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Important Tips for Farmers for Tissue Culture Banana Cultivation

Preparation for Planting :-

While panting banana, it is very important to plough the land vertically and horizontally. Ploughing should not be done when the soil is wet. After ploughing, the land should be allowed to warm up so that the top one foot layer dries completely. Before ploughing, spread at least 8 trolleys of cow dung per acre of soil and plough it. After warming the land, make a hole according to the planned size. It is necessary to plan the drip system according to the available water and soil texture.

After the plantlets reach the farmers, the plantlets trays should be kept in the outdoor environment for at least 4 to 5 days. **The trays should be kept in a way that they get at least 6 hours of direct sunlight in the morning and evening. (The trays should not be kept under metal sheet shade or under slab.)**

These plants should be watered once every morning in the cocopeat with a hose or shower until they are completely wet.

Mix 19-19-19 = 4 gm / Lit + Biozyme = 2 ml / Lit and spray it on the leaves.

Do not water the plants on the day before transplant. It is important to dry the cocopeat in the tray at the time of transplanting. Drying the cocopeat helps the plantlets to emerge better. It is important to water the plants abundantly immediately after transplanting.

Before planting, dig a 6" deep hole and first add 2 grams of Regent granules in it. Then add 100 grams of Neem Cake Powder meal and 200 grams of vermicompost on top of it. Put all three in separate. (Do not mix.)

While planting, make sure that the cocopeat and the soil level remain the same. Water the plantlets immediately after planting. Plant the plantlets on 4" high on the bed.

*** To prevent the leaves of the plants from drying out after planting during summer (due to dehydration), Spray**

Green Miracle 2 ml/liter on the leaves of the plants and spray again at intervals of three days as needed. Kaolin, Taba (Kan Biosys Company) drugs will also work.

Planting distance :-

- **6 X 5 ft in light soil, 7 X 5 feet in heavy soil**
- Strap methods should be spaced 8 x 4 x 6 feet apart.
- Preferably, keep a spacing of 7' X 5' **and add double lateral each row.**

1) First Drenching - 3 days after planting

Streptocycline - 0.2 gm/ litre (3gm /15 lit. pump)
Bavistin - 3 gm /litre
Pour 250 ml of the prepared solution drenching to each plant.

2) Second Drenching - 7 days after transplanting

Germinetor - 4 ml/liter
12:61:00 - 10 gm/liter
250 ml of the prepared solution drenching to each plant while the soil is still moist.

3) Foliar Spray - 12 days after transplanting

13:40:13 - 4 gm/liter
Silicon - 1 gm/liter
Boron - 1 gm/liter

Spray on the leaves in the morning or evening. Repeat the same spray after 4 days as needed.

Amount of solube fertilizers to be applied per acre through drip (every 8 days)

	Urea	12:61:00	S. O. P.	MgSO4
10 to 120 days (14 doses)	3.5 Kg	2 Kg	5 Kg	2 Kg
120 to 240 days (15 doses)	7 Kg	1 Kg	8 Kg	2 Kg
141 to 360 days (15 doses)	1.5 Kg	0.5 Kg	8 Kg	2 Kg

- The following doses of micronutrients must be given through drip during the first, fourth and eighth months.
  $MnSO_4$, 2Kg + Z_nSO_4 = 4 Kg + Boron = 200 gm + FeSO4 = 2 Kg + Silicon 500 gm

- **After planting, it is necessary to apply calcium nitrate 5 Kg per acre through drip irrigation every 15 days until the banana bunches emerge.**

Give the quantity of the following fertilizers per acre

1) First dose - 15 days after planting. 9 inches from the plant on either sides

- Urea (Nimcoated) (46-0-0) - 25 Kg
- Single Super Phosphate (0-16-0) - 100 Kg
- Mu. of Potash (M.O.P.) (0-0-60) - 50 Kg
- Magnesium Sulphate (MgSO4) - 10 Kg

$MnSO_4$ = 2 Kg + $ZnSO_4$ = 4 Kg + Boron = 200 gm + $FeSo_4$ = 2 Kg + Silicon 500 gm

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2) Second dose - 45 days after planting, 1 foot away from tree.

- Urea (Nimcoated) (46-0-0) - 50 Kg
- Single Super Phosphate (0-16-0) - 50 Kg
- Mu. of Potash (M.O.P.) (0-0-60) - 100 Kg
- Magnesium Sulphate (MgSO4) - 25 Kg

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3) Third dose - 90 days after planting (at the time of filling), spread on both sides at a distance of 1 foot from the tree. Spread 4 trolleys of cow dung per acre in the furrows, leaving a distance of 1 foot from the tree.

- Urea (Nimcoated) (46-0-0) - 50 Kg
- D. A. P. (18-46-0) - 25 Kg
- Mu. of Potash (M.O.P.) (0-0-60) - 150 Kg
- Magnesium Sulphate (MgSO4) - 25 Kg
- Neem Cake Powder - 50 Kg

$MnSO_4$ = 5 Kg + $ZnSO_4$ = 10 Kg + Boron = 1 Kg + $FeSo_4$ = 5 Kg + Silicon 500 gm

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4) Fourth dose - 150 days after planting, at a diatance of 1 to 1.5 feet from the tree

- Urea (Nimcoated) (46-0-0) - 25 Kg
- Mu. of Potash (M.O.P.) (0-0-60) - 50 Kg
- Magnesium Sulphate (MgSO4) - 10 Kg

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5) Fifth dose - 180 days after planting, at a distance of 1 to 1.5 feet from the tree from the plant

- Urea (Nimcoated) (46-0-0) - 25 Kg
- Mu. of Potash (M.O.P.) (0-0-60) - 50 Kg
- Magnesium Sulphate (MgSO4) - 10 Kg

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- **Use of Jivamrita :-**

  The use of Jivamrita has been very beneficial for banana crops. Therefore, Jivamrita should be used twise in the rainy season, twice in the winter and once in the summer.

- **Method of preparation of Jivamrita :-**

  Mix 10 kg of fresh cow dung of a native cow + 5 liters of cow urine + 2 kg of black jaggery + 500 grams of gram flour + 1 handful of Natural soil in 200 liters of water. The prepared solution should be rotated clockwise for 10 minutes every morning and evening with the help of stick and after 2-3 days, this solution should be applied to one acre. The use of Jivamrita causes very healthy and strong growth of banana trees. While applying the application, you can use bacteria like Azotobacter, P.S.B., K.A.B., Metarhizium anisopliae, Beauveria bassiana etc. Or these bacteria should be used separately.

1) Mix 100 gm of Mycorrhiza + 250 ml of P.S.B. + 500 gm of jaggery in 150 liter of water and apply 100 ml of the medicine drenching to each plant after 25 days and 90 days transplanting.

2) Since the need for potash is high for banana crops, K.A.B. (Potassium Available Bacteria) should be used.

3) It is necessary to apply drip fertizers through drip along with chemical fertilizers applied through the soil. Double laterals should be applied each row.

Important Notice :-

1) If the plant is severely deficient in the nutrient potassium then using S.O.P. instead of M.O.P. at the doses of 150 days and 180 days will speed up the uptake (availability) of potassium and you can give the same dose again after 80% to 90% of the banana bunch have emerged
2) Using 50 Kg of ammonium sulphate instead of 25 Kg of urea in a 150 days will improve crop growth.
3) **After planting, it is necessary to apply calcium nitrate at the rate of 5 Kg per acre every15 days until the banana bunches emerge.**
4) A gap of at least 8 days should be maintained between the use of biofertilizer or mycorrhiza and chemical fertilizers.
5) K.A.B. (Potassium Available Bacteria) should be used in Jivamrut.

Notice :-

* Water should be given according to the growth requirements of the plant. If it is excessive, root rot can occur. In areas with heavy rainfall, the amount of nitrogen should be reduced. Neem Cake meal and castor meal should be of good quality. Water should be planned according to the weather. Wind protection should be planned in such a way that there is no shadow on the banana tree. In our opinion, no intercropping should be done in the banana garden. **It is very important to have drip irrigation for tissue culture banana plants and it is very important to have double laterals on both sides of the row.**

Note :-

The duration and yield of the crop depends on the soil texture, climate of that area, water availability and actual farm management. All management should be changed according to your needs. Apart from this, if any problem arises, contact the distributor. After soil testing and water testing, the amount of fertilizer can be reduced or increased according to the report.