



# POST ENTRY QUARANTINE

MINISTRY OF AGRICULTURE, FISHERIES & MINING  
(MOAFM)  
RESEARCH & DEVELOPMENT DIVISION  
BODLES RESEARCH STATION



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## PRODUCTS AND SERVICES

The Post Entry Quarantine offers a range of products primarily geared towards the evaluation, testing and production of planting material for different industries. Focused more on our Ministry of Agriculture's Priority crops, PEQ offers seed evaluations and treatments, general testing and production of foundation material (Fig. 1). Within the next 3-5 years, the PEQ aims to accredit and certify tests and methods/procedures of importance to our Agricultural sector.

### Seed Health and Diagnostics:

As part of our mandate, PEQ assist in the screening of imported material submitted by Inspectors at ports of entry. Any tests which cannot be done are referred to either Plant Pathology or to a collaborator (local or international). The PEQ has both Seed Health and Diagnostic Laboratories and greenhouses for growing out evaluations.

Services provided by these laboratories and greenhouses which are available to both internal and external clients include:

- Hot-water treatments for various types of seed including pepper, citrus and pumpkin.
- Germination and Emergence testing of seeds, as well as evaluations on breaking dormancy
- Screening for specific diseases using bio-indexing, serology and molecular technologies
- Seed Purity testing

Germination (below left) and emergence (below right) testing for seeds forms part of, but is not solely restricted to, the Clean Seed Programme. External clients importing bulk seeds occasionally test their seeds to ensure the rates stamped on the containers are the same (within 5%). On occasions when the rates do not match (germination and/or emergence rates are low), evaluations are done, upon client approval, on how best to break the dormancy of the seeds.



The screening for diseases has always been limited to specific pathogens due to the cost for testing. Future goals for this area include expanding beyond these few pathogens and incorporating more molecular techniques for the identification of unknowns.

### Horticulture:

As part of our mandate, and governed by the Citrus Certification programme under the Plant Quarantine Act, the PEQ is responsible for the management and care for a Citrus germplasm bank,

housing all the varieties in Jamaica. The germplasm currently holds over 70 varieties. Through the Jamaica Citrus Protection Agency (JCPA) under Plant Quarantine, the programme also provides citrus budeyes for the Citrus industries. Routine screening is done via bio-indexing and in laboratory.

Services for the Horticulture section, through the JCPA Regulatory Officer, include:

- General screening of imported planting material using indicator plants (bio-indexing).
- Sale of seedlings for specific crops
- Sale of Citrus budeyes (several varieties)
- Sale of Citrus trees after 5 years during our biennial Citrus Day events.



Collecting budwood



Reading results from bio-indexing testing (L) and plants being indexed (above)

### **Tissue Culture:**

With such an emphasis being placed on using clean planting material for production, the Tissue culture laboratory at Bodles was conceptualized in 2011-2012 as a way of cleaning up some of our local root varieties (Sweet potato and yam) and spices (Ginger), or producing our own (Irish potato) to reduce the large importation bill. Since then, the laboratory and its team have cleaned our locally consumed variety, Spunta, as well as a few others such as 3 varieties of Sweet potato and 2 varieties of ginger. Despite challenges, the team continues to work towards producing material, working in collaboration with the Scientific Research Council (SRC) and the Northern Caribbean University (NCU) for various crops. Material produced is distributed to nurseries as foundation material where they are further grown (in some cases 1<sup>st</sup> and 2<sup>nd</sup> generations) to supply farmers.

Services for the Tissue Culture lab include:

- Supply specific crops to R&DD's Crop Research and Montpellier for mass propagation, where they are then sold to nurseries.
- Cleaning up of crop varieties (if possible or feasible) through culture (including shoot-tip grafting)



Ginger tissue culture (L) and hardened plants growing (R)

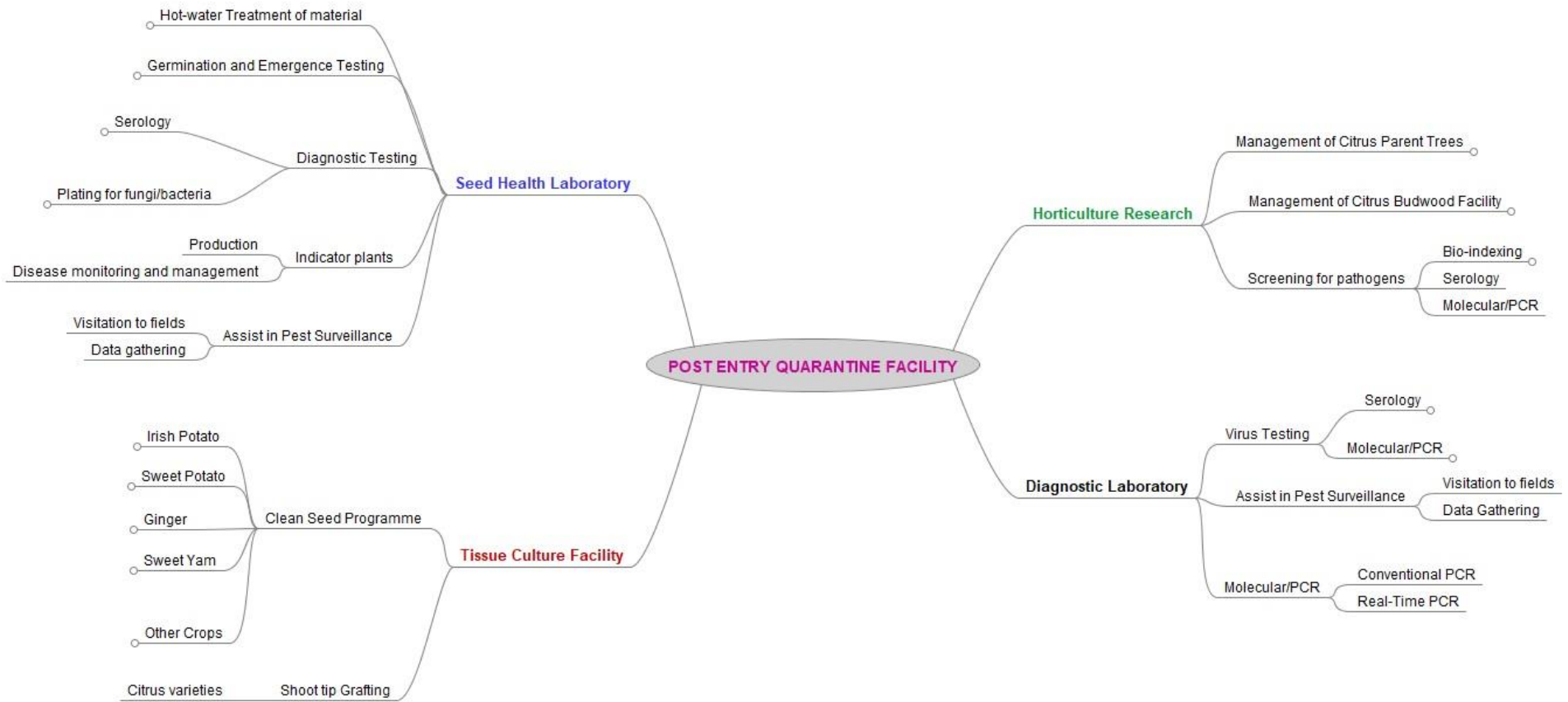


Irish potato tissue culture (L) and hardened plants growing (R)

### Cost of Services

Service	Cost \$	Remarks
Germination testing	1,250.00	Tests if seeds are viable
Emergence testing	1,250.00	Tests if seedling grow above soil line
Hot water treatment	1,500.00	Cost per lb of seed (regardless of seed)
Diagnostic testing (general)	1,500.00	Plating, serology, grow out screening
Diagnostic testing (PCR)	4,000.00	Limited.
Seed Purity testing	1,500.00	Cost per sample.
Hardening of tissue culture material	59.00	
Citrus seedlings (regulated and limited)	550.00	Age 1-2 years.
Citrus plants (regulated and limited)	1,500.00	4 years and older.

Figure 1 shows PEQ's Services by Laboratory sections:



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