

PM 3/96 (1) Official controls of passenger luggage at points of entry

Specific scope: This Standard provides recommendations to National Plant Protection Organizations (NPPOs) on the process for passenger luggage checks, including risk profiling, at airport points of entry. The Standard also provides guidance on inspection of plants or plant products and other regulated articles found in passenger luggage. Some elements of this Standard may also be applicable to passengers using other forms of travel (e.g. ship, train or by road). The Standard also provides guidance on cooperation with relevant authorities such as customs and provides general guidance to NPPOs on awareness raising for passengers.

Specific Approval: This Standard was first approved in 2024–09.

1 | INTRODUCTION

International passenger luggage can contain plants or plant products (e.g. cuttings, fruit, vegetables, cut flowers, and wood products) and other regulated articles (e.g. soil) (hereafter referred to as plants or plant products unless otherwise stated) that can be infested with pests. Such items may be intended for planting, private consumption (either during travel or upon entry), as souvenirs, or for sale in the country of destination. Each year, for air travel alone, billions of passengers travel on flights world-wide. In 2019, there were approximately 38.3 million flights transporting 4.5 billion passengers worldwide (ICAO, 2019). Although most passengers are unlikely to carry prohibited plants or plant products, surveys globally highlight sufficient interceptions to warrant a control system. In New Zealand for example, a survey of 6816 passengers luggage entering the country identified 3% were carrying fresh or dried plant products. In the United States of America, between 1984 and 2000, over 290 000 specimens of alien insects were intercepted from passenger luggage at international airports (Liebhold et al., 2006). From 2016 to 2021, large quantities of plant products were found in the luggage of passengers travelling from outside the EU to Italy. Several non-native pests were recorded mainly from

fruits and vegetables including some quarantine pests (Pace et al., 2022). EPPO Pest Risk Analysis frequently identifies international passengers and their luggage as a potential pathway for the entry of pests into the EPPO region (for example fruit flies, beetles and caterpillars of Lepidoptera [EPPO, 2010, 2020a, 2020b]).

Even if the amount of regulated plants or plant products in passenger luggage is mostly limited to small quantities, there is a chance that small items may be infested with pests constituting a risk in the country of destination. Plants or plant products may not only be purchased directly from nurseries or orchards, but could also originate from local markets or traders, which may be supplied with products grown in private gardens or collected in the natural environment. These items can pose a pest risk as they are not usually treated to avoid infestations with pests, and no phytosanitary inspections for the purpose of export to another country have been carried out in the country of origin.

In some cases, plants or plant products are easily detected by official personnel at the points of entry, for example cut orchids that have traditionally been handed to passengers at certain airports when leaving tropical countries. However, other plant products which are intended as souvenirs, are usually stored in passengers' luggage and not detectable without actively opening luggage for checks.

Many international passengers lack awareness of the pest risk of carrying plants or plant products, and that there are specific restrictions and requirements in place in most countries. In addition, it should be considered, that some people may consciously use private luggage to bring regulated plants or plant products into a country for commercial purposes. Relatively small quantities of seed can already constitute a significant commercial value and may be an incentive for smuggling.

Passenger luggage checks (stopping passengers and searching their luggage) of private persons can be subject to legal restrictions. For the majority of EPPO countries, it is the customs authorities that are responsible and are authorized to carry out official checks of passengers' luggage at points of entry.

2 | PASSENGER AWARENESS

Travellers often have little or no awareness of specific regulations concerning the transportation of plants or plant products for personal use or consumption. Therefore, awareness raising campaigns are important tools that can act to inform international travellers of plant health regulations. These campaigns can disseminate key information in a number of different formats (e.g. leaflets, posters, short videos, interactive stands at points of entry) with the aim of raising awareness and minimizing the phytosanitary risk (see [Appendix 1](#) for examples).

Awareness raising for air passengers [international travellers] should be considered. Passengers should be made aware of the risks and restrictions of bringing plants or plant products into another country or their home country.

It can be useful to provide information at the time of travel planning. The NPPO may inform national and international travel agencies and airlines operating in their countries about national and international plant health regulations. Travel agencies and airlines should be encouraged to inform their clients well in advance of, or during, the journey. Awareness raising before embarking on international travel can be useful.

To motivate passengers to comply with the regulations, it is important that they are aware of the pest risk that is involved in the uncontrolled international transport of plants or plant products. This is also the message of awareness posters and leaflets produced by EPPO in respective national languages which can be displayed by NPPOs at points of entry to raise the awareness of passengers regarding plant health.

Other important information that should be provided may include a list of prohibited goods, requirements of a phytosanitary certificate and phytosanitary inspection for certain plants or plant products (if required by a country¹), and any concessions to the rules. At the same time the message should be clear and understandable for a broad public.

The NPPO may establish contacts with NPPOs in other countries to draw the attention to the plant health regulations of their (own) country or to raise awareness of particular risks.

The EPPO Standard PM 3/86 *Raising public awareness of quarantine and emerging pests* (EPPO, 2019a) provides NPPOs with general guidance on raising awareness and presents a number of different examples of information dissemination and publicity activities. The EPPO 'Don't risk it!' posters (<https://www.eppo.int/>

¹All plants, fruits (with the exception of bananas, coconuts, dates, pineapples and durians), vegetables, flowers and seeds must be accompanied with a phytosanitary certificate (issued by the exporting countries national plant protection authorities) when brought into the European Union, with the exception of the aforementioned products coming from Switzerland or Liechtenstein or the United Kingdom (Northern Ireland).

[RESOURCES/eppo_publications/don_t_risk_it](#)) have been placed at points of entry (and exit) throughout the EPPO region. Translation of awareness raising materials to appropriate languages for specific travel routes is expected to improve awareness raising results.

In the European Union, Member States harmonize and display information posters about the prohibition of regulated material without a phytosanitary certificate at points of entry, The European Union also advises (but not obligatory) that similar posters are displayed at points of departure.

[Appendix 1](#) provides further information on awareness raising material for passengers.

3 | RESPONSIBILITIES, PROCEDURES, TRAINING AND REGULATIONS

3.1 | Responsibilities

Close cooperation between customs and the NPPOs is essential because it is the customs authority that is primarily responsible for passenger and luggage checks. It is the NPPO's responsibility to enforce the phytosanitary regulations. The NPPO usually cannot stop passengers and carry out checks on passengers' luggage at the point of entry without the cooperation of customs officers. The customs officers provide administrative assistance to the NPPO in support of phytosanitary inspections of passengers' luggage or may carry out the inspection of luggage using instructions from the NPPO.

In many EPPO countries, the NPPO will be involved when plants or plant products are found by the customs authority. The allocation of responsibilities between customs and the NPPO may differ between countries but it should be clearly defined who is responsible for carrying out each procedure (see [Section 3.2](#)), where it is carried out, and which tools are used. The communication channels between customs and the NPPO should also be clarified. Regular meetings and direct lines of contact are likely to support good cooperation.

3.2 | Procedures

The procedures and responsibilities of the relevant authorities should be clearly defined, e.g. on inspections, measures in case of non-compliance and destruction of non-compliant plant material. The efficient organization of the processes can be challenging when both customs and the NPPO are involved and the NPPO is not usually on site during the checks.

NPPOs should be aware of the inspection points that might be at airports that are not officially registered phytosanitary border control posts and may not comply

with the phytosanitary requirements. These situations could make collaboration between customs authorities and NPPO more complicated.

3.2.1 | Risk-based approach

At points of entry, plants or plant products in passenger luggage can be detected by using a risk-based approach. Therefore, risk-profiling should be part of the planning process of passenger checks. It should be taken into account that the selection of checks by the customs may be based on a broader risk profile in which pest risks are just one component.

A phytosanitary risk-profile should be designed by the NPPO based on data and experience from previously conducted passenger checks and additional expert risk considerations. Therefore, careful and complete documentation of the checks is essential. Risk-profiles should be specified for each point of entry in a country.

Important factors to consider when determining the risk profile are (1) the frequency and quantity of the introduced plants or plant products and (2) the likelihood of the plants or plant products being infested in the country of origin with pests regulated in the country of destination.

The frequency and quantity of plants or plant products found in passenger luggage varies with the country of departure and may be explained by historical links, social factors and cultural habits. This also applies to the type (e.g. species) of plants or plant products brought in by passengers. As commodities of plants may have a different pest risk, this factor should be considered. Experience from previous interceptions can show from which countries high risk plants or plant products have been intercepted at individual points of entry.

The origin of the plants or plant products has an influence on the phytosanitary risk dependent on the presence of quarantine pests regulated in the country of destination. Therefore, the country of departure of the flight should be included in the risk profiling. As an example, Pace et al. (2022) showed that in Italy many infested fruits were carried in passengers luggage arriving from Asian countries, while in South Africa there was a high frequency of pest interceptions in passenger luggage arriving from neighbouring countries (Tshikhudo et al., 2021).

The identified high-risk countries of departure may vary depending on the country of destination because of specific travel routes. In such cases it is essential that the NPPO has collected enough data based on checks carried out and included in their risk profile. Not all passengers travel by direct flights. Flights from major connecting hubs should also be identified and assessed for risk.

The time of year of travel should be a consideration for the risk-based profiling. Travel periods with higher-than-normal passenger volume (for example holiday periods, summer and national holiday periods) may require a higher level of passenger luggage checks.

Amounts of plants or plant products in the luggage may also be influenced by harvest times in the country of origin. In addition, the risk of establishment of pests in the country of destination may vary between different seasons.

Risk profiles should be updated at regular intervals to include changing factors such as travel habits, trends (e.g. new horticultural or culinary trends), specific events in the country of entry (festivals, horticultural shows, etc.), season, changes in airline flight schedules and other external factors (see below). In order to adapt the national risk profile, it is necessary that NPPOs exchange data and knowledge on goods seized from passenger luggage. In this way, NPPOs can react to recent developments. Therefore, communication between NPPOs about intercepted goods is key to optimize the risk profile for their own territory.

The NPPO should inform custom officials of the phytosanitary risk-based approach which should be followed.

In addition to risk profiling, random checks should also be carried out on passenger luggage arriving with flights with a low risk profile.

3.2.2 | Practical procedure

The following aspects should be considered when defining a specific procedure for passenger luggage checks:

3.2.2.1 | *Search for regulated articles*

The first step of the checks is the search for plants or plant products in the luggage. This is usually done in the customs area at the exits of passenger channels of airports. Generally, passengers leaving the aircraft are guided to the luggage claim area where they may pick-up hold luggage and move through to the customs area. Passengers' luggage checks should include both checked-in luggage (hold luggage) and hand-held cabin luggage. The luggage of crew members should also be considered for random checks. Normally, the channel to declare goods will be placed next to the exit, allowing people to declare any goods before they proceed to the exit. Countries should allow passengers to declare the goods voluntarily and ask for a regular import inspection. The declaration usually takes place in the customs channels. The organization of a phytosanitary inspection may be complicated due to the fact that official and trained staff of the NPPO or other competent authorities may not be present permanently.

In addition to visual examination, technical aids such as scanners, x-ray technology or sniffer dogs can also be used to find plants or plant products (Pace et al., 2022).

For further information on the main products that may be found in passenger luggage see Section 4.

3.2.2.2 | *Categorisation*

If plants or plant products are found, any accompanying documents should be checked and where necessary the plant material inspected (see Section Acknowledgements). However, NPPOs may abstain from a physical inspection if the necessary documents are not available, or the goods are prohibited.

Depending on national legislation, there might be import bans on certain plants and plant products, others might be regulated or require a phytosanitary certificate or need to fulfil special requirements such as treatments. It should be noted that the import regulations of some countries grant exemptions for the import of plants or plant products in small quantities for private use, which are otherwise regulated when these are imported in larger amounts.

Clear and straightforward import requirements and prohibitions, that effectively reduce pest risks are recommended. This will simplify procedures, communication (Section 3.2.2.3) and training (Section 3.3) and will ensure better understanding, compliance and enforcement.

Regulated plants or plant products may be seized and destroyed if they do not comply with national/regional regulations (for example a phytosanitary certificate is missing when required, or the product is over the permitted amount (or weight) or the product is prohibited). Another option is to forward the seized goods for laboratory analysis to determine whether regulated pests are present. This may contribute to the knowledge regarding the pest risk of certain products from specific origins.

Inspection should be conducted according to relevant regulations if the required documents are presented with the plants or plant products. Products that comply with the regulations are released to the passenger unless any regulated pests are suspected or found.

Prohibited plants or plant products and other regulated articles (e.g. soil) should be confiscated and disposed of in a secure way (see Section 3.2.2.6). Similarly, where the presence of a regulated pest is suspected the material should be confiscated and disposed of in a secure way.

3.2.2.3 | *Communication*

The procedure for passenger luggage checks, and the pest risk of pest introductions with plants or plant products should be explained to passengers subjected to checks. This can create awareness and can act to limit the risk of them transporting plants or plant products in the future. It may be appropriate to hand out targeted leaflets or similar information material for this purpose.

If plants or plant products are found in the luggage, passengers may be given the option to dispose of the goods voluntarily. Safe disposal is essential and therefore insect-proof bins (see Section 3.2.2.6) should be provided for passengers.

In cases of voluntary disposal of non-compliant plants and plant products, the authorities can decide to further investigate the material for the presence of quarantine pests in order to gain more knowledge about the potential pest risk.

3.2.2.4 | *Phytosanitary inspection*

The inspection should take place in an appropriately equipped and well-lit area, preferably a designated inspection area. If the inspection cannot be organized immediately, the confiscated goods should be stored safely, e.g. where relevant kept under cooled conditions and locked in an insect-proof container.

The visual examination should begin with an overall examination of the contents of the luggage. Additionally, a visual examination of the empty bag should be conducted in order to inspect for any pests which are loose in the bag and/or the packaging of the plant(s) or plant product(s).

The inspections of the plants or plant products should focus on regulated articles. In general, the same principles apply for inspections of plants or plant products from luggage as to other import inspections. However, it is sensible to examine all plant material found as the amounts can be small.

For further information on specific inspection procedures see Section 5.

3.2.2.5 | *Decision on non-compliance*

Any implemented procedure should ensure that non-compliant plant and plant products are seized and the passenger is issued with a notice of abandonment. Afterwards, the plants and plant material are safely destroyed with or without prior phytosanitary inspection.

Depending on national laws, a fine can be imposed for the movement of goods that do not comply with national/regional regulations or arrangements can be made for the passenger to pay the inspection and disposal costs.

3.2.2.6 | *Disposal*

The handling procedure of non-compliant material should be clearly defined and known to all persons involved in the controls. It is important that the storage place for the confiscated material is only accessible to trained persons and appropriate warning signs are attached to the waste containers (Figures 1 and 2).

Non-compliant plants or plant products from passenger's luggage are usually destroyed. The temporary storage of the confiscated goods at the point of entry and the disposal should be carried out in a safe manner to avoid pests



FIGURE 1 Example of waste container: Confiscate cooler in Brandenburg (DE), 240 L, interchangeable container, storage at 5°C and destruction in a waste incineration plant, regular cleaning and disinfection of the container (Courtesy: Landesamt für Ländliche Entwicklung, Landwirtschaft und Flurneuordnung (LELF), Ref. 34).



FIGURE 2 Example of waste container: Container at Frankfurt Airport (DE), storage of seized plant material in closed plastic bags, daily disposal of the closed bag in a waste incineration plant. (Courtesy: Regierungspräsidium Gießen Dezernat 51.4).

escaping. For this purpose, it is suitable to pack the goods securely and place them in an insect-proof storage device. Freezers are appropriate as they deactivate movement of insects or special bins can be used with mechanisms that prevent insects from getting out. The confiscated goods should be emptied regularly for secure destruction e.g. incineration by a recognized waste carrier.

3.2.2.7 | Reporting

Documentation of the controls and especially the non-compliances is essential for future risk profiling and focused awareness raising campaigns. Therefore, the number of checks, the dates, the commodities and quantities found and the non-compliances should be noted along with the entry point and country of origin as a minimum set of data. Additional information may also be helpful if available.

Notification of non-compliance is required according to ISPM 13, and this also concerns non-compliance in passenger travel. According to point 4.1 of ISPM 13, repeated instances of prohibited articles in small, non-commercial quantities carried by passengers may be

considered a significant non-compliance notified by the country of destination. The country of origin can take preventive measures against recurrence such as increased and focussed awareness raising activities.

3.3 | Training of customs officials, border force officers and phytosanitary inspectors

To ensure good professional practice in the control of passengers in respect of phytosanitary aspects by custom officials and phytosanitary inspectors, sufficient training should be provided to all persons involved in the checks to ensure that these persons carry out efficient and effective inspections.

It is important, that customs officers who are usually responsible for the first checks of the luggage have adequate training in (1) the national regulations that apply to the import of plants or plant products especially to passengers and (2) the identification of high risk products, as well as the phytosanitary import requirements to be complied with. The training should also include how the co-operation between customs and NPPO is organized. For example when the NPPO should be notified and involved actively.

Training of customs officers should equip these professionals with the knowledge of which plants or plant products should be confiscated from passengers and which plants or plant products are allowed to be carried by passengers without any phytosanitary import requirements. This requires a knowledge of plants or plant products which it is prohibited to import, plants or plant products that require a phytosanitary certificate, or are subject to national or regional regulations, and those that are subject to phytosanitary controls.

In case of doubt, the customs officers should be able to directly contact experts from the NPPO for advice. In general, the phytosanitary relevant products should be detailed during their training. This training should also include advice to officers on the riskiest products (see Section 6) and point out the difference between the pest risk of fresh and dried goods.

Training should provide the involved persons (e.g. customs officers) with practical guidance on the correct methods of storing plants or plant products along with methods of disposal.

4 | THE MAIN PRODUCTS OF CONCERN AND THEIR ASSOCIATED PESTS

Some products are more typical for passengers to bring in their luggage than others. Such 'typical' products include fruits and vegetables, cut flowers or seeds. Plants intended for planting, e.g. cuttings, might also be found in passenger luggage, as well as wooden ornamental products.

For each of the main products of concern, this Standard provides general information and includes examples of groups of pests often at levels higher than the species (e.g. Coleoptera, Lepidoptera, etc.). The phytosanitary procedures described in the Standard are primarily aimed at preventing the introduction of EPPO A1 and A2 pests into the EPPO region through passenger luggage at points of entry.

Details on EPPO A1 and A2 pests can be found in the EPPO Global Database (2023).

4.1 | Fruit

Fruit is commonly found in passenger luggage, either in small quantities intended for personal consumption during travel or shortly after, or in larger quantities for use when returning home or even for sale in small shops. Examples of such fruit that can be included in passenger luggage are: *Carica papaya* (papaya), *Citrus* species, *Mangifera indica* (mango) and *Malus domestica* (apple). Fruit can vary in size e.g. from small rambutan fruits to large pineapples. The chance for detection might depend on the quantity that is carried in luggage. Bigger quantities may be separately packed, e.g. in boxes or bags. Smaller quantities might be included in the normal luggage or in hand luggage.

4.1.1 | Pests of fruit

Major pests of fruit include a number of different arthropod species, including fruit flies and other insects. Location of pests may depend on the life stage and behaviour of the different pests e.g. a larvae might be found inside the fruit and eggs may be on the fruit's skin.

Depending on the duration of the transport, the insects might develop further.

Fungi, bacteria, viruses or virus-like organisms might also be carried via fruits; however, the risk of spread via these products is likely to be lower than that of more mobile insect pests.

EPPO Standards which detail pests of fruit include:

PM 3/90 Inspection of citrus fruits consignments (EPPO, 2020c).

PM 3/92 Consignment inspection of fresh fruit and vegetables for fruit flies (EPPO, 2021a).

4.2 | Vegetables

Similar to fruits, passengers might bring in their luggage common or exotic vegetables. Examples of vegetables that are moved in passenger luggage include *Abelmoschus esculentus* (okra), *Colocasia esculenta* (taro), *Manihot esculenta* (cassava) and *Solanum lycopersicum*

(tomato). Other plant parts such as leafy herbs may be brought in passengers' luggage.

4.2.1 | Pests of vegetables

Vegetables brought in passenger luggage can contain a variety of pest species including thrips, whiteflies, larvae of Lepidoptera, mites and scale insects.

Fungi, bacteria and plant viruses may also be on vegetables. These pests may be present internally and externally. The risk of spread via these products is likely to be lower than that of more mobile insect pests.

EPPO Standards which detail pests of vegetables include:

PM 3/77(2) Vegetable plants for planting- inspection of places of production (EPPO, 2022).

PM 3/92 Consignment inspection of fresh fruit and vegetables for fruit flies (EPPO, 2021a).

4.3 | Plants for planting (excluding seed)

Plants for planting (excluding seed) may be found in passenger luggage. This is mainly related to cuttings, but additionally tubers (e.g. potato), bulbs or roots may be carried in passengers' luggage. Whole plants may also be brought by passengers, e.g. potted plants which may include roots with soil attached which heightens the pest risk.

The likely intention of bringing such plants in luggage is to further cultivate the species either in protected environments or in gardens. This use of the plants increases the risk of pest establishment compared to fruits and vegetables. Additionally, the plants themselves may be pests (e.g. invasive alien plant species).

4.3.1 | Pests of plants for planting

Plants for planting are considered a major pathway for pests and are regulated by most countries. Numerous pest species may be associated with plants for planting depending on the species and its origin. Pests can be associated with all plant parts and soil.

Details on pests associated with specific plants for planting can be found in the EPPO Global Database (2023).

4.4 | Seed and grain

Seed and grain of certain plant species can be popular items for souvenirs from travels, e.g. large seeds, seed pods of palms or small bags of seeds. Seeds can also be incorporated into souvenirs as decoration, or for jewellery and can potentially contain pests both internally and externally.

Seed, intended for sowing, in passenger luggage may be in packets purchased from commercial suppliers, collected from the environment or seed may be attached to plant parts. Seed may be a mixture of different species or consist of seed of one species.

4.4.1 | Pests of seed

Numerous seed-borne or seed transmissible pests may be associated with seed depending on the species of seed and its origin. Additionally, the seeds themselves may be pests (e.g. invasive alien plant species) or seed may be contaminated with seed of invasive alien species.

Pests of seed include insect pests that may feed internally or on external parts of seeds. Fungi and nematodes may be present both internally and externally. Bacteria and viruses can also be transmitted via seed. (ISPM 38 International movement of seeds, IPPC (2021)).

EPPO Standards which detail pests of seed include:

PM 3/80(2) Consignment inspection of seed of *Solanum lycopersicum* (EPPO, 2021b).

PM 3/78(2) Consignment inspection of seed and grain of cereals (EPPO, 2021c).

4.5 | Cut flowers and branches

Passengers may bring cut flowers or cut branches with them. A number of different species may be carried in passenger luggage including roses, chrysanthemums, orchids, carnations and foliage from various countries.

Cut flowers have a comparatively short shelf life and are only intended to be used for ornamental display purposes until they are discarded, thus reducing the likely exposure as a potential source of pest spread. However, mobile pests may escape from the flowers before disposal.

4.5.1 | Pests of cut flowers

Cut flowers are hosts to a wide range of insect pests due to their complex structure which provides hiding places for pest development. Additionally, some insect pests naturally feed on flowers and pollen and are attracted to flowers due to their scent and colour.

EPPO will start the development of a PM 3 Standard on the inspection of consignments of cut flowers in 2024.

4.6 | Wood and wood products

Wood might be carried in luggage by passengers as souvenirs, either as wood itself, e.g. driftwood or wood processed into ornamental products. Concerning the

detection of regulated or prohibited wood, it might be difficult to determine the plant species from which the wood is derived and how the wood may have been processed and treated. The focus of the inspections should be untreated, unprocessed wood as this is more likely to contain pests for example wood boring insects.

4.6.1 | Pests of wood

Wood and bark can be infested with a variety of pests including longhorn, bark and ambrosia beetles, nematodes and fungal species. Insect larvae may be living inside the wood without any external signs.

EPPO Standards which detail pests of wood include:

PM 3/87 Monitoring and consignment inspection of wood chips, hogwood and bark for quarantine pests (EPPO, 2019b).

4.7 | Soil

The import of soil is regulated and prohibited in many EPPO countries. Soil can be either attached to plants or it might be carried by passengers as soil itself. Soil containing organic material is likely to pose a greater pest risk compared to pure sand.

4.7.1 | Pests associated with soil

Soil borne organisms can present a high pest risk. Soil borne fungal species along with viruses and nematodes may be present in soil, along with invertebrate species or certain life stages of these.

EPPO Standards which detail pests of soil include:

PM 3/97 (1) Inspection of consignments of plants for planting for invasive alien plants (EPPO, 2024a).

PM 3/98 (1) Inspection of growing media associated with consignments of plants for planting (EPPO, 2024b).

5 | INSPECTION

The ISPM 5 *Glossary of phytosanitary terms* (IPPC, 2024) defines inspection as 'Official visual examination of plants, plant products or other regulated articles to determine if pests are present or to verify conformity with phytosanitary requirements'.

Typical elements of international and regional Standards on phytosanitary inspections (for example ISPM 20 (IPPC, 2017), ISPM 23 (IPPC, 2016a), ISPM 31 (IPPC, 2016b) and EPPO PM 3/72(2) (EPPO, 2008)) do not specify passenger controls but the appropriate basic principles should still be observed.

Inspectors and other border staff responsible for luggage controls should have enough expertise for inspections (see chapter 3.3).

If the facilities and equipment allow, each bag examined should be carefully emptied in such a way that all contents can be checked, for example on a specific inspection table. The inspection should be carried out in such a way that no relevant items are overlooked.

Emptying of the bag should be conducted in a methodical manner where items at the top of the bag are (re)moved first followed by items below. If a plant or a product of concern is found, the item(s) should be carefully isolated from the bag and the other contents.

If mobile insects are found during the investigation of the luggage, it is important to safely isolate the relevant products and insects to avoid specimens from escaping. Therefore, plastic bags and containers for the purpose of sampling should be available when opening the luggage.

5.1 | General aspects of inspection

This section contains guidance on sampling for visual examination by plant health inspectors.

During visual examination, inspectors should be alert to the possible presence of pests either regulated or pests posing a potential threat but not yet regulated.

For visual examination, plant health inspectors should be equipped with a torch and a magnifying lens (10×). Cutting tools should be made available. The place where the inspection is conducted should be undisturbed (away from passengers) and well lit.

The commodity should be subjected to a systematic examination in order to detect the presence or signs of pests.

Irrespective of the regulated product, identification to species or genus level should be attempted. When the identity of a product cannot be confirmed, the product should be seized and destroyed.

An official laboratory should be involved for identification of possible pests. If the inspector suspects the presence of a pest or cannot identify a potential pest, the commodity should be sampled for laboratory tests.

When an unfamiliar pest or a pest from the EPPO Alert List is detected, the procedures specified in the EPPO Standard PM 5/2 *Pest risk analysis on detection of a pest in an imported consignment* (EPPO, 2002) should be followed to allow the NPPO to make a decision as to what phytosanitary action to take.

5.2 | Inspection of fruit

Any wrapping on individual fruit should be removed. After examining the overall condition of the fruit (e.g. the presence or absence of leaves and peduncles,

rotten fruits and/or superficial lesions), each fruit should be examined over its whole surface looking for lesions and oviposition marks or scales. Each fruit should be gently pressed in order to detect soft areas indicative of Tephritidae or Lepidoptera larvae. Destructive sampling may be required to look for internal symptoms.

As fruit might be ripe or over ripe and leak juice, paper towels or similar should be at hand. If the diagnosis cannot be conducted at the place of control, lockable containers or sealable bags should be available for secure transportation of pests or samples.

Examples of symptoms that are characteristic of certain groups of pests.

- Ring shaped scars around the calyx or fruit bottom or clear yellow thrips ≤ 1 mm (*Scirtothrips* spp.),
- Oviposition holes (nearly imperceptible particularly in the case of *Anastrepha*) with small discoloration on the fruit surface or rotten fruits (Tephritidae),
- Pink to greyish-brown scab pustules (*Elsinoe* spp.),
- Brownish, slightly erumpent, crater-like lesions with a corky texture (fungal infection),
- Black or dark spots (lesions on fruit are very diverse) (fungal infection),
- Circular to irregular spots up to 10mm in diameter (fungal infection),
- Dark or soft patch on the skin with an entrance hole (fruit boring species, e.g. Lepidoptera),
- Soft or rotten parts of the fruit (fungal infection or Tephritidae or Lepidoptera infestation).

5.3 | Inspection of vegetables

Any outer packaging should be removed and the vegetable should be carefully inspected to ascertain the general condition. Destructive sampling may be required to look for internal symptoms.

Where the vegetables contain leaves (e.g. pak choi), both leaf surfaces should be inspected for signs of pests. Separating the leaves will allow the inspector to evaluate if any pests are hidden within the vegetable.

After examining the overall condition of the vegetables, each vegetable should be examined over its whole surface looking for any abnormalities.

Small arthropods present between foliage may be detected by shaking or tapping the material over a shallow white tray or paper.

Examples of symptoms that are characteristic of certain groups of pests.

- Chlorotic spots on leaves accompanied with honey dew or sooty mould (aphids, mealybugs, psyllids).
- Leaf curling (aphids, mealybugs, psyllids).
- Bore holes with or without excrement (Coleoptera and Lepidoptera species).

- Oviposition holes (insect pests).
- Yellowing or other abnormal discoloration (fungal infection).
- Soft or rotten parts of the fruit (fungal infection or fruit fly infestation).
- Removing calyx of fruiting vegetables (e.g. tomatoes) for symptoms of Thrips.
- Leaf mines (Diptera and other leafminers).
- Frass (Coleoptera or Lepidoptera larvae).
- Spotting and webbing (spider mites).

5.4 | Inspection of seed

Seed may be inspected for contamination or infestation by emptying the seed packet into a clear white shallow container and the contents inspected using a hand lens and a light source. However, visual examination of seed alone is not considered to be sufficient to prove the absence of some pests as this will only reveal visually detectable pests such as insects. Alternatively, seed can be sent to the laboratory for further analysis.

Countries may also have testing requirements for seed for import which are difficult to fulfil for the small amounts which are likely to be associated with passenger baggage.

5.5 | Inspection of cut flowers and branches

Cut flowers may be protected by packaging which should be completely removed before inspection. Once removed, the packaging should be inspected for any signs of plant pests.

Visual examination of all parts of the cut flower (stem, foliage, flowers) is required. Checking the consistency of the stem can help identify stem boring insects. Inspection may include destructive sampling to detect pests which are inside the stem.

Small arthropods on the foliage or within flowers may be detected by shaking or tapping the cut flowers over a shallow white tray or paper. A small brush can help to find thrips in the flower buds.

Examples of symptoms that are characteristic of certain groups of pests:

- Leaf spots and damage such as holes in buds or stems (beetles or caterpillars),
- Discolouration, for example silvered appearance (thrips) or yellow spotting (spider mites),
- Leaf curling, deformation of leaves (thrips, caterpillars),
- Exit holes in stems (beetles, moths).

5.6 | Plants for planting (excluding seeds)

Plants for planting may be protected by packaging which should be completely removed before inspection. Once removed, the packaging should be inspected for any signs of plant pests.

Visual examination of all parts of the plant is required. Inspection may include destructive sampling of plants to detect pests which may be inside the stem. Inspection of above-ground plant parts can be similar to that of cut flowers and branches.

Careful attention should be given to the root system (if present) to ensure that the roots are free from soil or other contamination or cyst nematodes. If soil is attached, it should be removed by gentle shaking or separating roots with soil. Soil samples should be further investigated in the laboratory for pests such as nematodes.

Organisms present on foliage or within flowers may be detected by shaking or tapping of plant material above a shallow white tray. Attention should also be given for any unusual appearance e.g. leaf discolouration, spots, necrosis and deformation.

Examples of symptoms that are characteristics of certain groups of pests:

- Chlorotic spots on leaves accompanied with honey dew or sooty mould (aphids, mealybugs, psyllids),
- Chlorosis or necrosis on leaves (fungal infection),
- Leaf curling (aphids, mealybugs, psyllids),
- Bore holes in woody stems, with or without excrement (Coleoptera species),
- Oviposition holes (insect pests),
- Brown or hook-shaped roots,
- Stems: bark cracking, cankers, spores spore formation (fungal infection) Roots: galls (nematodes),
- Roots: eggs (*Ripersiella*),
- General leaf feeding damage,
- Scales,
- Leaf yellowing / discolouration.

5.7 | Wood

Unprocessed regulated wood types can present a pest risk and wood material should be visually examined for signs of infestation. In addition, the material should be inspected for signs of treatment. Inspection may include destructive sampling of the product to detect pests which are inside the wood. Cutting tools with a serrated edge are useful when inspecting wood products.

Visual examination of the wood product and its packaging is required. The presence of insects (both dead and alive), at various developmental stages may

be visible. Exit holes, sawdust and frass protruding out of exit holes and chewing marks may all be signs of infestation with living pests. Attention should be given to discoloration of wood (especially wood collected from nature) may be a sign of pathogen infection.

Examples of symptoms that are characteristic of certain groups of pests.

- Bore holes with or without excrement (Coleoptera species) (e.g. *Agilus* species),
- Galleries – Coleoptera species (e.g. *Dendroctonus* or *Ips* species),
- Discoloration of wood with abnormal growth (fungal infection),
- Canker zones, decaying bark, mushroom formation (fungal infection),
- Blue discoloration (blue-stain fungal growth) can be an indication of the presence of pine wood nematode. These fungi (e.g. species of the genera *Ophiostoma* and *Grosmannia*) are frequently disseminated as spores by wood-inhabiting beetles,
- Frass or sawdust (wood boring caterpillars or beetles).

6 | SAMPLING FOR LABORATORY TESTING

For the identification of symptoms or possible pests, or to detect asymptomatic infestation, a sample should be taken and sent to the official laboratory to confirm the identity of the pest.

If living insects are found, they may be preserved in sealed tubes (with food material) or in an alcoholic solution. Plants or plant products (e.g. fruit and vegetables) with symptoms can be placed in closed containers or sealed bags along with absorbent components to prevent rotting and kept at a low temperature where relevant before being sent to the diagnostic laboratory. If possible, the whole inspected item (plant or fruit, etc.) should be sent to the laboratory.

Samples should be sent to the laboratory as soon as possible to avoid further deterioration of the plant material.

ACKNOWLEDGEMENTS

This Standard was first drafted by Ms. Steinmoeller, Ms. Kokott and Ms. Kaminski. It was reviewed by the Panel on Phytosanitary Inspections.

REFERENCES

- EPP0 (2024a) PM 3/97 (1) Inspection of consignments of plants for planting for invasive alien plants, *EPP0 Bulletin*.
- EPP0 (2024b) PM 3/98 (1) Inspection of growing media associated with consignments of plants for planting, *EPP0 Bulletin*.
- EPP0 (2023). EPP0 Global Database. <https://gd.eppo.int/>
- EPP0 (2022) PM 3/77(2) Vegetable plants for planting- inspection of places of production, *EPP0 Bulletin*, 52 526-543.
- EPP0 (2021a) PM 3/92 Consignment inspection of fresh fruit and vegetables for fruit flies, *EPP0 Bulletin*, 51 406-417.
- EPP0 (2021b) PM 3/80(2) Consignment inspection of seed of *Solanum lycopersicum*, *EPP0 Bulletin*, 51 397-403.
- EPP0 (2021c) PM 3/78(2) Consignment inspection of seed and grain of cereals, *EPP0 Bulletin*, 51 387-396.
- EPP0 (2020a) *Pest risk analysis for Gymnandrosoma aurantianum*. EPP0, Paris, Available at <https://gd.eppo.int/taxon/ECDYAU/documents>
- EPP0 (2020b) *Pest risk analysis for Naupactus xanthographus*. EPP0, Paris, Available at <https://gd.eppo.int/taxon/NAUPXA/documents>
- EPP0 (2020c) PM 3/90 Inspection of citrus fruits consignments. *EPP0 Bulletin*, 50 383-400.
- EPP0 (2019a) PM 3/86 Raising public awareness of quarantine and emerging pests. *EPP0 Bulletin*, 49, 488-504.
- EPP0 (2019b) PM 3/87 Monitoring and consignment inspection of wood chips, hogwood and bark for quarantine pests, *EPP0 Bulletin*, 49 505-523.
- EPP0 (2010) *Pest risk analysis for Bactrocera invadens*. EPP0, Paris, Available at <https://gd.eppo.int/taxon/DACUDO/documents>
- EPP0 (2008) PM 3/72(2) Elements common to inspection of places of production, area-wide surveillance, inspection of consignments and lot identification, *EPP0 Bulletin*, 39 260-262.
- EPP0 (2002) PM 5/2 Pest risk analysis on detection of a pest in an imported consignment *EPP0 Bulletin*, 32, 235-239.
- IPPC (2024) *ISPM 5 Glossary of phytosanitary terms*, FAO, Rome.
- IPPC (2021) *ISPM 38. International movement of seed*. FAO, Rome.
- IPPC (2017) *ISPM 20 Guidelines for a phytosanitary import regulatory system*, FAO, Rome.
- IPPC (2016a) *ISPM 23 Guidelines for inspection*, FAO, Rome.
- IPPC (2016b) *ISPM 31 Methodologies for sampling of consignments*, FAO, Rome.
- ICAO (2019) *ICAO Annual Report 2019*. International Civil Aviation Organisation, Montreal. <https://www.icao.int/annual-report-2019/Pages/the-world-of-air-transport-in-2019.aspx>. Accessed 24th September 2022.
- Liebhald AM, Work TT, McCullough DG, Cavey JF (2006) Airline luggage as a pathway for alien insect species invading the United States. *American Entomologist*, 52, 48-54.
- Pace R, Ascolese R, Miele F, Russo E, Griffio RV, Bernardo U, Nugnes R (2022) The Bugs in the Bags: The Risk Associated with the Introduction of Small Quantities of Fruit and Plants by Airline Passengers. *Insects* 13(7), 617. <https://doi.org/10.3390/insects13070617>
- Tshikhudo PP, Nnzeru LR, Rambauli M, Makhado RA, Mudau FN (2021) Phytosanitary risk associated with illegal importation of pest-infested commodities to the South African agricultural sector. *South African Journal of Science* 117(7/8) Art. #8675. <https://doi.org/10.17159/sajs.2021/8675>

APPENDIX 1 - AWARENESS RAISING MATERIAL ON PLANT HEALTH RISKS FOR INTERNATIONAL PASSENGERS

AWARENESS RAISING MATERIAL ('DON'T RISK IT!')

In 2013, EPPO published a 'Don't Risk It!' poster to raise public awareness about the risks of moving plants and their associated pests during international travel and to encourage responsible behaviour. The poster can be displayed in airports, seaports, railway stations, travel agencies and embassies.



The poster template is available via the EPPO website: https://www.eppo.int/RESOURCES/eppo_publications/don_t_risk_it.

NPPOs can personalize and translate the poster template to suit their awareness raising campaign. The poster is available already in many different languages via the EPPO website.

The 'Don't Risk It!' poster can be adapted for different displays, including producing an electronic version for a digital display (see image below).



Examples of displaying the 'Don't Risk It!' poster. (a) On a screen in the Valencia airport (ES) Courtesy: Wolfgang Willig (DE) (b) In the Malpensa express train (IT) Image courtesy Mariangela Ciampitti (IT), (c) Poster displayed on a luggage x-Ray at an airport in Hungary Courtesy: György Pataky (NPPO of Hungary), and (d) Large screen display at Milano railway station (IT) Courtesy: Mariangela Ciampitti, ERSAF-Lombardia (IT). See https://www.eppo.int/RESOURCES/eppo_publications/posters/feedback_don_t_risk_it for further examples.

SPECIES SPECIFIC POSTERS AND LEAFLETS

In addition to the 'Don't Risk It!' posters, pest specific posters or leaflets may be displayed at transportation hubs. The objective of these posters is to provide NPPOs with templates that can be easily adapted to different types of pest-specific information campaigns (e.g. early warning, pest reporting, containment and eradication programmes).

NPPOs can personalize and translate these templates to adapt them to their own needs and branding.

A number of posters are available via the EPPO website on specific pests, including insects, viruses and invasive plants.

The poster and leaflet templates are available via the EPPO website.

https://www.eppo.int/RESOURCES/eppo_publications/pest_specific_posters.



VIDEOS

Some EPPO countries have produced short, animated videos highlighting plant health issues often depicting passengers bringing back regulated items which may be infested with pests, and the consequences of these actions. These videos include the key messages that are important to relay to international passengers, visually with a simple story.

The EPPO website (https://www.eppo.int/RESOURCES/eppo_publications/posters/feedback_don_t_risk_it) has some examples of awareness raising videos from EPPO countries.

LUGGAGE TAGS AND KEY FOBS

In 2020, EPPO designed and produced luggage tags and keyfobs to raise awareness of plant health. The templates are on the EPPO website and NPPOs can personalize and translate the text.

Such material can be given to international passengers at transport hubs. This type of material can act as a constant reminder.



APPENDIX 2 - SHORT PROCEDURE FOR INSPECTORS

In the case of a finding of plants or plant products in passengers' luggage, any accompanying documents should be checked and where necessary the plant material inspected. Regulated plants or plant products and other regulated articles may be seized and destroyed if they do not comply with national/regional regulations (for example a phytosanitary certificate is missing when required, or the product is over the permitted amount (or weight) or the product is prohibited).

Inspection should be conducted according to relevant regulations if the required documents are presented with the plants or plant products. Products that comply with the regulations are released to the passenger unless any regulated pests are suspected or found.

Hygiene measures

Following good hygiene procedures is important when inspecting and collecting samples for the laboratory. In order not to spread and increase infections, adequate precautions should be taken during inspection and sampling, such as wearing protective clothes (coat, overshoes, gloves, etc.). Gloves should be changed between different lots. All equipment for sampling must be decontaminated between different samples. Samples should be sent to the laboratory as soon as possible after collection.

Inspection

The inspection of the plants or plant products should focus on regulated articles. In general, the same principles apply for inspections of plants or plant products from luggage as to other import inspections. It is advisable to examine all plant material found as the amounts are usually small.

The inspection should take place in an appropriately equipped and well-lit area, preferably a designated inspection area. If the inspection cannot be organized immediately, the confiscated goods should be stored safely, e.g. where relevant kept under cooled conditions and locked in an insect-proof container.

If the facilities and equipment allow, each inspected bag should be carefully emptied in such a way that all contents can be checked, for example on a specific inspection table. The inspection should be carried out in such a way that no relevant items are overlooked.

The visual examination should begin with an overall examination of the contents of the luggage.

Emptying of the bag should be conducted in a methodical manner where items at the top of the bag are (re)moved first followed by items below. Additionally, a visual examination of the empty bag should be conducted in order to inspect for any pests which are loose in the bag and/or the packaging of the plant/plant material. If a plant, or a product of concern is found, the item(s) should be carefully isolated from the bag and the other contents.

If mobile insects are found during the investigation of the luggage, it is important to safely isolate the relevant products and insects to avoid specimens from escaping. Therefore, plastic bags and containers for the purpose of sampling should be available when opening the luggage.

Sampling for laboratory testing

For the identification of symptoms or possible pest or to detect asymptomatic infection, a sample should be taken and sent to the official laboratory to confirm the identity of the pest.

If live insects are found, they may be preserved in sealed tubes (with food material) or in alcohol (e.g. 70% alcohol). Plants or plant products (e.g. fruit and vegetables) with symptoms can be placed in closed containers along with absorbent components to prevent rotting and where relevant, kept at a cool temperature until being sent to the diagnostic laboratory. If possible, the whole plant or fruit, etc. should be sent to the laboratory.

Samples should be sent to the laboratory as soon as possible to avoid further deterioration of the plant material.

Non-compliance

Usually, non-compliant goods are seized, and the passenger is issued a notice of abandonment. Afterwards, the plants and plant material are safely destroyed with or without prior phytosanitary inspection.

The temporary storage of the confiscated goods at the point of entry, and the disposal should be carried out in a safe manner to avoid pests escaping. For this purpose, it is suitable to pack the goods securely and place them in an insect-proof storage device. Freezers are appropriate as they deactivate movement of insects or special bins can be used with mechanisms that prevent insects from getting out. The confiscated goods should be forwarded regularly for secure destruction e.g. incineration by a recognized waste carrier.