



**FACULTY OF AGRICULTURAL SCIENCES & ALLIED INDUSTRIES**

Botanical name	<i>Artocarpus heterophyllus</i> / <i>Astocarpus integrifolia</i> .
Family	Moraceae
Chromosome number	2n = 56.

- Jackfruit is a common and popular fruit crop of the low land tropics of eastern and southern parts of India.
- This fruit tree grows well without much care. It is the largest edible fruit (20-40 kg), In Srilanka a fruit of about 120 kg was harvested and created the world record.
- The fruit is also called as poor man's fruits in eastern and southern part.
- The tree has considerable potential, but it is yet to receive due attention in India it is not generally cultivated in regular plantations and is mainly grown in homestead for domestic uses & as a shade tree in coffee or cardamom plantations.

## Uses and Composition

- The immature tender fruits and the seeds of ripe fruits are used for culinary purposes.
- Ripe fruits are used for table purpose, nectars, dehydrated leathers, jelly and chips etc. Pickles from immature tenders fruits.
- The skin of the ripened fruits & other wastes of the fruits & leaves are the excellent source for cattle feeds.
- The flour of the seeds are mixed in poultry feeds.
- Produces valuable timbers- furnitures, Musical instruments, toys, carvings, crates.
- The ripe fruits are very nutritious. It contains fairly large amount of proteins (1.9%), Ascorbic acid, carbohydrates (19%), carotene pectin, P, Fe, K & Ca. The seeds contain 7.22% crude protein.

## Origin and Distribution

Jack fruit is indigenous to India, commonly grown in Sri Lanka, Malaysia, Brazil, Jamaica, Myanmar, Singapore, India, In India; it grows in a wild and semi-wild state in Assam, W.B, Tripura, Bihar, UP and Western Ghats.

## Species and Cultivars

Species and varieties:

The *A. heterophyllus* previously known as *A. integrifolia*. The other related jack fruit species are

- *altalis* - bread fruit- small sized round fruit, found in TN, Assam, Mah & Kerala.

- *A. lakoocha*- Monkey Jack- Small edible fruits- it grows wild in Assam, WB, UP & Western ghats.
- *A. hirsute*- is a semi-wild edible species, native to India.
- *A. champeden*- edible fruit with strong odour like durian.

<i>Artocarpus hetrophyllus</i>	<i>Artocarpus altilis</i>	<i>Artocarpus integrifolia</i>
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### Varieties

Though no distinct type could be identified, the cultivated types are broadly classified into two groups.

- Those producing fruits with firm flesh and crispy in nature.
- Those bearing fruits with soft flesh and very juicy.

<b>GKVK-1</b>	<b>Ceylone Jack</b>	<b>Swarna</b>
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- Some types with local names like ‘gulabi’(rose scented), ‘Champa’, Hazari, Rudrakshi (small roundish fruits) are also available. A genotype (No.7) was selected from Uttar Pradesh, with moderate yields. A variety GKVK-1 and Swarna with superior quality fruits were released from Karnataka and Gumless jack, Muttan Varica from Kerala also found to perform better.
- The variety Singapore or Ceylon Jack is remarkable for its early bearing in 2 1/2 to 3 years; the fruits are medium in size (7-10 kgs). The flesh is sweet and crispy. The carpels are compacts, yellow and firm with strong aroma, the fruit contain about 80 seeds.

### **Soil and Climate**

- Proper drainage is ideal for cultivation.
- The fruit tree is very well suited for dry land conditions.
- It can be grown under wide range of soils rich deep and well drained soil is good for its cultivation.
- The fruit tree comes up well under humid and warm climate of hill slopes, arid warmer plains of south India.
- It is grown up to 1500m from main sea level and sensitive to frost and drought.

### **Propagation**

- The seedling trees may take 10 years to bear.
- In India most of the plantations are still raised by seeds.
- The seedlings can be raised in pots/poly bags which are ready for transplanting after one year.

- The freshly extracted seeds are sown for higher % of germination.

### **Vegetative methods**

- Presence of gum/latex – layering, budding, grafting is difficult to carry out. Cuttings were found to root easily under mist by treating with 1BA at 3,000ppm and ferulic acid at 200ppm also used.
- Recent years softwood grafting is commonly practiced, patch budding 100% success provided there must be sufficient sap present in scion and root stock.
- Air layering is the earliest vegetative propagation, pretreatment of stock plant with ethrel (250ppm) 15 days before the air layers preparation and treating the layers with 1BA at 3000 or 5000ppm at the time of air layering caused 100% rooting.

### **Planting**

- Jack fruit is planted as a shade tree in coffee garden or as mixed plant, as avenue plant.
- To have a regular orchard like mango the spacing 10x10 m is followed.
- Pits of 1m<sup>3</sup> is prepared, 20-30kg FYM, ½ kg SSP and phorate granules (10-20gm) are filled in pits and planted during June –July.
- During summer supplementary irrigation should be provided.

### **Manuring**

- For 1-3 years old tree- 200:60g NPK/plant/year
- For 4-6 years old tree- 400:240:120g NPK/plant/Year
- 7<sup>th</sup> year onwards 600:300:240g NPK/plant/Year

**Intercrops**-Short duration vegetables, leguminous crops cowpea, horse gram, black gram etc.

### **Flowering**

- Flowering starts in December and continues up to March.
- It is monoecious plant with spike type of inflorescence.
- Male and female inflorescence present in same plant.
- The flowers are cross pollinated by honey bees.
- A multiple fruit, known as sorosis develops following pollination and fertilization.
- The pericarp around the seed and the fleshy perianth are edible.
- The fruits takes about 90-110days after appearance of the spike, mature in June-July and are available almost throughout the year in Assam & South India.

### **Harvesting and Yield**

- It is a climacteric fruit; harvesting is done by cutting the fruit along with stalk after developing sweet and good flavour.
- Change in fruit colour from green to light yellow, harvesting is done by cutting off the stalk carrying the fruits

### **Yield**

- An 15 year old tree yields about 250 fruits, the individual fruit may weigh from 1kg to about 20 kg.

### **Storage**

- Fruits are stored for 2-3 months at 50C with 85-90% relative humidity and 1 week under room temperature.

## **Pests and Diseases**

### **Pests**

- Although a number of pests are known to attack jack fruit, the most important are
- Shoot and trunk borer- *Margaronia caesalis*, brown weevil, mealy bug, Jack scale etc. are found to attack jack fruit which can be controlled by use of suitable contact insecticide.

### **Diseases**

- Stem rot, male inflorescence