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Production Technology of Tamarind

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Tamarind (*Tamarindus indica* L.) also known as "Indian Date" is a multipurpose evergreen fruit tree. It belongs to family Leguminosae (Fabaceae) and has a chromosome number 2n= 24. (Anon., 1972; Purseglove, 1981). Tamarind is believed to be native to Tropical Africa but is now cultivated throughout the tropics and sub-tropics of the world. It is popular for its medicinal properties and used traditionally in alimentary problems, malaria and fever, inflammation, gonorrhea, helminth infections, wound healing, etc. From root to tips of leaf every part of the tamarind plant is useful.

Area and Production

It is currently grown in many African, Australian, Central American, and South American countries, as well as in Bangladesh, Malaysia, Thailand, Sri Lanka, Myanmar, India, and other semi-arid regions of Africa and South Asia. Specifically, it is grown in Tamil Nadu, Karnataka, Kerala, Andhra Pradesh, Madhya Pradesh, West Bengal, and Chhattisgarh in India. India recorded a total area of 39,000 hectares and a production of 152,000 metric tons in 2023–2024. (NHB, 2023)

Climate and Soil

- **Climate:** Tamarind trees grow best in tropical areas. It can thrive well in warm climates.
- **Rainfall:** An evenly distributed, 500-1,500 mm mean annual rainfall is ideal for tamarind growth. It can tolerate up to 4,000 mm annual rainfall.
- **Temperature:** The tree can thrive well in a wide range of temperatures, -3º to 47º C without any serious injury (Troup, 1921). Young trees and seedlings are susceptible to frost.
- **Soil**: Although the tamarind tree can grow in a variety of soil types, but trees thrive best in well-drained alluvial or deep loamy soils.
- **pH:** For tamarind cultivation ideal pH is 5.5-6.8.

Important varieties

- **Goma Prateek:** Regular bearer and suitable for semi-dwarf
- **PKM1:** Developed from TNAU Tamil Nadu
- **DTS1:** The semi-curved pods have a straight form
- **DTS 2:** The semi-curved pods have a straight form
- **Urigan:** It is red tamarind
- **Pratisthan:** The pulp of this sour, sweet red tamarind can be kept for a longer amount of time.
- **Ajanta:** Suitable for early maturing and HDP
- **Yogeshwari:** Fruits are large and red pulp with sour sweet taste (Singh *et at*., 2021)

Plant propagation

- **Seed propagation-** Tamarind is normally grown from seeds.

- **Vegetative propagation:** Numerous vegetative techniques, including budding, air layering, stem cuttings, inarching, soft wood grafting and veneer grafting, can be used to propagate tamarind.
- **Micropropagation:** Tamarind can be propagated by tissue culture method.

Fig. 01: Plant and fruits of tamarind

Planting

- **Nursery:** In March – April, fresh seeds are planted in nursery beds. Seeds are soaked for 24 hours in a solution of in cow dung (500 g in 10 liters of water) or 10 per cent cow urine.
- **Spacing**
  10 x10 m is ideal for optimum growth.
- **Pit size:** The grafts should be placed in the pits of 1 x 1 x 1 m filled with a mixture of soil, organic manure, and fertilizer.

Irrigation

Watering should occur once in seven days.

Fertilizer

Apply 5-10 kg of well rotten FYM and urea @100-200 g /tree or ammonium sulphate every year to increase the yield.

Training

Training is required in young plants to develop a high crown and uniform scaffold branches in all directions.

Pruning

Removal of diseased, crisscrossed, dry, weak and dead branches.

Pests management

- **Fruit borers (*Virachola isocratis, Phycita orthoclina* and *Cryptoph lebia*):** An effective control measure against fruit borer pest is spraying 2-3 times with 0.1 % carbaril or trichlorphon.
- **Leaf caterpillar (*Achaea janata*):** Quinalphos 25 EC 2 ml/lit can be sprayed to control the leaf caterpillar.
- **Storage beetle *(Pachymeres gonagra)*:** At the time of fruiting season, storage bettles can be controlled by 1 ml/lit spraying of Quinalphos 25 EC.

Diseases management

- **Powdery mildew:** Nursery seedlings are highly sensitive to powdery mildew, causing extreme plant defoliation. It can be controlled by spraying of wettable sulphur 3-4 times at 5 days of intervals.

Harvest

Pods start to ripen at February – March and harvesting started from March - April.

Yield

Grafted plants start bearing from 4th year, but seedling trees need 7-10 years to bear fruit. A fully matured tree yields about 150 - 200 kg of fruits/tree/year.

Storage

Freshly harvested tamarind pulp packed in high-density polythene bags can be kept well for 4-6 months at below 10º C in a dry place.

Processing and value addition

A variety of value-added products including as tamarind juice concentration, RTS, syrup, candy and tamarind kernel powder tamarind rasam paste, tamarind sauce, etc. can be made from the tamarind fruit.

Conclusion

The scientific cultivation of tamarind involves adopting improved agricultural practices, including site selection, propagation techniques, soil management, and pest control, to enhance productivity and fruit quality. By integrating modern farming methods with traditional knowledge, farmers can achieve sustainable yields, promote efficient resource utilization, and contribute to the economic viability of tamarind cultivation.

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