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History of quarantine

The word quarantine comes from the Italian *quaranti giorni*, meaning 'forty days'. When bubonic plague swept through Europe in the 14th century, the government of Venice required ships to anchor away from the city for 40 days before they could unload passengers or cargo. The authorities thought 40 days would be enough time for any disease to be identified and either treated or pass through its normal course. All ships under quarantine had to fly a yellow flag. During the voyage of the Second Fleet to Australia, infectious diseases, poor diet and unhygienic conditions caused the deaths of a quarter of the passengers. Of the thousand convicts and crew who sailed from England, only 750 landed at Sydney Cove, many of them helplessly ill. That journey from England to Australia took 250 days. Today, a flight from England to Australia takes about 24 hours. Travel time from Asia and America are much less. These shorter travelling times mean there is no longer a quarantine period on journeys to Australia. Each year, nearly 12 million passengers pass through quarantine on arrival at Australian airports and seaports, 4 million cargo containers are inspected and about 150 million items of international mail enter Australia. All of these arrivals pose a risk for human health, our agricultural industries and our natural environment.

What is quarantine?

Quarantine is designed to prevent the introduction, establishment, or spread of animal, plant or human pests and diseases.

Pests and diseases could be carried into Australia by people, by animals, in animal products such as meat, in plants or in plant products such as timber, or soil. All of these must undergo quarantine inspection and may require treatment, or in some cases destruction.

Australia has the toughest quarantine standards in the world and is free from serious plant and animal diseases found in other parts of the world, such as rabies and foot and mouth disease.

Quarantine controls at Australia's borders minimise the risk of exotic pests and diseases entering Australia and protects our agriculture export industries as well as our environment, tourism industries and lifestyle.

Types of quarantine

Quarantine works in a number of different ways in Australia - border controls look after the clearance of passengers and cargo into Australia, while animal, plant and human quarantine look at the scientific risks of particular pests and diseases and what actions need to be taken to prevent them coming to Australia.

Border control

Border controls are carried out at all entry points into Australia, including airports, seaports, international mail centres and air courier depots. Passenger clearance and cargo clearance are the two main types of quarantine controls at these entry points. Quarantine officers use a range of techniques including detector dogs, x-ray machines, visual inspection, risk assessment, surveillance and scientific support to stop exotic pests and diseases entering our country.

Animal quarantine

Animal quarantine applies to all kinds of animals from cats and dogs to insects, fish, birds and larger animals. Animals coming into Australia must spend time at specially equipped quarantine stations to ensure that they are free of disease before being allowed into the country.

Plant quarantine

All plants or parts of plants such as fruits, seeds, cuttings, bulbs and corms, as well as things made from wood or bamboo, must be examined and if necessary, treated. Living plants must be kept at special plant quarantine stations when they arrive in Australia to make sure they are not carrying pests or diseases.

Human quarantine

Quarantine officers monitor reports about the health status of passengers arriving in Australia by aircraft and shipping vessels, to ensure that they are not suffering from diseases. A number of infectious diseases can be spread to other people by insects, such as mosquitoes, and, if allowed to get into Australia, would be very difficult to eradicate. All international airports in Australia have a surveillance monitoring program to ensure that insect carriers of human disease are quickly detected and destroyed.

Constant surveillance

With close proximity to neighbouring Asian and Pacific countries, being surrounded by 36,000kms of coastline and with people, cargo, mail and imported goods arriving every day, quarantine surveillance in Australia is more important than ever before. The men and women who work for AQIS are on duty 24 hours a day, every day of the year.

Prohibited Items

Prohibited items are items that are forbidden by law because they pose a quarantine risk.

Food, plant material and animal products from overseas—including many common souvenirs—could introduce some of the world's most serious pests and diseases into Australia, devastating our valuable agriculture and tourism industries and unique environment.

All food, plant material and animal products must be declared for inspection on arrival in Australia. These items may undergo X-ray, detector dog or personal inspection. Live plants and animals must be isolated at special quarantine stations so that any pest or disease can be isolated and prevented from spreading.

The below link provides details on items that cannot be brought into Australia and what items that are to be declared.

http://www.daff.gov.au/_data/assets/pdf_file/0014/114242/whatcanti_take.pdf

Exotics Pests

Here are three pests that can be found stowing on or in cargo containers, and that we definitely don't want getting into Australia.

1. Khapra beetle

Not quite *serial* killer, but nearly as bad ... khapra beetles devour stored grains and cereals. From their native home in India the beetles have spread – mostly through shipping and trade – to southern Asia, the Middle East and north Africa. Australia exports billions of dollars worth of grain and plant products each year to more than 50 different countries, and our trade partners will refuse grain that contains pests like the khapra beetle. So this pest is one we definitely don't want.



2. Giant African snail

The giant African snail can grow to over 30cm in length, eat over 500 different species of plants and can lay more than a thousand eggs each year! AQIS finds over 30 of these slimy hitchhikers on cargo every year, but fortunately not one has made our country their new home.



3. Asian longhorn beetle

If Australia didn't have quarantine inspections and treatments for incoming cargo, the Asian longhorn beetle would almost certainly get into the country on wooden pallets used for packing. This pest bores holes in timber, and if it got in it could attack our trees. Since this pest got into the United States, authorities there have had to kill thousands of parkland and street trees, and create special quarantine zones, to keep it under control.



For other examples of pests we want to keep out of Australia go to

<http://www.daff.gov.au/aqis/quarantine/pests-diseases>

Cargo Containers

AQIS deals with containers and the materials they are constructed from as a potential means of introducing serious pests and diseases to Australia. Timber insects pose a significant quarantine risk to Australia, and accordingly all timber in FCL containers, including exposed timber components, must be treated before the container can be considered for immediate release.

Quarantine is also concerned with the external and internal cleanliness of containers. As containers age and usage becomes even more widespread, the risks for quarantine are expected to multiply, and the need for quarantine vigilance will increase.

Do's

- Determine if you need an Import Permit before shipping goods to Australia.
- Provide AQIS with a packing declaration to facilitate clearance of containers. The packing declaration should provide details of container cleanliness and whether straw and timber have been used as packing materials. If you don't provide this information the container will have to be opened and inspected at a Quarantine approved premises.
- If a container has to be directed to a Quarantine approved premises for unpacking and inspection, delays will occur and costs will be involved.
- Ensure your container is free of contamination by soil, grain, snails or plant and animal material. The inside and outside of the container should be cleaned before shipment to help facilitate clearance on arrival in Australia. A cleanliness declaration is required for all containerised cargo imported into Australia. All contaminated containers and cargo detected entering Australia are treated before release.
- Have all timber used as packaging in the container treated by an AQIS approved method. If timber dunnage has been used in the loading of the containerised cargo, accredited persons must have a valid treatment certificate to satisfy AQIS clearance requirements. Timber must also be free of bark.
- Offshore treatments may facilitate faster clearance of the packing component of the cargo container. However, an AQIS approved treatment provider must perform the treatment.
- Use acceptable alternative packing materials such as synthetic foam, plastics, metal frames, inflated dunnage, woodwool, shredded paper, and other similar materials.
- Be aware that serious pests and diseases exotic to Australia could be introduced into Australia on containers, cargo and packing. Thorough inspections for these pests and diseases are carried out on consignments from high risk countries.

Don'ts

- Don't use straw packing. It's prohibited. Straw could carry insects and diseases exotic to Australia. Containers in which straw, rice hulls or similar plant materials have been used as packing has to be unpacked at a Quarantine approved premises and the straw removed for treatment or destruction at the importer's expense.
- Don't pack your goods in fruit, vegetable, meat or egg cartons or second-hand bags. These pose a high risk because they could carry pests and diseases. These types of cartons and bags will be removed and destroyed under quarantine supervision.
- Don't use timber with bark attached. Bark is prohibited and needs to be removed and destroyed.

Some of the most commonly imported goods that must be inspected are:

- agricultural machinery
- motor vehicles
- bamboo and straw articles
- nuts and seeds
- canned meats
- rice
- cheese
- scrap metal
- foodstuffs, coffee beans
- skins fruit - dried or fresh
- herbs and spices
- stock foods - plant and animal
- household and personal effects
- matting - straw and seagrass
- vegetables - dried and fresh
- mining equipment

Cargo subject to quarantine inspection includes:

- Unprocessed agricultural produce

- Timber including articles made of timber or that have timber included in the manufacture, such as footwear with wooden heels or wedges
- Articles of straw
- Goods likely to be contaminated - especially with soil and animal and plant material, such as vehicles and machinery.

Quarantine detector dogs



More than a 4 million containers arrive in Australia each year. We need to make sure their cargo does not include pests, weeds or diseases. Dogs really are our best friends – and not just that, but also one of our most super-powered quarantine technologies. The Australian Quarantine and Inspection Service uses working dogs for a very particular job – to sniff out high-risk items brought into the country by travellers or in the mail.

The average dog has about 220 million scent receptors in its nose, compared with about five million in a human nose about seven square metres membrane in its nose (humans have about half a metre), and a sense of smell so sensitive that it can detect, and identify, odours that are so diluted that even the most sensitive of scientific instruments can't measure them.

Beagle magic

Dogs that were originally bred for hunting, like beagles, have an exceptional ability to isolate a particular smell from among many. They are also calm and friendly around people. This combination makes the beagles ideally suited to working with passengers at airports. It means beagles can isolate quarantine risk items from among a range of goods in assorted luggage, but without scaring or disrupting the passengers.

Training a quarantine beagle

1. Trainer places a 'target' smell in a cardboard box and gets beagle to sniff it.
2. Trainer tells beagle to sit. When beagle sits he gets a food reward.
3. Trainer places 'target' box among other boxes that do not contain smells. Trainer gets beagle to sniff each box. When beagle sits next to target box, he gets a food reward.
4. Trainer places target smell inside suitcase instead of box. Trainer also fills suitcase with other things you might find in a traveller's suitcase. Trainer puts this suitcase among others that do not contain target smells, and repeats the sit and reward process.
5. Trainer makes exercise increasingly complex, until dog can always respond to the target smell, regardless of other smells coming from other places.
6. Trainer repeats process with each new target odour.
7. The team of beagle and handler then moves to the airport terminal for additional training under conditions similar to those they can expect in the field.
8. If the dog sniffs a target scent, he sits next to the offending item.



Australian quarantine detector dogs are trained to detect:

- fresh fruit and vegetables
- meat, both fresh and processed, including canned meats
- fresh plant material
- eggs
- birds
- reptiles
- seeds, and
- bees.

AQIS Glossary of Terms

Note. These definitions do not cover all of the meanings of each word.

Aphid

A small plant-sucking insect.

AQIS

Australian Quarantine and Inspection Service

Bacteria

Microscopic organisms which can cause disease in plants and animals. They are responsible for the decay of organic matter. They multiply by simply dividing.

Biological control

The use of natural enemies of a pest or disease to control its spread.

Carrier

1. In quarantine this term often refers to an organism, or some other object such as a vehicle, that is able to transport a pest or disease over some distance.
2. Animals that have a disease, show no signs of it, and yet they can spread it to other animals.

Cereal plant

A plant that has a grain, such as wheat, barley, oats, rice and maize.

Chlorophyll

The green colouring of leaves and plants. When sunlight acts on chlorophyll it starts a number of chemical reactions that give energy to plants.

Contaminated

Usually in quarantine, contamination means that something is carrying a pest or a disease.

Crustacean

Usually aquatic animals such as yabbies, lobsters, prawns and crabs.

Cyst

A bag with a thin skin containing soft material such as fluid or a parasite.

Disease

An abnormality of the body or part of the body. This term can be used for both plants and animals.

Disinfect

To destroy germs.

Disinfectant

A chemical which destroys germs.

Dormant

An inactive state. Some organisms have a dormant state which allows them to survive for long periods without the use of much energy.

Ecology

The study of the relationships between life forms and their environment.

Equine

Relating to horses.

Exotic

Something that is foreign to a country.

Fumigate

For quarantine, it is to treat something with gases to get rid of pests.

Fungi

Simply organised plants composed of thread-like filaments made up of small cells. Fungi reproduce by forming spores.

Fungicide

Something that kills fungi.

Galls

Hard round growths caused by insects, fungi or bacteria. Galls grow on plants.

Germinate

To begin plant growth or development.

Harbour

When something harbours an organism, it conceals or carries it.

Host

A living organism on which another plant or animal lives at the expense of host.

Indigenous

A native organism, not exotic.

Infection

The presence of microorganisms.

Infectious

Something that is able to cause or spread a disease caused by microorganisms.

Infestation

The presence of pests and diseases.

Insecticide

A chemical that kills insects.

Introduced

When used to refer to plants or animals, this term means the plant or animal is not native to a country.

Invasion

The spread of something that is likely to cause problems or be harmful.

Larvae

A stage in the growth of an insect.

Lesion

Wound or a sore or abnormal tissue due to disease.

Micro-organism

A very small life form. Bacteria, viruses and some fungi are examples.

Mildew

A plant disease caused by a fungus. Usually it results in a coating over the plant.

Mite

A small animal, related to spiders. Mites can destroy plants as they use them as a food source.

Molluscs

A group of organisms that include snails, shellfish, squids and octopuses.

Mould

Fungi, or the growths that are produced by fungi.

Native

When used for a plant or animal, it refers to one which normally inhabits a country, and has not been introduced to that country.

Necrotic

Refers to a part of an organism that has died.

Nematode

Roundworms that often live in animals and plants.

Noxious

An animal, plant or disease which is declared harmful by law and which must be eradicated.

Nymph

A stage of growth of an insect.

Organism

Something which lives or has lived, such as a plant or animal.

Parasite

A plant or animal which attaches to, in or on another and lives off it.

Pathogen

A microorganism that causes a disease.

Pathologist

Someone who studies diseases.

Pest

Anything causing damage or destruction.

Plant

A vegetable organism. In quarantine, plants include all plants, parts of plants whether living or dead, including stems, branches, tubers, bulbs, corms, stocks, budwood, cuttings, suckers, roots, leaves, flowers, fruit, seeds and seedlings.

Plant pest

Any plant or animal organism (such as insect, nematode, snail, fungus, bacterium, virus and weed) that can harm a plant.

Plant product

Any part of a plant. Timber is an example of a plant part.

Point of entry

A seaport, post office, mail exchange or airport where goods are imported.

Predator

An organism that attacks and destroys another.

Prion

Prions are very small microorganisms, even smaller than viruses, and are too small to be seen by a microscope.

Prohibited material

Any goods including plants, pests, soil, animals, animal pests, animal products which are described as prohibited by the Quarantine Act.

Protection

Quarantine protection aims to keep unwanted exotic pests and diseases out of Australia.

Protozoan

A microscopic organism that consists of a single cell.

Pupa

A stage of growth of an insect.

Quarantine

The period of isolation (originally 40 days) for plants, plant products, soil, insects, animals and animal products, suspected of being diseased or carrying a pest.

Quarantine station

A place where plants, soil and animals are kept for inspection and treatment (or where necessary destroyed) after having been imported or before being exported.

Range

In regard to animals and plants, this is usually the area over which they are found.

Rural industries

Usually farm-based industries carried out in country areas and include growing crops and animals.

Rust

In biology a rust is a plant disease caused by a fungus.

Spore

An object produced by an organism, and that under the right conditions can develop into that organism. Fungi and ferns produce spores, for example.

Strain

A particular type of an organism that has features which make it different from other organisms of the same species.

Surveillance

A watch that is kept. For example, quarantine surveillance of airports is a watch kept on passengers and cargo coming into the country.

Susceptible

In quarantine terms, this is a plant or animal that is capable of being affected by a disease organism, or that is likely to be attacked by a pest.

Symptom

A sign that a disease is present.

Thrips

Very small insects with long wings. They can be very destructive to plants.

Tick

A small eight-legged animal that sucks blood from animal by sticking a sharp probe under the skin.

Tissue

Any part of an organism.

Toxic

Poisonous.

Toxin

A poisonous chemical that is produced by an organism and which can cause a disease.

Vaccination

To treat an animal so that they do not get a disease. Usually this is done with a modified form of the organism (such as a virus) which causes the disease.

Venom

A poisonous fluid produced by some animals.

Virus

A virus is a very simple organism, smaller than bacteria, that lives and multiplies in other plants and animals and is capable of causing a disease.

Viticulture

The growing of grape vines.

X-ray machine

Scientific equipment used for the detection of plants, plant products, animals and animal products inside packaging. This equipment is used in airports, mail exchanges and courier depots.