

# Uses of Plant Tissue Culture

- Vegetative/clonal propagation (micropropagation) of plants.
- Storage of plants i.e, germplasm storage.
- International and national transport of plant material.
- Elimination of virus from plant tissue (use of meristem cultures).
- Breeding (genetic improvement) of selected plants.

# Benefits of Plant Tissue Culture

- All-year round multiplication of planting material.
- Use of small-sized explants (plant part) for multiplication of germplasm.
- Rapid multiplication of plant material.
- Alternative to traditional (field) means of secure storage of plant material (germplasm).
- More efficient utilization of space for the storage of plant material

The crops currently being investigated at NAREI are:

- Pineapple
- Plantain
- Coconut
- Strawberry
- Roses
- Cassava
- Sweet Potato
- Breadfruit
- Grapes



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# PLANT TISSUE CULTURE

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GUYANA





# INTRODUCTION

In Guyana, NAREI has established the first national Plant Tissue Culture Laboratory at its Headquarters at Mon Repos.

**PLANT TISSUE CULTURE** refers to techniques used to grow plant cells, tissues, organs or whole plants in laboratory conditions. This method of plant growth is referred to as micro propagation.

**MICROPROPAGATION** is a plant tissue culture technique which exploits the fact that cells and tissues can be used to produce complete plants. Micropropagation allows many plants to be produced from a small amount of starting material.

Parts of the plants used for cultures include young growing tips of plant (shoot tips) buds, nodes and roots. Those plant parts (explants) are usually small in size and may vary from less than 1mm to 15mm in length.



# STAGES OF MICROPROPAGATION



## PREPARATION

Identification of parent plant.  
Preparation of stock solutions under hygienic conditions.



## INITIATION

The establishment of new plants under laboratory conditions.



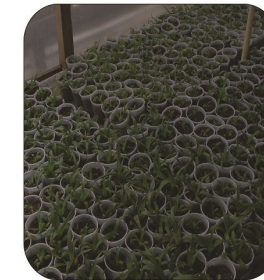
## MULTIPLICATION

Rapid growth of material. New shoots are routinely placed in fresh media in new culture vessels.



## ROOTING

Roots are induced by adding plant hormones to the growth media



## WEANING

The movement of plantlets from growth media to potting compost. This difficult stage requires controlled conditions of temperature, light and humidity.

