

In-Vitro Banana Tissue Culture Propagation

A rapid quality plantlets delivery technology for banana

In-Vitro Tissue Culture Propagation involves a series of steps including initiation, multiplication, shooting and rooting, and hardening, all performed in controlled, sterile laboratory conditions to produce disease-free banana and plantain plantlets.



Steps of in-vitro tissue culture micro propagation: a) Removal of sheaths, b) Separated corm, c) Desinfection and segmentation of corm, d) Transferal to sterile tubes with growth media tubes, e) Culturing in climatized chamber, f and g) Transferal of propagules for proliferation of shoots by subculturing in jar, and h) Nursing of plantlets in screenhouse (Credit: B. Dhed'a)



International Institute of Tropical Agriculture (IITA)
Amah Delphine

Technology from

ProPAS

Commodities

Banana/Plantain

Sustainable Development Goals



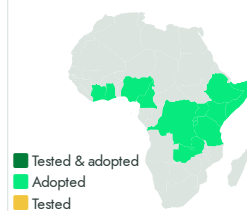
Categories

Production, Practices,
Pest control (excluding weeds),
Yield improvement

Best used with

- [Improved Varieties of Plantain for Tropical Lowlands >](#)
- [Improved Varieties of Banana for the African Highlands >](#)
- [Propagation of Banana and Plantain Disease-Cleaned Suckers >](#)

Tested/adopted in



Where it can be used

This technology can be used in the colored agro-ecological zones.



✓ This technology is **TAAT1 validated**.

8-8

Scaling readiness: idea maturity: 8/9; level of use: 8/9

Cost: \$\$\$ **1,3 USD**

Per plantlets

ROI: \$\$\$ **40 %**

Profit

3000 Tissue Culture plantlets

A nursery business can produce 3,000 TC plantlets per cycle



No formal IP rights

Problem

- Traditional crops were more susceptible to extreme weather conditions, leading to significant crop damage and reduced yields.
- Traditional propagation methods were more susceptible to diseases, resulting in widespread outbreaks
- Natural disasters and disease outbreaks often led to slow recovery in agricultural systems

Solution

- In vitro micro-propagation eliminates all pests and diseases except for viruses.
- TC plants have the benefits of uniformity and fast propagation of large numbers of plantlets.
- These advantages enable marketing and more rapid recovery from broad-scale damage such as disease outbreak and extreme weather.

Key points to design your business plan

Utilizing in-vitro tissue culture propagation enhances banana and plantain production by providing disease-free planting materials. To integrate this technology, consider steps such as:

- Business planning, obtaining financing for equipment, staff training, and farmer awareness campaigns.
- Source materials from countries with expertise in tissue culture propagation.
- Associate with other technologies like Improved Varieties of Plantain for Tropical Lowlands and Improved Varieties of Banana for the African Highlands, as well as Propagation of Disease-Cleaned Suckers, can maximize benefits.

Gender assessment 4

Climate impact 7



In-Vitro Banana Tissue Culture Propagation

https://e-catalogs.taatafrica.org/com/technologies/in-vitro-banana-tissue-culture-propagation

Last updated on 2 August 2024, printed on 22 August 2024

Enquiries techs@taatafrica.org