

PRODUCTION TECHNOLOGY FOR TIMLA FIG

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While the ancient history of the fig centers around the Mediterranean region, it is most commonly cultivated in mild-temperate climates. Botanically identified as *Ficus carica* L. (family Moraceae), it is unique in a genus embracing perhaps over 1,000 species, mostly giant “rubber trees” and mostly tropical. It is almost universally known simply as fig, common fig or edible fig.



Description: The fig tree is small, 10 to 30 ft (3-9 m) high, with numerous spreading branches and a trunk rarely more than 17.5 cm in diameter. It contains copious milky latex. The root system is typically shallow and spreading, sometimes covering 50; but in permeable soil some of the roots may descend to 20 ft. The deciduous leaves are palmate, deeply divided into 3 to 7 main lobed, shallowly lobed and irregularly toothed on the margins. The blade is up to 25 cm in length and width, fairly thick, rough on the upper surface, softly hairy on the underside. The “fruit” technically a synconium is the a fleshy, hollow receptacle with a small opening at the apex partly closed by small scales. It may be obovoid, turbinate, or pear-shaped, 2.5-10 cm long, and varies in color from yellowish-green to coppery, bronze, or dark-purple. Tiny flowers are massed on the inside wall. The peel of the fig is thin and tender, the fleshy wall is whitish, pale-yellow or amber or more or less pink, rose, red or purple; juicy and sweet when ripe, gummy with latex when unripe. Seeds may be large, medium, small or minute and range in number from 30 to 1,600 per fruit.

Types :

Capri fig: The first type of fig is Caprifig, which produces pollen, but no edible fruit. However, Caprifigs host the special wasps which are needed to pollinate the next two divisions, Smyrnas and San Pedros.

Smyrna fig: Smyrna figs are entirely dependent on Caprifigs for fertilization. Among the Smyrna figs, some of the most well known varieties are Calimyrnas,

Marabouts, and Zidis. These figs are typically grown so that they can be dried and they have large, crunchy seeds. **San pedro:** San pedros produce two annual crops, one with the assistance of Caprifigs and one without. San Pedro fig varieties include King, Lampiera, and San Pedro figs.

Common fig: Common fig is self pollinating and many edible figs fall within this group. The common fig varieties are Celestes, Brown Turkeys, Missions, Crunswicks, and Adriatics.

Varieties: There are many cultivated varieties in each class of figs. In fact, over 700 varietal names are in use but many are synonyms. The edible pathenocarpic fig varieties popular in India are described hereunder:

YCD 1: The fruits are bell shaped, crimson – red bearing 2000-3000 fruits/tree/year from the fifth year onwards.

Poona: Medium sized bell shaped fruits, thin peeled, pale purple red fleshed with sweet good flavor.



Climate: It performs well in arid and semi arid regions under open sunshine and can tolerate moderate winter conditions. Though the plant can thrive in high temperature regimes (upto 45°C), the fruit quality deteriorates beyond 39°C and premature ripening sets in. Mature trees can withstand 4°C, but young trees need protection from frost.

Soil: Medium to heavy calcareous, well drained, deep soil of pH 7-8 is suitable for cultivation of Fig. Though the crop does well in sandy soils, deep soils encourage better root establishment. The crop is sensitive to sodium and boron salts.

Propagation: Fig is commercially propagated through terminal cuttings and air layers. About 25 cm long cuttings having 3-6 nodes are usually made from the previous years growth and planted in moist seed beds or pans. The cuttings are taken just after the onset of monsoon. After 75 days, they are transplanted to polythene bags containing potting mixture. Air-layering is also taken up just after the onset of monsoon. The air layers after separation from the mother plant is hardened for a period of 25-30 days before planting in the main field.

Planting: Cuttings are raised in nursery beds and are set out in the field after 12 or 15 months. They may be spaced from 6 to 25 ft (1.8-7.5 m) apart, depending on the cultivar and the fertility of the soil. A spacing of 13 x 13 ft (4x4 m) allows 260 trees/acre (625 trees/ha). Fruiting will commence in less than a year from planting. Young plants will benefit from shading with palm fronds or other material until they are well established.

Irrigation: Fig plants can sustain heat and drought. However, timely irrigation is required for the production of higher yield and hence, in commercial plantation, irrigation is done when the soil moisture reaches 50% pan evaporation. Loose and sandy soil require larger quantities of water. In the conventional mode of irrigation, flood irrigation at 10 day intervals is adopted during summer. The frequency of irrigation is adjusted depending on the soil type and climatic condition. About 15-20 litres of water is required per plant per day and this is adopted when irrigated through drip system. Excessive irrigation leads to terminal shoot development at the expense of fruit development, hence, it is necessary to avoid excessive irrigation.

Manuring: Nutrient requirements vary according to the variety and soil type. For young plants, fertilizers can be applied with the onset of monsoon and just after pruning for those which have commenced yielding. The annual requirement can be best divided into two application, half after pruning and remaining two months later when the syconia are developing. Nitrogen is essential for rapid

Age of plant (Year)	Organic manure (kg)		Inorganic manure (g)		
	Farmyard manure	Oil cake (Neem cake)	N	P	K
1-2	15.0	0.5	75	50	50
3-5	25.0	1.0-1.5	150	100	100
Above 5	40.0	2.0	300	200	200

growth of foliage and development of syconia, fruit colour and maturation and K for yield and quality. Better fruit quality can be achieved if N and K are applied in the form of ammonium sulphate and sulphate of potash.

Recommended dose of manures and fertilizer:

Some soils may be deficit in micronutrients. The following guidelines should be followed for correcting the same guidelines. However, a grower should get the soil tested and consult the soil specialist for specific advice. Application of compost, which is done mostly in the beginning of monsoon also supplies micronutrients to some extent.

Micronutrients to be applied for correcting deficiencies:

Training and pruning: Fig trees are trained initially to

Micronutrient	Soil application	Foliar application*
Zinc	30 kg ZnSO ₄	3-4 sprays of 25% ZnSO ₄ (Unneutralized) at 10 day intervals
Iron	-	3-4 sprays of 05% FeSO ₄ at 10 day intervals
Boron	12 Kg Borax/ha	-
Magnesium	50 kg MgSO ₄ /ha	2-3 sprays of 0.5% MgSO ₄ at 10 day intervals

a single stem to encourage a wide, symmetrical crown with a mechanically strong framework having evenly distributed laterals. The tree is allowed to grow for about a metre and then it is topped, which induces side branches all round the main stem. The interior of the bush should be maintained free of suckers, dry and sick branches.

Pruning in fig is practiced annually to stimulate production of new growth. The time and type of pruning vary with location, variety and number of crops harvested annually. The best time to secure a mature crop is hot, dry summer. Therefore, pruning may be done 4-5 months in advance. When heavy pruning is practiced, trees are headed back severely every year, leaving about 2 buds on each one year old shoot. If light pruning is adopted, shoots which have yielded fruits are lightly headed back after harvesting. Copper fungicide should be used to protect the cut ends.

Notching is practiced sometimes in Poona fig for activating dormant buds before the start of vigorous growth. Usually 1-2 buds are selected for notching in the middle portion of about 8 month – old canes. Notching involves removing of small slice of bark immediately above the dormant bud, giving 2 slanting cuts as deep as the bark. Notch should be about 2.5 cm long and the breadth depends on thickness of the shoot. The cut checks the free flow of sap and stimulates the bud just below it to throw out a fruiting shoot. The technique is useful for induction of fruiting laterals on vigorous upright branches and to increase the total bearing area of the plant.

Fig trees are cut back severely during winter, depending on whether the crop is desired the following summer. Branches are often notched to induce lateral branching and increase the yield. If there are heavy rains, drainage should be dug to prevent water-logging. Fig trees remain productive up to 12 or 15 years of age and thereafter the crop declines though the trees may live to a very advanced age.

Harvesting and yield: Fig trees usually bear 2 crops a year, the early season fruits being inferior and frequently too acid, and only those of the second, or main, crop of

actual value. Though the bearing of the fruit starts from the 2nd year, fruits are harvested from the 3rd year onwards. The yield increases with increase of the canopy size of the tree and stabilises on 8th year. The economic life of the plant may be considered 35 years. The harvesting season starts in February /March and is over by May/June and in Shervoroy in June-Aug. The fruits are harvested once in 2-3 days manually. The fruits are picked from the tree or gathered normally after they fall to the ground. Harvested fruits are spread out in the shade for a day so that the latex will dry a little.

Keeping quality: Fresh figs are highly perishable. At 4-6°C and 75% relative humidity, figs remain in good condition for 8 days but have a shelf life of only 1 to 2 days when removed from storage. At 10°C and relative humidity of 85%, figs can be kept longer than 21 days. They remain in good condition for 30 days when stored at 0°-2°C. If frozen whole, they can be maintained for several months.

Post harvest management: Fig is classified as a climacteric fruit and to a little extent ripening continues once the fruit is harvested. After picking, figs are carefully sorted. The diseased and damaged ones are culled. Fruits are graded for size as 50g, 40-50g and 30-40 g. They are packed in a corrugated box carton of 3 ply having 12 holes for ventilation. They are arranged in the carton in two layers, each of 28 (4 rows of 7 figs in a line). Fig leaves are used for cushioning. Figs can be held for a short period (7-10 days) at 0°C and 85-90% relative humidity. Figs are one of the first fruits to be preserved by drying. Apart from drying and canning figs are processed into paste and jelly.

Pests: Fig trees are prone to attack by nematodes (especially *Meloidogyne* spp.). In the tropics, have been traditionally planted close to a wall or building so that the roots can go underneath and escape damage.

Stem-borer, *Batocera rufomaculata*, feeds on the

branches and kill the tree. Lepidopterous pests include the fig borer, *Azochis gripusalis*, the larvae of which feed on the new growth, tunnel down through the trees to the roots and kill the tree. Another, Lepidoptera called *cachudo de la higuera*, has prominently horned larvae up to 8 cm long that can destroy a fig tree in a few days. There are also coleopterous insects of the genera *Epitrix* and *Colaspis* that perforate and severely damage the leaves and shoots. Scale insects include *Asterolecanium* sp. which attacks the bark of trees weakened by excessive humidity or prolonged drought.

Diseases: A common and widespread problem is leaf rust caused by *Cerotelium fici*; bringing about premature leaf fall and reducing yields. It is most prevalent in rainy seasons. Leaf spot results from infection by *Cylindrocladium scoparium* or *Cercospora fici*. Fig mosaic is caused by a virus and is incurable. Affected trees must be destroyed.

The dried fruit beetle, or sour bug, *Carpophilus* spp., enters the fruit through the eye and leads to souring and smut caused by *Aspergillus niger*. This fungus may attack ripening fruits.

Physiological disorder: Fig is susceptible to sun-burn, fruit splitting and fruit drop. Sun-burn is noticed mostly in young plants and those subjected to excessive pruning. The trunk and shoots that are exposed to direct sun are prone to sun-burn. The affected parts crack and the bark peels off, providing easy access for fungi and other infection. Developing a good canopy by proper pruning and coating the exposed limbs with lime protect the plants from sunburn. Fruit splitting is attributed to sudden change in atmospheric humidity during ripening. This makes the fruit unfit for consumption as the pulp is exposed to insect and microbial infection. Fruit drop may result from excessive drought and heat, cold nights or light frost.

RNI : UPENG/2010/03673 ONLINE ISSN : 2231-6434 ISSN : 2229-7278

INTERNATIONAL RESEARCH JOURNAL OF AGRICULTURAL ECONOMICS AND STATISTICS

Internationally Refereed Research Journal

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