30 deg.C

Soil type: Usually found in sandy, well-drained soils, but prefers alluvial soils near watercourses.

DOCUMENTED SPECIES DISTRIBUTION

Native: Benin, Burkina Faso, Congo, Cote d'Ivoire, Democratic Republic of Congo, Ethiopia, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Liberia, Mali, Mozambique, Nigeria, Senegal, Sierra Leone, South Africa, Sudan, Tanzania, Togo, Uganda, Zambia, Zimbabwe

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: The fruits have a large, fibrous pulp (around 500 g each) that smells strongly of turpentine. They are consumed raw or cooked, preferably with rice. The kernels contain an albumen, which before ripening is sweet and refreshing. The immature seeds can be eaten and contain a sweet jelly that has a refreshing taste. The mature seeds can be buried in pits and allowed to germinate, and the shoots are said to be a delicacy. Fresh sap is used as a yeast or made into vinegar.

Fodder: Fruits and young leaves are sometimes browsed for fodder.

Apiculture: In Uganda, *B. aethiopum* trees are cut and hollowed out to make beehives.

Fuel: Firewood and charcoal can be obtained from *B. aethiopum*.

Fibre: The fibre extracted from the base of the leaf stalk has valuable qualities of resistance to chemicals, termites and water. Young leaves, before unfolding, can be split into strips and woven into thin mats, baskets and other household objects. The leaf midribs are used to make brooms, fish traps and nets. The leafstalk endings can be soaked in water to provide fibres that are used as sponges or filters.

Timber: The wood is hard, moderately heavy and brown with black fibres. The strong trunks are very resistant to decay and to insects, especially termites. They are frequently used as posts and for construction of bridges. The boards cut from the trunks are used for the construction of shower cabins. The trunk and leaf stalks are used to make stakes. In Mozambique, people use the trees to make dugout canoes. Other products include door frames, roof materials, tool handles and drums.

Lipids: Oil can be extracted from the fruit and pulp.

Alcohol: *B. aethiopum* is particularly appreciated because of its sap, tapped from flower spikes, which ferments to palm wine, 'kue za', the traditional beverage of the Baoulé of Cote d'Ivoire. Palm wine can be distilled to form 'koutoukou', but this spirit often contains undesirable esters and free acids.

Medicine: In traditional medicine, palm wine is a component of several aphrodisiac preparations. The flowers help against aphonia, and young leaves are used to stop haemorrhage.

SERVICES

Shade or shelter: Mature leaves are used for roofing.

Ornamental: *B. aethiopum* is an attractive palm and has been planted for amenity purposes.

TREE MANAGEMENT

Growth of the palms depends very much on site conditions. Three phases of growth are recognized. The 1st phase takes 6-8 years and involves leaf development, in which about 20 leaves grow in a wide crown (about 3 x 3 m). There is very little upward growth then. The 2nd phase involves rapid growth of the trunk above the ground and takes place from the 8th to about the 20th year. The bark of the tree will still be rough and have many leafstalks. The 3rd phase involves flowering and shedding of leafstalks. The trunk becomes smooth and swellings appear on it.

Little care is required if palms are established on a good site. However, young leaves should be harvested only under very controlled conditions if the palm is to grow properly. Rotation periods depend on the site but can be 60-140 years.

For palm wine tapping, the terminal bud of the tree is cut and the dripping sap of the phloem is collected in a receptacle. The cut is renewed twice every day for 3-4 weeks until the tree is exhausted and dies. During this period *B. aethiopum* can yield about 200-500 litres of sap. Overtapping of the tree for its sap has made the tree rare.

GERMPLASM MANAGEMENT

Seeds have a very short period of viability and should be sown directly after they are removed from the pulp. It has been suggested that this species may not show recalcitrant seed storage behaviour. There are 2-3 seeds/kg.

FURTHER READING

Anon. 1962. The cultivation of annatto. *Farmer Jamaica*. 67(5):156-158.

Bekele-Tesemma A, Birnie A, Tengnas B. 1993. Useful trees and shrubs for Ethiopia. Regional Soil Conservation Unit (RSCU), Swedish International Development Authority (SIDA).

Coates-Palgrave K. 1988. *Trees of southern Africa*. C.S. Struik Publishers Cape Town.

Dale IR, Greenway PJ. 1961. *Kenya trees and shrubs*. Buchanan's Kenya Estates Ltd.

Eggeling. 1940. *Indigenous trees of Uganda*. Govt. of Uganda.

Hocking D. 1993. *Trees for Drylands*. Oxford & IBH Publishing Co. New Delhi.

Hong TD, Linington S, Ellis RH. 1996. Seed storage behaviour: a compendium. *Handbooks for Genebanks*: No. 4. IPGRI.

ICRAF. 1992. A selection of useful trees and shrubs for Kenya: Notes on their identification, propagation and management for use by farming and pastoral communities. ICRAF.

Katende AB et al. 1995. Useful trees and shrubs for Uganda. Identification, Propagation and Management for Agricultural and Pastoral Communities. Regional Soil Conservation Unit (RSCU), Swedish International Development Authority (SIDA).

Kovoor A. 1983. The palmyrah palm: potential and perspectives. *FAO Plant Production Paper*. No. 52. FAO, Rome.

Leakey RRB et al. 1996. Domestication and commercialization of non-timber forest products in agroforestry systems. FAO, Rome.

Mbuya LP et al. 1994. Useful trees and shrubs for Tanzania: Identification, Propagation and Management for Agricultural and Pastoral Communities. Regional Soil Conservation Unit (RSCU), Swedish International Development Authority (SIDA).

Noad T, Birnie A. 1989. *Trees of Kenya*. General Printers, Nairobi.

Sahni KC. 1968. *Important trees of the northern Sudan*. United Nations and FAO.

Storrs AEG. 1995. *Know your trees: some common trees found in Zambia*. Regional Soil Conservation Unit (RSCU).

Vogt K. 1995. *A field guide to the identification, propagation and uses of common trees and shrubs of dryland Sudan*. SOS Sahel International (UK).

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>)