

## SPOTLIGHT ON SPECIES: *ALBIZIA LEBBEK*

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*Albizia lebbek* (L) Benth, siris.

Family: Leguminosae (Mimosaceae) legume.

*Albizia lebbek* (siris) is a medium sized fast growing tree, native in Asia which was named after Albizzi, an Italian naturalist of the 18th Century (Parker 1921). Its natural range extends from latitudes 8° N to 32° N through eastern Pakistan, India, Bangladesh, Sri Lanka, Burma, Afghanistan, Iran, Iraq and Egypt. There are extensive plantations of siris in Nepal and in central and southern India (NAS, 1983). Siris is characterized by a spreading umbrella shaped crown of thin foliage and bipinately compound leaves. Its pods are conspicuous during most of the year because they hang on the tree long after they ripe and throughout the hot weather when the tree is bare of leaves. When rattled by hot winds, the pods sound like

frying fish; hence, the tree is known in West Indies as the Fry wood (Khan, 1965).

### CLIMATE

Siris occurs in a variety of tropical and sub-tropical climates. It can be found in dry, moist and wet forest zones, where annual precipitation ranges from 500 to 2500 mm with or without a pronounced dry season. In India, in a region receiving 400 mm of rainfall, siris was successfully established in shifting sand dunes and in a shallow soil, 22.5 cm deep overlying hard calcareous pans (Kaul and Chand, 1979). The species is drought tolerant but susceptible to frost.

### SOILS AND TOPOGRAPHY

Siris grows well on a variety of soils,



but grows best on moist, well-drained soils. It can tolerate lateritic, saline and sodic conditions. Its tolerance of sea spray makes a suitable species for reforestation in coastal areas. Siris readily forms a symbiotic association with Rhizobium and the resulting nitrogen-fixing capacity enables it to thrive in nitrogen deficient soils. All these properties increase the adaptability of siris to marginal sites.

## SEED PRODUCTION AND DISSEMINATION

Siris seeds are small \*7-11 by 6-9 mm; 7000-11000/kg) oblong and compressed. Seed are long-lived and are found to germinate freely even after 30 years (Champion and Griffith, 1948). Salt tolerance studies were carried out on seeds and seedlings of six species; *Acacia nilotica*, *Albizia lebbek*, *Parkinsonia aculeate*, *Prosopis cineraria*, *Robinia pseudoacacia* and *Zizyphus jujuba* were raised. The salt concentration varied from 0.05% to 0.80% for all species. It was found that under experimental conditions, *Zizyphus jujuba*, and *Acacia nilotica* were the most salt tolerant (Bangash, 1977).

## SEED DEVELOPMENT

The seeds may be sown without treatment. However, soaking the seed in boiling water for one minute followed by immersions in cold water for 24 hours, is reported to facilitate germination. Viability of stored seed is reportedly very high with little loss of germinative capacity for at least 5 years after collection (Troup, 1921).

## VEGETATIVE REPRODUCTION

Siris seedlings, saplings and large trees all coppice vigorously when damaged. Vegetative reproduction also occurs through layering (Parrota, 1967). Root suckers are

readily produced when roots are exposed (Ryan, 1904).

## SAPLING AND POLE STAGE TO MATURITY

Siris is widely recognized as an excellent species for reforestation on disturbed or degraded sites (Little, 1983). Its repaid early growth, excellent coppicing ability, site adaptability and nitrogen fixing capacity have made it popular species for fuelwood plantations and agro-forestry systems in south Asia, West Africa, and tropical regions of North, Central and South America (Irvine, 1961). It is the best to plant large *Albizia lebbek* plants. *Albizia lebbek* plants as high as 6 meters and of diameter of 10 to 15 cm can be taken out from plantation area with as much root system, as possible and can be planted no matter whether it has ball of earth or not (Khan, 1953). The crown should be pruned proportionately to the roots and these plants be quickly transported and planted immediately and watered. After their extraction from soil, the cut and pruned portions of roots and shoots should be coated with a strong solution of Borax, which will eliminate the possibility of fungal attack (Khan, 1963). Because the foliage of this species is highly palatable, it is subject to browsing by livestock, deer, camels and elephants (Benthal, 1963). Young foliage of siris contains 20% protein and are fed to the livestock. One tree may provide 20% of buffalo's annual feed or 27 percent of the feed required by a cow (NAS, 1983). It is reported to be a well known leguminous fodder tree with very palatable leaves (Negi, 1977).

Chemical composition (Percent of dry matter) and digestibility of its leaves is rated as excellent (Prinsen, 1986). He reported that Indian siris has potential in Queens land, Australia.

Wood of siris is dense (specific gravity,



0.55-0.6) and a good fuel. *Albizzia lebbek* has a very characteristic lustrous shine which is enhanced by high polish (Troup, 1921). Strength as a beam indicates the fitness of species for use as girders, rafters, axles, yoke, and other purposes in which they are liable to breakage by bending. As such, siris can be classified as a strong wood. As far toughness and shock-resisting ability, siris stands at No.16, in Elasticity, at No.7 and in hardness it is listed at No. 6 (Trotter, 1940).

The calorific value of moisture-free heartwood is excellent (5,165 calories: 9298 - BTU) (Trotter, 1940). The density of *Albizzia lebbek* is 441 per cft. A fairly strong and durable wood selected timber can also be very handsome; has proved for flooring, panelling and furniture.

#### IMPORTANT USES

- i. Siris is used as a shade tree in plantations of coffee, tea, cardamom, green manure for paddy crops used as host for the lac insect. It is reported to be a good producer of honey (Venkataramany, 1968).
- ii. Siris is used extensively in traditional Pakistani and Indian medicines (Chopra *et al.*, 1941). The leaves are used in the treatment of eye ailments, particularly night blindness (Karmani, 1965). The bark is used for the treatment of skin diseases, bronchitis, toothaches, gums and rat bites. The roots are astringent and a remedy for eye troubles and headaches (Benthal, 1963). The seeds which have also astringent properties, are used to treat hemorrhoids and diarrhoea. All parts of the tree are used to treat the bites of venomous animal. The leaves are known to have insecticidal properties (Chopra, 1941).

It is sacred tree for Buddhists, while the flowers which are fragrant, are used in religious ceremonies by Hindus (Benthal).

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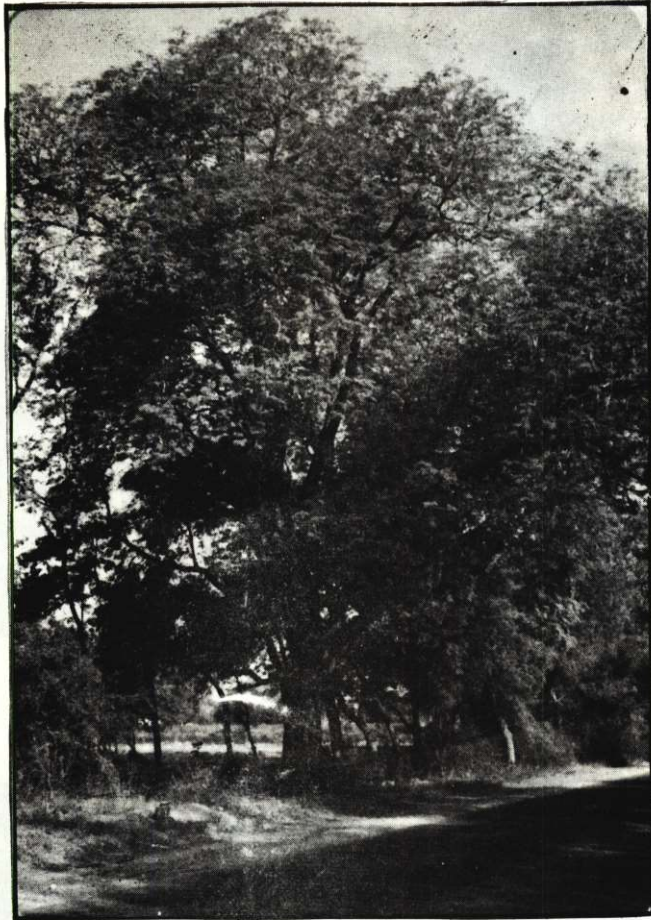


An *Albizzia lebbek* (siris) tree nearly 16' high  
planted on dune in Dagar Kotli in March and  
photograph taken in April



*Albizzia lebbek* Nursery at Range Research  
Station, Dagar Kotli (Thal Unit)





A gigantic siris of 70' height growing on  
Bhakkar Jhang Road near Ada Jehan Khan