



Banana

Basic Details

- It is also known as Tree of Wisdom/ Tree of Paradise/Kalpataru(Plant of virtue)/Apple of paradise ($2n=33$)
- origin – South East Asia (Indo-Malayan)
- Fruit Type: Berry
- Inflorescence : Spadix
- Day Neutral Plant
- Water loving Plant
- Banana leaf is considered as Biological plate.
- Edible bananas are developed by vegetative parthenocarpy.
- Banana has a lot of medicinal properties and used to treat health disorders such as ulcer, joint pain,

Climatic Condition

Being a tropical crop, banana requires warm, humid and rainy climate.

The optimum temperature range is 10 to 40°C and the relative humidity is 90% or above.

It is highly susceptible to frost and cannot tolerate arid conditions. Strong desiccating winds cause considerable reduction in the growth of the plant and yield and quality of fruits.

It is grown up to an altitude of 1200 m-1500m from MSL.

High wind velocity exceeds 80km/hr. (4m/sec) caused heavy damages to crop.

Life cycle

The dwarf bananas are ready for harvest within 11-14 months after planting.

The Tall bananas are ready for harvest within 14-16 months after planting.

Planting to shooting time: 7 to 9 months

Shooting to Harvest: 90 to 120 days

Area and Production:

- India is the leading country in Banana production.
- Total area among fruit crops grown in India: 20%
- Total production: 32 % of total fruit production.
- Area – KN>TN>AP
- Production – GJ>AP>TN
- Productivity- MP>GJ
- Export : UAE > IRAN > Saudi Arabia

Water Needed

Water requirement -1800-2500 mm/annum



Nutritients

- Moisture -70.1%
- Protein -1.2%
- Fat -0.3%
- Carbohydrate -27.2%
- Calories -67 -137 k Cal/100gm

Preferred Soil

- The Soil Should be 1 meter in depth, fertile and having good organic matter
- Alluvial and volcanic soils are best.
- Saline solid, calcareous soils are not suitable for banana cultivation
- Soil PH: 5.5 —8.0 found to be optimum. (well perform with 6.5 to 7.5 pH)

Propagation

- Through suckers or rhizome or tissue culture plants.
- In India 30% of farmers adopted micro propagation techniques for rapid multiplication of banana suckers.
- Particularly Grand Nine (Popular tissue culture variety in India) variety is preferred by farmers, plants with 5 to 6 leaves for planting.

Planting Material

Suckers: Banana produces two types of suckers (70 % of farmers using suckers for multiplication of Banana plant).

1. Sword Suckers: Well developed rhizome , sword like leaves, and mostly preferred by farmers. Sword suckers - more vigorous, grows faster and comes to bearing early.

2. Water suckers: Broader Leaves, It does not produce a healthy banana clump.

- Micro propagation through tissue culture - Rapid multiplication of banana suckers.
- Average weight of the sucker - 1.5 to 2 kg.

Planting Season

1. According to land

Wet land	Feb-April - Poovan, Rasthali, Monthan April-May- Nendran, Robusta
Garden Land	January – February and November – December
Hill banana	June – Aug (Sirumalai)

2. According to state

State	Planting Time
Maharashtra	Kharif - June – July Rabi - October – November (canara bank 2009)



Tamil Nadu	February – April November – December
Kerala	Rainfed- April-May Irrigated crop- August- September

Spacing Based on Season

Season	Spacing
Kharif	1.5 x 1.5 m., 2 x 2 m. or 2.5 x 2.5 m
Rabi	1.5 x 1.2 m., 1.5 x 1.37 m.

Spacing

- Traditional spacing is 1.5x1.5.
- In case of temperature down to 5-7°C, the planting distance should not be less than 2.1m x 1.5m.

Plant population under different planting system

	Method of Planting	Spacing (m)	Plant Population/ha
1	CONVENTIONAL PLANTING		
a)	Dwarf Cavendish	1.5x1.5	4444
b)	Robusta and Nendran	1.8x1.8	3086
c)	Rasthali, Poovan, Karpuravalli, Monthan	2.1x2.1	2267
2.	HIGH DENSITY PLANTING		
a)	Paired row planting system		
	i) Dwarf Cavendish	1.2x1.2x2.0	5200
	ii) Robusta, Grand Naine, Poovan, Rasthali and Ney Poovan	1.5x1.5x2.0	3800
b)	3 suckers/hill (Robusta, Nendran)	1.8x3.6	4500

Planting Method

Pit method -Pits of 0.5m x0.5m x0.5m are dug for planting the rhizomes to desirable depth.

Furrow planting - practiced in Gujarat and Maharashtra.



Trench planting - practiced in Tamil Nadu.

Drip irrigation dose

TIME	Litter /plant/day
4th month	15 L
5th month	20L
Shooting to 15 day before harvesting	25 L

Benefit of Drip Irrigation

- Bunch matured earlier to 30-45 days.
- Increase yield up to 15 to 30%.
- 58-60 % of water is saved.

Special Practices

- **Thrasing:** Removal of old , dry and diseased parts of plant.
- **Dehandling:** It is removal of false fingers of bunch - some incomplete hands in a bunch which are not fit for quality produce should be removed soon after bloom.
- **Denavelling:** Removal of male bud after completion of the female phase.
- **Desuckering:** Removal of surplus and unwanted suckers from banana plant.
Two ways of desuckering: Pouring of Kerosene oil and damaging with crowbar, 2,4-D.
- **Mattoking:** Support + Desuckering done simultaneously.
- **Propping:** Pseudostem requires support at the time of bunch emergence.
- **Bunch cover/sleeving:** Covering bunches with dried leaves or perforated polythene sheet enhances the fruit quality. Bunch covering is essential practice in Dwarf Cavendish and Silk group for attractive fruits.
- **Desuckering** is done at 3 times in a year.
- **Bunch Thinning :** One to two small bottom hands should be removed from the bunch in order to facilitate uniform bunch development. Keep only 7 to 8 hands

Harvesting:

Harvesting of banana is done 12 to 15 months after planting in dwarf and 15 to 18 months after planting in tall varieties.

Signs of maturity of banana fruits are, fruit becomes plumpy and angles are filled in completely, when tapped gives metallic sound, drying off of top leaves and change in colour of fruits from deep green to light green.