



Kenya Plant Health Inspectorate Service (KEPHIS)

KEPHIS POST ENTRY QUARANTINE MANUAL

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Foreword

Kenya Plant Health Inspectorate Service (KEPHIS) is a regulatory agency established by the KEPHIS ACT No. 54 of 2012 mandated to develop and implement sanitary and phytosanitary measures. These measures are aimed at protecting Kenya's agriculture from the introduction and spread of alien harmful pests and diseases through importations of plants, plant products, and other regulated articles as provided by the Plant Protection Act (CAP 324) and other international rules and regulations.

To achieve its mandate, KEPHIS has offices across the country that monitor plants, plant products and other regulated articles imported into Kenya to ensure any potential phytosanitary risk associated with the commodity is contained. To prevent the introduction of quarantine pests or limit the entry of regulated non-quarantine pests, commodities with substantial risks are imported under quarantine provision and held under containment in post entry quarantine facilities for a specified period for monitoring. The confinement in post-entry quarantine facilities facilitates observation, research, further inspection, testing or treatment thus preventing the escape and/or movement of pests associated with imported plants, other regulated articles and biological control agents.

In Kenya, there are several post-entry quarantine facilities including field sites, screen houses, greenhouses, glasshouses, and laboratories, amongst others. They hold various commodities such as plants for planting, research material, soil, seeds and biological control agents. This manual guides the design and operation of these facilities. It outlines, the physical and structural requirements; operational requirements and specific requirements for facilities holding different types of material. The manual will be used alongside other relevant international or national guidelines.

Signed by

PROF. THEOPHILUS MUTUI; (PHD)
MANAGING DIRECTOR

DATE:

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SECTION ONE

1.1 Background

Importation of plants and other regulated articles may present a risk of introduction of regulated pests into the country. The Plant Protection Act (CAP 324), provides the legal framework for regulating importation of plants and other regulated articles into Kenya. The Plant Protection Act prohibits importation of infected/infested plant material or other regulated articles. This is to safeguard against introduction of pests into the country. Through Pest Risk Analysis, potential risks likely to be associated with certain commodities are identified. Plant materials and other regulated articles with substantial risks are imported under quarantine requirements and are held in approved post entry quarantine (PEQ) facilities for a specified period. The quarantine period allows for time for the expression of signs or symptoms, monitoring and testing for presence of pests, and appropriate treatment where applicable. The confinement in a PEQ facility also prevents the escape of pests associated with plants and the regulated articles to the environment. Plants and regulated articles will only be released from the PEQ facility at the completion of the quarantine period.

1.2 Scope

This manual provides guidelines for conducting post-entry quarantine (PEQ) activities in Kenya. The procedures outlined in the manual includes the design and operation of PEQ facilities for holding imported consignments of plants for planting and other regulated articles, in confinement in order to prevent the introduction, establishment or spread of regulated pests. The guidelines shall be used whenever a plant import permit provides for PEQ as a requirement for importation of plant material and other regulated articles into Kenya. It also addresses biological control agents capable of self-replication (including parasitoids, predators, parasites, nematodes, phytophagous organisms, and pathogens such as fungi, bacteria and viruses), as well as sterile insects and other beneficial organisms (such as mycorrhizae and pollinators), and includes those packaged or formulated as commercial products. It describes the minimum acceptable physical and operational requirements for facilities that import and rear BCAs. A PEQ facility may also be used for temporary quarantine of certain types of plant material and other regulated articles which will not be eligible for environmental release. The manual comprises of the following sections: General requirements; Physical and Structural requirements; Operational requirements and Specific requirements for facilities holding different types of material. This PEQ manual will be used alongside other relevant international or national guidelines.

1.3 References

- (1) ISPM 34. 2016. Design and operation of post-entry quarantine facilities for plants. Rome, IPPC, FAO
- (2) USDA, 2010. Post Entry Quarantine Manual. USDA–APHIS–PPQ–Field Operations 920 Main Campus Drive Suite 200 Raleigh, NC 27606
- (3) CAP 324: Plant Protection Act
- (4) CAP 326: Seed and Plant Varieties Act
- (5) Government of India-Ministry of Agriculture, 2015. Standard Operating Procedures for Phytosanitary Inspection and Plant Quarantine Clearance of Plants/ Plant Products & other Regulated Articles
- (6) ISPM 40.2017. International movement of growing media in association with plants for planting. Rome, IPPC, FAO.

1.4 Glossary of terms

BCS –Biosafety Cabinets

Establishment: Perpetuation, for the foreseeable future, of a pest within an area after entry.

Pest: Any species, strain or biotype of plant, animal or pathogenic agent injurious to plants or plant products.

Pest Risk Analysis: The process of evaluating biological or other scientific and economic evidence to determine whether an organism is a pest, whether it should be regulated, and the strength of any phytosanitary measures to be taken against it

Plants: Living plants and parts thereof, including seeds and germplasm

Plants for planting: Plants intended to remain planted, to be planted or replanted

Post entry quarantine: Quarantine applied to a consignment after entry

Regulated article: Any plant, plant product, storage place, packaging, conveyance, container, soil and any other organism, object or material capable of harbouring or spreading pests, deemed to require phytosanitary measures, particularly where international transportation is involved

Regulated pest: A quarantine pest or a regulated non-quarantine pest

Facility Operator: This is a qualified and trained person (or his/her appointed deputy(s)) authorized by the company's management to be responsible for all activities relating to the operation of the Post Entry Quarantine facility.

Germplasm: Plants intended for use in breeding or conservation programs

Inspection: Official visual examination of plants, plant products or other regulated articles to determine if pests are present and/ or to determine compliance with phytosanitary regulations.

1.5 Application

Post entry quarantine (PEQ) is required for all plant material imported into Kenya that are likely to harbor regulated pests such as plants for planting, plant germplasm, seeds for sowing and research material. The materials shall be released from the PEQ facility after a period for monitoring and/or testing for presence of regulated pests. A PEQ facility shall also be required to contain regulated articles imported into the country, this may include soil, water, biological control agents, insects and plant samples for research purposes.

A PEQ facility may also be used for the temporary quarantine of certain consignments of plant material or other regulated articles before being transferred to an approved containment facility, or re-exported. These materials may be inspected and/or tested for pests and may be subjected to other specific requirements.

1.6 Abbreviations and definitions

PEQ-Post Entry Quarantine

KEPHIS-Kenya Plant Health Inspectorate Service

IPPC –International Plant Protection Convention

ISPM- International Standard for Phytosanitary Measures

1.7 Approval of Post Entry Quarantine facilities and facility operators

1.7.1 Inspection and approval of facilities

- (1) Requests for inspection of quarantine facilities shall be made to KEPHIS indicating commodity types, forms, country of origin and purpose for importation /or use.
- (2) Inspection of the quarantine facility will be conducted and only facilities meeting the physical and operational requirements outlined in this manual shall be approved to hold quarantine material.
- (3) For biological products, once an approval letter has been issued to the applicant, KEPHIS shall proceed to inspect the quarantine facility
- (4) Where a facility has been approved, a plant or biological import permit may be issued.

1.7.2 Approval of facility operator

- (1) A PEQ facility must be operated by a qualified operator.
- (2) It is the responsibility of the company or owner of the facility to designate and authorize qualified person(s) as operators of the facility.
- (3) The operator should ensure that physical and operational requirements described in the operating manual are followed.
- (4) The operator is responsible for all activities relating to the operation of the facility and must identify and have sufficient resources needed to meet the requirements of this manual.
- (5) A deputy operator(s) may be appointed to assist the operator, or to act as the operator in their absence
- (6) Operators and their deputies will be trained on the requirements of a PEQ as outlined in this manual and other relevant phytosanitary aspects by KEPHIS whenever necessary

1.7.3 Training of staff

(1) Approved quarantine facilities should employ adequately trained staff whose competencies have been assessed. Such training shall be regularly updated when deemed necessary such as when the requirements for such facilities change.

(2) The training programs are necessary to ensure that all staff:

a) Understand basic principles of post entry quarantine as outlined in the operation manual and with the phytosanitary risks that may be associated the commodity held under containment.

b) Are familiar with and capable of following all procedures that have been put in place to manage biosecurity risks.

c) Understand the potential consequences of failing to comply with quarantine requirements.

(3) Operators of approved quarantine facilities should ensure that robust methods are in place to assess competencies of all staff undergoing training.

(4) Records shall be kept of all relevant staff training and competency assessment programs

1.7.4 Period for holding material under quarantine

Material imported under quarantine provision shall be held under containment based on the pests of concern, nature of plant and the nature of the facility. For facilities that have different levels of quarantine facilities i.e exporters of plants for planting, imports will be held in the quarantine facility for about one month, thereafter the material is monitored monthly during actively action while in propagation facilities. For roses breeders, monitoring of the imports is done during the breeding and selection period which takes up to 2 years. For annual crops, monitoring is done for an entire crop cycle. For Biological control agents, the organism will be held to complete three generations in quarantine before they are released.

1.8 General requirements for Post Entry Quarantine Facilities

a) PEQ facilities for consignments of plants should consider the biology of; the plants; the quarantine pests; any vectors that may potentially be associated with them, particularly their mode of dispersal and spread.

b) Successful detention of consignments of plants in quarantine requires prevention of any associated quarantine pests from escaping and prevention of organisms in the area outside the PEQ facility from entering the facility and transferring or vectoring quarantine pests out of the facility.

- c) Facilities holding other regulated articles should ensure there is proper containment and ensure that economically and environmentally significant organisms do not unintentionally escape into the environment and become established in the environment.
- d) Have proper procedures for treatment and decontamination of infected material.

SECTION TWO

REQUIREMENTS FOR POST ENTRY QUARANTINE FACILITIES HOLDING PLANTS FOR PLANTING

2.1 General requirements

The physical and structural requirements of the PEQ should take into consideration the risks associated with plants, growth requirements, the biology of the quarantine pests potentially associated with the consignment, its vectors, the workflow in the facility and specific emergency requirements. Other regulated articles imported into the country shall also be contained in PEQ facilities to prevent contamination of the environment.

2.1.1 Location and construction of the facility

- (1) The location and type of a facility is an important and therefore guidance from KEPHIS should be considered at the beginning of the approval process.
- (2) Approval will be given to facilities that have been constructed in a manner that is adequate to mitigate any risks associated with the location in which the facility is situated.
- (3) The facility can be an open field, a greenhouse, glasshouse, screen house, laboratory or a containment facility for handling biological agents and beneficial organisms, or any other containment facility designed to hold regulated articles.
- (4) Post entry facilities should be constructed in a secure and robust manner that is able to endure climatic conditions and maintain integrity.

Examples of services and systems that may be required depend on the level of PEQ facility, but may include:

- a) a reticulated water supply;
- b) waste, sanitation and drainage management systems;
- c) uninterrupted energy sources;
- d) reliable communication services (for example, phone coverage);
- e) emergency services (e.g. Police, fire service, medical); and
- f) any other services and/or systems necessary to manage specific biosecurity risks associated with the types of uncleared plant material being handled.

5. The specifications of the physical requirements of the PEQ to be found in the operator's operation manual.

2.1.2 Factors to consider in selecting the location of a PEQ facility

The following factors should be considered when assessing the suitability of a location:

1. the climate and geography of the area:
 - a) The facility should be suitably constructed to ensure the structure can stand up to extreme weather events and/or should be located in a position on the property which is protected from wind;
 - b) Flood prone areas are not suitable for PEQ facilities. PEQ facilities built in flood prone areas should be constructed to ensure that the facility is not affected by flooding events (for example watering systems, water waste storage, floor level);
 - c) The location should enable proper growth of the plants and allow expression of symptoms of any organisms that may be associated with the plants.
2. proximity to areas of production for species being quarantined
 - a) Facilities should not be located in close proximity to areas producing the species being quarantined unless the associated risks can be managed effectively by increasing the safeguards (physical or operational) of the facility and its operation.
 - b) If a facility is situated within a dwelling place it should not be located within the main dwelling, and if possible should be located in an adjacent building, to which access can easily be restricted to permitted persons and adequately manage any associated risks

2.1.3 Leased and Contracted facilities

a) Leased facilities

- (1) For leased facilities the operator retains overall responsibility in running the facility.
- (2) A lease agreement should not interfere with the ability of an operator to meet the requirements of the manual

b) Contracted PEQ facilities

- (1) An importer may decide to contract another facility or company to hold the quarantine material if they do not have a facility of their own or do not frequently import.
- (2) The responsibility of management is not solely by the importer if they choose to use an external facility and therefore they should seek services of a facility that will meet the requirements for approval by KEPHIS.
- (3) A contracted facility will submit to KEPHIS a list of importers who utilize the facility as a PEQ
- (4) The contracted facility should have been approved by KEPHIS
- (5) The importer may notify KEPHIS of their intention to use a contracted PEQ and seek approval for use of the facility.
- (6) KEPHIS shall hold the operator responsible for the management of the PEQ and communicate directly with the operator.
- (7) An agreement between the importer and the contracted facility maybe availed to KEPHIS.

2.1.4 Physical or structural changes to a facility

- (1) Physical or structural changes to a facility may compromise the ability to effectively manage phytosanitary risks and comply with the requirements of this manual. Therefore, an operator should communicate to KEPHIS on any changes they intend to make to the facility. This is to ensure all phytosanitary risks continue to be adequately managed if any changes are made.
- (2) KEPHIS will advise on whether the changes are minor or major, and will inform the operator of any changes, additional to those identified by the operator, that are required to maintain compliance with the manual.
- (3) If a proposed change in the operation of a facility is beyond the approved scope of that facility, a new facility approval will be required.

- (4) If proposed changes remain within the scope of an existing facility approval, the facility approval may need to be amended. Any minor changes should be communicated to an inspector during facility inspections.
- (5) When making major changes to a facility are to be done;
 - a) an operator shall notify KEPHIS on the proposed changes. KEPHIS will evaluate and determine if compliance will be maintained;
 - b) KEPHIS will approve the proposed changes, in cases where the proposed changes does not affect the integrity of the facility;
 - c) once changes have been made, an inspection may be done to confirm compliance
 - d) the operator shall update the operating manual in line with the modifications to the facility or the operating procedure (if necessary).
 - e) changes shall be done during a period when the facility is not holding quarantine material

NB/ Examples of minor changes include small changes in operating procedures, or importing species which are not listed in the current facility approval, but which have the same phytosanitary requirements as approved species.

Major changes include those that may affect the integrity of containment, e.g. structural changes such as construction or removal of walls, or change the scope of work conducted in the facility (for example significant changes to operating procedures, or import of species with different quarantine requirements).

2.1.5 Signage

- (1) All PEQ facilities should have signage that clearly states that it is a quarantine facility.
- (2) Only authorized personnel should be allowed entry.
- (3) Signs may specify but not require that the premises are a **“PEQ facility is approved by KEPHIS”**.

2.1.6 Decontamination of facilities and/or equipment

A facility, or equipment within a facility, may require decontaminating under the following circumstances;

- (1) After a regulated pest is detected
- (2) After a facility approval is canceled following a noncompliance

- (3) Before a facility is used for non-quarantine work
- (4) Before equipment is removed from the facility
- (5) Before pots, trays or other equipment are re-used between consignments
- (6) Between quarantine consignments
- (7) At the end of a quarantine period
- (8) A KEPHIS Inspector may recommend decontamination of the facility/equipment where necessary.

NB/ Procedures for decontamination should be well stated in the operator's manual.

2.1.7 Use and maintenance of equipment

- a) The facility should have procedures for maintenance of equipment
- b) Calibration should be done on relevant equipment and records kept.

2.2. Operational Requirements

2.2.1 Operating manual

The facility should have an operating manual in place that;

- 1) Documents activities that will be undertaken at the facility, to manage identified phytosanitary risks associated with the imported material in the PEQ facility.
- 2) Describes all procedures that are used to manage potential phytosanitary risks associated with imported material.
- 3) Is viewed as a 'working document' that is referred to for staff training purposes, for facility audits and as a general reference document to ensure that the requirements of this manual and any other requirements, are being met.

2.2.2 Contents of operating manual

- (1) Contact information for the operator and deputy operator should be included (where applicable).
- (2) Position titles (rather than person's names) can be referenced in the operating manual, but provisions should be made to ensure that names and employment dates are kept in company records and are readily accessible.
- (3) The scope of the facility approval must identify the type of plants or other regulated articles that will be imported.

NB/Each plant type does not need to be identified to the genus and species level.

- (4) The manual should also specify the commodity form of material that will be imported (e.g. tissue cultures, bulbs, or rooted or unrooted cuttings, soil, insects)
- (5) The following information should be included when describing any procedure in the operating manual:
 - a) a description of the procedure when it will be carried out;
 - b) who (position description) will be using the procedure.

2.2.3 Manual review and amendment

- (1) Any amendments to the operating manual should be clearly identified and communicated to KEPHIS.
- (2) A revision list should be maintained whenever there are changes done in the manual.

2.2.4 Document control

All documents should be sufficiently controlled and ensure that phytosanitary requirements are continually met.

2.2.5 Access to operating manual

The operation manual shall be readily accessible to the appointed responsible persons of the PEQ facility and wherever needed by the KEPHIS.

2.2.6 Records

1. The facility should maintain records of all procedures undertaken such as training, treatment, pest monitoring, testing, sanitation, etc. These records should be availed to a KEPHIS upon request.
2. Record keeping ensures that traceability of plant material is maintained throughout PEQ. Maintaining traceability is an essential part of the quality system for plant species which require pre-determined testing and critical when composite samples are taken for bulk testing of quarantine pests.
3. Records may be retained either as hard copies or electronically. A robust record keeping system with appropriate back up should be maintained.

2.3 Security and access

2.3.1 Access by a KEPHIS Inspector

A KEPHIS inspector shall be granted permission to access the PEQ facility whenever necessary, this should be done in a manner that does not pose phytosanitary risks to the facility.

2.3.2 Access by staff and visitors

- (1) Only authorized persons responsible for performing functions within the facility should be allowed routine access. These functions may include:
 - a) maintenance of plants
 - b) inspections for plant health, sampling or audit purposes;
 - c) Maintenance of the facility (for example structural checks and repairs).
 - d) Performing any other duty within the facility
- (2) All visitors should be given instructions to be followed when accessing the facility. Visitors should be guided through the facility.
- (3) The operators should keep records of all persons (workers) permitted to access the facility at the facility entrance.
- (4) A visitor's log book to the facility shall be kept and maintained at all times.

2.4 Handling of plant material

2.4.1 Receiving plant material at the point of entry and at the facility

1. On arrival in Kenya all consignments will be inspected at the point of entry by a KEPHIS Inspector. This will include:
 - a) an inspection of the documentation to verify that all pre-export requirements (such as phytosanitary certification and treatments) comply with the requirements of the relevant import permit;
 - b) an inspection of the plant material to verify that it is free from visual signs of pests or disease.
 - c) Sampling of material for testing (**where applicable**)
2. If non-compliances are identified e.g. on documentation or presences of pests where possible the importer will be given options to address the non-compliance (for example by reissuance of certification, destruction or treatment of the consignment (where treatment is an option).
3. When an inspector is satisfied that the consignments complies with the requirements stated in the import permit, the inspector will authorize the movement of the plant material to the PEQ facility listed on the import permit. The authorization to transfer

and the material to the PEQ facility will be in the form of a quarantine material **form Q 01**. facility

4. The plant material will be moved directly to the authorized PEQ under the import permit (as indicated on the IEICS) and must not be opened before arrival at the facility.
5. The operator should ensure that plant material is securely packaged when being moved to a facility. This is to ensure that there is no loss of material, or escape of any pests and diseases that may be associated with a consignment whilst consignments are in transit
6. For facilities where the importer is also the operator (i.e. importing your own plant material into your own PEQ facility), the following information should be included in the operating manual:
 - a) who in the facility is authorized to collect plant material;
 - b) how the plants will be packaged for transport to the facility, including the types of equipment which will be required when collecting the plants (for example plastic wrap, gloves, etc.).
7. Where the PEQ facility is leased or contracted, the importer shall designate a person responsible for receiving the consignment. The integrity of the consignment should be maintained during transport. Timeframes for arrival of the material should be agreed upon before transport of material to the PEQ facility.
8. The operating manual should clearly identify processes that will be followed when receiving material at a facility. This may include the following:
 - a) when and where deliveries are normally received.
 - b) who is responsible for receiving deliveries
 - c) how the operator (or nominated delegate) is notified when the material arrives at the facility;
 - d) where material is to be stored on arrival at the facility;
 - e) who is responsible for opening packages to inspect the material and documentation;
 - f) the fields to be checked on the quarantine material movement form to ensure that the correct information is included;
 - g) the process for contacting KEPHIS to notify them of consignment arrival and inform the inspector of any discrepancies with the consignment;
 - h) procedures used to control any pests or diseases that are detected when material arrives at a facility.

2.4.2 Containment of plant material

- a. All plant material imported under quarantine provision shall be held in an approved PEQ facility.
- b. The operator shall keep records for PIP number, number of plants, commodity, inspection, scouting records, treatments, testing, and decontamination.
- c. Data on all imports under quarantine released to respective facilities will be retrieved from the IEICS by regional offices. This will form the basis for monitoring. The data will be sent to PQS monthly
- d. This material shall be monitored during routine inspections and samples collected for testing where applicable. KEPHIS will approve movement of this material and document in an inspection report or in **form Q02**
- e. For consignments that are noncompliant, the material may be returned to the country of origin, shipped to another PEQ facility for further inspection, or shipped to another country under restricted/safe conditions if complying with the recipient country's phytosanitary import requirements or with the agreement of the corresponding NPPO or destroyed.
- f. Destruction should be in a manner that removes any possibility of escape of the regulated pest contained in the consignment and should be witnessed by KEPHIS and documented
- g. The costs for testing and destruction shall be met by the operator

2.4.3 Tracking of plant material

The facility should have a tracking system to track movement of the plant material, this should use unique codes that are retained for each consignment, lot, or individual plant (depending on the level of PEQ).

2.4.4 Facility sanitation

- (1) To avoid contamination a facility should have sufficient space to ensure that plants from different consignments, and from different lots within the same consignment, do not touch each other.
- (2) The facility should ensure that a KEPHIS Inspector and staff can move freely between plants.
- (3) Using appropriate hygiene measures will ensure that any pests or diseases that may be present in a consignment are contained as much as possible, and are not unintentionally spread between plants or lots, or allowed to exit from the facility.
- (4) Weeds around the facility should be controlled as they may be an alternative host for some pathogens, act as reservoirs for certain viruses and/or viroids, or may conceal the presence of pests or diseases.

- (5) Suitable decontamination methods should be applied (where necessary)
- (6) All work areas should be kept clean and tidy. This helps to ensure that material which may attract or conceal pests or diseases does not accumulate. Non-essential equipment should not be stored in a facility, and paperwork should be restricted to that essential for the operation of the quarantine units.

2.4.5 Moving or exporting plant material from the facility

- 1. Material may be transferred to another facility for a number of reasons, including movement of the material;
 - a. between a PEQ tissue culture laboratory and a PEQ greenhouse for growing season inspection
 - b. between PEQ greenhouses for diagnostic testing;
 - c. between PEQ tissue culture laboratories for multiplication during the quarantine period;
 - d. from a PEQ facility to a containment facility;
- 2. Records for all material moved shall be documented and availed to KEPHIS whenever requested.

2.4.6 Multiplying of plant material

- a. All plant material that require further multiplication will be done after KEPHIS ascertains that they are free from regulated pests. Further multiplication should be done under quarantine facilities
- c) The material will be continuously monitored for any pests of concern

2.4.7 Mixing consignments within a PEQ

- 1) There should be proper segregation of different plant species and incoming material from material already on site.
- 2) If a regulated organism is detected when multiple consignments are being held in the same quarantine unit, actions for the affected plants may apply to all consignments within the unit. Such actions could include treatment, extension of the PEQ period, additional inspections, extra testing, or destruction of the consignment.
- 3) The above may also apply when multiple species imported as a single consignment are held in the same quarantine unit.
- 4) Consignments and their certification should be traceable as appropriate through all stages of production, handling and transport to the point of export.

2.5 Waste management

- 1) Examples of quarantine waste that will require destruction include:
 - a) dead plant material or plants that will not be cleared for further propagation, or those with phytosanitary risks;

- b) plant containers;
 - c) used gloves, disposable shoe covers, protective clothing etc.;
 - d) waste paper;
 - e) any material swept from the floor of the facility.
- 2) Disposal should be done securely by transferring the waste material to an approved point for decontamination, treatment, incineration or autoclaving.
 - 3) The operator of a PEQ shall ensure that phytosanitary risks associated with the material is eliminated prior to disposal.
 - 4) The decontamination facilities should have procedures for handling these materials.

2.6 Pest monitoring and diagnosis

2.6.1 Pest monitoring by the operator

Pest monitoring allows for early detection and management of any pests and disease in the plants or regulated articles.

- 1) The operator should have a procedure for monitoring of plants to allow for early detection of any pests and diseases.
- 2) Personnel involved in monitoring of pests should be adequately qualified and trained.
- 3) The operator shall maintain relevant records of the monitoring activity
- 4) Official sampling and testing for regulated pests will be conducted by KEPHIS

2.6.2 Reporting of Pests or symptoms in facilities

The presence of any pests or diseases (or symptoms of pests or disease), detected either during a regular plant inspection, or at any other time, must be documented. Detection of any new or regulated pests must be reported to KEPHIS

2.6.3 Diagnosing pests and diseases

- (1) Material imported under quarantine provision shall be monitored for pests
- (2) Sampling may be done from PEQ facilities to determine presence of regulated pests. For commercial one time importers, sampling shall be done at the point of entry.
- (2) It is essential that the PEQ has access to diagnostic expertise either from the staff within the facility or other means. All test records shall be availed to KEPHIS at any time upon request.

- (3) Diagnostic confirmation of any new or regulated pest identified in a quarantine facility by the operator shall be done by KEPHIS.
- (5) Alternative weeds found within a facility and shows obvious signs or symptoms of pests or disease should be sampled and tested.
- (6) Strict hygiene should be maintained during sample collection to prevent mechanical transmission of some pests/diseases. Some pests are transmitted through infected plant material on hands, tools, footwear or clothing. Sampling procedure is as outlined in **annex 2**
- (7) Management options following identification of pests or diseases in PEQ include:
 - a) When a pest or disease is identified within a consignment, KEPHIS will advise the operator on management options. Measure in **Table 1** will be applied when a pest is identified at the PEQ, the options may change depending on specific consignment, and the biology of the specific pest or disease.
 - b) Where the organism may be identified as not present in Kenya, a Pest risk analysis will be done.
 - c) Records must be kept of all treatments applied to plants in a PEQ facility.
 - d) Detection of a virus in tissue culture material will lead to destruction of the entire mother stock or the batch

Table 1: Management options in case of pest detection on plants in PEQ facilities

Category		Options for the consignment
Non-regulated organism		The operator will be required to apply appropriate for phytosanitary measures
Regulated insects	insect	Treatment, re-shipment or destruction of affected consignment. The management option selected may depend on the particular circumstances. For example, for high-impact insect pests or insects such as scales, which are difficult to treat, the only option may be to reship or destroy the consignment.
Regulated bacterium, virus, viroid, phytoplasma or disease of unknown aetiology		Re-shipment or destruction. Treatment is not an option for these classes of regulated organism.

- 8) Extension of the quarantine period may be done to plants that have undergone treatment, since some treatments could suppress the symptoms of other diseases that may be present on the imported plant material. The operator should keep records of all treatments undertaken to the plants. An inspector will advise the operator on whether an extension is necessary.

2.6.4 Inspection and sampling of plant material under PEQ

(1) Plants under quarantine will be inspected routinely / sampled and subjected to testing by KEPHIS laboratories. Monthly inspections will be conducted by KEPHIS. Random inspection will be done with respect to each lot/variety. Sampling criterion will be as in **table 2 below** and one sample shall comprise of about 5 leaves/stem/tuber obtained from five plants

Table 2: Inspection and sampling criteria for plants under quarantine

Lot size	Number of plants to be inspected/ sampled	Minimum Number of samples
Less than 10	All plants	5
11-100	20 % plants	10
101-1000	10% plants	20
1001-10000	5% plants	100
10001-100000	1%	500

2.6.5 Internal audits by facility operators

- (1) Audits of PEQ facilities may be conducted by the facility owners to verify that systems used at the facility are working effectively to manage any biosecurity or phytosanitary risk.
- (2) Audits should aim to identify where any processes can be improved (regardless of whether or not any noncompliance is noted), and to correct or prevent any problems that are identified.
- (3) Internal audits may be completed by the operator or by a suitably qualified delegate. However, it is preferable to have someone who is not directly involved in the operation of the facility, but who has sufficient knowledge of processes and procedures used at the facility, and has familiarity with the facility standard and relevant plant health standards, to complete the audit.
- (4) The objectives of internal audits are to:
 - a) ensure that processes continue to comply with the requirements of the operating manual (and therefore with the requirements of the manual and any other requirements as specified by KEPHIS);
 - b) identify areas where the system can be improved.
 - c) make recommendations for corrective actions where weaknesses or inefficiencies are observed.
- (5) Internal audits should take into consideration the outcomes of previous audits, and should check items including (but not limited to) the following:
 - a) that all relevant records for every consignment received are being kept and maintained in an accessible location.

- b) that quarantine procedures are being followed correctly;
- c) that any records of waste handling and disposal are being kept;
- d) that staff training and competence assessment is effective and training records are being kept;
- e) that equipment maintenance and calibration programmes are up to date;
- f) that the facility continues to comply with the structural requirements of the manual;
- g) that the operating manual is still relevant in its current form; if not then changes may need to be made (and approved by a KEPHIS Inspector).

2.6.7 Official KEPHIS inspections

- (1) PEQ facilities are inspected by the KEPHIS Inspector to ensure the requirements of the manual, prevailing plant health regulations and any other requirements, are met
- (2) An inspection will also help identify areas where the system may be improved and should recommend correction and prevention of the recurrence of any problems that are identified.
- (3) Official inspections will involve inspecting the facility, and procedures in use at the facility, to make sure they meet the requirements of this manual and approved operating manual, and any additional conditions required by KEPHIS.
- (4) An operating manual should include procedures or processes that exceed the requirements of the PEQ manual. Failure to meet such requirements will still be regarded as a non-compliance. This is because a facility approval is granted on the basis that the facility will meet all requirements listed in the operating manual in order to adequately manage any phytosanitary risk.
- (5) The frequency of KEPHIS inspections will depend on the PEQ level, compliance history of a facility, pest of concern as well as the type of material held in the facility, however at least one assessment will be conducted every three months. Where KEPHIS identifies a need, for example if a facility has a history of non-compliance with the PEQ manual, unscheduled surveillance assessments may also be conducted.
- (6) Inspection frequencies may increase if critical or major non-compliances are identified, depending on the circumstances and history of the PEQ facility. Detection of minor non-compliances will usually not generate a higher inspection frequency.

- (7) KEPHIS may cancel or suspend the approval of a PEQ facility or an operator as result of scheduled or unscheduled inspections if critical or major non-compliances are found.
- (8) A KEPHIS Inspector may also check aspects such as facility structure, the operating manual and operating procedures at times other than when a scheduled inspection is due (for example when visiting a facility to conduct regular plant health inspections).

2.6.8 Non-compliances

- (1) Non-compliances are generally identified during inspections or audits, although they may be notified to the KEPHIS Inspector at any time.
- (2) When a KEPHIS Inspector identifies a non-compliance, they will send a non-compliance report (NCR) to the operator, which will describe the non-compliance and list the required corrective actions, as well as giving a timeframe within which the corrective actions must be implemented.

2.6.8.1 Critical non-compliance

- (1) Examples of critical non-compliances include (but are not limited to) the following:
 - a) releasing plants from a facility without approval from the KEPHIS Inspector
 - b) a significant structural failure in the containment provisions of a facility while plants are in quarantine;
 - c) operating a facility without an approved operator;
 - d) making modifications to buildings that could compromise containment, without KEPHIS approval;
 - e) failure of the operator to conduct and record required operations to maintain integrity of the facility;
 - f) failure of the operator to detect significant and obvious non-compliances;
 - g) failure to operate the facility to the specifications of this standard, the operating manual and relevant plant health regulation or import permit;
 - h) unreported breaches of quarantine (for example broken glass panels, plastic sheets etc.).
 - i) failure to report the occurrence of a new pest not previously reported in Kenya in the facility
- (2) The KEPHIS Inspector must investigate a critical non-compliance and lodge an investigation report as soon as practicable.

- (3) Critical non-compliances may require further investigation and possibly lead to cancellation or suspension of approval for the operator or facility, depending on the nature and circumstances of the event.

2.6.8.2 Major non-compliance

- (1) Examples of major non-compliances include (but are not limited to) the following:
 - a) moving plants between facilities, or re-exporting plant material, without a transfer approval from the inspector;
 - b) non-authorized people working in a quarantine area;
 - c) footbath missing or empty;
 - d) birds or rodents found in a quarantine area (excluding L1 facilities);
 - e) pest control programme absent (excluding L1 facilities);
 - f) failure to keep appropriate records and copies of quarantine documents and KEPHIS approvals;
 - g) failure to operate the transitional facility to the specifications of the approved version of the operating manual;
 - h) use of untrained/incompetent staff for specific quarantine activities.
- (2) Where the KEPHIS Inspector is satisfied that actions taken by the operator have addressed the noncompliance, no further action will be taken. If the steps listed above are not completed as required or the actions do not fully address the non-compliance, the inspector may issue a non-compliance report including any corrective actions required. The issuing of a non-compliance report by the inspector may result in an escalation in the number of inspections.
- (3) Non-compliances will be managed by KEPHIS through an escalation pathway based on the level and frequency of non-compliance. The principles of natural justice will be followed however, such that any non-compliance may be appealed
- (4) Where operators or facilities are already subject to an increased external inspection regime receive further NCR's the inspection regime will be further extended or the number of audits increased at the discretion of the KEPHIS

2.6.8.3 Minor non-compliance

- (1) Examples of minor non-compliances may include (but are not limited to) the following:
 - a) presence of spider webs or moss in a PEQ facility.

- b) required lights broken or ineffective.
- c) failure to maintain equipment calibration records but equipment working correctly.

2.7 Contingency planning and preventative actions

- (1) Contingency plans are important so that biosecurity risks are not inadvertently neglected in an emergency situation, and so that the consequences of any potential breaches of quarantine can be minimized. Situations that might require contingency plans to be developed include:
 - a) loss of electrical power;
 - b) broken panels in a glasshouse;
 - c) Torn plastic covering or screen mesh
 - d) earthquake or fire;
 - e) plant material exiting the facility without authorization from KEPHIS
 - f) a pest escaping from the facility;
 - g) decontamination of a facility after detecting a regulated organism;
 - h) loss of material during transport to or from a facility.

2.8 Inspection of material under quarantine

- (1) Material under quarantine will be inspected routinely to assess compliance to import requirements and freedom from pests.
- (2) Plant inspections by the KEPHIS Inspector will consist of a general overview of the plants, as well as an intensive inspection of part of the consignment. Samples may be collected for testing where necessary.
- (3) The first inspection should be carried out at least within a month of plants entering a state of active growth
- (4) If any plants are showing virus infection they are sampled for immediate virus testing and all suspected plants should be immediately segregated and isolated to prevent virus spread. If the test results are positive, management options stated in **Table 1** shall apply.
- (5) The number and frequency of inspections will depend on the length of the quarantine period, on the occurrence of any non-compliance, and on whether pests or diseases are identified within the consignment.
- (6) When conducting inspections, KEPHIS inspector may also verify that:

- a) the identity of the plants in the facility correlates with the species specified on the permit(s) to import;
- b) all appropriate records are being kept;
- c) the plants complies to any post-arrival requirements specified by KEPHIS
- d) the facility continues to comply with all physical, structural and operational requirements of this manual.

SECTION THREE

REQUIREMENTS FOR POST-ENTRY QUARANTINE FACILITIES HOLDING SOIL IN KENYA

3.0 Introduction

Importation of soil in Kenya is prohibited. However, under special circumstances like research, the importer will have to make an official request to the Managing Director. Soil is considered a high-risk commodity through which exotic pests can gain entry into Kenya, establish and spread to various agricultural areas with devastating consequences. Soil can harbor a variety of living organisms, such as microorganisms (bacteria, fungi, protozoa and viruses), nematodes, earthworms, molluscs, insects, and plants (also as seeds). Soil can also act as a long-term reservoir for disease-causing organisms, which can survive in the soil until a suitable host is found or until the right growing conditions are secured. Importers and exporters of soil to Kenya should familiarize themselves with the strict requirements outlined in the import permits.

All soil material being shipped to Kenya should be accompanied by an import permit and be enclosed in a tightly sealed container. Packaging should be double layered. Therefore, soil imported into Kenya whether for research or through other means must be handled in a Quarantine facility to minimize risks of pest incursions. All facilities handling soil should adhere to both infrastructural and operational requirements outlined in this manual besides ISPM 40.

3.1 Facility requirements for handling imported soil

All facilities handling PEQ soil should have the following infrastructure in place. Some facilities may have more advanced infrastructure. However, each facility should demonstrate adequate capacity to handle PEQ soil.

Table 3: Requirements for facilities holding soil

Infrastructure	Role
1. Access restricted rooms	For handling received PEQ soil, archiving and decontamination
2. Autoclave/soil sterilizers	For sterilizing soil before disposal
3. Incinerator (optional)	For disposal of materials used to ship Quarantine soil
4. Personal protective equipment (PPEs)	For user protection
5. Soil spill kit	Contains disinfectants and other items for decontamination of surfaces and equipment in case of accidental release of PEQ soil
6. Clear signage	To demarcate critical areas

3.2 Operational requirements for facilities handling PEQ soil

Operators of a PEQ soil facility, should ensure that the following has been adhered to:

1. All received soil material are stored in secure containers designated for containment
2. Imported soil is handled in a designated area
3. Soil storage areas in PEQ handling facilities have restricted access
4. Materials in form of containers & wrapping used to ship soil are decontaminated appropriately and incinerated/autoclaved
5. If soil is to be autoclaved, the process should be done at 121°C at 15 psi for 30 min or more
6. Autoclave biological test indicator should be used to assure complete sterilization process
7. Autoclaves are serviced regularly and tested with a biological test indicator to assure optimal operations
8. Autoclaves have service logs
9. Fresh solution of 10% (v/v) hypochlorite solution is available for decontamination of non- metallic surfaces
10. Decontamination solutions should have dates of preparation and concentration levels
11. Fresh solution of 70% is available for decontamination of metallic surfaces
12. Personal protective Equipment (PPs) are available to soil handling operators. These PPEs include: gowns, gloves, dust masks, goggles, serviettes and gumboots
13. Appropriate autoclaving bags are available
14. Laboratory has a procedure for storage and disposal of PEQ soil
15. Records of PEQ soil received are kept. Records include:
 - Import permit number
 - Client of soil consignment
 - Country of origin
 - Reason for import
 - Soil amount received
 - Date soil received
 - Location of soil in the PEQ facility
16. Every PEQ facility should have a detailed action plan to manage accidental release of soil to environment. The action plan should have a spill kit and reporting procedures
17. All staff should be trained on handling accidental spills
18. All staff at the PEQ soil facility should be trained as indicated in **1.83 above**.

19. Any Physical or structural changes to a facility should be handled **as indicated in 2.1.4** above.
20. The facility should have contingency plans in place to handle any potential breaches of quarantine

3.3 Steps to undertake in an event of accidental release of soil from a PEQ facility

- 1) Every PEQ should have a spill kit with the following items:
 - I. General purpose Ethanol for preparation of 70% working solutions
 - II. Hypochlorite solution for preparation of 0.5% working solutions
 - III. Autoclave plastic bags
 - IV. General waste bin black bags
 - V. Broom and dustpan
 - VI. Powder free gloves
 - VII. Permanent markers
 - VIII. Record sheets for spills
 - IX. Action plan with reporting procedures
- 2) In case of accidental spillage/release of soil that has not been sterilized, staff at the PEQ facility should swiftly take the following measures:
 - a) Inform line/duty supervisor
 - b) Inform others, cordon-off and mark the area to avoid further contamination
 - c) Adorn appropriate PPEs
 - d) Use a spill kit to mop the soil into one of the autoclave bags
 - e) Remove lab coat used while mopping-up soil and position it in a plastic bag
 - f) Wipe shoes with 70% ethanol
 - g) Decontaminate affected area with 70% ethanol
 - h) Place all material (gloves and any affected clothing) used handle spilt soil and place them in the spill kit bags
 - i) Adorn clean lab coats and gloves
 - j) Populate Information in the spill kit data sheet

SECTION FOUR

REQUIREMENTS FOR POST ENTRY QUARANTINE FACILITIES HELD IN LABORATORIES, GREENHOUSES AND SCREEN HOUSES

4.0 Introduction

This procedure describes the minimum acceptable physical and operational requirements for facilities that work with plant pests, other than weeds, soil, genetically modified plants and arthropod biological control agents. It provides guidance on the operation of plant pest containment facilities such as laboratories, greenhouses and screen houses that hold quarantine material for either analysis, propagation, screening and for research trials. It is important to monitor these facilities as they may lead to the introduction of new pests into the country and also might provide information on emerging pests of concern (if any). Compliance with these standards and documents such as import permits will help to ensure that economically and environmentally significant plant pests do not inadvertently escape into the environment and become established in Kenya.

Facilities that handle plant pests should be constructed and operated to achieve the quarantine levels required for the pests concerned. The level required depends on the risk of the plant pest escaping and becoming established in the environment and on the environmental, economic, agricultural, forestry and trade consequences of such an introduction.

4.1 Physical and Structural Requirements

To prevent the escape and the establishment of plant pests in the environment, the facilities that work with such pests and their operating procedures must be appropriate to the biology of the specific pests under consideration. In addition, the operating procedures must prevent the introduction of organisms into the facility that could contaminate, kill or transmit contained pests.

4.1.1. Structure, Location and Access

1. Appropriate security to be provided for the building (fencing, physical barrier)
2. Signage to be installed on entry doors within the PEQ facility indicating level, contact information, and entry requirements.
3. Entry to the PEQ facility is via self-closing and lockable doors. Double door system to be in place with an anteroom present.
4. Restricted access to the PEQ facility is to be ensured through a controlled access system (e.g. electronic access card, code or equivalent).

5. Entry and exit to be via an anteroom which can also be corridors especially for non-arthropod pests. This is common for laboratories.
6. Anteroom doors are to be self-closing and shall not open simultaneously (interlocking doors, and audible or visual alarms are acceptable).
7. Anterooms can be considered as a change room, which can include both a clean and a dirty change area with a line demarcating the two areas.
8. Insect traps (e.g. sticky, pheromone, visible or ultraviolet light) to be provided in the anteroom of the containment zone mainly for greenhouses and screenhouses.
9. Tight-fitting doors with inward directional airflow to be provided to deter ingress or egress of arthropods.
10. Emergency exits are to be provided, where required, that open only from the inside, are alarmed and display "Emergency Exit Only" signage to deter unauthorized access.
11. Dedicated laboratory clothing and personal protective equipment are to be stored separately from home clothing.
12. Facilities, including greenhouses and screenhouses, are to be designed to withstand extremes of local weather such as wind, heavy rainfall, windborne debris and hail both on the sides and on the floor. Must maintain structural integrity at all times.
13. Floors to be slip-resistant in wet areas.
14. Interior coatings are to be easy to clean and resistant to gas and chemicals, as well as to repeated disinfection in accordance with function (e.g. will withstand disinfection, fumigation).
15. Bench tops to be non-absorptive, impervious to water, and resistant to acids, alkalis, organic solvents and moderate heat.
16. Greenhouse floors to be impervious to water and easy to clean (e.g. concrete).
17. All penetrations of the containment perimeter, including all conduits and wiring, are to be sealed with an appropriate sealant to facilitate cleaning and fumigation and to prevent arthropod escape.
18. Windows positioned on PEQ facility barrier are to be non-opening and sealed to suit local climatic conditions; window glazing material must provide the required level of security.
19. Greenhouse glazing must be break-resistant (e.g. double glazing, laminated or tempered glass, polycarbonate) and provide the required level of security.

4.1.2. HVAC systems

1. Inward directional air flow to be provided within the heating, ventilation and air-conditioning system.
2. Supply and exhaust air systems are to be designed to prevent backdraft of contaminated air to other areas and appropriately filtered or screened in order to contain and exclude pests.

3. High efficiency particulate air (HEPA) filtration are needed to adequately contain the organisms which may have serious consequences should they escape from PEQ. Exhaust air is to be HEPA-filtered.
4. Greenhouse vents and greenhouse HVAC penetrations to be screened with appropriate mesh screening to prevent pest escape and designed to allow for greenhouse fumigation and pesticide applications.

4.1.3. Facility Systems

1. A handwashing sink (or, if required, a sink and a shower) and a footbath (shall be provided in the anteroom of facilities containing soilborne pests, to disinfect footwear, shoe covers or dedicated footwear) to be located within the PEQ facility and near the point of entry/exit.
2. Emergency eyewash facilities and shower equipment to be provided in the laboratory PEQ facility in accordance with activities and SOPS.
3. Soil traps to be installed in drains as required.
4. Laboratory to be adequately equipped (e.g. Biosafety cabinets (BSCs), thermocyclers, ELISA plate readers, centrifuges and microscopes) to avoid moving equipment in and out of the facility.
5. Storage of quarantine material for further analysis should be done in a facility that is well lit, intact and without escape into the immediate environment. A traceability system should be in place from the point of entry into the PEQ facility to storing/archiving.

Additional requirements such as alarm systems, emergency power systems and monitoring and security systems can be useful in high level PEQ facilities to detect loss of containment due to unauthorized entry or mechanical or power failure. (Not mandatory).

4.2 Operational Requirements

Operational requirements involve appropriate policies and procedures relating to management review, regular auditing, training of personnel, general operation of the PEQ facility, record keeping and traceability of plants and pests, contingency planning, health and safety, and documentation. It is important to employ good laboratory practices to prevent the escape of pests.

4.2.1 Staff requirements

1. A suitable qualified supervisor who has overall responsibility for maintaining the PEQ facility and for all PEQ activities

2. Qualified staff with responsibilities assigned for the maintenance of the PEQ facility and associated activities
3. Personnel entering the PEQ facility must have completed training in the procedures specific to the facility requirements and must show evidence of having understood the training; training must be documented and signed by the employee and supervisor.
4. Appropriately qualified scientific support staff or ready access to them.

4.2.2 Technical and Operational Procedures

A Procedures Manual covering safety and general laboratory and greenhouse operations including entry and exit protocols and cleaning schedules must be available to all staff, and its requirements followed; it must be reviewed and updated regularly. The Procedures Manual may consist of a series of Standard Operating Procedures.

The SOP manual must include policies and procedures for the following:

- entry of authorized personnel;
- handling ,sampling, transportation, receipt and storage of material;
- waste disposal ;
- identification of received pests;
- record keeping and documentation ;
- sanitation, cleaning and disinfection;
- entry, exit and decontamination protocols for equipment, samples, and solid and liquid waste;
- cleaning of soil traps and disposing of contents;
- monitoring of visitors;
- monitoring for pest escapes;
- emergency contacts;
- operation, repair and maintenance of air handling systems;
- operation, repair and maintenance of waste treatment systems;
- emergency repair procedures;
- training of staff;
- use of equipment;
- contingency plans for disruptions to or failures of quarantine;
- dealing with non-compliances including the appropriate treatment or destruction of plant material infested with quarantine pests, and the preservation of specimens if required;
- a system to enable full traceability of the consignments through the PEQ facility (the traceability system should use a unique identifier from consignment arrival through handling, treatment and testing, until release or destruction of the infested consignment);

- criteria for determining what constitutes a breach of quarantine and a reporting system to ensure that any breaches and adopted measures are reported without delay to the NPPO;
- describe how documents are reviewed, amended and controlled;
- a schedule for internal and external audits to check that the facility meets the requirements (e.g. structural integrity and hygiene requirements)

A log book of all people entering and leaving the facility must be maintained for the period which the PEQ is operational and approved by KEPHIS.

4.3 Waste Disposal and Decontamination

This is to ensure proper management and disposal of waste from PEQ facilities (laboratory, greenhouses and screen houses) in line with phytosanitary and sanitary requirements. The facility must have an effective system for managing waste to ensure that all the following requirements in Section 2 (Part 2.5) above are met. These procedures should be clearly outlined in the operator's manual and the responsible persons should be highlighted. Records must be kept of any PEQ material that is destroyed, including the reason for destruction, the import permit number, the consignment number, plant ID number (if applicable), and the date and method of destruction for traceability.

4.4 Audit of the facilities

KEPHIS should ensure that the PEQ facility is officially audited on a regular basis to ensure that it meets the physical and operational requirements to hold quarantine material.

CHAPTER FIVE

REQUIREMENTS FOR PRODUCTION FACILITIES HANDLING SEED IMPORTED UNDER QUARANTINE PROVISION

5.0 Introduction

This document provides guidance and describes procedures for certification of facilities importing and undertaking seed production for either research or trials under post entry quarantine and inspection of the same to ensure freedom from quarantine pests and other regulated non-quarantine pests.

5.1 Seed import permit application

The importer will secure a quarantine import permit and a notice to import seed (SR14) for propagation or research sufficiently in advance from KEPHIS. All applications shall be made through the online import certification system. Where a facility re-inspection is required, the facility shall have met by way of inspection the minimum requirements set for quarantine facility. Additionally, a written communique of purpose of importation and an ambiguous description of intended research/trial work shall be made by the applicant to KEPHIS.

5.2 Inspection of quarantine seed materials upon arrival and release to PEQ facility

The importer or his agent will submit an application for consignment inspection and quarantine clearance at the designated point of entry. The consignment shall be accompanied alongside a copy of import permit, SR 14, phytosanitary certificate (original), inspection report for PEQ facility undertaking for growing imported seed material.

The inspection personnel at designated port of entry, immediately upon receipt at quarantine facility, will undertake inspection of consignment and after necessary verification of documents accompanied the consignment and after ensuring free from pests will grant provisional release for growing under post entry quarantine in the format and /or destruction of consignment in the event of interception of a quarantine pest, under supervision of the NPPO. If any new organism is intercepted, he will determine the pest status of the organism and take appropriate action as considered necessary including notification of interception to the Plant Quarantine and Biosecurity Facility and submission of the material for testing. Where no pests have been found at point of entry, the material will be released for movement into the designated quarantine facility. The importer shall ensure that the integrity of the material is maintained until it reaches the PEQ facility.

5.3 Arrival at the PEQ facility

On arrival at the PEQ, the integrity of the seed shall be checked by the facility manager or designated staff to ensure the packaging has not been tampered with during movement to the facility according to the facility operating manual on

- a) when and where deliveries are normally received;
- b) who is responsible for receiving deliveries;
- c) how the operator (or nominated delegate) is notified when the material arrives at the facility;
- d) where material is to be stored on arrival at the facility;
- e) who is responsible for opening packages to inspect the material and documentation;
- f) procedures that will be used to control any pests or diseases that are detected when material arrives at a facility or what treatment options are implemented in case of a pest being noted on the consignment.

5.4 Records

The facility must have an effective record-keeping system to ensure that all material is traceable across the entire chain. The records should be easy to access and retrieve by authorized staff. The following consignment file records must be kept:

- a) copies of phytosanitary certificates;
- b) movement authorization forms relating to the consignment;
- c) import permits;
- d) consignment numbers;
- e) genus, species, and cultivar names of imported plant material;
- f) arrival date of each consignment in the facility and records of checks done on arrival;
- g) any treatment(s) undertaken on arrival at the facility or during the quarantine period;
- h) dates of planting and date when seeds enter a state of active growth;
- i) records of inspections including:
 - dates of inspections;
 - name of the person conducting the inspection;
 - any pest or diseases found;
 - any actions taken.
- j) approved movement of plant material to and from approved quarantine facilities

- k) date of removal of any waste material from the facility, and location to which it was moved (if transferred to an off-site treatment facility);
- l) records of any plant material that was moved or exported from the facility;
- m) room or bench location of plant material during quarantine (where applicable);
- n) results of diagnostic tests or pest identifications, pest detection's and any associated control action(s) (where applicable);
- o) results of any pre-determined testing (where applicable);

5.5. Pest monitoring during production

The operator (or a delegate nominated by the operator) must regularly inspect all plants in the facility for signs and symptoms of pests or diseases. A record must be kept of all inspections stating, as a minimum, the date of inspection, who did the inspection and whether any signs and symptoms of pests or diseases were detected.

Outputs from the monitoring should be able to detect risks to the phytosanitary status of the plants after emergence. These may include

- a) Is the isolation of plants adequate to limit spread of pests;
- b) volunteers or weeds harboring pests and pathogens;
- c) improper equipment cleanout;
- d) improper disposition of plant material;
- e) weed control in borders and adjacent fields is not adequate;
- f) Plant health inspections and tests
- g) Implemented sanitation protocols
- h) Pest control and management measures

Where the facility is open quarantine for breeding of resistant lines, the following measures shall be considered in addition to general conditions for post entry quarantine facilities.

- a) The isolation distance of the facilities to other crops of the same genus or susceptible hosts
- b) The techniques and skills used to contain inoculum from escaping to the environment.
- c) The sanitation protocols put in place to ensure biosafety and biosecurity
- d) Staff training and competence to work in the facility
- e) Waste disposal methods, incineration, destruction, broken glass, sharps and inoculum.

5.6 Inspections by KEPHIS Inspectors

The operator must make arrangements for plant inspections to be undertaken when plants enter a state of active growth including obtaining representative samples for testing where necessary. Where samples are obtained, they must be stored and transported in such a way as to minimize tissue deterioration, prevent the spread of pests and diseases, and prevent the loss of any plant material.

5.7 Post-harvest, storage and transit requirements for seeds under quarantine

The operator shall implement seed health risk considerations that include; -

- a) segregation of infected seed lots from clean seed lots;
- b) effecting procedures to prevent potential contamination during harvest and movement of contaminated field equipment between sites
- c) adequate pest and pathogen control in seed cleaning, conditioning and packaging;
- d) appropriate disposal of "discard" materials
- e) adequate facility and equipment cleanout and containment.
- f) systems in place to prevent seed exposure to pests in storage
- g) adequate system to maintain integrity and traceability of seed lots to meet regulatory requirements for documentation of origin, in-transit, and re-export
- h) limiting spread of pests and pathogens from transportation equipment and container selection.
- i) Proper seed health testing techniques are used
- j) adequate audits and controls are effected
- k) adequate testing facilities
- l) a system to maintain integrity and traceability of seed lots to meet regulatory requirements for documentation of origin, in-transit, and re-export.

5.8 Waste management

Upon the termination of the experiment, all vegetative parts, other plant debris, and/or all materials used should be destroyed appropriately. Separate above-ground parts of the plant from the roots, dry, place in plastic bags and incinerate immediately.

SECTION SIX

REQUIREMENTS FOR CONTAINMENT FOR BIOLOGICAL CONTROL AGENTS

6.0 Introduction

The process and requirements for importing and handling potentially harmful organisms is paramount in ensuring environmental, human and plant health safety. Biological control agents (BCA) are one of such products with the potential of causing harm to plant health and hence based on risk assessment, some organisms may only be imported under containment and cannot be released into the environment. The import of these organisms is allowed under a Biological import permit. This permit is issued by Kenya Plant Health Inspectorate Service (KEPHIS) through Kenya Standing Technical Committee on Imports and Exports (KSTCIE), provided that appropriate physical and operational containment requirements are in place at the point of destination.

Prior to making an application to import such organisms, the applicant must demonstrate that their containment complies with the requirements to ensure that the organisms don't spread to unintended locations. Applicant shall rear imported arthropod agents for at least three generation in containment prior to field release to rid them off internal parasitoids and disease, or to make sure that the colony is a pure culture of the approved species. Verification for certification of all this should be undertaken by KEPHIS inspectors. Once an inspection is conducted satisfactorily that appropriate containment requirements are met, a permit is issued to authorize for importations and handling of the organism. KEPHIS conducts routine facility inspections to assess and monitor compliance with the requirements.

6.1 General considerations

- i. Facility location
- ii. Suitable entry point to allow for separation of personal clothing from dedicated facility clothing.
- iii. Insect traps (e.g. sticky, pheromone, visible or ultraviolet light)
- iv. Storage space – this is for supporting operations, cleaning, spill management, emergency safety response programs and tools and equipment. Providing dedicated equipment, washroom facilities, storage areas inside the containment zone should be considered as a way to minimize traffic into and out of the containment facility.

- v. Easy to clean surfaces - Use of stainless steel or other non-absorptive solid surfaces is recommended. Containment facilities require frequent wash downs of surfaces and these surfaces need to be resistant to chemical attack and absorption.
- vi. Autoclave or other acceptable means of waste treatment/disposal
- vii. Greenhouse floors should be sloped toward drains and have curbs to contain water.
- viii. Stable power supply – automated systems, circuit breakers and shut-off valves should be available on site.
- ix. Air conditioning – this may include a combination of cooling/heating (temperature control), humidity control, CO₂ control and air circulation patterns.
- x. Restricted access to the containment zone is to be ensured through a controlled access system.
- xi. Emergency eyewash and shower facilities to be provided in the containment zone
- xii. Signage
- xiii. Security precautionary measures

6.2 Outline of Requirements

This standard is intended to facilitate the safe post entry measures and release of biological control agents and other beneficial organisms. Responsibilities relating to this are held by National Plant Protection Organizations (NPPO) or other responsible authorities, and by importers. Contracting parties, or their designated authorities, should consider and implement appropriate phytosanitary measures related to the import and release of biological control agents and other beneficial organisms and, when necessary, issue related import permits.

The NPPOs or other responsible authorities should:

- carry out pest risk analysis of biological control agents and other beneficial organisms prior to import or prior to release ensure, when certifying exports, that the phytosanitary import requirements of importing contracting parties are complied with
- obtain, provide and assess documentation as appropriate, relevant to the export, shipment, import or release of biological control agents and other beneficial organisms - ensure that biological control agents and other beneficial organisms are taken either directly to designated quarantine facilities or mass-rearing facilities or, if appropriate, passed directly for release into the environment
- encourage monitoring of released of biological control agents or beneficial organisms in order to assess impact on target and non target organisms.

Responsibilities of, and recommendations for, exporters include ensuring that consignments of biological control agents and other beneficial organisms comply with phytosanitary import requirements of importing countries and relevant international agreements, packaging consignments securely, and providing appropriate documentation relating to biological control agents or other beneficial organisms.

Responsibilities of, and recommendations for, importers include providing appropriate documentation relating to the target pest(s) and biological control agent or other beneficial organisms to the NPPO or other responsible authority of the importing country.

6.3 BCA containment

Insects can actively disperse or be passively dispersed by air currents; however, their spread can be prevented by sealing facilities in which they are kept and by using appropriately sized filters and screening. In order for a BCA to survive, establish and spread in an environment; the pest must be able to find a suitable host and the environment must be conducive to the pest's establishment and development. Thus, BCA can be contained by spatial and temporal isolation from their hosts, either in the natural environment or in containment facilities.

6.4 Materials diagnostics

It is no use having the importing material sitting in PEQ indefinitely in the expectation of some sort of symptoms developing e.g hyper parasites emergence. There must be a planned programme of regular inspections and sampling as necessary for diagnostic tests or identification in the laboratory. If the laboratory is not on site, then efficient, reliable and secure means of conveying specimens and samples to the laboratory must be available. Without an adequately equipped diagnostic laboratory with trained and competent staff who belong to or understand the purposes of the post-entry quarantine facility several important pointers could be lost e.g misdiagnosis.

6.5 Personnel

Technical staff trained in pest related courses are required to look after the insects in the pest entry quarantine facility. Each facility should have a quarantine officer who is responsible for enforcing rules and ensuring maintenance. At smaller facilities the quarantine officer often handles most of the material, but at large research facilities this may not be possible. The quarantine officer must ensure that the identity of a known biocontrol agent is confirmed either by a comparison with specimens or by a specialist. Effective containment involves the use of trained personnel, appropriate and documented operational procedures, effective use of **primary containment** devices and facilities designed to deter access to authorized personnel.

General requirements include:

- i. a graduate qualified supervisor who has overall responsibility for maintaining the PEQ facility and for all PEQ activities
- ii. a qualified staff with responsibilities assigned for the maintenance of the PEQ facility and associated activities
- iii. Appropriately qualified scientific support staff where applicable.

6.6 Training

Training records indicating scope and attendance to facility personnel should be available. This should however not be limited to those working within the containment environment but should also include laboratory managers, supervisors and safety advisors to ensure that they are competent to perform their duties in connection with the containment facility.

6.7 Physical characteristics of facilities

Facilities that handle BCA should be constructed and operated to achieve the containment levels required for the organism concerned. The level required depends on the risk of the organism escaping and becoming established in the environment.

6.7.1 Facility design

Quarantine facilities differ greatly in size and complexity, however they generally share several safety features. Post Entry Quarantine facilities may be dedicated to a particular purpose (e.g. screening of imported insects may be more generalized with different zones or compartments for different levels of containment. A frequently used design includes a corridor that services separate compartments. The selection, design and installation of doors, windows, screening and air handling systems, along with the use of appropriate sealants, are factors that determine how well a facility can contain pests. Facility design and construction must be complemented with dedicated and trained staff who follow documented procedures and effectively utilize containment measures whenever feasible to minimize pest escape. There should be adequate provision of isolation between infected and uninfected hosts, providing a vector-free environment. Further there must be arrangements for regular servicing and maintenance, especially if electrical or electronic automations are used.

6.7.2 Openings

Some quarantine housing materials are made of concrete walls, glass, polythene or even insect proof nets. The bottom line remains it should be able to ward off entry or escape

of pests. Independent of the material used, it is essential that all cracks and gaps be sealed. Vents in a glasshouse have to be covered in netting to prevent entry or escape of insects. Doors should remain locked and admittance remain restricted to authorized personnel only. It is usual for doors that open on to the same corridor to interlock to prevent two or more doors being opened at the same time. Alternatively, the doors can be alarmed to give a warning of such an occurrence. Negative air pressure inside the facility helps prevent insects on or near the door from being sucked outside when the door is opened.

6.7.3 Screen house

A mesh size of 0.34 x 0.34 mm (referred to as 'aphid netting' or 'insect netting') is often recommended (a type of plastic netting much used in screenhouses with this mesh size has 50 threads per square inch), but there is evidence that some small insects can penetrate such netting. A double layer of netting may be recommended and sticky traps should be employed inside the facility to reduce insect populations. The screen house is the classical facility for confinement of supposedly disease-free material where there might be plant pathogens (principally viruses) that could be transmitted by flying vectors. Containment should be by double layers of netting with mesh size fine enough to exclude or prevent entry of the smallest insect vectors. This will also prevent escape of insects imported with the consignment. There should also be a darkened entrance lobby because insects will not fly through such an area. Such a facility is relatively inexpensive to construct and maintain and is sustainable without cooling and therefore without electricity.

Floors, walls, ceilings, and windows in quarantine facilities must be carefully sealed to prevent insect escape. Air intakes and exhausts are either covered with fine mesh metal screens or the air-handling system is recycled through large, very efficient filters.

6.7.4 Cages

Insect cages provide increased levels of containment by preventing the unrestricted movement of arthropods or by excluding potential arthropod vectors. Particularly with the more frequent used organisms, there is the possibility of quarantine facilities being used as cages for PEQ on a temporary basis if an official facility is not available. Provided there is adequate security, materials can be held in an isolated laboratory or room for several months under a bank of fluorescent lights. Rearing cabinets may also be used for containment.

6.7.5 Growth chambers and growth rooms

These can offer a cost-effective alternative to containment greenhouses while providing more precise levels of environmental control. Growth chambers and growth rooms can be located within a containment zone and thus provide primary containment.

6.7.6 Drainage

It is important to realize that many fungal plant pathogens are not airborne but are dispersed by rain splash or in run-off from rain or irrigation. This also applies to bacteria, nematodes and small arthropods. Water draining from a quarantine facility (from irrigation or cleaning) must be contained until it is disinfected. Provision for treatment of drainage is fundamental to avoid unnecessary spillage of organism to unintended targets or locations. The facility should have a gutter in floor to retain water before disinfection, after which a stop-cock below the grill is opened.

6.7.7 Disposal of waste

Secure disposal of potentially contaminated waste must be carried out, with provision for the destruction of any live agents by incineration, autoclaving or deep-freezing. Which method or methods to use will depend on the volume and nature of the waste. Security against human pests is also necessary.

6.7.8 Record and other facility documentation

The following records should be maintained at the facility and implementation of the same thereof:

- i. Layout of PEQ facility showing entrances and access points
- ii. Record of all PEQ activities conducted in the facility (e.g. staff activities, inspections, pest detections, pest identifications, testing, treatments, disposal)
- iii. Record of all consignments of pests in the PEQ facility and their place of origin
- iv. Record of equipments
- v. List of PEQ facility staff and other persons authorized to enter the facility (or specific parts thereof)
- vi. Records of training and skills of staff
- vii. Record of visitors
- viii. Display of KEPHIS and other regulatory permits by other relevant entities

6.8 Handling of Biological material

6.8.1 Receiving Biological material at the point of entry and at the facility

- a. On arrival in Kenya all consignments will be inspected at the point of entry by a KEPHIS Inspector. This will include:

- i. an inspection of the documentation to verify that all pre-export requirements (such as phytosanitary certification) comply with the requirements of the relevant import permit;
 - ii. an inspection of the biological material to verify that it is true to type, free from visual signs of pests or disease,
 - iii. Sampling of material for testing (where applicable)
- b. If non-compliances are identified e.g. on documentation, variation on identity, form or presences of pests, poorly packaged where possible the importer will be given options to address the non-compliance (for example by destruction).
- c. When an inspector is satisfied that the consignments comply with the requirements stated in the import permit, the inspector will authorize the movement of the biological material to the PEQ facility. The authorization to transfer the material to the PEQ facility will be using **form Q 01**.
- d. The Biological material will be moved securely directly to the authorized PEQ and must not be opened before arrival at the facility.
- e. KEPHIS must be notified on the arrival of the consignment and inform of any discrepancies with the consignment

6.9 Monitoring of PEQ facilities

The general rule is to rear organisms for at least three generation to prevent release of obligate hyperparasites and to discover if there is a problem with pests. The operation of containment facilities should be monitored quarterly or annually based on the nature of the facility by a NPPO officer. They ensure that the physical integrity of the facility is compliant and for making certain that staff working in the facility follow operating procedures.

ANNEXES

Annex 1: General requirements for Post Entry Quarantine facilities

Physical separation of plants from other areas, including offices used by personnel

1. Adequate safeguards to ensure plants cannot be accessed or removed from the PEQ facility without appropriate authorization
2. Growth of plants in pest-free growing medium (e.g. sterilized potting mix or soil-less growing medium)
3. Growth of plants on raised benches
4. Provision of suitable growing conditions for the imported plants (e.g. temperature, light and humidity)
5. Provision of conditions conducive for the development of signs and symptoms of pests to be expressed
6. Control of local pests (e.g. rodents, whiteflies, ants) and exclusion from the PEQ facility by sealing all the points of penetration, including electrical and plumbing conduits (except for open ground facilities)
7. A system and means for sterilization, decontamination or destruction of waste (including infested plants) and equipment (e.g. cutting implements) before removal from the facility
8. Appropriate irrigation system to prevent transmission of pests
9. For glasshouses and screen houses: accessible surfaces constructed of smooth and impervious material for cleaning and effective decontamination
10. For glasshouses and screen houses: ceilings and walls to be constructed of material resistant to deterioration and to attack by insects and other arthropods
11. Protective clothing (e.g. a dedicated laboratory coat and footwear or shoe covers, disposable gloves) to be worn by all staff and visitors and removed on exit from the PEQ facility
12. Decontamination of personnel upon exit of PEQ facility areas containing risk material
13. Appropriate signage and the PEQ area is clearly delineated
14. Control of weeds as potential hosts for some pests and pathogens

Annex 2: Sampling procedure

- a. wear powder-free disposable gloves (powder can interfere with diagnostic procedures) when taking samples. Do not touch plants with bare hands;
- b) avoid brushing against plants to avoid transmission of pests or cross contamination of samples;
- c) collect each sample using gloved hands and transfer the sample directly to a zip-lock bag or other suitable sealed container;
- d) wear a new disposable glove for each sample;
- e) place the sampled leaves in a zip-lock plastic bag or other suitable sealed container with the air pressed out before sealing;
- f) clearly label the bag with details of the quarantine facility, permit number, consignment number and lot number, bed number (if applicable) and the full genus and species name of the plant material. For plants which are individually labelled, ensure that each sample is easily traceable to the individual plant from which it was collected.
- g) Any observable pests on the affected crops should also be appropriately sampled ensuring that the risk of its escape is minimized. The sample should be labeled as detailed above.
- h) Bags containing samples are kept cool at all times but are not frozen. Samples should not be left in the sun, and bagged samples should be transferred to a suitable (e.g. Polystyrene) box with an ice pack wrapped in bubble wrap or newspaper as soon as possible. Wrapping the ice pack in bubble wrap or newspaper prevents samples from freezing.
- i) The method of transport to the diagnostic facility must ensure the containment and integrity of the risk good(s). Plant material must be double-bagged and tracked if using a courier service.
- j) Once samples have been collected, hands should be washed thoroughly with soap and water, and any equipment (for example secateurs) should be decontaminated.

Annex 3: Specific requirements for different levels of quarantine

Biological characteristic (of quarantine pests)	PEQ Level 1 requirements
Pests that are exclusively graft-transmitted (e.g. some viruses or phytoplasmas, where vectors are known to be absent) or pests which are unlikely to disperse naturally (exclusively graft transmitted viruses) and/or which are likely to have a very low impact if they escape from quarantine facility.	• Material eligible for Level 1 quarantine is generally restricted to seeds and dormant bulbs of certain plant species that are imported from approved countries after risk assessment. • Facilities of the facility may include open field site, tunnels, shadenets, screen house, glasshouse or laboratory • PEQ facility clearly delimited • Appropriate separation from potential hosts • Host material restricted to PEQ facility only
Pests spread by soil or water only, or in vectors that themselves are spread by soil or water only (e.g. cyst nematodes, nepoviruses)	• Facilities of the facility may include screen house, tunnel or glasshouse • Windows and doors locked shut when not in use, and when open, windows should be fitted with screens • Footbath • Impermeable flooring • Appropriate treatment of waste and water (entering and leaving PEQ facility) to eliminate quarantine pests • Appropriate treatment of soil to eliminate soil-borne vectors • Appropriate separation of plants from soil • Appropriate measures are implemented for pest control • Prevention of drainage water reaching water sources used to irrigate host plants • Soil traps installed in drains • Hand wash facilities are installed.

Biological characteristic (of quarantine pests)	PEQ Level 2 requirements
Pests may be naturally dispersed e.g. by water, insects or other vectors, but are expected to be adequately contained based on the proposed physical and structural requirements of the level 2 facilities.	Level 2 are greenhouses, screen house, glasshouse or laboratory facilities intended for plant material that may harbour quarantine pests which are likely to have low to moderate impacts should they escape from PEQ. As a prerequisite, level 2 PEQ facilities should meet requirements of level 1 facilities. Material eligible for entry into level 2 quarantine includes whole plants and cuttings of many ornamental species, forest species and some species of dormant bulbs. ● facilities are made of glasshouse of regular glass or polythene. ● vents, drains or other openings are pest proofed with a mesh of appropriate size. ● Sufficient spacing to allow movements and separation of different consignments or lots. ● Has an anteroom (double door system) with handwashing and foot disinfection facilities. ● The facility and surrounding area should be kept clean and tidy. ● The facility should be accessible and the area around it covered with concrete, gravel or weed cloth to prevent growth of plants. ● Sticky traps are well placed to monitor flying insects are routinely serviced. ● The plants are grown in sterile medium.

	• The type of growing media used is documented and the media is well stored to avoid contact with soil and other material • The facility utilizes treated water for irrigation and use in the facility. • Plants are grown on raised benches.
Biological characteristic (of quarantine pests)	PEQ Level 3 requirements
These pests may disperse naturally (for example by water, insects or other vectors). High value crop species and some ornamental or forestry species with particularly high risk or highly mobile pathogens (for example rust diseases). PEQ level 3 facility may consist of a contained and secure greenhouse, screen house, glasshouse or laboratory including Tissue culture laboratories.	Level 3 facilities are intended for plant material that may harbour quarantine pests that could have moderate to high risks should they escape from PEQ. As a prerequisite, level 3 PEQ facilities should meet requirements of level 2 facilities. • Facilities of the facility may include screen house, glasshouse or laboratory • Self-closing and tight-fitting doors, with appropriate seals and sweeps • Anteroom with insecticidal spray • Mesh less than 0.2 mm (70 mesh) (e.g. for screen houses and over vents) to prevent pest or vector entry or escape. • greenhouses should have an insect proof mesh alongside the polythene. • There should be no alternative host material for the quarantine pest within the expected pest or vector dispersal distance from the PEQ facility (in any direction) • Pest monitoring programme is in place • Inward directional airflow is provided into the facility

	• The facility should have a backup electricity supply system for air flow systems • Wastes and equipment (e.g. cutting implements) are sterilized before removal from the PEQ facility. • Glasshouses and laboratory windows should be of breakage resistant material, while windows in laboratories should be sealed and locked shut. • Anteroom Doors should be self-closing. • Facilities containing non-airborne plant pathogens and arthropods should have a shower for staff members on leaving the facility • The facility will be inspected as required by the KEPHIS • The facility should provide for optimal conditions for the expression of signs or symptoms of pests or diseases.
Biological characteristic (of quarantine pests)	PEQ Level 4 requirements
• Pests or pest vectors that are airborne or mobile and less than 0.2 mm in size (e.g. some mite or thrips species)	• Level 4 facilities are intended for plant material which may harbour quarantine pests that will have serious consequences should they escape from PEQ and for which physical measures such as High efficiency particulate air (HEPA) filtration are needed to adequately contain the organisms which may be associated with this material • Facilities of the facility may include glasshouse constructed of breakage-resistant glass or twin-walled polycarbonate, or a laboratory • Footbath

	• Self-closing and tight-fitting doors, with appropriate seals and sweeps • Entry through two doors separated by anteroom • A sink with hands-free operation in the anteroom • Alternative host material for the quarantine pest should not be within the expected pest or vector dispersal distance from the PEQ facility (in any direction) • Inward directional air flow to be provided within the heating, ventilation and air-conditioning system • A backup electricity supply system for air systems to maintain negative air pressure gradients and for other equipment • No direct access to the facility from the outside of the building • Interlocked vestibule doors so that only one door at a time can be opened • HEPA filtration or its equivalent (HEPA filters to trap 99.97% of particles of 0.3 microns in diameter) • All waste air filtered through HEPA filters • Sterilization or decontamination of solid and liquid waste and equipment (e.g. cutting implements) before removal from the PEQ facility • Interlocking of the supply air and exhaust air systems to ensure inward flow at all times • Installation of a security alarm • A shower (may be required for staff members on leaving the facility) • Monitoring systems for operational processes such as pressure differentials and wastewater
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	treatment to prevent failure of essential systems • It is recommended that L4 PEQ facilities are fitted with additional systems to treat water before it is released into the waste water system. Treatment could be required in the event that a pathogen which is known to survive waste water treatment (for example <i>Pepper mild mottle virus</i>) is detected within a consignment. • The facility has adequate space for other in PEQ activities to minimise traffic in and out of the facility. A security fence with a lockable gate must be installed to prevent access to the site by unauthorised persons. Staff working in L4 facilities prior to entering a facility must shower and change clothes before entering.
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Form Q 01

THE KENYA PLANT HEALTH INSPECTORATE SERVICE

P. O. Box 49592 00100 GPO Nairobi, Kenya, Email: director@kephis.org , Website: www.kephis.org

Form Q 01: Notification of import material at the point of entry for quarantine follow up

Date of Inspection :
Point of entry: Airport/Border.....Post office..... Seaport.....
Data shared with PQBS and other regions: Y..... N.....
Crop Species:
Commodity farm: Tuber/Seeds/Brushes/ s/Rooted/Unrooted/Fruits
Any other form:
Number of varieties :
Name and address of exporter:
Country:
Name and address of consignee:
Import permit number:
Phytosanitary certificate number:
Pest infefacility: Type of insect Type of damage
Type of disease
Pathogen(s) identified
Any other observations
Healthy (clean) specify
Released, Not released, Destroyed
To undergo further post entry quarantine process: Y N.....
Any other relevant information
Method of destruction
Date:.....Signature.....Section/Unit
Name of inspector:.....



Form Q 02

THE KENYA PLANT HEALTH INSPECTORATE SERVICE

P. O. Box 49592 00100 GPO Nairobi, Kenya, Email: director@kephis.org , Website: www.kephis.org

Form Q 02: Monitoring of material imported under quarantine provision

KEPHIS office:	Date:	
Name of facility :	Location	
Commodity	Country of origin:	
Commodity form imported:		
Period under quarantine (Months)		
Describe observations on the pest of quarantine importance during inspections		
Sampling and testing done Y/N (If yes provide brief description)		
Testing done by farm (3 rd party lab) (Y/N) (Attach results)		
Testing by KEPHIS done (Attach results) Y/N		
Tests done (List or attach test report)		
Any samples tested positive (Y/N)		
Action taken for any positives		
Is the plant material approved for further propagation/commercial/distribution?		
If no give reasons		
Remarks or recommendation:		
Inspectors: Name:	Signature:	Date:
Name:	Signature:	Date:
Facility manager: Name:	Signature:	Date:



Form Q 03

KENYA PLANT HEALTH

INSPECTORATE SERVICE

P. O. Box 49592 00100 GPO Nairobi, Kenya, Email: director@kephis.org, Website: www.kephis.org

Form Q 03: Notification of import of Biological Control Agents at the point of entry for quarantine follow up

Name of inspector:
Date of Inspection:
Point of entry: Airport/Border.....Post office..... Seaport.....
Name(s) of Species:
Commodity form: Eggs/Larvae/pupa/adult
Any other form:
Name and address of exporter:
Country of origin:
Name and address of consignee:
Facility inspection report: Y.....N.....
Date of inspection (Validity 3 months)
Biological Import Permit number:
Phytosanitary certificate number:
Consignment integrity: Y..... N.....
Provide comment:
Type of contaminants identified:
Any other observations:
Healthy (clean) specify
Released, Not released, Destroyed Method of destruction:
To undergo further post entry quarantine process: Y N.....
Any other relevant information
Date:.....Signature.....