



FACULTY OF AGRICULTURAL SCIENCES & ALLIED INDUSTRIES

Botanical Name	: <i>Litchi chinensis</i>
Family	: Sapindaceae
Chromosome. No	: 2n = 30

- Litchi is a popular subtropical evergreen fruit; the white translucent flavored aril is liked very much and is used for table purpose in India.
- The fruits are available during May –June in northern India.

Uses and Composition

- Litchi, is commonly consumed as a table fruit, but in China it is very popular in dried (litchi nut) or canned, which is famous among Chinese foods.
- A highly flavored squash is also prepared from the fruits.
- The Chinese use the leaves for making poultice; the seeds are used for treating skin disorders.
- Flowers, bark and roots decoction are used for gargling of throat infection.
- The fruits are rich in sugars (10-22 per cent), acid (0.2-0.6 per cent), protein- 0.7 per cent, fat-0.3 per cent minerals -0.7 per cent, TSS-20-30 per cent vit-C-64mg/100g, pectin-0.4 per cent etc.

Origin and Distribution

- Litchi is a native of southern China (Oman).
- It is cultivated in India, Myanmar, West Indies, Australia, South Africa, Hawaii, Thailand, Mauritius and Hong Kong.
- India is the largest producer of litchi in the world after China and is grown in an area more than 12,000 ha, area and the important states growing litchi in India are Bihar, West Bengal. Uttar Pradesh, Punjab, Haryana, Assam, Tripura, Orissa, Tamil Nadu and Karanataka.

Climate and Soil

Climate

- It is a sub-tropical fruit, high Relative Humidity is desirable, while hot winds are not favourable for this plant.
- However, the rain fall during flowering reduces fruit set. Successfully grown up to an elevation of 1000m from Mean Sea Level.
- The maximum temperature during the flowering period varies from 210C to 380C.

Soil

- It can be grown on a wide range of soils i.e, acidic to alkaline soils.
- Acidic soils produce good quality fruits.
- The pH range is 5.5-7.0 with adequate soil depth.

Species and Cultivars

The family sapindaceae and sub family Nephleae has about 125 genera and more than 1000 species. The genus Litchi has two species.

Litchi philippinesis- It is a wild type mostly used as root stock

Litchi chinensis- It is a commercial important species. The other members of the sub family are

- i. **Euphoria longana**- Langan/Anshpal-Small fruits, inferior quality.
- ii. **Nephelium lappaceium**- Rambutan- hairy fruits.

Varieties

There is large number of litchi cultivars grown all over India.

The important cultivars recommended for different states are.

Bihar: Sahi, China, Purbi, Rose Scented, Kasba.

Uttar Pradesh: Dehra dun, , Saharanpur.

Punjab & Haryana: Saharanpur, Dehra Dun, Calcutta, Mazaffarpur, seedless late, rose scented.

West Bengal, Bombay, China, Bedana, Elachi

Haak yip, Tai so, Wai chee, Brewster, Gee Kee etc.

Propogation and Wind breaks

Propagation

- Commercially propagated by grafting or air layering (500ppm IBA), stem cutting, semi-hard wood cuttings, stooling are also practiced.

Wind break

- The growth of litchi plant is adversely affected due to hot wind in summer and cold waves in winter.
- It is advisable to plant suitable wind breaks around the boundary.

Planting

- Planting is done in rainy season or even just after the monsoon.
- The litchi trees are planted by following square system at 8x8m or 10x10m apart in 1m³ pits.
- Each pit provided with 30-.40 kg FYM + 2 kg bone meal + 300 g MOP.

Manuring and Irrigation

Irrigation

- The plant is highly sensitive to moisture stress, supplementary irrigation is provided in hot season & mulching also practiced.

Manuring and fertilization

- The nutrient requirement of litchi is very high, The deficiency of N, P and K results in stunted growth and may even stop floral initiation.
- Therefore, suitable application of nutrients will ensure better production.

The recommended dosages of fertilizers are,

Age of tree	N(g/pl)	P(g/pl)	K (g/pl)	
				+30-40 Kg FYM/tree/Year

1 st year	75	25	75	Fertilizers are to be applied in 2 splits 1 st during monsoon & 2 nd after monsoon.
2 nd year	100	25	100	
3 rd year	150	50	150	
4 th year	250	75	250	
5 th year	600	200	600	

Training, Pruning and Flowering

Training & Pruning

- Modified central leader system of training is followed and pruning is not done in litchi, except removing dried, diseased and criss crossed branches.

Flowering

- The grafted or layered litchi tree comes to bearing in 3-4 years, while the seedlings take 8-12 years to flower.
- Flowering starts from Jan-Feb and fruits ripen in April & May.
- Temperature has direct relation on flowering, night temperature of 15-16⁰C for 2 months is essential to induce flowering and for vegetative growth the ideal temperature is 30⁰C.
- Flowers are terminal and appear on current season wood.
- Fruit set is very low and flower drop is also common due to water stress, Fruit drop occurs 4 week s after fruits set which may be due to failure of fertilization, embryo abortion, high temperature and low humidity.
- To control fruit drop NAA at 20-30ppm, GA3 at 20-50ppm or 2-4-D-20ppm, to be applied before flower opening.
- Apart from this girdling and centering also increases flowering.

Harvesting, Yield and Storage

Harvesting and yield

- Litchi is non-climacteric fruit and harvesting is to be done at full mature stage.
- The tree starts bearing from 3-4 years after planting with proper care and management under suitable environmental conditions and the economic life of the crop maybe over 100 years.
- It takes about 55-60 days from flowering to harvest.
- The fruits are harvested during May and June.
- The maturity indices are flatness of tubercles and smoothness of epicarp and colour development (Green-Pink).
- The whole bunch is harvested manually.

Yield: About 80-150 Kg of fruits/tree in Indian conditions.

Storage

- The fruits cannot be stored for more than 2-3 days under room temperature.

- It can be stored for 5 weeks at a temperature of 1.6-7.2⁰C in perforated polythene bags.
- Dipping of fruits in 250ppm ethrel improves the fruit colour.

Physiological Disorders

Fruit cracking

- The whole fluctuations in diurnal temperature, heavy irrigation/rain after prolonged dry spell, hailstorms during fruit development, Boron deficiency causes injury to the fruit skin.

Avoidance of fruit cracking

- The field to be irrigated during fruit growth and in early summer.
- Spraying with 2, 4, D (10ppm), GA3 (20 ppm) and Boron (0.4 per cent) reduces fruit cracking.

Pests and Diseases

Plant protection

Pests

- Mites- *Eriophyes litchi*

Symptoms: Curling of leaves.

- Catterpillar: *Inderbella tetroanis*

Diseases

- Storage rot- *Geotrichum candidum*