



Fruits for the Future Baobab

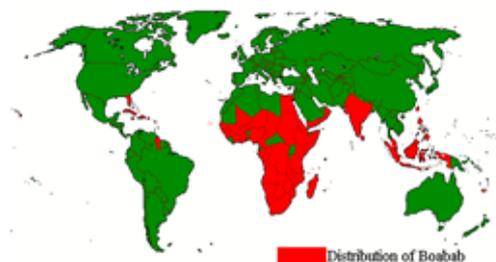
International Centre for Underutilized Crops.

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shape. It is between 20-54 cm in length and approximately 7.5 cm in diameter. The ripe fruit is filled with a mealy pulp containing numerous seeds, which have both domestic and industrial uses. The tree averages 25 m in height and 6-10 m in diameter. The genus *Adansonia* contains eight species, six endemic to Madagascar, one to mainland Africa and one to N.W. Australia.

What is Baobab? - *Adansonia digitata* L. is a deciduous, tropical tree which grows in arid, semi-arid and sub-humid tropical climates. It belongs to the family Bombacaceae. Baobabs are characterised by swollen trunks and branches. The shape of the trunk can be cylindrical, bottle-shaped, gnarled or tapering. The bark is smooth, silver-grey or pinkish/purple in colour and contains a yellow or green photosynthetic layer inside, which is composed of a thick layer of tough, longitudinal fibers. Baobab trees have a compact, rounded to open, flattened (spreading) crown and a short bole. It is a long-lived, fast growing tree (in its juvenile stage) and has an average life span of 1000-3000 years, though it can reach 6000 years! The fruit is a pod, which is usually globose, ovoid or oblong-cylindrical in



Where does Baobab grow? - Baobab is thought to have originated on mainland Africa or Arabia, from where it was carried by seafaring traders to Zanzibar, Madagascar and Mauritius. Trade within the Indian subcontinent led to a degree of species naturalisation in India, Malaysia and Indonesia. Baobab now also occurs as a specimen tree on some Caribbean islands and on the coast of Guyana. Baobab grows widely in tropical climates characterised by a dry winter and a hot wet summer. It has been reported in areas where the annual rainfall is as low as 90 mm.

The tree is well adapted to arid conditions, preferring sandy soils or well-drained loams. It can also tolerate poorly drained heavily textured soils. The tree will not grow in deep sand, but will grow on acid or alkaline soils. It is drought hardy, fire resistant and prefers areas with a high water table. The root system of a mature tree penetrates the soil to a depth of approximately 2 m. Both juvenile and mature trees are susceptible to frost. Baobab is not grown commercially in large plantations, but tends to be planted as an isolated tree (landmark) near homestead settlements for its fruits, seeds and other products. It is sometimes planted in small orchards, these tend to small and products harvested mainly for domestic use.

Why should you grow Baobab? - The Baobab tree is well-known for its fruits, which are rich in vitamins C, B1, B2, calcium, phosphorous, iron, trace minerals and protein. The leaves are rich in β carotene, and contain a significant amount of amino acids and several trace elements. The tree is easy and cheap to cultivate and free from any serious pests and diseases. It is usually left to grow until it dies naturally, as many traditional beliefs exist which dissuade felling. The tree provides shade, cooling the soil beneath the canopy. Deciduous leaf drop acts as a soil conditioner by providing a humus-rich top layer, improving water moisture content and protecting the soil against erosion. Baobab has many uses and although the pulp yield is variable. Baobab is therefore a sustainable resources with positive environmental benefits.



POD STORAGE IS POSSIBLE

WATER STORAGE

CULTURAL EMPHASIS

MANY USEFUL PRODUCTS

FREE OF SERIOUS PESTS AND DISEASES

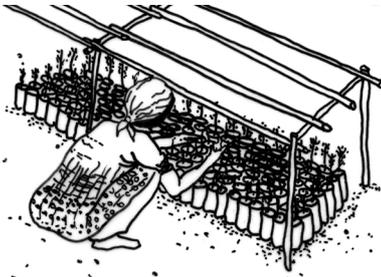
HIGH NUTRITIONAL VALUE

LONG LIFE SPAN

ENVIRONMENTAL BENEFITS



Economics of Baobab - Baobabs have economic potential, though little documentation exists concerning the trade of its products. Production centres in all countries tend to serve local markets and details of the export of pulp, seed or bark products are rare. Baobab oil is produced from the seed, it is used in cooking and sold in local markets. The oil is also exported to international markets for use in cosmetics and the dried bark was once exported to Europe for the manufacture of packing paper. Since 1848, the strong inner fibre from the bark has also been imported into Europe under the name of *cortex cael cedra*, for use in rope making. Exact production and export figures are not available.



How do you grow Baobab? - The Baobab tree can be grown easily from seed, however given the large intra-specific variability, vegetative propagation is an easy way to maintain 'good quality' characters, reduce the juvenile period and to obtain medium height plants. A number of methods have been used, including stem cuttings, which give variable results, and grafting which produces more consistent results. Grafting methods have been used in Mali and have produced a success rate of 100%. Vegetative methods are both relatively cheap and easy. Propagation by seed requires pre-treatment by immersion in boiling water. Germination is variable and can take from 3 weeks to 6 months. Seeds can retain their viability for a number of years provided they are kept dry. When planted out, young trees require adequate soil moisture to become well established, but mature trees can withstand drought quite well. In general, the fruits abscise late in the rainy season, but may persist on the tree for several months. Ripe pods, however, can be stored unopened or uncracked for a number of months in humid climates, without refrigeration. The trees will bear pods after 8-23 years.



What are the uses of Baobab? - Baobab is a multipurpose tree and probably best known for its swollen, hollow trunk which is most commonly used for water storage. The hollow trunk is also reported to be used as a tomb in West Africa for griot* and the leprous. The pods contain the fresh pulp which has a tangy, sub-acid flavour. It can be mixed with water to produce beverages, used as a substitute for cream of tartar and can also be used to curdle milk. Dried pulp is processed industrially and marketed by a number of different companies internationally as a powder which can be taken with liquid to enhance nutrition. The seeds can be eaten fresh, dried or roasted and are sometimes used as a coffee substitute. Oil, which is often used in traditional ceremonies, can be extracted by distillation and can be purified as a cooking oil for the international market. It has a light, golden colour with a nutty aroma and a long shelf-life. A number of products including bath oil, lotions and creams have been developed for the cosmetics industry, taking advantage of its natural moisturising effects. Oil-cake is also used to feed cattle. Fresh and dried leaves are cooked and eaten as a type of spinach and they can also be used as forage. The timber is light and spongy, unsuitable for fuel and easily attacked by fungus. However, it is used to make canoes and fishing floats. The wood pulp is suitable for processing into writing paper, for local use. Fibre from the inner bark is particularly strong and durable, and is widely used for making rope, cordage, harness straps, strings for musical instruments, baskets, nets, snares, fishing lines and cloth. All parts of the tree are reputed to have medicinal properties, and oils and pulp products have been produced and marketed internationally as 'Natural African' remedies. The tree can be planted for reduction of soil erosion and to provide a habitat for many native animals, birds and reptiles.

*griots are a caste which includes poets, musicians, scorcercers, drummers and buffoons.

Further Reading

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