



DFID Department for International Development



Fruits for the Future Ber

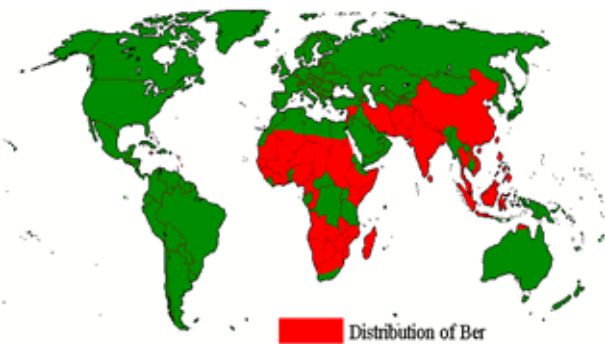
International Centre for Underutilized Crops.

Factsheet No. 2. February 2001



What is ber? - Ber is a tropical fruit (also known as Indian jujube), which grows from the tree species, *Ziziphus mauritiana* Lamk. It belongs to the family Rhamnaceae. The tree is 7 - 12 m in height and the trunk, 30 cm in diameter. Branches are slender and downy, bearing paired, brown spines, one straight and the other slightly hooked. It has a wide spreading crown and a short bole. It is a fast growing tree, with an average bearing life of 25 years. The fruits are variable in shape, colour and size. Round, oval or oblong in shape, the fruits may be

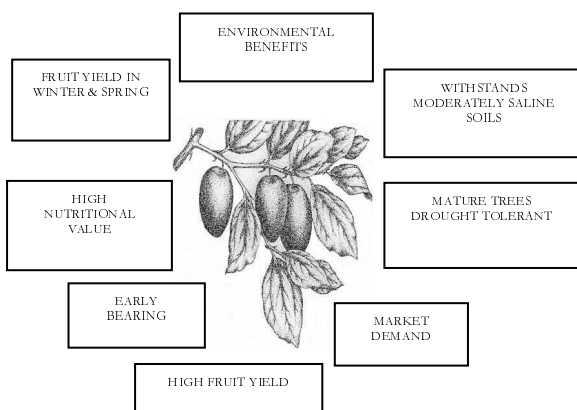
yellow, green, reddish or purple/dark brown in colour. Wild fruits are 1.5 - 2.5 cm in length and 1-2 cm in diameter, however improved cultivars can be up to 5 cm in length. The ripe fruit (drupe) is filled with a juicy, hard or soft, sweet-tasting pulp. The flowers are pollinated by honey bees (*Apis* spp.) and house flies (*Musca domestica*).

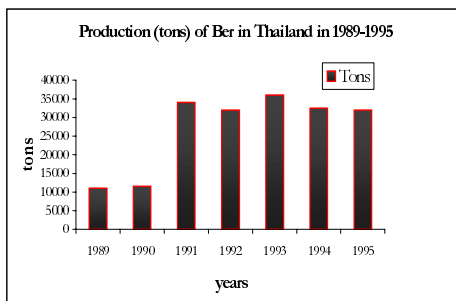


Where does the ber tree grow? - The genus *Ziziphus* has approximately 40 species, including *Ziziphus jujuba* (the Chinese jujube). The tree grows widely in most dry tropical and subtropical regions of the world. Its origin is uncertain, though it is thought to be native to tropical Asia, from where it was carried by seafaring traders to Africa and Australasia. The tree is well adapted to arid and semi-arid conditions with adequate rain during the vegetative period. It grows in neutral or slightly alkaline, deep, sandy loams, though it can tolerate a range of soil types including those exhibiting moderate salinity. Soils should be

well drained, but ber can withstand temporary flooding. The tree has a deep and extensive root system. Fruits and foliage of older trees can be damaged in frost but the trees recover (resprout) even after exposure to temperatures of - 6° C.

Why should you grow the ber tree? - The Ber fruit, has a high sugar content and a high level of vitamins A & C, carotene, phosphorus and calcium. The leaves contain 6 % digestible crude protein, which is an excellent source of ascorbic acid and carotenoids. Ber can provide food security, due to sustained production of the fruit, irrespective of drought, as the tree is drought and saline tolerant and can grow on poor and degraded land. Income from the fruit, fruit products and pruned wood sold for fuel and fencing is therefore consistent throughout the year. The ber tree can produce an annual fruit yield in the range of 50 - 250 kg/tree and is relatively easy and cheap to cultivate. Intercropping can be practiced up to 3 years of age. Ber trees begin bearing at 3-5 years.





producing countries do not grow ber trees on a commercial scale and fruits are collected from trees that grow in home gardens and in the wild. Ber trade has expanded over the last decade and is continuing to do so.



How do you grow ber trees? - Wild ber trees are readily grown from seeds, however commercial ber orchards are raised by shield or patch budding. For budding, rootstock seedlings are raised by sowing seeds. Germination of the seeds usually occurs within 1 - 4 weeks (depending on the applied seed pre-treatment technique). Seed can retain its viability for 1 - 2.5 years provided it is kept dry. Seeds should be planted approximately 0.6 - 2.0 cm deep in containers filled with soil-manure mixture. Seeds should be extracted from fruits taken from vigorous trees. Budding is carried out on 100 day-old rootstock seedlings during the summer. Scion

budsticks are taken from the trees of identified desired varieties having a record of good production. The budded plants can be planted out in the field about 30 days after budding in the nursery. Alternatively, 100 day-old rootstock seedlings can be planted out in the field and budded *in situ* during the following summer. When planted out, the young trees require adequate soil moisture to become well established, but mature trees can withstand drought quite well. The fruits mature in winter to late spring. All the fruits do not ripen at the same time and should be picked 3 to 5 times in the season. Picking should be carried out selectively at the correct stage of maturity as under-ripe fruits have an acrid flavour. Ripe fruits, have a short storage life and should be stored in a cool dry place.



What are the uses of the ber tree? - the fruit is the most well known and used product from the ber tree. The fresh fruit has a mild sub-acid flavour and crisp firm flesh, it can also be eaten boiled, as an addition to rice or millet, stewed or baked. Other culinary uses include preparation of pickles, jams, candied fruits, beverages, ber butter and cheese-like pastes. The leaves are used as forage for cattle/sheep/goats and are also palatable for human consumption, used as a vegetable in couscous. The timber, though very hard, can be worked to make fine grained tools, boats, charcoal and poles for house building. Roots, bark, leaves, wood, seeds and fruits are reputed to have medicinal properties. The tree is also used as a source of

tannins, dyes, silk (via silkworm fodder), shellac and nectar. The ber tree can be planted in areas for soil conservation in dunelands, as a windbreak and as living fences for stock control.

Further Reading

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