



A Comprehensive Study of Tamarind

(*Mrinmoy Maity)

Lovely Professional University, Phagwara, Punjab, India

*Corresponding Author's email: mrinmoy007maity@gmail.com

One of the popular fruit trees grown in India is the tamarind (*Tamarindus indica* L.), which is mostly grown under rainfed circumstances in Tamil Nadu, Maharashtra, Karnataka, Andhra Pradesh, Madhya Pradesh, and Orissa. It is also one of the most well-liked avenue trees, producing useful fruits and wood in addition to shade. Tamarind is now grown in South East Asia, Australia, and America while being thought to have its origins in tropical Africa. Tamarind fruit is a significant condiment/adjunct utilised in Indian cuisine as an acidic/flavouring agent. About 2.5 lakh tonnes of tamarind pulp are produced in India each year. In European nations, there is potential for the export of pulp powder and juice concentrates. When dried thoroughly and salted to preserve it, tamarind pulp has a superb keeping quality. In European nations, there is potential for the export of pulp powder and juice concentrates. When dried thoroughly and salted to preserve it, tamarind pulp has a superb keeping quality. Glucose makes up 47.7% of the total sugar in pulp, along with D-mannose (24.5%), and D-maltose (20.4%). Tartaric acid (8-18%), malic and citric acids (2%) are responsible for the pulp's sour flavour. The fruit is a good source of calcium, iron, and phosphorus. Flowers and tender leaves can both be consumed. Tamarind seeds produce an inexpensive alternative to grain starch used in the textile industry.

Climatic Requirements: Tamarind trees can flourish in humid to dry, hot climates thanks to their acid climatic flexibility. Frost is really hard on it. The ideal amount of rainfall is between 750 to 1900 mm, however plants can survive in areas with only 500 to 750 mm of annual precipitation.

Soil Requirement: It may grow in a wide range of soil types, although deep loamy or alluvial soils that offer the best conditions for the growth of its long tap roots are excellent. Alkaline and slightly saline soils are also acceptable to it.

Tamarind Types: There aren't many varieties of tamarind that are well known. On the basis of fruit quality and productivity, a few seedling selections have, nevertheless, recently been made. Which are: Tree No. 38 at the College of Agriculture in Pune, which was donated by Prathisthan from the Fruit Research Station in Aurangabad (Maharashtra). A high yielding type PKM- 1 has been developed by Coimbatore Agriculture. University (Tamil Nadu).

Propagation: The most popular technique of propagation is seed. It does not, however, breed true to type through seed since it is heterozygous. The prolonged juvenile phase is partly a result of seed propagation being more prevalent. Seedlings trees need 15 to 20 years to produce economically. After 3–4 years, plants that are propagated vegetatively begin to bear fruit. Successful vegetative techniques include approach grafting, air layering, and budding. However, due to the lack of a deep-growing tap root structure, layers are acceptable for planting in dryland environments. Tamarind orchards should be established via vegetative methods like budding and grafting in order to achieve true to type plants with decreased pre-

bearing age, regular development, and yield. Tree No. 38 at the college of Agriculture in Pune, station, Aurangabad (Maharashtra).

Planting: Planting should be done in pits that are 1 x 1 x 1 metres in size in order to provide space and the right medium for the establishment of a strong and deep tap root system. The trenches should be dug in the summer and filled with topsoil mixed with well-decomposed farmyard manure and 2 kg of single superphosphate at the base. To prevent the issue of termites, mix 100g of 10% carbonyl powder into the soil mixture. Depending on the kind of soil, planting distances can range from 8 x 8 to 10 x 10m, with closer spacing in shallow soils and broader spacing in deep soils being used.

Interculture: Regular interculture activities like weeding and hoeing should be done. During the rainy season, cover crops like cowpea, horse gramme, and others can be grown to manage weeds, prevent soil erosion, and enhance soil health.

For early yields, intercrops like drumstick or low-growing vegetables can be grown during the first 4–5 years.

Care for young orchards: Up to three to four years after planting, young trees should receive support from bamboo sticks and be watered during dry spells, especially in the summer. Training is crucial in the early years to enhance the farm work. The plant will be taught to change the leader system. Punned branches that are weak, damaged, or dried out and shoots that grow from the rootstock Tamarinds are semi forest trees that don't require any special care because they are adaptable to a variety of soil types and agroclimatic conditions. Tamarinds are typically not watered because they are a dry land (rainfed) crop. However, new orchards require irrigation, particularly during dry spells and the summer. In the summer, one-year-old plants should receive 10 litres of water every 6 to 8 days, with the amount increasing to 20 litres in the second and third years. After then, irrigation might not be required. However, if it is offered, growth will happen more quickly.

Nutrition: Tamarind's nutritional needs have not yet been investigated, and there are no established guidelines. A one-year-old tree should receive 10 kg FYM + 100 g N + 50 g P₂O₅ + 100 g K₂O on an as-needed basis, and the dose should be increased as the tree gets older. As a result, a tree that is 10 years old should receive 50 kg FYM, 1 kilogramme N, 500 g P₂O₅, and 1 kg K₂O. If irrigation is possible, 500 g more N should be applied in the months of September through October.

Plant Protection: Tamarind plants hardly ever have pests or illnesses. No significant pests or illnesses have been identified as of yet. This plant has not been the subject of any systematic research, as it thrives mostly in semiwild environments.

Production and Output: 7-8 years after planting, plants grown from seeds begin to bear fruit. Plants that are grafted or budded begin bearing fruit 4-5 years after planting. Fruits are picked between January and April. The yield varies according on the soil type, climate, method of propagation, and management techniques. A well-maintained tree produces 300–500 kilogramme of mature pods.

Handling and marketing of the postharvest 6-7 days after harvest, pods are spread out on the ground and cut. After the pulp has been collected and properly dried in the sun, the shell, seeds, and fibrous material are removed. The pulp can then be stored for a period of 6–12 months. Many times, traders who handle harvesting and selling are auctioned off individual trees or entire plantations.