

# Plant Jain Tissue Culture Banana, take Bumper Yield !!!

Banana is one of the major and economically important fruit crop of Maharashtra. Banana occupy 20% area among the total area under crop in India. Maharashtra ranks second in area and first in productivity in India. Jalgaon is a major Banana growing district in Maharashtra which occupy 50,000 hectares area under Banana. But most of Banana is grown by planting suckers. The technology development in agriculture is very fast, it results in developing Tissue Culture Technique.

## What is Tissue Culture ?

The propagation of plant by using plant part or single cell or group cell in test tube under very controlled and hygienic conditions is called "Tissue Culture".

## Planting Time

Planting of tissue culture Banana can be done throughout the year except when the temperature is too low or too high. Facility of drip irrigation system is important. There are two important seasons;

**Mrig Baug (Kharif)** Month of planting June - July

**Kande Baug (Rabi)** Month of planting October - November



## Soil & Crop Spacing

Deep black; alluvial, clay having plenty of organic carbon and well drained soil is suited for Tissue Culture Banana plantation.

**Recommended spacing :** 6' x 6' or 6' x 5' or 7' x 5'.

## Plant

Soil should be well prepared with 1 or 2 successive ploughing and harrowing. Prepare pit of size 1' x 1' x 1' at the desired spacing. Mix 2-3 Kg FYM, 5 gm phorate and 200 gm neem cake into sufficient quantity of soil and add this mixture into the pit. Then remove T.C. Banana plant from polyethylene bag and plant it at the centre of the pit.

## Water Management

Give irrigation to the Banana plant immediately after planting with the help of drip irrigation system. Apply sufficient water to the soil so that soil should be always at field capacity. Do not give excessive or less irrigation to the plant. Full grown Jain Tissue Culture Banana plant needs maximum 20 to 25 lit. of water.

**Table-1** The rate of Irrigation water per plant per day.

Month	Water Requirement Lit/day/plant		Month	Water Requirement Lit/day/plant	
	(Kharif)	(Rabi)		(Kharif)	(Rabi)
June	5-6	12-14	Dec.	6-8	4-6
July	4-5	12-14	Jan.	10-12	5-7
Aug.	5-6	12-14	Feb.	12-14	6-8
Sept	6-8	14-16	Mar.	16-18	10-12
Oct.	8-10	4-6	Apr.	18-20	12-14
Nov.	8-10	4-6	May	20-22	12-14

The above table are given as guide line. It will vary as per soil type & climate.

## Fertilizer Management

### A) Water Soluble Fertilizer

Use water soluble fertilizer with drip irrigation system. It helps in

saving of fertilizer, increases yield and stops deposition of salts because of the acidic nature of the fertilizer. Table (2) shows the time and quantity of the fertilizer.

## Standard Doses for Fertigation

Nitrogen - 170 gm/plant; Phosphorus - 45 gm/plant; Potash - 185 gm/plant.

Total Fertilizer required for 1 Acre = 218 Kg N: 65 Kg P : 272 Kg K<sub>2</sub>O

Planting Distance = 6' x 5' (1452 plants)

**Table-2\***

Time of Application	Grade	Total Qty. (Kg)	Fertilizers/day (Kg/Acre)
1 to 90 days after plantation	19:19:19	192	2.130
	(with micro-nutrient) + 13:0:46 + Urea	93	1.033
		70	0.777
After 75 days	Micronutrient + MgSO <sub>4</sub>	14.50 36.30	10 gm/plant 25 gm/plant
91 to 150 days	0:52:34 +	59	0.983
	13:0:46 +	82.5	1.376
	Urea	117.5	1.958
151 to 300 days	13:0:46 +	282.5	1.884
	Urea	150	1.000

**B) Traditional Fertilizers** = For the traditional fertilizer 200 gm N; 60 gm P<sub>2</sub>O<sub>5</sub> and 250 gm K<sub>2</sub>O is recommended per plant.

Table (3) shows quantity of fertilizer for 1000 plants.

**Table-3\***

Time of Application	Grade	Total Fertilizer required for 1000 plants	Fertilizer required (gm/plant)
At the time of plantation	Super phosphate + Potash	125 Kg. 105 Kg.	125 gm 105 gm
After 30 days	Urea	62 Kg	62 gm
After 75 days	Urea +	62 Kg.	62 gm
	Super Phosphate + micro-nutrients + MgSo <sub>4</sub>	125 Kg. 25 Kg. 25 Kg.	125 gm 25 gm 25 gm
After 125 days	Urea + Super Phosphate	62 Kg 125 Kg	62 gm 125 gm
After 165 days	Urea + Potash	62 Kg 105 Kg	62 gm 105 gm
After 210 days	Urea	62 gm	62 gm
After 255 days	Urea + Potash	62 Kg 105 Kg	62 gm 105 gm
After 300 days	Urea + Potash	62 Kg 105 Kg	62 gm 105 gm

\* Fertilizer recommendations in Table 2 & 3 are only a guideline. Please make necessary changes as per soil analysis and experience. Use of WSF is found to be economical.

### Intercrop

Intercropping in Banana is found to be more profitable. Between two rows or two pair rows onion can be planted.

Only at the early stage of banana intercropping is possible.

### Intercultivation

Keep the field free from weed. Keep the soil loose, airy with harrowing. Cut the additional shoots from time to time. Protect the growing bunch by covering it with leaves.

### Control of Sigatoka Disease

If any symptom or leaf spot of this disease is observed please do the following measures.

- 1) Remove diseased leaves.
- 2) Spray 100 gm of Bavistin, 250 gm of Dithane M-45 or copper oxychloride in 100 Litres water. Use stickers so that pesticide mixture can stick to leaves.
- 3) Use above solution for drenching. Apply 250 ml of the solution for one plant without mixing the sticker.

### Ratoon Crop

After 7-9 month from the planting or after 40-50% flowering, one healthy, newly born, sword leaves sucker arising from the main plant

should be retain as a Ratoon, and remaining sucker should be cut. The management practices and fertiliser schedule for ratoon crop is the same as for the main crop.

### Yield

Yield is approximately double if Jain tissue culture plants are planted with proper cultivation, soil preparation, water and fertilizer management.

In some cases yield rose to 3 times than that of sucker plantation.

### Availability & Booking of T.C. Banana Plant

The Jain tissue culture banana plants are available at Jain Hills, Jalgaon. Book your requirement today for tomorrow's bright future.



### Comparison of Tissue Culture Banana plantation and Traditional Sucker plantation

Tissue Culture Plantation**	Traditional Sucker plantation
1) Plants are of same age and variety	1) It is not sure that all the suckers are of same age and therefore not uniform.
2) Plants are disease free & healthy	2) Some suckers may be diseased.
3) Plants carry same characters of mother plant	3) In case of suckers there is no possibility of assuring characteristics.
4) As the suckers are selected from the mother plant with high yields the tissue culture plants give high yield**	4) Low yield is observed because suckers are from different mother plants having a range of yield level.
5) Crop is ready for harvest in 11 to 12 months from plantation**	5) Crop is ready for harvest in 15-16 months from plantation.
6) Crop Growth is uniform	6) Crop Growth is not uniform.
7) Costs of irrigation, labour and cultivation are less because crop period is short.**	7) Costs of irrigation, labour and cultivation are more because crop period is long.
8) In 28-30 months one main crop and two ratoons crop can be harvested**	8) In 30-32 month one main crop and only one ratoon crop are possible.
9) More yield, and more profit**	9) Less yield less profit.

*Disclaimer : As farming depends upon weather conditions, Jain Irrigation Systems Ltd., cannot guarantee the establishment, growth and yield of the Tissue Culture Banana plants.*

**\*\* Conditions apply.**

Contact :



**Jain Irrigation Systems Ltd.**

Jain Plastic Park, N.H.No. 6, Bambhori, P.O.Box: 72, Jalgaon - 425 001. India.

Tel: 0257-2250011/22, Fax: 0257-2251111/22, E-mail: jisl@jains.com, Visit us at: www.jains.com

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