Australian Government
Department of Agriculture and Water Resources

REFERENCE

Plant exports guide—equipment

In this document

This document contains the following topics.

Purpose of this document

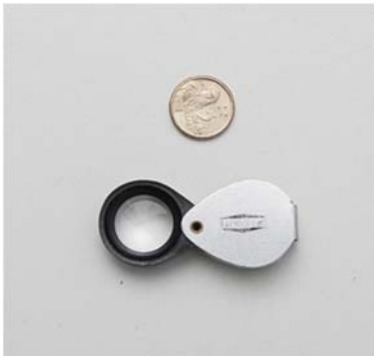
This document has been written for authorised officers (AOs) as a reference guide on equipment commonly used to undertake phytosanitary inspections of plants and plant products and the inspection of empty containers and bulk vessels. It includes:

- inspection tools and equipment AOs may use
- personal protective equipment AOs may have to wear
- equipment provided by registered establishments.

Note: Specific inspection work instructions list the essential equipment for the relevant inspection task.

Magnifying equipment

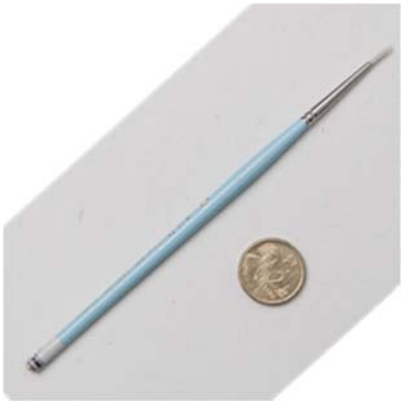
The following table outlines the common types of magnifying equipment that AOs may use.

What does this look like	Description
	**Hand lens (10x magnification or more)** A small handheld lens of at least 10× magnification should be used for detailed inspection of small pests.
	**Handheld magnifying glass** A small handheld magnifying glass of at least 10× magnification can also be used for detailed inspection of small pests.
	**Light loupe** Light loupes provide low-level magnification (10×) with a built-in light source that illuminates small areas of the commodity.
 	**Binoculars and monocular** Binoculars and monocular are useful during the inspection of a ship's hold where it is hard to see details of inaccessible areas.

What does this look like	Description
	**Torch** A small, bright torch is useful for inspecting spaces/crevices between products, among grains and sieved fines. A very bright torch with a focusable beam should be used during the inspection of a ship's hold and during empty container inspections.
 	**Bench-stand magnifying lens (maggylamp)** Maggylamps (4–10× magnification) have a built-in light source that allows illumination of the commodity being inspected. They also have a moveable arm so the height can be adjusted until the commodity comes into focus under the lens of the maggylamp. **Note:** A maggylamp would only be available for use where an establishment has provided one.
	**Microscope** A microscope may be used to magnify objects that require higher than 10× magnification (for example, when minute pests are suspected). Note: The use of a microscope is not required for export inspections however where one is available it may be of use to an AO.

Inspection equipment

The following table outlines the inspection equipment that an AO may need.

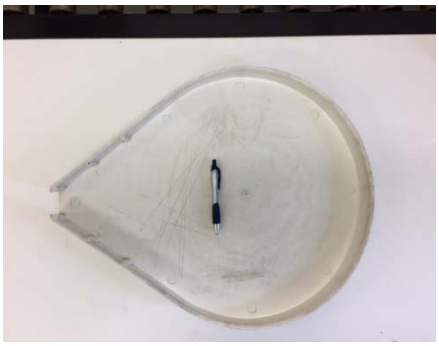
What does this look like	Description
	**Inspection kit** The equipment shown in this photo is sold in a portable inspection kit, ensuring safe storage and transportation of the equipment.
	**Tweezers (forceps)** Tweezers (several sizes and shapes, pointed, flat) are useful for picking up small pests and inert contaminants. They can also be used for peeling back skin folds, lifting calyces and sepals, and viewing indentations in products.
	**Small artist's paintbrushes** Small paintbrushes can be used by AOs to remove pests from areas that are hard to reach, such as crevices. The brush can be swept across the affected area, or probed into it, and pests or contaminants flicked onto white paper. A wet tip can also be used to collect pests and transfer them to a sample vial.
	**Scissors** A pair of scissors can be used to open packaging and package binding. Heavy-duty scissors, such as strong kitchen scissors, or a Stanley knife may be needed to cut heavy-duty packaging ties or binding (for example, hay bale straps). **Note:** AOs should ask the client to remove any package binding as it is the client's responsibility.

What does this look like	Description
	**Snips** Snips are short, slender but strong blades used in the tablegrape industry. They are useful for opening up tight bunches of grapes during inspection to look for evidence of pests and weed seeds.
	**Knives** Knives can be used to cut packaging and to cut out suspected or obvious pests and diseased tissue. All knives should be handled carefully and carry a suitable warning.

What does this look like	Description
  	**Scraping tools** Scraping tools (such as a pocket knife) can be used to remove bark or pests from timber products. Scraping tools (such as a scalpel blade) can be used to remove insect exudates (such as honeydew) and moulds. Scrapers can be used in ship's hold inspections to remove rust, paint and previous cargo residues from metal surfaces.
	**Probes** Probes can be used to dig or lift out pests and disease samples from otherwise inaccessible places.

What does this look like	Description
	**Hammer** A hammer can be used to assist in prising bark off logs with a chisel.
	**Mallet** A wooden mallet can be used to assist in prising bark off logs with a chisel.
	**Chisel** A chisel can be used to progressively dislodge bark or chunks of timber to expose pests.
 	**Buckets and tins** Buckets and tins are useful for collecting samples of loose commodities (for example, seeds, grain, woodchips).

What does this look like	Description
 	**Triers** Triers can be used to sample grain and seeds in bags. A range of different diameter triers are needed to tap into grain commodities of varying sizes held in storage bags or sacks. The bag is stabbed with the trier allowing the sample to run out into a bucket or tin.
 	**Double-sleeved triers** Double-sleeved triers are used to collect samples from bulk bags of seeds, grain or legumes or from the rear of containers. The trier is put into the bag with the gates closed. It is twisted to open the gates and closed again before being pulled out. The sample is put into a bucket ready to inspect. This gives a sample across the strata of the bag.

What does this look like	Description
  	**Sieves and pans** Sieves come in a range of sizes and mesh sizes for different commodity types (seeds, grains, and woodchips). They usually have a pan that fits underneath the sieve to catch the fines (sieved products). A mini sieve is useful to carry during a ship's hold inspection to inspect any residues found in the hold.
	**Vacuum probe** There are rare occasions when a container that is already loaded with bulk grain needs to be sampled for inspection. A vacuum probe is an industrial vacuum with a large pole attached that enables representative samples to be taken from different parts of the container, including the back. The client is responsible for providing and using the equipment while the AO supervises the drawing of the samples.

What does this look like	Description
  	**Trays** Metal or plastic trays are useful for a range of phytosanitary inspection activities, such as emptying loose material from packaging containers, or for commodities (such as bunches of flowers or leafy vegetables) that can be inverted over the tray and shaken to dislodge pests. Often fruit and vegetables are inspected by emptying the contents of a carton into the tray then inspecting the product and placing it back into the carton. Trays can better than paper in a lot of situations, especially if the commodity is wet. It is also harder for insects to climb out of a tray.
 	**Paper sheets** White paper can be used to collect insects and debris during inspections. A white background allows insects to be seen more easily under low magnification. Folding the paper in four, then opening it out again will help collect insects and debris in the centre of the paper.

Specimen collection equipment

The following table outlines the specimen collection equipment that may be used.

What does this look like	Description and how to use
	**Vial and tubes** Small plastic or glass sample bottles are useful to store pest specimens and contaminant samples.
	**Liquid preservative 80 per cent ethanol** Specimens should be stored in liquid preservative. The preferred liquid specimen preservative is 80 per cent ethanol, but white vinegar or methylated spirits can be used as a last resort. Eggs and pupae should be blanched for 1 minute in boiling water before being put into the ethanol. Sand, soil, weed seeds and disease symptoms should be stored without preservative.
	**Snap-lock plastic bags** A variety of (preferably) snap-lock plastic bags are useful for holding pest specimens that are too large for sample bottles.
	**Labels** A range of large and small self-adhesive labels are useful for recording the details of pest and disease specimens.

What does this look like	Description and how to use
	**Pencils** Samples should be labelled in pencil as ink tends to smear and when it comes in contact with alcohol-based preservatives, it can dissolve and disappear.
	**Storage boxes for collection equipment** Specimen storage boxes are useful to house sample bottles and bags collected from each inspection operation.

Personal protective equipment

The following table outlines the personal protective equipment that AOs may need.

What does this look like	Description
 	**Gloves** Nitrile rubber or polyvinyl chloride gloves should be worn during inspections to protect the AO from any residual chemicals and to protect the product being handled. These gloves are preferable for small commodities (for example, treated seeds) and processed plant products (for example, flour). Stronger rubber or leather gloves are suitable for inspecting larger or rougher items, such as woodchips and other forest and manufactured products. Riggers or roping gloves are suitable for ship's hold inspections.
 	**High-visibility vest or other clothing** As a minimum, AOs should wear a fluorescent safety vest during inspections. Other high-visibility clothing may be required by different establishments to ensure AOs are clearly visible to others. If protective clothing is required that is not high-visibility an AO should put their vest on over the top of the required clothing. Some facilities mandate that everyone on site wears long sleeve shirts and pants. Overalls are commonly used for ship's hold inspections. Thermal jackets and other clothing should be worn when working in cold rooms for extended periods of time.

What does this look like	Description
	**Work boots** AOs should wear fully safety boots at all times when in inspection facilities. Steel cap boots are required when handling large forestry and timber products, such as logs, lumber and wood panels. Some sites will also mandate that steel cap boots be worn by everyone on site.
 	**Ear protection (earmuffs and earplugs)** There is a range of earmuff and earplug hearing protection available to choose from. AOs should always use ear protection equipment when working around noisy machinery.
	**Eye protection** Regardless of the model, eye protection such as safety glasses, safety goggles, face shields, and hoods provide the maximum eye protection in areas where regulations or sites require eye protection to be worn. Sunglasses provide sun protection whilst working outside or whilst driving.
 	**Sun protection** In addition to wearing sunglasses to protect the eyes when driving or working outside other sun safe measures should also be taken. A wide brimmed hat and sunscreen can be used as sun protection when working outside for long periods of time.

What does this look like	Description
	**Disposable face mask** A disposable face mask may be required for protection in areas with a high level of dust such as in grain terminals (P1) or when inspecting seeds that have been dusted with fungicides such as Thiram (P2). **Note:** seeds treated with Thiram should preferrably be inspected under a fume hood.
	**Hard hat or helmet** A hard hat or helmet provides heat protection and safety and should be worn in all areas where regulations or a site requires one. A helmet with a chin strap is used for ship's hold inspections.
	**Safety harness** A safety harness is used when working at heights during a ship's hold inspection. It works in conjunction with a fall arrest system and scaffold hooks to ensure the safety of an AO during movement in and out of a hold. The harness must meet Australian standards and be checked before every use.

What does this look like	Description
 	**Fall arrest system** A fall arrest system connects to the front chest section of a safety harness worn during the inspection of a ship's hold. An AO uses the scaffold hooks as a point of contact on a ladder system to traverse up and down when going in and out of a ship's hold. It allows an AO to be exposed to a fall situation. The use of the fall arrest system will minimise injury in the event of a fall. Similar to the safety harness, this equipment should be checked before every use.
	**Scaffold hooks** Scaffold hooks are used in the fall arrest system as the anchor point to a ladder when an AO is climbing. The scaffold hook has a locking mechanism that can only open when pressure is applied. Double action snap hooks are generally used for added safety.
	**Rescue device** In the event of emergency while an AO is climbing in or out of a ship's hold, a rescue device such as a block and tackle may be used to lower an AO to safety.

What does this look like	Description
	**First aid kit** A first aid kit should be carried by AOs in their car particularly when driving and working in remote areas and in their inspection kit when working in high risk environments.
	**Backpack** A backpack is useful to carry equipment required during an inspection of a ship's hold such as the first aid kit, fall and arrest system, and safety harness. A backpack is preferred so the inspector's arms are free whilst walking up the gangway to board the ship.
	**Personal floatation device** A personal floatation device, also known as a lifejacket, is worn by an AO during the boarding of a ship at sea.

Related material

- *Work Health and Safety Act 2011*
- *Export Control Act 1982*
- Export Control (Prescribed Goods – General) Order 2005
- Export Control (Plants and Plant Products) Order 2011
- Plant Exports Operations Manual (PEOM)
- Manual of Importing Country Requirements (MICoR – Plants)

Contact information

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Document information

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IMLS-9-3591	Director, Horticulture Exports Program, Plant Export Operations Branch

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The following table details the published date and amendment details for this document.

Version	Date	Amendment details
1.0	12/09/2017	First publication of this reference.