



FACULTY OF AGRICULTURAL SCIENCES & ALLIED INDUSTRIES

Botanical name : *Ficus carica* Linn.

Family: Moraceae

Chromosome Number : $2n = 26$

Origin – South East Asia, Eastern Mediterranean region.

- Fig is an important and oldest fruit extensively used in fresh and dried form; Extensively cultivated in countries around the Mediterranean especially Italy, Spain, Turkey, Greece, Portugal, Algeria, California and Afghanistan. The main area of fig cultivation in India is Pune (Maharashtra), Srirangapatna, Raichur, Gulbarga and Chitradurga (Karnataka), Lucknow (Uttar Pradesh) and parts of Gujarat and Andhra Pradesh.
- *Ficus carica* is widely distributed in tropical and sub-tropical countries. The related genera with edible fruits are Artocarpus, Cudrania and Morus of family Moraceae.
- Some important species are *Ficus glomerata*, *Ficus bengalensis*, *Ficus religiosa*, *Ficus elastica*, *Ficus hispida* and *Ficus roxburghii*.
- Fig is a large shrub or low growing deciduous tree with short and twisted trunk. Fruit solitary, axillary green or yellow, pear-shaped.

Composition and Uses

- The fresh fruit contains 11.5 percent total sugars, traces of iron, Vit. A, Vit. C, Protein, Fat, Calcium, Riboflavin, Thiamine, etc. Dry fruits are very delicious. It is also used for preparation of Jam and Jelly. Figs boiled in milk are repeatedly packed against swollen gums; The fruits are also used against tumor and other abnormal growth. Leaves are used as fodder. In southern France, fig leaves are used as a source of perfume extraction called “Fig – leaf absolute”.
- The fruits are consumed as fresh, dried, preserved, candied or canned products. The latex is widely applied on warts, skin ulcers and sores. A decoction of the fruits is gargled to get relief from sore throat. The leaf decoction is taken as a remedy for diabetes and calcifications in the kidneys and liver. Latex is used to coagulate milk, unripe fruits are used as vegetables after cooking.
- The latex of the unripe fruits and also any part of the tree may be severely irritating to the skin and may cause hazard to the fig harvester, packers and also workers of food industries and to those who employ the latex to treat skin diseases.
- The edible fruit of fig botanically called as ‘Synconium’ which consists of hollow receptacle with a narrow aperture called as ‘Ostiole’ at tip and numerous small flowers living the inner surface. The true fruit is tiny drupelets inside the cavity of the fused peduncle.

Caprification

The process of pollination in fig is known as caprification. Based on pollination behavior, the figs are grouped in ti four groups viz.

Cultivars

Some of important characters of few cultivars grafted on Brown Turkey root stock

Characters	Poona	Deanna	Conadria	Excel
Plant height (m)	1.80	1.56	0.90	1.38
Plant canopy (m ³)	3.42	3.52	0.78	1.17
Earliness	Late	Early	Early	Early
Av. Fruit wt. (g)	38.5	61.5	38.5	34
Fruit shape	Phyriform	Pyriform	Pyriform	Ovoid
Skin colour	Light purple	Lemon-yellow	Green	Yellow
Pulp colour	Strawberry	Light yellow	Pink	Pink-yellow
Flavour	Distinct	Very mild	Mild	Mild
TSS (OB)	22	21	20.5	21
Seeds	Few	Many	Many	Few
Taste	Sweet acidic	Sweet	Sweet	Sweet to slightly acidic
Tolerance for splitting	Very poor	Good	Good	V. good
Susceptibility to rust	Moderate	Susceptible	Moderate	Moderate
Fruit Yield (Kg/tree)	2.69	3.94	1.87	1.75

Soil and Climate

Climate

- Fig is a subtropical fruit. It behaves as deciduous in temperate and subtropical and evergreen in Tropics, where temperature rarely goes below 4.5°C (South India).
- It withstands low temperature when it goes to dormancy.

- Best quality fruits are produced in the region with dry climate during fruit development and maturation; Fruits ripen prematurely if the temperature exceeds above 38°C and such fruits have tough skin and also fruit skin may show sun burns, less pulp with insipid in taste, good vegetative growth is observed at 15.5-21° C.

Soil

- Fig can be grown in a variety of soils. It is a deep rooted fruit plant, so it prefers deep soil, clay loam, non-alkaline, medium black soil with well drained and good water holding capacity. A good quality of fruit is obtained on heavy soils.

Propagation and planting

Propagation

- Fig is mainly propagated by hardwood stem cuttings, Air layering, budding and grafting.
- The rooted hardwood cuttings of 4 weeks old are used for planting. IBA may be used for better rooting. Cuttings collected from base of shoots; root better than those collected from top or middle portion.
- The Kittur Rani Channamma College of Horticulture, Arabhavi, developed the CMS-closed Media Sachet technique where in the rooting media is filled in the polythene bag and planted the required numbers of cuttings, after watering the mouth of Sachet/bag is closed, until rooting is observed and planted the cuttings for further growth.
- Air layering is also successful.

Planting

- Planting is done in early spring / monsoon – during August and September.
- The pit size of 60 cm³ with the distance of 3 x 3 m to 8 x 8m.

Training and pruning

- Fig can be trained on single stem or multistem, multistem is most commonly followed.
- Pruning of fig is important, fig generally gives two crops in a year, the first borne on previous years growth is breba and the second crop on current season growth and therefore, pruning intensity and its type will depend on bearing habit and type of crop desired. The trees are headed back to about 2 buds of previous growth regularly to keep them dwarf. This reduces the production but improves the quality of fruits. In Tamil Nadu and Maharashtra (Pune), light pruning is practiced which gives higher production but poor quality fruits.
- Notching is also practiced to force new fruit bearing shoots from the lower portions of the branches; For this purpose, 0.5 cm wide notch of bark is removed above two buds on the middle portion of the branch in July.
- Application of HCN (Hydrogen Cyanide) at 1.5-2.0 % advanced the date of bud burst.

Irrigation and Nutrition

Irrigation

- Fig is fairly drought tolerant, but during summer, when the fruits are developing and ripening, irrigation to be given twice a month.
- Excess of irrigation during ripening causes cracking of fruits, therefore, judicious watering is desirable for high quality crop.

Nutrition

- Fig responds to heavy manuring, and 50-75 kg. FYM for bearing plant is recommended.
- For 1-2 year old plant about 75:50:50 g NPK is sufficient and should be doubled 5th year onwards, a dosage of 300:200:200 g NPK/plant, gives good yield and quality fruits.

Flowering and pollination

- In fig, three types of buds occurs. Flower buds which are spherical, have 3-5 scales and these buds produce Parthenocarpic fruits only. Mixed buds are conical, made up of 5-8 scales and these buds also produce fruits. Vegetative buds are made up of 3-5 scales which usually remain dormant and rarely produce shoots.
- Flower appears on the plants even at two years age, but considerable yield is obtained from 5th year onwards. In central and South India, fig bears fruits twice in a year viz., once in July – September and in February - May, Indian figs develop fruit without pollination. The fruits harvested during February-May are sweeter and of good quality and fetch premium price.
- **Parthenocarpy** is favoured or inhibited in a given type by climatic condition of the place where it is growing. In Coeur, cultivars like Black Ischia, Brown turkey and Pune are parthenocarpic. While the cultivars Turkish white has failed to set fruits without caprification in the said place. In Allahabad, the cultivated varieties, Pune and Black Ischia do not set fruit without caprification.

Pests and diseases

Important Pests

1. **Leaf eating caterpillar** – *Oenaria varians* – Caterpillar feeds on fig leaves and cause damage
2. **Stem borer** – *Bactocera rufomaculata*

The grubs bore into the stem and branches.

Diseases

1. **Leaf rust** - *Cerotelium fici* – Affected plant show small, round brown spots on the leaves, small rusty, raised spots on the underside of the leaves. In severe case defoliation of leaves will be observed.
2. **Leaf spot** – *Cylindrocladium scoparium*
3. **Anthracnose** – *sphaceloma ficicuricae*
4. **Fig mosaic** – Viral disease transmitted by a vector fig mites
5. **Aceria ficus** – Affected leaves show yellow – green spots, white mottle on leaves.

Disorders

- Sun burn – Young plants and severely pruned plants show cracking and bark also some times get peel off.

- Fruit cracking / splitting – This malady is caused due to sudden change in atmospheric humidity or due to rain showers at the time of ripening or nutritional disorders. This can be minimized by maintaining proper soil moisture.

Harvesting and yield

- For quality and flavour, pick the fruits when they are soft and wilt at neck exhibited by hanging down. Milky latex does not ooze out from the mature fruit stalk when cut fruits are picked at every 2-4 days intervals. The average yield is about 150 – 300 fruits / tree or about 8-12 tonnes / ha.
- The selected fruits can be stored for four weeks at 0°C and 90 -95 % Relative Humidity with Co₂: O₂ ratio of 3.3:5.5. However, frozen figs can be hold for several months in cold storage.

Drying

- Sulphur fumigation followed by drying is commonly done in fig. first fruits are soaked in boiling salt water for a half minute and are dried for a few hours under sun and for eight days under shade.