PHYTOSANITARY IMPORT INSPECTIONS AND METHODOLOGIES FOR SAMPLING CONSIGNMENTS

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OUTLINE

- Introduction
- Issuance of import permit
- Verification of consignment identity and integrity
- Sampling procedures
- Inspection procedures
- Inspection outcome
Introduction

- Based on ISPM 20 – *guidelines for Phytosanitary import regulatory system*
- Makes reference to the following ISPMs
  - 23 (*guidelines for inspection*)
  - 12 (*guidelines for Phytosanitary certificates*)
  - 13 (*guideline for the notification of non-compliance and emergency action*)
  - 25 (*consignment in transit*)
  - 31 (*methodologies for sampling of consignments*)
Issuance of import permits

- Prior to issuance of permit the Pest Risk Analysis (PRA) is done (source of information for PRA, PRA reports, PRA information from other NPPOs)

- Depending on risk identified the material is either
  - a) Prohibited i.e. risk is too high and the NPPOs can not manage adequately
  - b) Allowed under quarantine conditions – risk is high but can be mitigated
  - c) Allowed under normal permit- risk is low but exporting country must meet some conditions like pre-shipment treatment
Imports that are Permitted

- Carry low risk of pest introduction
- Only from specific parts of the world
- Require Phytosanitary certification e.g. Eucalyptus tree seed, Unrooted rose cutting from Holland
Imports under quarantine

- Importation carries risk of introducing dangerous organisms
- Plant symptom-less carriers of pathogens; plant appears healthy
- Plant grown at quarantine station for a period of time before release to importer
- Open quarantine arrangements
- E.g. vegetative propagation material of vanilla, Zantendeschia
Imports that are prohibited

- Importation carries very high risk of pest introduction
- Importation not allowed under any circumstances
- E.g. timber with barks, Christmas trees, aquatic plants
Procedure for importation of plant material

- Application of plant importation permit
- For seed, importer must fill in Notice of Import form
- PIP details import conditions
- Authorities in country of origin issue Phytosanitary Certificates (PC) based on PIP
- All plant material must be declared at point of entry
- Prohibited/non compliant material are destroyed or shipped back
Illustration on procedure for importation of plant material

Application

Evaluation

Permitted plant material

Issuance of PIP

Inspection of plant material for compliance

For high risk material referred to PQPS Committee

Approved

Issuance of PIP
Illustration on procedure for importation of biological agent

1. Application
2. Evaluation by Biological control Sub Committee
3. Inspection of the facilities by PHS
4. Issuance of Import Permit
Genetically Modified Organisms

The types of LMO that Plant Health Services section (PHS) assess for Phytosanitary risk includes:

- Plant for use as agricultural crops, for food and feed, ornamental plants or managed forests
- Biological control agents modified to improve their performance in that role
- Pest modified to alter their pathogenic characteristics
An example of weed introductions into Tanzania

Origin and spread
Origin - Amazon basin of Brazil
Deliberately introduced in many countries due to its striking flowers and spread as a weed
Introduced into Tanzania in 1989

Habitat
Floating weed of tropical and sub-tropical fresh water, lakes and rivers

Economic impact
Has negative environmental, economic and health impact
Examples of pest introductions into Tanzania cont.’
BXW- *Xanthomonas campestris pv Musacearum*
Examples of pest introductions into Tanzania cont.’

**Bactrocera invadens 2003**
- East Africa Mangoes were rejected for by USA, EU countries, South Africa

**Bactrocera latifrons 2006**
- The first specimen were trapped early in 2006 in Morogoro region
Basic elements of Phytosanitary import inspection

- Ascertaining the relevant of Phytosanitary requirements of the country are met. *Importers must be familiarize themselves with these requirements before importation*
- Verify the consignment conforms to the requirements at the time of certifications
- Clearance of the consignment
Verification of consignment identity and integrity

- Inspection procedures are described in ISPM No. 23
- It is focused on the determination of compliance with Phytosanitary requirements, based on visual examination, documentary checks, and identity and integrity checks
- NPPOs have responsibility for “the inspection of consignments of plant and plant products moving in international, and where appropriate, the inspection of other regulated articles, particularly with the object of preventing the introduction and/or spread of the pest” (Article IV.2c of the IPPC of 1997)
NPPOs may determine that consignments should be sampled during inspection. The sampling methodology used should depend on the specific inspection objectives.

The objective of inspection of consignments is to confirm compliance with import or export requirements relating to Quarantine pests or RNQPs.

It often serves to verify the effectiveness of other Phytosanitary measures taken at a previous stage in time.
Sampling procedure

According to ISPM No. 31;

- Inspection of consignments of regulated articles moving in trade is an essential tool for the management of pest risks and is the most frequently used Phytosanitary procedure worldwide to determine if pests are present and/or the compliance with Phytosanitary import requirements.

- It is usually not feasible to inspect entire consignments, so Phytosanitary inspection is performed mainly on samples obtained from a consignment.

- Sampling of plants, plant products and other regulated articles may occur prior to export, at the point of import, or other points as determined by NPPOs.
Objective of sampling of consignment

- Detect regulated pest
- Provide assurance that the number of inspection of regulated pest or infested units in a consignment does not exceed the specified samples
- Provide assurance of the general phytosanitary condition of a consignment
- Detect organisms for which a phytosanitary risk has not yet been determined
- Optimize the probability of detecting specific regulated pests
- Maximize the use of available sampling recourse
- Gather other information such as for monitoring of a pathway
- Verify compliance with phytosanitary requirements
- Determine the proportion of the consignment infested
Methods of sampling

- Non statistical
- Statistical sampling methods
Sampling method cont.

- When doing sampling consider the following:
  - Acceptance number
  - Level of detection
  - Confidence level
  - Sample size
  - Efficacy of detection
  - Tolerance level
1) **Convenience sampling**
Involves selecting the most convenient (for example, accessible, cheapest, fastest) units from the lot, without selecting units in a random or systematic manner

2) **Haphazard sampling**
Sampling involves selecting arbitrary units without using true randomization process

3) **Selective or targeted sampling**
Involves deliberately selecting samples from parts of the lot most likely to be infested, or units that are obviously infested, in order to increase the chance of detecting a specific regulated pest
Statistical sampling methods

1) Simple random sampling
   Sampling results in all sample units having an equal probability of being selected from the lot or consignment

2) Systematic sampling
   Involves drawing a sample from units in the lot at fixed, set intervals. However, the first selection must be made at random through the lot
Statistical sampling methods

3) Stratified sampling
Sampling involves separating the lot into separate subdivisions (that is strata) and then drawing the sample units from each and every subdivision

4) Sequential sampling
Involves drawing a series of sample units using one of the above methods. After each sample (or group) is drawn, the data are accumulated and compared with predetermined ranges
Statistical sampling methods

5) Fixed proportion sampling
Sampling a fixed proportion of the units in the lot (for example, 2%)

6) Cluster sampling
Involves selecting groups of units based on a predefined cluster size (for example, boxes of fruit, bunches of flowers) to make up the total number of sample units required from the lot
Sampling Outcome

- The outcome of activities and techniques related to sampling may result in Phytosanitary action being taken E.g. issuance of PCs, lab tests, refusal of entry, destruction or shipment back to origin
Requirements for inspectors

- **Personal safety**
  - Inspectors should be well dressed (boots, dust coats, hand gloves etc.) inspections in cold rooms - dress appropriately / minimize exposure
  - Arrangement and accessibility of inspection consignments to avoid accidents
Requirement for inspectors cont.’

- Technical qualifications and competencies, especially in pest detection
  - Knowledge of, or access to capability in identification of pests, plant products and other regulated articles
  - Access to appropriate inspection facilities, tools and equipment and written guidelines (such as regulations, manuals, pest data sheets)
  - Knowledge of the operations of other regulatory agencies where appropriate
  - Objectivity (Subjectivity) and impartiality (open-mindedness)
Inspection procedures

- Presentation of documents by the importer or agent
- Examination of documents associated with a consignment
- Verification of consignment identity and integrity
- Visual examination - use of inspection tool kit contains: inspection knife, sampling bags, vials, hand lens, note book, pen/pencil labels (adhesive label) and alcohol (70%)
- Pest/disease identification (not mandatory if visual examination was adequate)
- Decision making
Inspection of conveyances/carriers

- These includes:
  - Cargo holds
  - Cargo and cruise ships
  - Trucks
  - Containers
  - Wood packaging
Cargo holds

- These includes:
  - Warehouses
  - Silos
  - Container freight services
Cargo and Cruise ship inspection

- Ensure compliance to import regulations
- Inspectors receive Manifest and way bill from the shipping agents
- If carrying agricultural commodities (plant material, grains etc.) an import permit and PC is provided
- The cargo loading plan is also provided for the precise location of cargo of interest in the hatches
Cargo and Cruise ship inspection cont.’

- On docking, the inspectors report to the captain before inspection.
- The hatches are opened and the grain inspected for general cleanliness, disease and pests infestation.
- The sieve is used for thorough inspection for pests mostly for small grains like wheat and rice.
- Inspection is done again after ¼ of the grain has been offloaded.
Inspection of maize grain in a ship
Warehouses

- These are big storage facilities for cargo
- They are privately owned or leased by traders and/or companies
- Warehouses are located in close proximity to major exit/entry points e.g. at ports, airports, inland ports etc.
- Are built to allow smooth movement in and out of the facility
Inspection of Warehouse cont.

- **General hygiene**
  - They should be generally clean with commodities stored well
  - There should be no visible pests and diseases thus a sign of infestation/infection

- **The floor**
  - Should be firm and intact devoid of cracks, holes
  - Not smooth but fairly rough to allow machine movement
The roof
- Should be high enough for good overhead space and ventilation
- Should not leak
- Provide enough lighting
- Should not allow entry of bats/birds
Inspection of Warehouses

- **Wall**
  - Should be firm preferably of concrete
  - Should not be cracked with crevices that can allow breeding of insect pests
  - Should allow for ventilation
Inspection of Warehouses cont.

- **Insect infestation monitoring**
  - Pheromone traps
  - Other visual signs like eggs, larvae, sooty, molds etc.

- **Records**
  - Well kept records of type of commodities, period of storage, any routine fumigation etc.
  - Routine maintenance records
Seed Inspection in a Warehouse
Silos inspection

- These are large grain storage facilities mainly owned by the govt. or by millers
- They are constructed in a way to allow for bulk storage and drying of the grain which is economical
- They facilitate and mechanized handling with limited spillage of grain
- Silos are very difficult to inspect
Silos inspection cont.

- The grains inspected for verification of the moisture content which ranges between 11% to 15%
- Any visible signs of inspect pest infestation e.g. flying insect, eggs, pupae etc.
- Signs or presence of rodents, birds and bats
- Growth of mould on grains due to dumpy conditions
Silos inspection cont.

- Inspection of the doors and ladders in and out of the facility
- Records to show the type of grain, duration of storage and the moisture content (mc) of the grain
- Conveyers be in good conditions to limit them to be modes of infestation
Inspection of containers

Containers are the preferred mode of transportation since they allow for movement on water and on land. The cargo is also secure due to the strong steel

- The containers are inspected for crop residues of previous consignments to avoid re-infestations
- Presence of cracks or damaged areas on the containers are not accepted
- The door seals should be intact to avoid spillage or water infiltration during transit
- If refrigerated, check on the temperature regimes to match the commodity on transit
- Produce mostly in bags to be placed on pallets or dunnage
Seed Inspection and sampling
Inspection of Trucks

Trucks are a common mode of conveyance for cargo within border states

- Trucks are used to carry bagged grains, fresh produce e.g. banana, oranges, pineapples, watermelon etc.
- Trucks are inspected for soil and crop residues
- Presence of insect pests, rodents etc.
- General hygiene conditions that might affect quality of the produce
Inspection of wood packaging material

- Wood packaging material made of unprocessed raw wood is a pathway for the introduction and spread of pests
- Done as per ISPM No. 15
- All wood packaging material e.g. pullets, dunnage, wooden crates inspected for export and imports
- Compliant material have an international mark (an IPPC stamp)
Inspection of wood packaging material cont.’

- The treatment of the wood to be clearly stated on the wood material i.e. Methyl Bromide (MB) or Heat treatment (HT)
- The wood inspected for any signs of wood borers and other pests
- The wood to be completely devoid (without) of the bark which harbors eggs of most tree insect pests
Globally recognized wood treatment mark

UK - 000
MB
HT
Inspection Outcome

- The result of the inspection contributes to the decision to be made as to whether the consignment meets Phytosanitary requirements
- If Phytosanitary requirements are met, consignments for imports may be allowed entry
- If Phytosanitary requirements are met, further action can be taken.
- These actions may be determined by the nature of the findings, considering the regulated pest or other inspection objectives and the circumstances. Actions for non compliance are described in detail in ISPM No. 20
THANK YOU FOR YOUR ATTENTION