Risk Background

Mushrooms for human consumption - Fresh

Overview

This case includes fresh mushrooms and fresh truffles for human consumption.

Australia permits the importation of mushroom and truffles for human consumption.

The following general import conditions apply:

- Each consignment must be accompanied by a phytosanitary certificate
- Goods must be packaged in clean and new, insect-proof packaging.
- Each carton, package or pallet must be labelled with the scientific name

Specific import conditions

- Fresh mushrooms and truffles for human consumption must be free from animal by-products or faeces. Options to verify this include the goods being:
    - grown on a substrate which was autoclaved at a gauge pressure of 105 kPa (15 psi) to achieve a minimum substrate temperature of 121°C for 30 minutes; or
    - wild harvested; or
    - have the appropriate supporting additional declaration on the phytosanitary certificate.
- Frozen mushrooms and truffles for human consumption must be hard frozen and accompanied by a hard frozen statement. To meet the frozen conditions goods must have documentary evidence that a temperature of -18°C has been maintained over seven consecutive days.

  Note: Frozen *Agaricus sp.* species from countries other than New Zealand require an import permit. *Agaricus* sp. may only be imported from New Zealand.

This commodity is eligible for risk-based inspection as part of the Compliance-Based Intervention Scheme

Importers and department staff should ensure that the BICON conditions are met and that goods are free from biosecurity risks, as well as the key risks described below.

Key risks

A wide variety of pests and diseases have been recorded on fresh mushrooms imported for human consumption; however, none have been recognised by the Plant Health Committee as national high priority plant pests for Australian plant industries.

Invertebrate pests

Pests of mushrooms which have not been recorded in Australia and are of biosecurity concern include beetles, flies, fungus gnats, midges, millipedes, mites, springtails and nematodes.

Nematode pests of fresh mushrooms for human consumption include mycophagous nematodes, *Aphelenchoides* spp. and *Ditylenchus* spp., which are primary mushroom pests, and feed on fungi, destroying mushroom mycelium. Existing risk management measures, such as pre-export inspection and phytosanitary certification, are considered sufficient to address the biosecurity risks associated with invertebrate pests on mushrooms.

Bacteria

A variety of bacteria are present in mushroom compost and can survive in mushroom debris and on arthropods such as flies and mites. However, bacteria typically pose minimal biosecurity risk on mushrooms imported for human consumption. Existing risk management measures are considered sufficient to address the biosecurity risks associated with bacteria on fresh mushrooms for consumption.

Fungal pathogens

Several fungal pathogens are found in commercial mushroom production, and some *Trichoderma* species are considered as pests of biosecurity concern. *Trichoderma* species vary in their pathogenicity and may colonise mushroom debris and compost. *Trichoderma* species produce large amounts of spores and can inhibit the growth of mushroom hosts. Fungal infection adversely affects the marketability and shelf life of mushrooms for human consumption, so commercially produced mushrooms affected by disease would not typically be harvested and exported. Mushrooms imported for human consumption are an unlikely pathway for establishment of exotic fungal pathogens. The existing risk management measures are considered sufficient to address the biosecurity risks associated with fungal pathogens on fresh mushrooms for consumption.

Fungal competitors

While not pathogens that directly affect mushroom health, fungal competitors may substantially reduce the yield of commercially produced mushrooms by colonising compost and out-competing cropping species.

Similar to fungal pathogens of mushrooms, the biosecurity risk of fungal competitors is mitigated by the end-use of human consumption, and the existing risk management measures, such as pre-export inspection and phytosanitary certification, are considered sufficient to address the biosecurity risks associated with fungal competitors/weed moulds on fresh mushrooms.

Viruses

Viruses may be transferred from mycelium to mycelium by hyphal fusion (anastomosis), or be transferred in mushroom spores, which germinate and transfer virus to new hosts by anastomosis. However, the level of biosecurity risk associated with viruses in fresh mushrooms is mitigated by the end-use of human consumption. The likelihood of viable virus particles in mushrooms for human consumption being transmitted to susceptible hosts in the environment is considered negligible.

Slime moulds

Slime moulds may cause wilting and rotting of fruiting bodies and primordia of cultivated mushrooms including Oyster mushrooms and Jelly fungi and reduce yields of Shiitake mushrooms by competition for space and nutrition. Slime mould infection adversely affects the marketability and shelf life of mushrooms for human consumption, so commercially produced mushrooms affected by disease would not typically be harvested and exported. Mushrooms imported for human consumption are an unlikely pathway for establishment of exotic slime moulds. The existing risk management measures, such as pre-export inspection and phytosanitary certification, are considered sufficient to address the biosecurity risks associated with slime moulds on fresh mushrooms.

Material of plant or animal origin

Cultivated mushrooms may potentially be contaminated with plant or animal diseases. Plant diseases such as karnal bunt may be found in plant-based substrate. Sterilizing substrate reduces the likelihood of materials being infected with plant pathogens, however import conditions do not require mushrooms to be grown on sterilized materials.

Substrates may also contain animal manures. Animal manure may be a host for highly contagious diseases infecting animals, including foot-and-mouth disease (FMD) and Newcastle Disease. FMD can be carried great distances on wind plumes depending on weather conditions

Mushrooms for human consumption are inspected on-arrival to verify the absence of biosecurity risk material and if material is found the consignment is subject to an appropriate remedial option, if available. On-arrival inspections, together with other risk management measures including, pre-export inspection and phytosanitary certification, are considered sufficient to address the contaminant biosecurity risks associated with mushrooms for human consumption.

Document information

Version	Date	Details of amendment
1.0	February 2023	First draft

References:

Import conditions review for fresh mushrooms for human consumption, Department of Agriculture Water and the Environment 2018.