

NATIONAL STANDARDS FOR PHYTO SANITARY MEASURES

NSPM: 23

**Guidelines for Inspection
2013**

(This standard is approved by (the NPPO and) the Quarantine Committee of Nepal, chaired by the secretary of the Ministry of Agriculture Development on 1st December 2013 and, is submitted by National Plant Quarantine Program to the National Notification Authority to be notified to the WTO member states)

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1. Introduction

1.1 Scope

This national standard describes procedures for the inspection of consignments of plants, plant products and other regulated articles at check points. It is mainly focused on the determination of compliance with phytosanitary requirements. The procedures are checking documents, identifying integrity based on visual and other examinations. NSPM preparation based on guidelines and recommendations developed within the framework of the IPPC. This standard also adopted the principles, recommendations and format of ISPM to achieve international harmonization of phytosanitary measures with the aim to facilitate trade.

1.2 References

IPPC. 1997. *International Plant Protection Convention*. Rome, IPPC, FAO.

ISPM 1. 1993. *Principles of plant quarantine as related to international trade*. Rome, IPPC, FAO.

[published 1995] [revised; now ISPM 1: 2006]

ISPM 5. *Glossary of phytosanitary terms*. Rome, IPPC, FAO.

ISPM 7. 1997. *Export certification system*. Rome, IPPC, FAO.

ISPM 8. 1998. *Determination of pest status in an area*. Rome, IPPC, FAO.

ISPM 9. 1998. *Guidelines for pest eradication programmes*. Rome, IPPC, FAO.

ISPM 11. 2004. *Pest risk analysis for quarantine pests including analysis of environmental risks and*

living modified organisms. Rome, IPPC, FAO.

ISPM 12. 2001. *Guidelines for phytosanitary certificates*. Rome, IPPC, FAO.

ISPM 13. 2001. *Guidelines for the notification of non-compliance and emergency action*. Rome, IPPC, FAO.

ISPM 14. 2002. *The use of integrated measures in a systems approach for pest risk management*. Rome, IPPC, FAO.

ISPM 15. 2002. *Guidelines for regulating wood packaging material in international trade*. Rome, IPPC, FAO. [revised; now ISPM 15:2009]

ISPM 16. 2002. *Regulated non-quarantine pests: concept and application*. Rome, IPPC, FAO.

ISPM 19. 2003. *Guidelines on lists of regulated pests.* Rome, IPPC, FAO.

ISPM 20. 2004. *Guidelines for a phytosanitary import regulatory system.* Rome, IPPC, FAO.

ISPM 21. 2004. *Pest risk analysis for regulated non-quarantine pests.* Rome, IPPC, FAO.

ISPM 23 2005 *Guideline for inspection*

Plant Protection Act 2007.

Plant Protection Regulation 2010

1.3 Definitions

Definitions of phytosanitary terms used in the present standard can be found in ISPM 5 (*Glossary of phytosanitary terms*).

1.4 Outlines of requirements

National plant protection organizations (NPPOs) have the responsibility for “the inspection of consignments of plants and plant products moving in international traffic and, where appropriate the inspection of other regulated articles with the object of preventing the introduction and/or spread of pests” (Article IV.2(c) of the IPPC).

Inspectors inspect consignments and determine compliance with phytosanitary requirements, based on visual and other examination for detection of pests. The inspectors should check other regulated articles and documents and identify integrity. The outcome of inspection should allow an inspector to decide whether to accept, detain or reject the consignment, or whether further detail laboratory and other analysis is required. The inspectors should also decide the method of sampling during inspection. The sampling methodology used should depend on the objective of inspection. (NSPM-Sampling).

2. Background

Plants, plant products and other related substances come in different types of consignments. Single consignment may contain more than one type of products. The products may have to be classified into different lots (NSPM-Sampling). The inspection is a challenging task. The inspectors inspect consignment for compliance with specified import or export requirements, for specified regulated pests and for organisms for which the phytosanitary risk has not yet been determined. The quarantine inspectors face a wide variety of tasks on a daily basis in the inspection of regulated articles. To effectively accomplish this work, it is desirable for the inspectors to have a sound educational background in agriculture, general knowledge in trade and the environment and specific training in phytosanitary procedures used in compliance assurance.

2.1 General requirements

Consignments may consist of more than one commodities or lots. Where a consignment comprises more than one commodity or lot, the inspectors may have to make several separate visual examinations. Throughout this standard, the term “consignment” is used, but it should be recognized that the guidance provided for consignments may apply equally to individual lots within a consignment

2.1.1 Objectives of inspection

The objectives of inspection of consignments are

- (a) to confirm and compliance with import or export requirements relating to quarantine pests or regulated non-quarantine pests.
- (b) to verify the effectiveness of other phytosanitary measures taken at a previous stage in time
- (c) to ensure that the consignment meets specified phytosanitary requirements of the importing country at the time of inspection.
- (d) to issue a phytosanitary certificate for export for the consignment in question
- (e) to verify compliance with phytosanitary import requirements
- (f) to detect organisms for which the phytosanitary risk has not yet been determined.
- (g) to collect samples for laboratory testing or the verification of pest identity
- (h) to use inspection as a risk management procedure.

2.1.2 Assumptions involved in the inspections

As inspection of entire consignments is often not feasible, phytosanitary inspection is often based on sampling.

The use of inspection as a means to detect the presence of pests in, or to determine or verify the pest level of, a consignment is based on the following assumptions:

- The pests of concern, or the signs or symptoms they cause, are visually detectable
- Inspection is operationally practical.
- Some probability of pests being undetected is recognized.

It is not normally possible to inspect all contents of a consignment. The inspection is usually based on sampling. Further, inspection method may not be 100% effective to detect specified pest on the consignment. Therefore, there is always some probability of pests being undetected during inspection

The size of a sample for inspection purposes is normally determined on the basis of a specified regulated pest associated with a specific commodity. It may be more difficult to determine the sample size in cases where inspection of consignments is targeted at several or all regulated

pests.

2.1.3 Responsibility for inspection

NPPOs have the responsibility for inspection. Inspections are carried out by NPPOs or under their authority (see also section 3.1 of ISPM 7:1997; and section 5.1.5.2 of NSPM: Guidelines for a phytosanitary import regulatory systems).

2.1.4 Requirements for inspectors

For good inspection, following requirements should be fulfilled:

- Inspectors should be technically qualified (Graduate in Agriculture Science or under graduate with five years experience in similar job as required by Plant protection Regulation 2010.)
- Should have authority to discharge their duties and accountability.
- Should have knowledge in identification of pest, plant and plant products and other regulated articles
- Should have free access to consignments
- Should be equipped with necessary tools and equipments
- Should have knowledge of the operation of other regulatory agencies
- Should get cooperation from other agencies
- Should be provided with sufficient incentives (similar to staff of other agency like costume office)
- Should be impartial
- Should be given refreshment training for skill enhancement
- Should have good communication and language skill
- Should have good computer knowledge like using internet
- Should have internet facility at workplace.
- Should have good knowledge about occupational health and safety issues

2.1.5 Other considerations for inspection

The decision to use inspection as a phytosanitary measure involves consideration of many factors including the phytosanitary requirements of the importing country and the pests of concern. Other factors that require consideration may include:

- Whether inspection is the only measure or combined with other measures
- Mitigation measures taken by the exporting country
- Commodity type and intended use
- Place/area of production
- Season of production
- Consignment size and configuration
- Volume, frequency and timing of shipments
- Experience with origin/shipper
- Means of conveyance and packaging
- Financial and technical resources (including pest diagnostic capabilities)
- Previous handling and processing
- Sampling design characteristics necessary to achieve the inspection objectives
- Difficulty of pest detection on a specific commodity
- Experience and the results of previous inspections
- Perish ability of the commodity (see also Article VII.2(e) of the IPPC)
- Good Agriculture practices adopted (GAP)

2.1.6 Inspection in relation to pest risk analysis

Pest risk analysis (PRA) provides the basis for technical justification for phytosanitary import requirements. PRA also provides the means for developing lists of regulated pests requiring phytosanitary measures, and identifies those for which inspection is appropriate and/or identifies commodities that are subject to inspection. If new pests are reported during inspection, emergency actions should be undertaken, as appropriate. Where emergency actions are taken, a PRA should be used for evaluating these pests and developing recommendations for appropriate further actions when necessary.

When considering inspection as an option for risk management and the basis for phytosanitary decision-making, it is important to consider both technical and operational factors associated with a particular type and level of inspection. Such an inspection may be required to detect specified regulated pests at the desired level and confidence depending on the risk associated with them (see also NSPM: PRA for quarantine pest including analysis of environmental risks and LMOs and NSPM: PRA for RNQP).

3. Specific requirements

The technical requirements for inspection involve three distinct procedures that should be designed with a view to ensuring technical correctness while also considering operational practicality. These procedures are:

- examination of documents associated with a consignment

- verification of consignment identity and integrity
- visual examination for pests and other phytosanitary requirements (such as freedom from soil)

Certain aspects of inspection may differ depending on the purpose, such as for import/export purposes, or verification/risk management purposes.

3.1 Examination of documents associated with a consignment

In the inspection process, the inspectors should ensure that the import and export documents are complete, accurate, valid and not fraudulent. (see section 1.4 of ISPM 12:2001)

Examples of documents that may be associated with import and/or export certification include:

- phytosanitary certificate/re-export phytosanitary certificates
- manifest (including bills of lading, invoice)
- import permit
- treatment documents/certificates, marks (such as provided for in ISPM 15:2002) or other indicators of treatment
- certificate of origin
- field inspection certificates/reports
- producer/packing records
- certification programme documents (e.g. seed potato certification programmes, pest free area documentation)
- inspection reports
- commercial invoices
- laboratory reports.

Problems encountered with either import or export documents should, where appropriate, be investigated first with the parties providing the documents before further action is taken.

3.2 Verification of consignment identity and integrity

The inspection for identity and integrity involves checking to ensure that the consignment is accurately described by its documents. The identity check verifies whether the type of plant or plant product or species is in accordance with the phytosanitary certificate received or to be issued.

The integrity check verifies if the consignment is clearly identifiable and the quantity and status

is as declared in the phytosanitary certificate received or to be issued. This may require a physical examination of the consignment to confirm the identity and integrity, including checking for seals, safety conditions and other relevant physical aspects of the shipment that may be of phytosanitary concern. Actions taken based on the result will depend on the extent and nature of the problem encountered.

3.3 Visual examination

Related aspects of visual examination include its use for pest detection and for verifying compliance with phytosanitary requirements.

3.3.1 Pests

A sample is taken from consignments/lots to determine if a pest is present, or if it exceeds a specified level. The ability to detect in a consistent manner the presence of a regulated pest with the desired confidence level requires practical and statistical considerations, such as the probability of detecting the pest, the size of the lot, the desired level of confidence, the sample size and the intensity of the inspection (see ISPM on sampling). If the objective of inspection is the detection of specified regulated pests to meet phytosanitary import requirements, then the sampling method should be based on a probability of detecting the pest that satisfies the corresponding phytosanitary requirements.

If the objective of the inspection is the verification of the general phytosanitary condition of a consignment/lot, such as when:

- specified regulated pests have been identified
- no specified pest level has been identified for regulated pests
- the aim is to detect pests when there has been a failure of a phytosanitary measure, then sampling methodology should reflect this.

The sampling method adopted should be based on transparent technical and operational criteria, and should be consistently applied (see also NSPM: Guidelines for a phytosanitary import regulatory systems).

3.3.2 Compliance of phytosanitary requirements

Inspection can be used to verify the compliance with some phytosanitary requirements. -

Examples include:

- treatment
- degree of processing

- freedom from contaminants (e.g. leaves, soil)
- required growth stage, variety, colour, age, degree of maturity etc.
- absence of unauthorized plants, plant products or other regulated articles
- consignment packaging and shipping requirements
- origin of consignment/lots
- point of entry.

3.4 Inspection methods

The inspection method should be designed either to detect the specified regulated pests on or in the commodity being examined, or to be used for a general inspection for organisms for which the phytosanitary risk has not yet been determined. Plant Protection Regulation, 2010 has outlined brief inspection method under sec. 11. The inspectors should follow the methods (Diagram 1.).The inspector should visually examine units in the sample until the target or other pest has been detected or all sample units have been examined. At that point, the inspection may cease. However, additional sample units may be examined if the NPPO needs to gather additional information concerning the pest and the commodity, for example if the pest is not observed, but signs or symptoms are. The inspector may also have access to other non-visual tools that may be used in conjunction with the inspection process.

It is important that:

- examination of the sample be undertaken as soon as reasonably possible after the sample has been drawn and that the sample is as representative of the consignment/lot as possible
- techniques are reviewed to take account of experience gained with the technique and of new technical developments
- procedures are put in place to ensure the independence, integrity, traceability and security of samples for each consignment/lot
- results of the inspection are documented.

Inspection procedures should be in accordance with the PRA where appropriate, and should be consistently applied.

3.5. Inspection procedures

- The inspection and certification procedures for seed and propagating plant material shall be carried out strictly in accordance with the quarantine regulations of the importing country.

- The methods of inspection and testing procedures would greatly depend upon the additional declarations that are required to be incorporated in the PC. However, the following are the inspection/testing procedures which are adopted in general.
- The inspection and certification of seed and propagating plant material such as bulbs, cuttings, saplings, bud wood etc. involve sometimes field crop/nursery inspection or pre-shipment inspection besides the usual port inspection.

3.5.1. Visual examination

Surface examination of consignments of seeds/bulbs/nursery stock is carried out with the illuminated magnifier or magnoscope (10 x magnifications) to record any stages of live insects, soil contamination, weed seeds, seed admixtures such as nematode galls or ear cockles, ergot sclerotia, smut/bunt balls, discolored or malformed seeds, fungal fructifications etc.

3.5.2 X-ray test

X-ray test is used for the detection of hidden infestation in seeds of leguminous crops. Also it is used to detect internal infestation/ infection in bulbs and tubers. The samples of seed are examined under fluorescent screen of X-ray scanner (Soft X-ray type) to reveal internal damage.

3.5.3 Microscopic examination

The examination is carried out either under a stereobinocular microscope or compound binocular research microscope for identification and characterization of pests of concern viz. insects, mites, nematodes, fungi, bacteria etc. To characterize the fungi or bacteria the slides are suitably stained in cotton blue or lactophenol or bacteriological stains, mounted and examined under high power of the microscope.

3.5.4 Incubation test

The seed samples are subject to blotter test/agar plate test for detection of seed-borne fungi. The seeds are tested in lots of 400 seeds by plating on moist blotters kept in transparent plastic petridishes or alternatively plated in seed germination boxes and are incubated for 7 days at 25-30°C under 12 hr. NUV or day light fluorescence/darkness cycles for revealing specific fungal infection. The plates are examined under stereo-binocular microscope to detect specific fungi by morphological characteristics.

3.5.5 Washing test

The test is employed for detection of oospores of downy mildews, rust, bunt and smut spores and nematode cysts etc.

Internally borne nematode infestation such as *Ditylenchus angustus* detected by soaking seeds in water for 24 hours and examining the seed suspensions for nematodes under a compound microscope. In case of rooted cuttings/ plants the root washing collected on nematode collecting sieve are examined for the nematodes.

3.5.6 Grow-out test

The seeds/seedlings/cuttings/ saplings meant for propagation are subjected to grow out test for the presence of any latent infection specially for virus and certain fungal and bacterial diseases, if required by importing country.

The aforesaid plant materials are grown in an insect proof glass/screen houses for the specific period. The presence of viral, fungal, bacterial pathogen is detected based on the appearance of symptoms during the growing stage of seedling/saplings, cuttings etc.

3.5.7 Special tests

Certain special tests are conducted for the presence of specific pathogen such as serological test for viruses, modified blotter/ agar incubation tests for specific fungi etc if insisted upon by the importing country.

3.5.8 Inspection in field during active growing season

If the importing country insists upon the inspection of the crop during pre-harvest time/active growing period for the freedom of any specific pathogen, the same is also undertaken. The inspection is conducted at regular interval of 15 days to one month depending upon the crop/commodity and pathogen.

3.5.9 Inspection of bulk shipment

The inspection and certification of bulk shipment of food grains etc. involve:

- pre-shipment inspection of stock at the storage warehouses to ascertain whether the stock conforms to the quarantine requirements of importing country as stipulated in trade agreement/ letter of credit;
- fumigation of stocks at scheduled rates under the supervision of plant quarantine authority;
- post-fumigation inspection and evaluation of stocks to ensure pest-free status;
- inspection/ disinfestations of conveyance to render it pest-free, and
- final inspection and phytosanitary certification of the consignment loaded into the vehicle.
- The samples of grain drawn are subject to visual inspection to ensure freedom from quarantine pests, if any and also subject to X-ray examination, if facilities are available, to detect hidden infestation.

3.5.10 Root crops, edible bulbs (onions etc), flower bulbs, corms and roots

- Inspect the root crop or bulb for signs of insect boring.
- If holes are visible, cut the root or bulb with knife and verify the reason.
- To detect nematodes, look for surface discoloration (generally a brownish–grayish color), surface blisters, depressions, or any irregularity. To inspect for nematodes, take samples to laboratory.
- Take sample of soil attached to root crops and edible bulbs and of loose soil in the bags and containers. Soil may be infested by nematodes. Maximum allowed amount of soil is 1 % of weight.

3.5.11 Cut flowers

All imported consignments of cut flowers shall be inspected regardless of the country of origin.

- Pay attention to living insects, mines in leaves, any signs of rust or mold or symptoms of bacterial or virus diseases. Usually plants packed as loose stems are of a lower risk than those in bunches.
- Shake or tap each flower or bunch over the white inspection surface. Tap with enough force to dislodge any insect larvae, adult insects, or fecal material.
- Examine the inspection surface to catch thrips, aphids, and early instar larvae. Look for anything that moves and for fecal material that may have been dislodged.

Examine the leaves and stems for:

- Signs of feeding - discolored mines in the leaves
- Symptoms of diseases - discolored sections, rust, or black spots.
- Adult insects or larvae. Examine the flowers and foliage by:
 - Spreading apart inflorescences (petals of the flowers).
 - Opening the calyx at the base of the flower.
 - Breaking apart bracteal heads (leaf like plant part at the base of the flowers).
 - Cutting open stems.
- Inspecting the inside of the packages for larvae, insects, or any other evidence of these pests.

All the different lots shall be inspected on the basis of plant species.

Cut flowers may be imported as loose or packed in different ways. Most commonly cut flowers are traded in boxes, each containing some tens of flowers. Select so many packages as is needed to comply with the following guidelines.

3.5.12 Small plants and cuttings of ornamentals and vegetable plants

Small plants and cuttings of ornamentals need to be inspected carefully. Special attention shall be paid on chrysanthemum, gerbera, gypsophila, impatiens and on small plants of all vegetables (tomato, cucumber, melons etc).

Each species and variety shall be inspected separately.

Small commodities (less than 100 pieces) shall be inspected in total. The larger consignments shall be selected at random but at least 100 pieces shall be inspected.

3.5.13. Nursery products (fruit trees, small plants of berries and grape wine, ornamental trees, perennials)

Nursery products are usually imported with roots protected by soil or peat or mixture or both. Pay attention to soil, and if it's field soil, take samples for nematode analyses. Amount of field soil in roots shall not exceed 1% in weight.

Inspect small commodities in total.

In case of larger commodities select at random 10% of plants for inspections but make sure that you select at least 50 pieces.

Open soil or peat balls, inspect the roots, which may be infested by nematodes or bacteria (knots, malformations).

3.5.14 Fruits, berries, vegetables

All imported consignments shall be inspected.

Each plant species and variety is inspected separately.

Products are usually transported in wooden or cardboard cages. Pay attention to possible soil or debris in bottom of cages and on packaging material (hay, plant material etc).

Some fruits and vegetables (tomato, cucumber, melons etc) may be attached with leaves or stems, which may be infested by insects or diseases.

3.5.15. Potato

All consignments of potato intended to be imported shall be inspected. Each lot should be inspected separately.

If potatoes are packed, the sack (usually 20-25 kg for ware potatoes and 50 kg for seed potatoes) are used as unit for inspection. If the potatoes are in bulk, it may be impossible to identify individual lots and the whole consignment should be considered as one lot.

Special attention shall be paid on possible soil and debris inside and between sacks, and in container.

Sampled tubers shall be cut in sheets by knife, starting from heel end. Purpose is to verify possible visual symptoms of bacterial diseases (*Clavibacter* or *Ralstonia*) or fungus diseases. For visual inspection at least 200 tubers shall be cut of each lot.

If symptoms of infestation are found, or inspector suspects infestation but can not verify it by visual inspection, samples are taken to laboratory identification. For laboratory analyses the heels ands of at least 200 tubers of each lot has to be cut.

Samples shall be taken also of loose soil found in sacks, for potato nematode analyses.

Seed potato shall be inspected using the sampling and testing guidelines of ISTA.

4. Outcome of inspection

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 exports may be provided with appropriate certification, e.g. phytosanitary

certificates, and consignments for import will be released.

If phytosanitary requirements are not met, further actions 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 20:2004, section 5.1.6.

In many cases, pests or signs of pests that have been detected may require identification or a specialized analysis in a laboratory or by a specialist before a determination can be made on the phytosanitary status of the consignment. It may be decided that emergency measures are needed where new or previously unknown pests are found. A system for properly documenting and maintaining samples and/or specimens should be in place to ensure trace-back to the relevant consignment and to facilitate later review of the results if necessary.

In cases of repeated non-compliance, amongst other actions, the intensity and frequency of inspections for certain consignments may be increased.

Where a pest is detected in an import, the inspection report should be sufficiently detailed to allow for notifications of non-compliance (in accordance with ISPM 13:2001). Certain other record-keeping requirements may also rely on the availability of adequately completed inspection reports (e.g. as described in Articles VII and VIII of the IPPC, ISPM 8:1998 and ISPM 20:2004).

5. Review of inspection systems

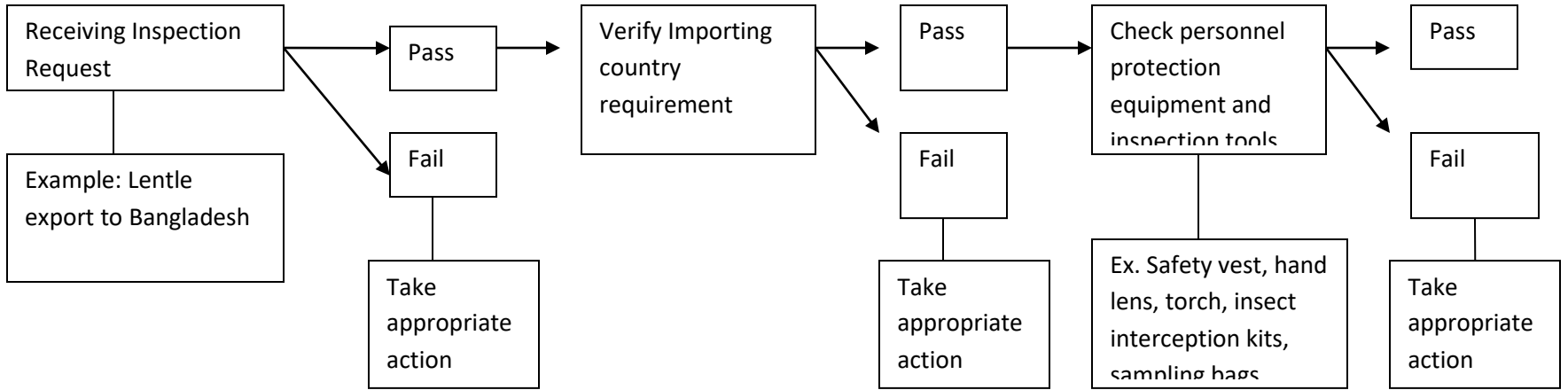
NPPOs should conduct periodic reviews of import and export inspection systems to validate the appropriateness of their design and to determine any course of adjustments needed to ensure that they are technically sound. Audits should be conducted in order to review the validity of the inspection systems. An additional inspection may be a component of the audit.

6. Transparency

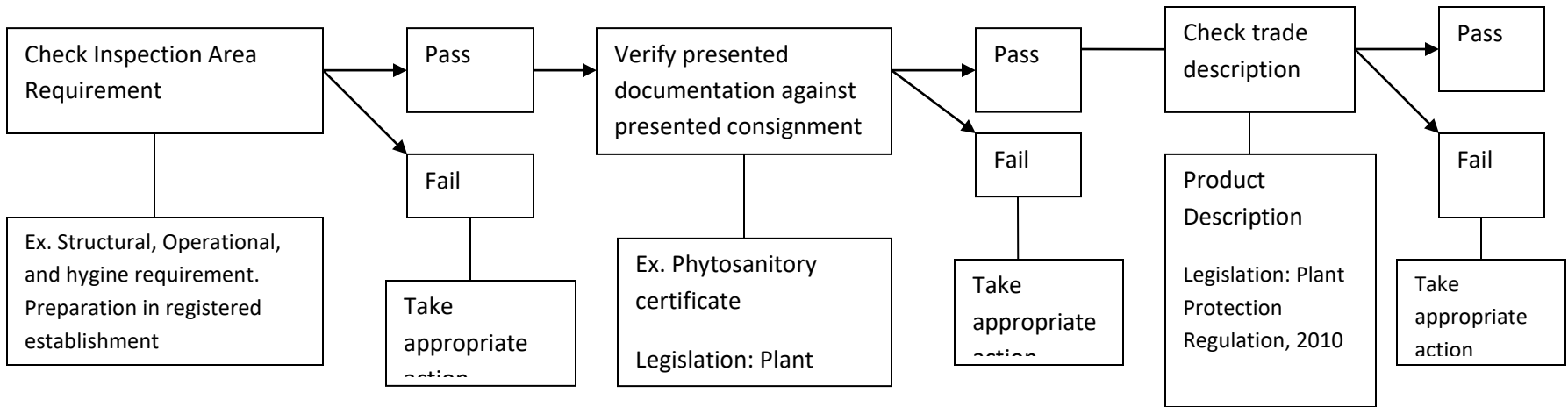
As part of the inspection process, information concerning inspection procedures for a commodity should be documented and made available on request to the parties concerned in application of the transparency principle (ISPM 1:1993). This information may be part of bilateral arrangements covering the phytosanitary aspects of a commodity trade.

Diagram 1: Flow Chart for Inspections of consignments

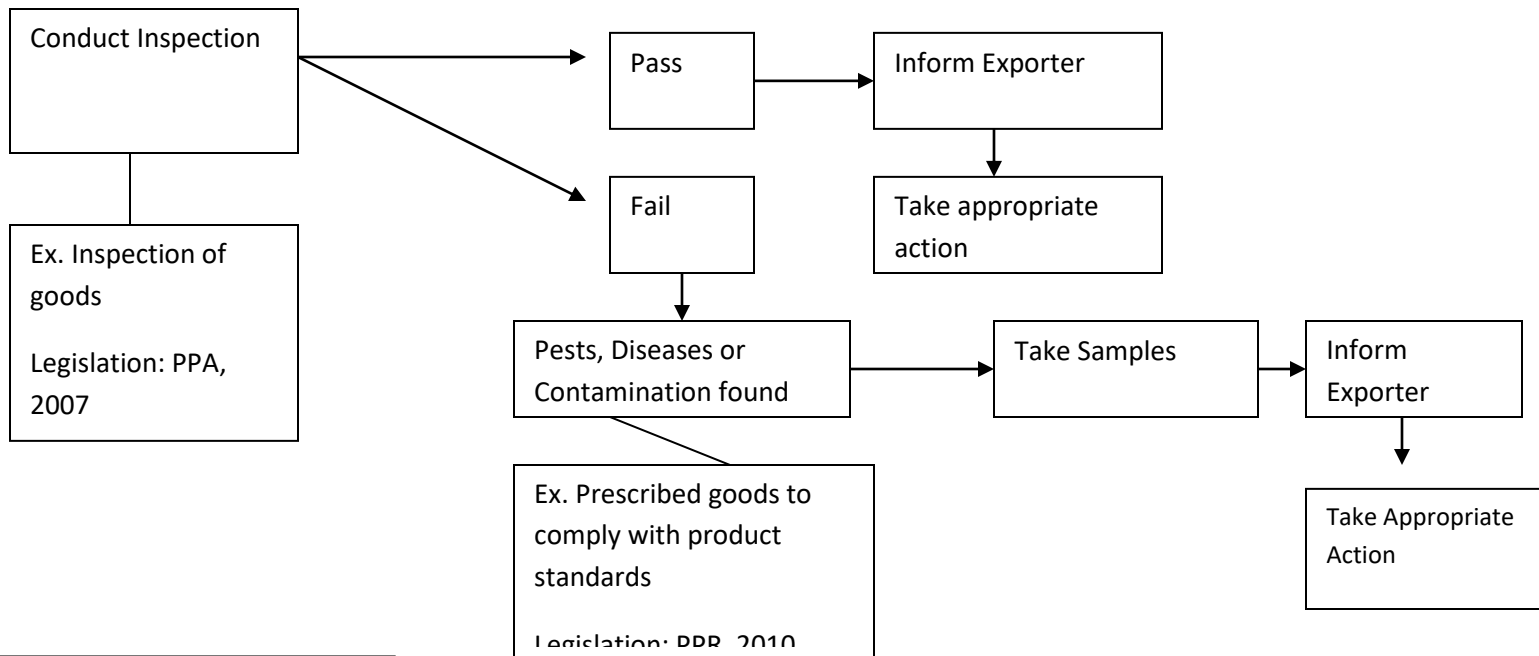
1. Pre Inspection



2. During Inspection



2. During Inspection Contd.



3. Post Inspection

