

**Irish potato** continues to be a staple on Jamaican tables. PEQ has delved into the production of Irish micro- and mini-tubers. This is on par with International Potato seed companies that produce Pre-basic seeds that, when planted, produce the Super Elite and Elite seed potatoes that Jamaica imports for production of table potatoes.

Further work is needed to make the programme sustainable and affordable for farmers, including the incorporation of various technologies for rapid production of seed. The Research & Development Division within the MOAF plans to explore these technologies that will better support our local farmers while significantly reducing the yearly importation of seed potatoes.

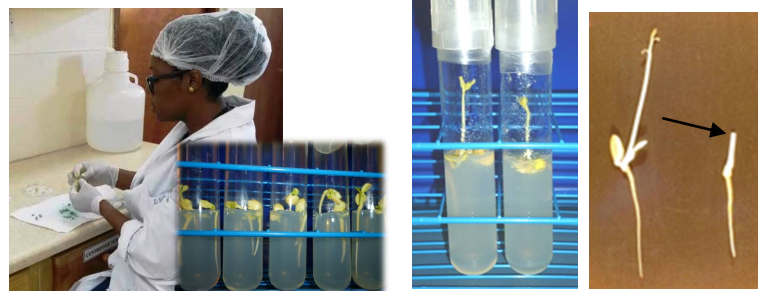


**Other crops and their varieties** also being explored include Sweet yam, Cassava, Exotic fruits and ornamentals.

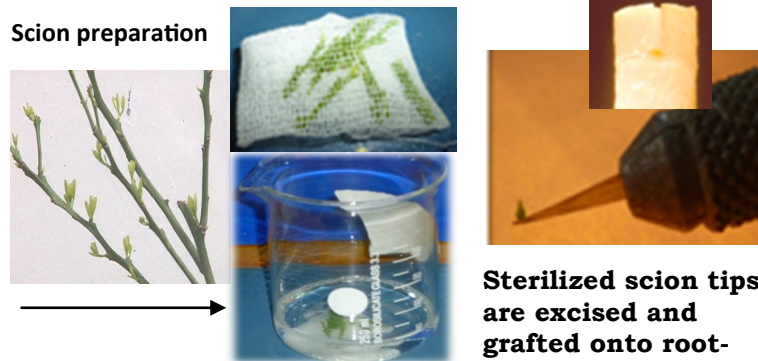


**Shoot tip Grafting** is another form of tissue culture and involves the grafting of a young scion (desired shoot) onto a rootstock, and growing *in vitro*. It is used on a number of tree crops in efforts to obtain clean plants. At the PEQ, this technique is being used for Citrus plants and is incorporated into the Citrus Certification programme.

**Rootstock preparation**



**Scion preparation**



**Sterilized scion tips are excised and grafted onto rootstock grown in tubes**

**Cultured tissue** may consist of a single cell, a population of cells, or a whole or part of an organ.

**POST ENTRY QUARANTINE TISSUE CULTURE FACILITY**



*“To enhance agricultural productivity through the rapid multiplication of disease-free planting material.”*

**Introduction:**

The development of a Commercial Tissue Culture Facility was one of the many projects developed under the direction of the European Commission (EC) Food Facility Project, the Ministry of Agriculture and Fisheries, and other stakeholders. **The main goal is to enhance food security through the multiplication of disease-free planting material while reducing the number of imports of seeds, planting material, and crops into Jamaica.** Plantlets are obtained through partnered stakeholders or produced in-house with the aims of providing material or maintaining a germplasm bank. Healthy, viable plants are produced, hardened, and distributed to approved nurseries. The facility currently grows and maintains 6 crops and their requested varieties.

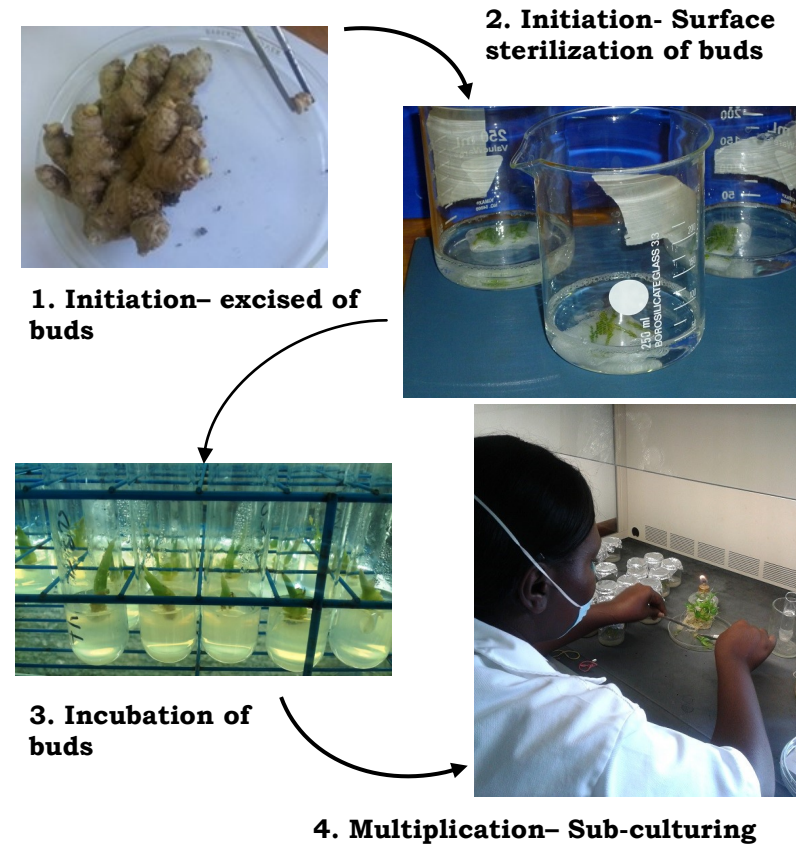
The Tissue Culture facility is located in the Post Entry Quarantine (PEQ) building at the Bodles Research Station in Old Harbour, St. Catherine.

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## Procedure:

Plant tissue (such as a stem tip, node, meristem, embryo, or even a seed) is removed and surface sterilized before being placed in a sterile, nutrient medium where it produces shoots and roots (explant). The medium and length of time for plantlet growth varies depending upon crop type and the conditions necessary for optimal growth. The explants grow and multiply and are either separated for further multiplication (sub-culture) or hardened for eventual release into nurseries.

It is recommended that at least one (preferably 2) generation(s) is done in nurseries before being planted into fields



**5. Multiplication- mature plantlets**



**6. Hardening- plantlets are taken from the lab and are gradually acclimatized to the natural environment**



**7. Hardened plantlets will be transplanted into bigger potting containers for rhizome production**

**Plant tissue culture is a technique utilized around the world to promote sustainable agriculture.**

**In Jamaica tissue culture is being utilized for the multiplication of ornamentals such as orchids, root and tuber crops such as sweet potato, yam, ginger and Irish potato, and tree crops such as banana.**

## Clean Seed Programme

**Ginger** production has always been a major problem in Jamaica due to the Ginger Rhizome Rot disease. **Our goal is the production of clean ginger planting material for farmers.** Gingers are cultured, hardened and sent to our nurseries for the production of first and second generation ginger rhizomes which are sold to farmers. The lab currently carries the Jamaica Yellow, Jamaica Blue and China Blue varieties.



**Sweet potato** is one of the most important food crops in the world. Jamaica is the second largest exporter to Canada. With the number of opportunities for sweet potato production in Jamaica, PEQ and the Crop Research Unit are working assiduously to boost the production and sustainability of sweet potato via conducting investigative work, mass clonal propagation of popular varieties and establishing a certification programme.

