



Silvicultural Practices for Teak

(*Gayathri P.M.)

Assistant Professor, School of Agriculture, RNB Global University, Bikaner, Rajasthan

*Corresponding Author's email: gayathri1904@gmail.com

Taxonomy

Kingdom	Plantae
Phylum	Angiosperms
Class	Eudicots
Order	Lamiales
Family	Lamiaceae
Genus	Tectona
Species	<i>Tectona grandis</i>
Common/Trade/English Name	Teak
Local names	Sagon, Thekku, Tegu,

Distribution

Teak is native to the Indian Peninsula, with its northern boundary reaching the Western Aravallis in Rajasthan. From there, it extends eastward through Central India, reaching Jhansi and Banda districts in Uttar Pradesh, and then continues southeastward to the Mahanadi River before extending further south. Teak is found in Madhya Pradesh, Tamil Nadu, Maharashtra, Kerala, Orissa, Uttar Pradesh, and Rajasthan. It has also been introduced into the moist deciduous forests of West Bengal, Assam, Bihar, Uttar Pradesh, Orissa, and the Andaman Islands. This species plays a significant role in the Southern Tropical Moist and Dry Deciduous forest types.

Physiognomy

The tree, which is large and deciduous, may grow up to 30 to 40 meters high under favorable circumstances. On ideal sites, it produces clean boles ranging from 15 to 30 meters long. The base of the tree often shows fluting and buttressing. The bark is thick, grey or light brown, and fibrous, with shallow longitudinal fissures. On older trees, it peels off in long, narrow flakes. The leaves are large, ranging from 25 to 50 cm in length and 15 to 35 cm in width, and are either elliptic or obovate. The upper side is green to dark green, while the underside is densely covered with whitish to tawny woolly hairs. The leaves are arranged oppositely. The flowers are small and whitish, arranged in large panicles that can hold up to a few thousand buds. During the flowering period, which lasts 2 to 4 weeks, only a few buds open at a time. The fruit is a hard, irregularly rounded drupe with four seed chambers. Its pericarp is composed of a thin, papery exocarp, a thick, felt-like brown mesocarp, and a stony endocarp. Each drupe may contain between 0 and 4 seeds, and there are approximately 1,000 to 3,500 fruits per kilogram.



Images of Teak tree, bark and seeds

Silvicultural Characters

Teak seedlings are highly sensitive to frost and drought. They require strong light, are intolerant of shade, and cannot thrive in the presence of weeds. This tree has fire-resistant properties, but its seedlings and saplings can be harmed by fire and frost. It grows back vigorously through coppicing and pollarding, particularly until middle age.

Climate and Soil

The tree thrives in a broad range of pedo-climatic conditions, growing from sea level up to 1,200 meters in altitude and in precipitation levels ranging from under 900 mm to over 2,500 mm. Teak prefers deep, well-drained alluvial soils with high calcium and phosphorus content. It is adaptable to a pH range of 6.5 to 8.0, but it flourishes best in soils with a pH of 6.5 and receives an annual rainfall of 1,500 mm. Teak is a species that strongly favors light and is unable to tolerate any shading during its growth stages. It is also moderately fire-resistant.

Nursery Technique

The unit used for sowing is the fruit (drupe), commonly referred to as a seed for practical purposes. Seeds that have been stored for at least one year germinate more effectively than fresh seeds. If seeds from the current year must be used, they should undergo a process of alternating wetting and drying, each lasting 24 hours, for a period of 14 days before sowing. Seeds with a diameter greater than 14mm tend to germinate more effectively. These seeds are sown at 1 kg per square meter on raised nursery beds, each measuring 10 meters in length, 1 meter in width, and 0.5 meters in height, and are covered with soil to a depth equal to the fruit's diameter. To avoid soil erosion, the sides of the beds are supported with bamboo splits or other similar materials. Germination begins about 15 days after planting, peaks during the next 15 days, and then gradually decreases. By 40 days, the majority of seeds will have germinated, with around 40 percent of them sprouting. During the first two months, the beds are watered twice a day, followed by once a day for the next three months, and then every other day. Oversized seedlings, known as wolf tend to overshadow the others.

Planting

Stumps are planted at a spacing of 2 x 2 meters in crowbar pits. The initial planting density of 25,000 per hectare is gradually reduced to a final density of 80 to 100 per hectare through a process called thinning. Thinning is carried out four times during the 5th, 10th, 18th, and 28th years, with the population being halved at each thinning. The first two thinnings are mechanical and follow a basic rule: in the first thinning, every alternate diagonal row is removed, while in the second thinning, every alternate row is felled. During the 3rd and 4th thinnings, a silvicultural approach is used, with only diseased and malformed trees being removed. Trees with a clean, cylindrical, and straight bole, minimal taper, a small crown, and little fluting are selected to be retained. Final felling occurs after 60 years, with each tree

yielding 1.5 cubic meters of timber. The rotation period is 40 to 60 years, and the yield is approximately 6,500 cubic feet of stem wood per acre.

Utilization

Teak wood is internationally recognized for its strength, durability, dimensional stability, workability, and resistance to corrosion when in contact with metal. The wood's durability is due to the accumulation of polyphenols in its heartwood. Because of these exceptional qualities, teak is often referred to as the "king of timbers." The use of teak in the plywood industry is rising, with substantial quantities being utilized for high-quality commercial plywood and tea-chest products. A yellowish-brown or reddish dye is obtained from both the root bark and young leaves, and is used to color paper, clothing, and matting. The bark is employed as an astringent, while the wood serves as a hair tonic. In Java, teakwood sawdust is utilized as incense, though it can sometimes cause skin irritation.