



# *STRUCTURE AND OPERATION OF POST-ENTRY QUARANTINE FACILITIES*

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# Outline of presentation

- **Scope**
- **Outline of requirements**
- **Background**
- **General requirements**
  - **PEQ Containment**
  - **PEQ Facilities**
    - **Location**
    - **Physical requirements**
    - **Operational requirements**
    - **Release from containment**
- **Specific Requirements for PEQ Facilities by Containment Level (PEQ1, PEQ2, PEQ3, PEQ4)**
- **Annex 1**
- **Appendix 1**





# Scope

- **This standard describes general guidelines for the design and operation of post-entry quarantine (PEQ) facilities for holding consignments of plants in containment. Four containment levels are specified.**



# Outline of requirements

- **The pest risk associated with importation of consignments of plants into a country may be managed by the use of post-entry quarantine (PEQ) facilities that provide the appropriate containment for the risk that has been identified with the consignments being imported.**
  - **Pest risk assessment determines the level of PEQ for a specified consignment of plants**
  - **Pest risk management requirements determine design and operation of PEQ facilities**
- **PEQ facility may consist of a field site, screen house, glasshouse and/or laboratory**
- **Four levels of PEQ containment are described**





# Background

- **Imported consignments of plants can present a risk to plant health because they have the potential to introduce quarantine pests.**
- **For many commodities that are traded internationally, importing NPPOs identify risk management measures, without requirements after entry.**
- **For some commodities, NPPOs may decide that certain consignments should be held after entry into the country within a facility providing a known level of containment in order to reduce the risk to an acceptable level.**
- **Containment facilities may also be required to conduct research with quarantine pests and other imported organisms, but this is outside of the scope of this standard.**





# Background

- **Post-entry quarantine (PEQ) may be required for the following reasons:**
  - Containment of imported plant material that needs to be screened for quarantine pests that cannot be detected by inspection at the point of entry.
  - Containment of plant material suspected on import of being infested with quarantine pests for further investigation and possible confirmation of the identity of the pest.
  - Following detection of pests, mitigation of risk by application of appropriate phytosanitary measures.
- **The purpose of PEQ is to contain both the plant and any quarantine pest potentially associated with it so that neither can escape the facility before the required inspection, testing, treatment and verification activities have been completed and the consignment is released.**





# General Requirements

- **PEQ Containment**
  - **NPPO should determine the containment level required for a specific consignment of plants entering PEQ facilities based on a pest risk assessment for the potential pests that may be associated with imported plant material.**
  - **The assignment of the appropriate containment conditions, and if appropriate the relevant PEQ levels, should also take into account relevant circumstances in the country and the biology of the pest.**



# General Requirements

- **PEQ Facilities**

- **PEQ facilities should provide the appropriate level of containment for the level of risk associated with the import of consignments. They may consist of a field site, screen house, glasshouse and/or laboratory.**
  - **Location: PEQ facilities should be located in areas that provide some isolation, stability, a minimal of severe climatic events and some separation from areas where related plant species are abundant (agricultural or horticultural production, forests or areas of high diversity).**
  - **Physical requirements: The physical design should take into account the biology of the pests, the operational procedures, the work flow in the facility and specific emergency requirements. Physical requirements relate to delimitation of the facility, design of openings, treatment systems and equipment**







# General Requirements

- **PEQ Facilities (Cont.)**
  - **Operational requirements:** PEQ facilities should either be operated by or authorized by the NPPO. Operational requirements involve appropriate policies and procedures relating to management, personnel, general operation of the PEQ facility, record keeping, contingency planning, health and safety, and other aspects of the facility, as well as audit and review of the management system. Operating procedures for PEQ facilities should take into account the biology of the pest, including how the pest is spread and its requirements for establishment in the environment
  - **Release from containment:** Consignments should be released from quarantine facilities on completion of the required inspection, testing, treatment and verification. NPPOs may implement systems to monitor or trace consignments once they have left the PEQ containment facility.





# Specific Requirements for PEQ Facilities by Containment Level

- **PEQ 1 (lowest level)**

- Type of facility and use:

- PEQ facility may consist of a field site or a structure such as a screen house or open glasshouse or laboratory.
    - For consignments of plants that may be infested with quarantine pests highly unlikely to disperse naturally or to be spread by air, water, insects or other vectors (e.g. exclusively graft-transmitted viruses) and where the consequences of escape are low to moderate.

- Physical requirements:

- Appropriate separation from potential hosts. Appropriate signage. PEQ area clearly delineated. A means and system for destruction of waste.

- Operational requirements:

- Access to the site should be restricted. It is recommended that sites provide conditions that are conducive for development of signs and symptoms of pests





# Specific Requirements for PEQ Facilities by Containment Level

- **PEQ 2**
  - **Type of facility and use:**
    - PEQ facility no special design features beyond those suitable for a well-designed and functional screen house, glasshouse or laboratory.
    - For consignments of plants that may be infested with quarantine pests likely to disperse naturally or be spread by air, water, insects or other vectors (e.g. nematode-transmitted viruses). Moderate to high risk of escape of the pest, but consequences of escape are moderate to low, respectively.
  - **Physical requirements:**
    - Glasshouse of regular glass or twin-skin plastic. Glasshouses, screen houses and laboratories should have appropriately sized mesh covering vents, drains or other openings. Control of local pests, sealing all the points of penetration, including electrical and plumbing conduits.
  - **Operational requirements:**
    - All plants should be grown in pest-free growing medium. Protective clothing (staff and visitors). Waste and equipment should be sterilized or decontaminated before removal from the facility.





# Specific Requirements for PEQ Facilities by Containment Level

- **PEQ 3**
  - Type of facility and use:
    - PEQ facility may consist of a contained and secure glasshouse or laboratory.
    - For consignments where there is a moderate to high probability of escape and where the consequences of an escape would be serious (e.g. aphid-transmitted viruses).
  - Physical requirements:
    - Glasshouses and laboratory windows should be of breakage-resistant material. Windows in laboratories should be sealed and locked shut.
    - Doors opening to the anteroom of the facility should be self-closing. Security measures surrounding the facility. Installation of a security alarm. Heating, ventilation and air-conditioning system (HVAC) should be capable of the containment of small aerielly dispersed organisms. High-efficiency particulate air (HEPA) filtration and negative air pressure.







# Specific Requirements for PEQ Facilities by Containment Level

- **PEQ 3 (Cont.)**
  - **Operational requirements:**
    - **A shower for staff members on leaving the facility (This does not apply to facilities containing non-airborne plant pathogens and arthropods)**
    - **Opening doorways of the PEQ compatible with the pressure differential in the facility to maintain containment.**
    - **Appropriate processes to ensure decontamination of equipment before removal from the facility.**



# Specific Requirements for PEQ Facilities by Containment Level

- **PEQ 4 (Highest level)**
  - **Type of facility and use:**
    - These facilities are designed and operated specifically to contain consignments of plants in quarantine where both the risk of escape and the consequences of escape are high (e.g. airborne plant pathogenic fungi).
  - **Physical requirements:**
    - No direct access from outside. The laboratory physically separated from other areas.
    - Entry doors self-locking. Vestibule doors interlocked (only one door at a time can be open)
    - Ventilation system. All fume hoods that discharge to the outside atmosphere should be fitted with HEPA filters.
    - Tandem filters, parallel filters or other configurations should be installed. Backup electricity is required to maintain negative air pressure gradients. Shower-out vestibule facilities should be installed if appropriate.
    - With high-risk consignments, procedures should be conducted in a biological safety cabinet that contains a HEPA filter.





# Specific Requirements for PEQ Facilities by Containment Level

- **PEQ 4 (Highest level) (Cont.)**
  - **Operational requirements:**
    - **Operational processes required to maintain PEQ, such as pressure differentials and waste water treatment, should be monitored to prevent failure of essential systems.**
    - **Register of staff and visitors. The facility should not be accessible to the general public. Disposable coverall suits should be worn in the facility.**
    - **Equipment used should be well maintained and calibrated. All surfaces within the cabinet should be cleaned with a suitable disinfectant as appropriate.**



# Annex 1

- **Annex 1 contains information on methods for determining PEQ levels and describes four levels of PEQ containment, which range from low, PEQ1 to high, PEQ4. The containment levels differ in the number and type of requirements that are recommended.**
- **The containment levels are described in a matrix that combines the likelihood of pest introduction and establishment with the consequence of their establishment.**





# Appendix 1

- **Appendix 1 summarizes the major physical and operational requirements for PEQ facilities by containment level**