

Influence of different planting time on their survival and growth parameter of different types of Jackfruit at Prayagraj, Uttar Pradesh

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Introduction

The JACKFRUIT, *Artocarpus heterophyllus* Lam., which is commonly known as jackfruit is a tropical climacteric fruit, belonging to Moraceae family, is native to Western Ghats of India and common in Asia, Africa, and some regions in South America. It is known to be the largest edible fruit in the world. Jackfruit is one of the commonly consumed foods in Sri Lanka from the ancient time. It is a nonseasonal fruit and had a major contribution to the food supply of the people and their livestock when there were short supplies of staple food grains. Therefore, it is referred to as poorman's food.

It is a monoecious tree and both male and female inflorescences are found on the same tree. The fertilization is by cross-pollination and the propagation is mostly through seeds. The complete fruit development process takes about three to seven months

from the pollination, varying in different countries.

Origin And Distribution

Jackfruit is considered to be originated in the rain forests of the Western Ghats in the Southwestern part of India, but some authors argue that Malaysia could be the possible centre of origin. It is found in many parts of Asia, Africa, and South America. Jacktree grows in warm and moist regions

About

The fruit is of economic importance which is oblong, ovoid, green when young and turns light green to dark green it ripens. Jackfruit is known for its medicinal properties

and effective in treatment of Constipation. Jackfruit is a good source of fiber, so it could help you feel fuller for longer and help keep your bowel movements regular. Jackfruit may be higher in some vitamins and minerals than apples,

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apricots, bananas, and avocados. For example, it's rich in vitamin C and one of the few fruits that's high in B vitamins. The fruit bearing branches are situated on the periphery of canopy throughout its height and spread. All fruits in a bunch do not mature at one time. Influence of different planting time on their survival and growth parameter of different JACKFRUIT.

➤ With the above points in mind, an investigation will be undertaken to analyse the “**Influence of different planting time on their survival and growth parameter Of different types of Jackfruit**” carried out at Horticulture research farm, Naini Agricultural Institute, Sam Higginbottom University of Agriculture, Technology and Sciences (SHUATS), Prayagraj (U.P) in the month of November to March during the Rabi season of the year 2023-24.

Soil And Climate

Jackfruit can be grown on a wide variety of soils but, it is grown well in a rich, deep, alluvial and well-drained soil. It can grow on an open textured or lateritic soil provided sufficient nutrients are available. It grows well in a warm, humid climate up to an elevation of 1500 msl.

Nutrient Management

An investigation was taken up on eight years old seedling trees of jackfruit, planted at

10 x 10 m spacing at the Horticultural Research Station, Mondouri (Nadia, West Bengal) of the Bidhan Chandra Krishi Viswavidyalaya with a view to know the effect of different organic manures and inorganic nutrients (N, P and K) on production, fruit quality, soil health and foliar NPK status. Results from the three consecutive years of investigation, it was revealed that highest dose of NPK (N 500 P300 K300 g/tree/year) resulted in highest yield (76.3 kg / tree) but gave lower BCR (benefit cost ratio) of 1.13 while its lowest dose (N200P100 K100 g/tree/year) gave higher BCR of 2.00. Among the organic manures, vermicompost at 4.00 kg/tree/year produced second higher yield (56.3 kg/tree) with best quality fruits and this treatment resulted in highest BCR of 2.17. Soil NPK status and pH improved under different treatments as compared to respective initial values. Foliar NPK values were differed among the treatments although it could not be correlated to the fruit yield.

Location of the experimental site

The experimental site is situated at altitude of 200 and 150 North and longitude of 600 3 East and an altitude of 678 meters above mean sea level (MSL).

Best Time Of Planting Of Jackfruit

- Jackfruits are planted in square system generally
- Pits should be dugged with 1m square.

- Hexagonal system is followed generally less fertile soils
- Spacing: - 10x10m to 12x12m – depending upon condition
 - 11x11m -82plants /ha
 - 12x12m- 70 plants /ha
- HDP used in lighter & poorer soil (3 x 8 m)
- Best time of planting is June- August.

Climatic Condition Of The Experimental Area

The area of Prayagraj comes under sub-tropical belt in the South Eastern Uttar Pradesh, which experience extremely hot summer and fairly cold winter. The maximum temperature of the location reaches up to 45° C to 48° C and seldom falls as low as 4° C to 5°C. The relative humidity ranged between 20-94%. The average rainfall in this area is around 850-1100mm annually.

Design And Layout Of Experiment:

The experiment will lay out in hedging planting method with three replications. The treatments in each replication were allotted randomly.

Outcomes

Jackfruit grows well in Uttar Pradesh soil and climate as there are few varieties which are not suitable for this climate, but majority of varieties are suitable.

The jackfruit produces a multiple fruit consisting of several achenes (syncarp), each of which is indehiscent and 1-seeded, cauliflorous, 20-100 x 15-50 cm, the entire fruit weighing 4.5-50 kg; oval, oblong or ellipsoid, pale or dark green when young, greenish-yellow, yellow or brownish when mature; 2-10 cm long, 1-3.5 cm thick, covered by a rubbery rind and hard spines. Inside are the fruitlets, which are the true fruits, 4-11 x 2-4 cm, 6-53g, composed of a fleshy aril and the seed, fruits can contain more than 500 seeds (Salim et al 2002). The jackfruit is probably indigenous to the Western Ghats India (Verheij and Coronel 1991). The species then spread to neighbouring Sri Lanka, southern China, Southeast Asia, and further to tropical Africa, including Kenya, Uganda, Tanzania, Mauritius and Madagascar. It was probably introduced in the Philippines in the 12th century, and domestication of the crop started thereafter. It is commonly planted on smallholder Indian cane farms, in home gardens in Fiji, and occasionally in rural gardens and home gardens in other areas of the Pacific (Salim et al 2002).

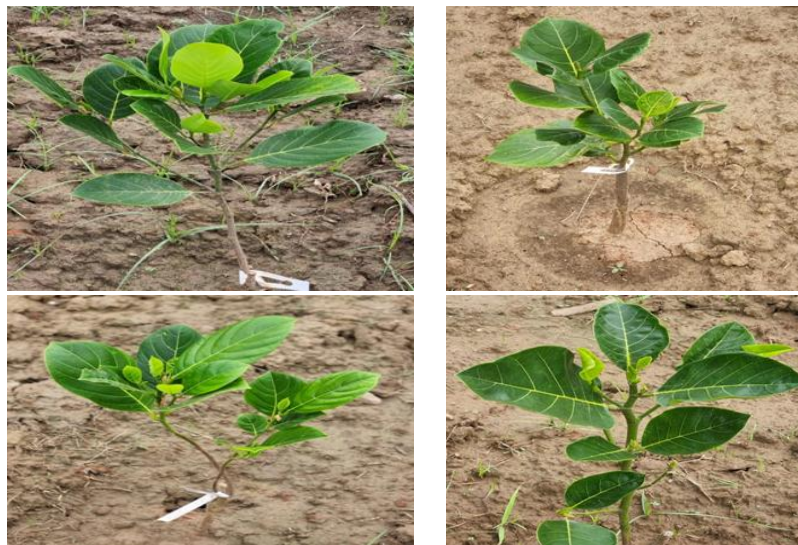
Jackfruit is cultivated on a large scale in (as per 1987 records) Thailand (40700 ha), Philippines (13000 ha) and Malaysia (1500 ha). In Southeast Asia jackfruit is planted mainly in home gardens and mixed orchards.

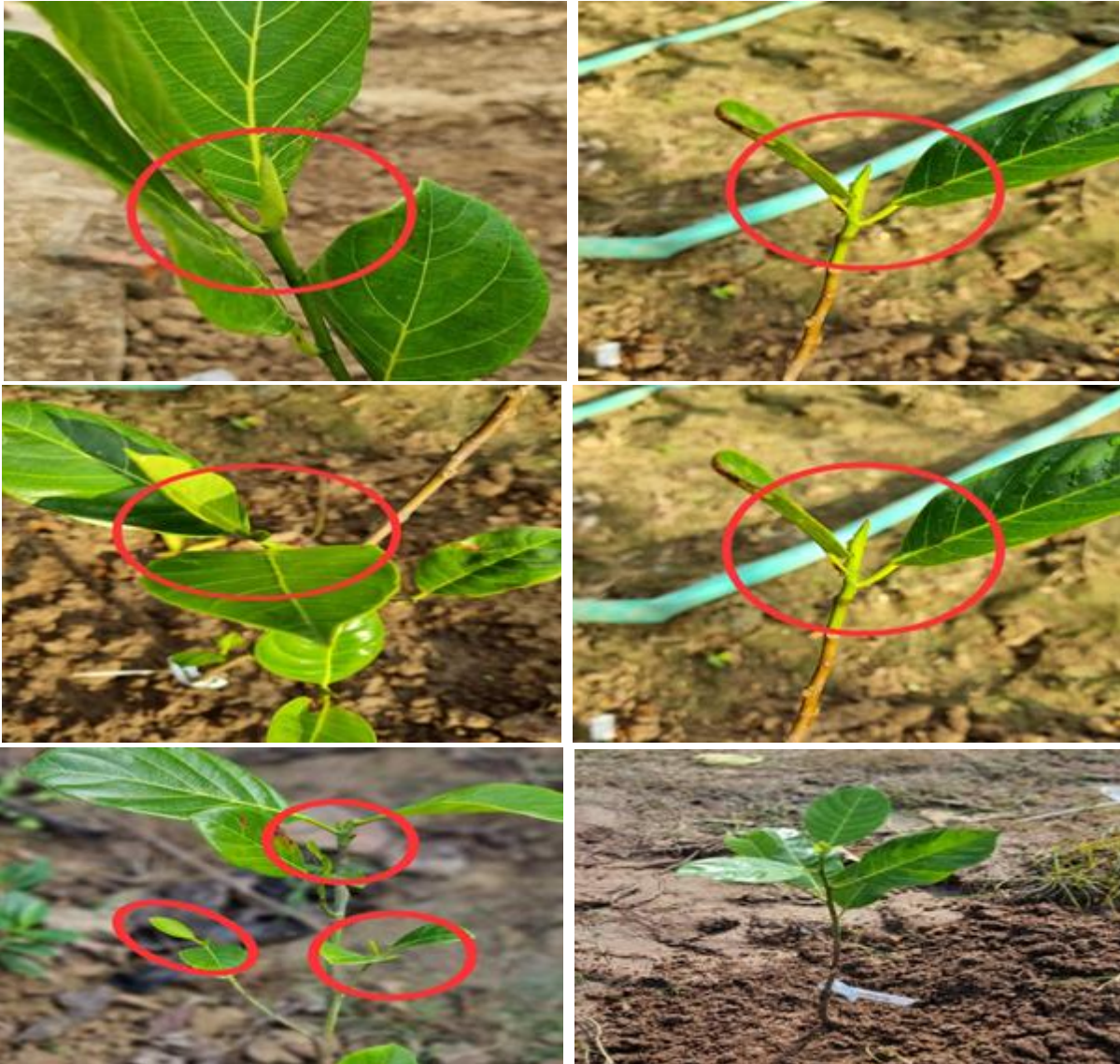
In the 1980s several large commercial orchards were planted as an inter crop for durian. In Bangladesh, the tree is mostly grown on homestead farms and in small orchards (Azad and Haq 1999). Although the large perishable fruit does not lend itself to export trade, canned products are exported to Australia, Europe etc. by canneries in Peninsular Malaysia (Verheij and Coronel 1991).

Jackfruit grows in tropical, near tropical and subtropical regions. The species extends into much drier and cooler climates than do other *Artocarpus* species, it bears fruit at latitudes up to 30 degrees north and south, with good crops at 25 degrees north and south. The tree will not tolerate drought or flooding (Verheij and Coronel 1991; Salim et al 2002) and has poor cold but moderate wind and salinity tolerance. For optimum production it requires a warm, humid climate and evenly distributed rainfall. It thrives in deep, alluvial,

sandy-loam or clay loam soils of medium fertility, good drainage and a pH of 5-7.5.

No hybridisation of jackfruit has been undertaken and rootstock studies have yielded only preliminary results (Verheij and Coronel 1991). There are two main varieties, in one the fruits have small, fibrous, and mushy but has very sweet carpels with a texture somewhat akin to raw oysters. The other variety is crisp, though not quite as sweet. This form is more important commercially and is more palatable to western tastes (CRFG 2002). Trees which have been raised from seed start flowering at the age of 2 – 8 years, clonally propagated trees produce fruit within 2 – 4 years from planting under favourable conditions. In India a good yield is 150 large fruits per tree annually, though some probably of medium or small size (Morton 1987). Jackfruit is a multipurpose species, its main product being fruit, the pulp of young fruit is cooked as a vegetable, pickled or canned in brine or curry.





New leaves and panicles

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