

**CENTRAL FOOD TECHNOLOGICAL RESEARCH INSTITUTE  
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**MASS PROPAGATION OF BANANA BY TISSUE CULTURE TECHNIQUE**

**INTRODUCTION**

Plant Tissue Culture (PTC) has direct impact on present day agriculture and has been the direct cause for face-lift of modern agriculture in developed countries. This has been possible because of enormous supply of desired type of planting/sowing material obtained by mass micro propagation. At present several laboratories together in the world are producing over 500 million plants annually.

The present process is the result of a complete scaled-up study where the performance of the product (banana plants) has been examined under field conditions. The TC plants had no abnormalities and were better than conventionally propagated ones in overall performance. The present process deals with the production of one million banana planting material per annum.

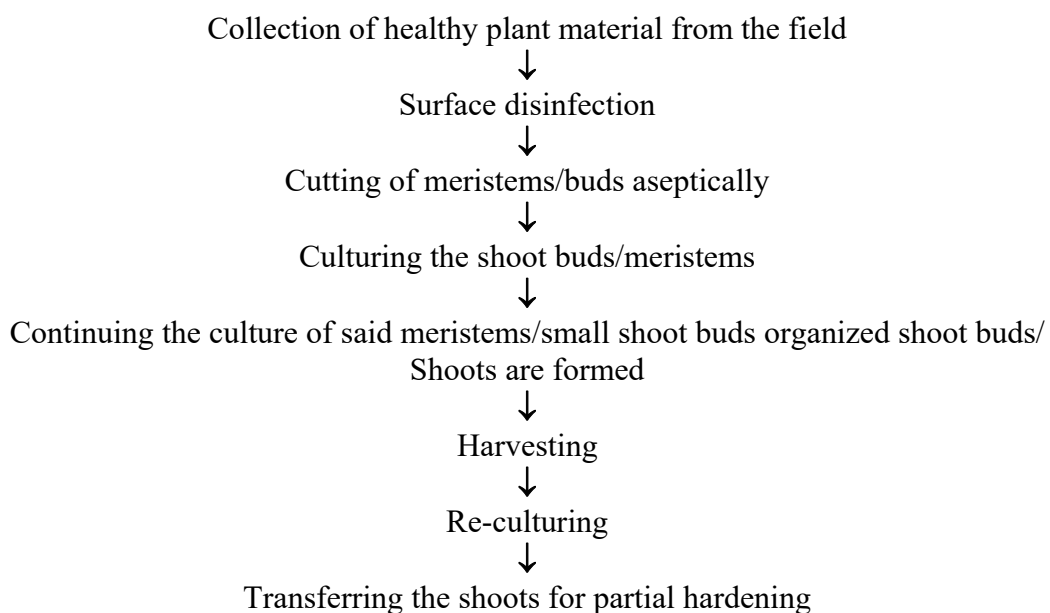
**MARKET**

Bananas occupy, among tropical fruits, a position comparable to that of apples among temperate fruits. A larger number of edible clones are cultivated in India than in any other country. Recently India is the largest producer of bananas accounting to 14.18% in 1992 of world's production. In terms of both harvest weight (4-8 tonnes) and calories (2.5-5.6 million) the yield of banana per acre ranks higher than that of many other tropical fruit crops. Already there is a large market for banana fruits and therefore is the demand for planting material. However, popularizing the different aspects of banana cultivation and the advantages of Tissue culture banana plants may expand marketability of planting material.

**MATERIALS AND PROCESS**

**Raw materials:** Single distilled water, nutrient medium and phyto-hormones

**Process:** The process involves the following steps



## PLANTS AND MACHINERY

**Principal equipments:** Laminar flow hoods, Culture vials or bottles with screw caps, autoclave for sterilization, Stereomicroscope, refrigerators with freezer and refrigerators without freezer, air conditioners, heaters and large stainless steel wares.

**Auxiliary equipments:** glass measuring devices, distillation units, balance, ordinary + fine.

### Project Cost – Fixed Cost – Working Capital (in Rs.000) (Estimate for a model project)

a. Land (4000 Sq. m)	320.00
b. Building (450 m <sup>2</sup> )	956.00
c. Plant and machinery	129.00
d. Miscellaneous fixed assets	133.7
e. Pre-operative expenses	77.5
Total fixed capital	1616.2
Working capital margin	Nil
Total project cost	1616.2

### PRODUCTION CAPACITY – (estimate)

10 Lakh bananas per annum

### Technology / Manufacturing Process - availability

CFTRI has standardized the technology and general methods of processing mass propagation of banana by tissue culture technique. Apart from this procedure for quality control, packaging and packaging material specifications, the institute also provides equipment details.