



Scientific Cultivation of litchi

**Vinod Kumar¹, Pati Ram²,
Mo Asda³, Shankar Dayal
Bharti⁴**

¹Horticulture, Ph.D Scholar
Deen Dayal Upadhyaya
Gorakhpur, University
Gorakhpur

²Agricultural Extension, Ph.D
Scholar Shri Khushal Das
University Hanumangarh
Rajasthan

³Assistant professor, Department
of Agricultural sciences, SKD
University, Hanumangarh,
Rajasthan

⁴Agricultural Extension,
Assistant professor of DKNMU
Newai, Rajasthan



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INTRODUCTION

Litchi (*Litchi chinensis* Sonn) is an important subtropical fruit crop of the country. It is known as queen of the fruit due to its attractive deep pink/red colours and fragrant aril. It has high nutritive value and suitable for geotropic weak person. Litchi appears to be native of Southern province of China and northern Vietnam from where it was introduced into India during the 18th century in the North East region (Tripura) and over the period of time it travelled to eastern states and percolated in the northern states of India. From China, litchi spread further to West Indies, South Africa, Hawaii Islands, Florida, Vietnam, Indonesia, India, southern Japan, Formosa, Australia, New Zealand, Brazil, India etc. Litchi is now an important commercial fruit crop in India due to its high demand in the season and export potentiality. Cultivation of litchi is widely spread in eastern India covering approx. Himalaya from Bengal to Punjab which provides livelihood opportunities to millions of people in the region. the litchi growing area lies in Bihar, Uttar Pradesh, West Bengal, Punjab, Assam, Tripura and Odisha.



Soil and Climate:-

Litchi grows in a variety of soil types. However, fairly deep, well-drained sandy loam

soil rich in organic matter with a pH of 5.5-7.0 is best for its cultivation. High lime content in soil is also beneficial to its trees. Litchi cannot tolerate frost in winter and dry heat in summer, it flourishes best in a moist atmosphere, having abundant rainfall and free from frost.

LAND PREPARATION:-

Do ploughing, cross ploughing of land and then levelled the land. Prepare land in such way that water stagnation should not occurred in field.

SOWING

Time of sowing:-

Planting can be done just after monsoon in month of August-September For planting select two year old plant.

Spacing:-

Use distance of 8-10 meter in row to row and also plant to plant in case of square method.

Sowing Depth:-

Dug pits of 1m x 1m x 1m and expose to sun for some days. Then fill the pit with top soil with 20-25 kg of well decomposed cow dung, 2 kg of bone meal and 300 gm of MOP. After filling sprinkle some water on it. Plant the seedlings in middle of pit.

Method of sowing:-

Direct sowing or transplanting method.

Propagation :-

Propagation by seed is not preferred because the plants raised from seed take 7-12

years to come into bearing and it does not produce true to type fruits. The most common and easiest method is air layering. About 2 cm wide ring of bark is removed just below a bud from healthy and vigorous twigs about one year old and 2.5-4.0 cm across. IBA or Root onmay be applied at cut portion for early and more rooting. The cut is surrounded by mud ball containing moss (2 parts damp moss and 1 part of soil from the basin of old litchi tree) and wrapped with a polythene sheet. Both ends are tied with fine rope to make it air tight, when sufficient roots are formed in about 2 months, the branch is cut below the soil or sphagnum moss and potted in a nursery. July to October is most appropriate time. About 6 months old air-layered plants should be transplanted in permanent field in monsoon.

Planting :-

The pits of 1 m x 1m x 1m should be dug at a spacing of 10 m apart in square system. Under acidic soil conditions, culture of mycorrhizal fungi should be applied or soil of old litchi orchard should be used for pit filling along with FYM. Planting should be done during early monsoon season. Planting can also be done in the spring if irrigation facilities are available. Planting of litchi orchard is not advisable when the weather is either too dry or too wet.

Age of plant	Manure and Fertilizer:-			
	Fertilizer /plant/year (Kg)			
	Farmyard	Calcium	Super	Muriate of
	Manure	ammonium	phosphate	potash
		nitrate		
1-3 yr	10-20	0.3-1.00	0.2-0.6	0.05-0.15
4-6 yr	25-40	1.0-2.00	0.75-1.25	0.20-0.30
7-10 yr	40-50	2.0-3.00	1.50-2.0	0.30-0.50
About 10 yr	60	3.50	2.25	0.60

FYM, P & K should be applied in the month of December, whereas, Y2 dose of N in February, 1, 4 in April and remaining 1, 4 after harvesting of fruits. Besides, litchi orchard may also be sprayed with Zinc sulphate @ 4 kg and hydrated lime @ 2 kg dissolved in 500 L water.

Varietal Distributions of Litchi in Different States

<i>States</i>	<i>Varieties</i>
Bihar	<i>Deshi, Purbi, China, Kasba, Bedana, Early Bedana, Late Bedana, Dehra Rose, Shahi, Manragi, Maclean, Longia, Kaselia and Swarna Rupa</i>
Uttar Pradesh/ Uttarakhand	<i>Early Large Red, Early Bedana, Late Large Red, Rose Scented, Late Bedana, Calcuttia, Extra Early, Gulabi, Pickling, Khatti, Dehra Dun, Piyazi</i>
West Bengal	<i>Bombai, Ellaichi Early, China, Deshi, Purbi and Kasba</i>
Haryana/ Punjab	<i>Early Seedless, Late Seedless</i>

Irrigation and water conservation:-

Lychee being an evergreen plant, the maintenance of optimum soil moisture is critical for growth, development and fruit production. Irrigation is critical at the fruit development stage to get better yield and quality of fruits. To achieve faster growth of the plant no water stress should be permitted, while in the reproductive phase water stress is beneficial at the time of fruit bud differentiation. Irrigation at the intervals of 2-3 days during the initial stage of plant establishment is considered essential. Further, the young plants should be irrigated during dry periods and winter months at intervals of 3-5 days.

Moisture conservation through mulching using dried weeds or black polythene sheet has been found useful. Through adoption of mulching, frequency of irrigation is reduced.

Intercultural operation :-

Weeds are controlled mainly by hand weeding or hoeing. Spraying of herbicides Diuron or Atrazine @ 5kg/ha at one month interval keep the weeds under control. Use of black polythene mulch controls weed more effectively than organic mulch.

Intercropping :-

In litchi orchard intercropping of vegetable and some fast growing fruit plant like papaya

can be done

Plant Protection Measures:

Insect Pests:-

In litchi, mite and shoot borer are the two serious pests that causes immense damage to the crop.

Lychee mite:-

Lychee mite (*Aceria litchi*) is a serious pest in all the lychee growing regions in the country. The tiny nymph and adults stick to the under-surface of the leaf and suck the cell sap. Consequently, the young leaf turns yellow to greyish-yellow and a velvety growth develops on lower surfaces, which subsequently turn brown. The affected mature leaf develops continuous to scattered brown

Shoot borer:-

The caterpillar bore inside the newly growing shoot and feed on inner parts resulting in drying of the twigs. In the case of severe infestation the sap movement is interrupted and the tree ceases to flush. Pruning and burning of affected twigs minimize the infestation. Litchi shoot borer can effectively be controlled by spraying Cypermethrin (0.01%) twice at 7 days interval during flushing.

Other pests include bark eating caterpillars (*Indarbela tetraonis*, *I. quadrinotata*), weevil

(*Amblyrrhinus poricolis*), butterflies (*Virachola isocrates*) and worm/fruit stone borer

(*Argyroplote carpophaga*).

Diseases:-

Litchi is almost free from fungal diseases in India. The rot caused by

Helmenthosporium hawaiiense and rotting of fruits caused by *Aspergillus* sp. are some of the fungal diseases observed. These can be controlled by spraying with fungicides immediately after the appearance of the symptoms. No fungicides should be applied on the trees or fruits at least 20 days before harvesting.

Disorders:-

The two types of physiological disorders which are commonly observed are fruit cracking.

Harvesting:-

The fruits are harvested in bunches along with a portion of the branch and a few leaves.

At the time of harvesting care is taken to harvest the selected bunch, which has attained the desirable maturity as determined by colour development and taste of the pulp. The fruits are harvested early in the morning when temperature and humidity are congenial, to have longer shelf-life of the fruit. At the time of harvest fruits are collected in a manner so that they do not fall on the ground. Use of mechanical tools for harvesting is practiced. The harvesting period is generally May-June, depending upon cultivar and location.

Yield:-

The yield of lychee varies according to the age of the tree, agro-climatic condition and maintenance of the orchard. Usually about 80-150 kg fruit/tree is obtained from 14-16 year old trees.