

Improving Tissue Culture (TC) Plantlet Transplanting in Stages IV and V (“Greenhouse”) Production.

- **Application to Blueberry and Many Other Plants.**

INTRODUCTION

Case Study: Transplanting of blueberry in the Stages IV and V “Greenhouse Stage” after propagation by Tissue Culture (TC), is improved using Rhizopon AA Water Soluble Tablets and Hortus IBA Water Soluble Salts solutions. TC produced blueberry plantlets, compared with cuttings propagated from field stock plants, are often bushier, have heavier cane diameter, with increased lateral branching, and have higher flower and fruit production. Later, cuttings can be taken from the TC propagated plantlets, and propagated by conventional means. In the next stage of propagation, plants pass on the favorable characteristics, with higher fruit yields.

HOW THE PLANTLETS ARE PRODUCED

Tissue Culture Stages:

Stage I

- Plantlets are started under sterile laboratory conditions.
- The growing points of the plants, such as a shoot tips or buds, are excised from the stock plants and placed into a growth medium where they develop into a tiny plantlets.

Stage II

- Plantlets are transferred into a different growth medium containing plant hormones that will encourage the plantlets to produce more plantlets.
- In this Stage, the number of plantlets increase through a series of transfers to fresh medium. This process continues until the desired number of plantlets is produced.

Stage III

- Plantlets are transferred to another different medium that will prepare them for transfer to a greenhouse environment.

Stage IV (“Greenhouse Stage”)

More advanced rooted plantlets are called in Stage V

- Plantlets are removed from Stage III medium and planted in a greenhouse.
- In the greenhouse the plantlets root and acclimate to the environment. Plantlets are grown to field ready plug plants. This process takes 8 - 12 weeks.



ENHANCEMENT METHOD

during transplanting in Stage IV or Stage V (“Greenhouse Stage”)

Prepare the Plantlets:

- If plantlets have TC agar on the roots, it may be necessary to wash the roots from the agar. Trials must be made on received plantlets to determine if it is necessary to totally remove the agar. Sometimes agar removal is not necessary.

Materials:

- A plastic small screen basket is used to dip the plantlets so as not to cause damage to the tender plant tissue.
- Use a small dipping tub.
- **A fresh solution is made using Rhizopon AA Water Soluble Tablets at 1-3 tablets per liter of water. (Note: Hortus IBA Water Soluble Salts may also be used at appropriate concentrations: 50-150 ppm IBA. Rhizopon tablets are better and easier to measure when used in indicted rates and small liquid volumes.)**

Application:

- The plantlets are totally immersed, about 5 seconds, in the solution. Drain the plantlet basket.
- After completing the day (or immediate lots of production), dispose the solution.

Sticking in Media:

- Removing plantlets from the basket. Stick the plantlets in 325 trays (or other sizes suitable for production).

Environmental Controls:

- Depending upon immature growth of the plantlet root systems, some growers cover the trays with transparent domes; the plantlets are very soft and require good environmental control.
- Plantlets with advanced root systems may be placed in conventional greenhouses with appropriate environmental controls for air humidify, soil moisture, lighting, air flow, etc.
- Greenhouse production artificial lighting for plantlets is similar to the TC growth room. The plantlets also utilize the broad spectrum of natural sunlight.

Bringing the Plantlets to Field-Ready Plug Plants:

- After about 2-3 weeks the plantlets are moved to a greenhouse to harden-off. Grown on to a field-ready plug plants takes about 8 to 12 weeks.

