

# RISK BACKGROUND

## Stock feed, stock feed ingredients, and stock feed additives<sup>1</sup>

### Overview



(Image: Source [link](#) / Copyright)

Stock feed presents a high level of biosecurity risk due to its direct pathway to livestock. Fortunately, Australia is free from many significant animal and plant diseases however contaminated stock feed could introduce these diseases into Australia. Risk management measures must be applied to most stock feed products to meet Australia's Appropriate Level of Protection<sup>1</sup> (ALOP).

Importers require a permit to bring most stock feed products into Australia. A permit will only be issued for a stock feed product once a risk assessment has determined that:

- All ingredients are from sources (e.g. countries, species) that present a very low level of biosecurity risk
- Biological ingredients are processed in a way that ensures that product exported to Australia is not contaminated with exotic pests and diseases
- The product is manufactured in a facility that has effective controls in place to prevent cross contamination
- The product is manufactured in a facility that complies with the department's audit policies

Stock feed can also contain pests or viable plant materials that can have a negative impact on Australia's agriculture and environment.

Importers must satisfy all conditions of the relevant BICON case and import permit to bring stock feed product into Australia.

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<sup>1</sup> A high level of sanitary and phytosanitary protection aimed at reducing biosecurity risks to a very low level, but not zero.

## Key risks

Examples of exotic animal diseases that could be introduced into Australia through imported stock feed include:

- Transmissible spongiform encephalopathies e.g. bovine spongiform encephalopathy (BSE, mad cow disease), scrapie, chronic wasting disease of deer
- Foot-and-mouth disease (FMD)
- African swine fever
- Swine vesicular disease
- Classical swine fever
- Peste des petits ruminants
- Lumpy skin disease (LSD)
- Capripox (sheep and goat pox)
- Virulent Newcastle disease virus
- Highly pathogenic avian influenza virus

In determining a country's animal health status in relation to stock feed of plant origin, consideration is given to those exotic animal diseases which would have serious consequences if introduced into Australia and which are potentially spread via risk material which might come into contact with plant-based stockfeed and its ingredients. A country that is affected by one or more of the animal diseases above is considered to have a **high animal pathogen risk** status in relation to stock feed. Other diseases are considered during the department's stock feed risk assessment [e.g. porcine epidemic diarrhoea virus (PEDV)<sup>2</sup>, infectious bursal disease virus] however these do not automatically qualify a source country to have a high animal pathogen risk status.

In assessing the specific disease status of a country, the department will consider the reports of international animal health agencies (e.g. the [World Organisation for Animal Health](#)) and will also consider other relevant information relating to biosecurity risks.

Please see the department's [website](#) for the following documents:

- FMD-Free Country List
- Sheep Pox and Goat Pox-Free Country List
- LSD-Free Country List
- BSE Country List

Stock feed consignments can also be contaminated with:

- Weed seeds
- Insects (e.g. khapra beetle)
- Fungi (e.g. Karnal bunt)
- Parasites (e.g. *Cysticercus bovis*), and
- Other biosecurity risk materials (e.g. unprocessed plant material, animal excretions).

## Sources of contamination

Stock feed exported to Australia may be contaminated with exotic pests and diseases at any point along the pathways of production and supply. Contamination may be inadvertent or deliberate on the part of the manufacturer.

Opportunities for product contamination will vary depending on how product is made and the ingredients that are used:

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<sup>2</sup> The introduction of PEDV through contaminated stock feed has been recorded in countries previously unaffected by the disease. This makes it a significant disease for Australian livestock industries.

- **Ingredients of animal origin:** Ingredients of animal origin are often sourced from large numbers of different animals which may include diseased individuals. Disease agents can be distributed throughout bulk ingredients that may infect animals that consume the contaminated stock feed.

Restricted Animal Material (RAM) is any material taken from a vertebrate animal, other than tallow, gelatine, milk products or oils. It includes rendered products, such as blood meal, meat meal, meat and bone meal, fish meal, poultry meal, eggs, feather meal, and compounded feeds made from these products. [The Australian Ruminant Feed Ban](#) prohibits RAM from being fed to ruminant animals in Australia. See 'Key risk controls' below for information about Australia's controls on stock feed ingredients of animal origin.

- **Ingredients sourced from root crops:** Root crops (e.g. sugar beet, tapioca) are in intimate contact with soil borne pathogens and are more likely to be contaminated with soil and faeces than grains and other standing crops. Inadequate cleaning and processing can lead to contamination of ingredients that are sourced from root crops.

- **Fertilisers:** Many production systems rely on biological fertilisers (e.g. animal manure) for crop production. This is particularly relevant for plant crops that are grown using organic production systems.

- **Offshore methods of production:** Plant materials sourced from **small household farms** are likely to have been grown and harvested using basic harvesting techniques. Harvested materials are likely to have been dried and/or stored in open areas on the ground. Here they are likely to be exposed to soil, household livestock and wild animals (and the faeces and other excretions of livestock and wild animals). Materials sourced from small household farms are therefore likely to pose a much greater risk of being contaminated with exotic animal and plant pathogens.

Exporters in certain countries still source crops from households/villages to supply stock feed production systems for international markets.

Products sourced from **broad acre production** using modern mechanical harvesting techniques present a lower level of biosecurity risk.

- **Transport and processing of goods:** Products can be contaminated when they are moved using equipment/conveyances that have previously transported biosecurity risk material. Production equipment that is used to produce multiple different products can also be a source of contamination when it is not cleaned sufficiently between production runs. Storage sites may contain residues from previous loads that can be unintentionally incorporated into product exported to Australia. Where there are inadequate pest controls at the production facility, rodents and other vermin can introduce pathogens of biosecurity concern into product destined for the Australian market.

## Key risk controls

The department's biosecurity risk assessment will determine whether there are adequate controls at critical steps along pathways of stock feed production and supply. If controls are found to be effective at reducing the level of risk in line with Australia's ALOP then a permit can be issued to import that product. It may also be necessary for the department to apply additional risk controls to the pathways of production and supply to achieve this outcome.

For some applications it may not be possible to apply risk management that reduces commodity risks to meet Australia's ALOP and, in these instances, the application for permit will be refused.

The following is a list of key risk factors and controls that are taken into consideration:

### Product origins

- **Ingredients of animal origin/RAM:** The department has strict controls in place to ensure that stock feed exported to Australia is free from RAM. Some exceptions exist, such as fishmeal, material sourced from New Zealand animals, lactose (source country restrictions apply), amino acids sourced from hydrolysed feathers, and tallow derivatives.

- **Ingredients of microbial origin:** Microorganisms grown at an industrial scale are commonly used to produce stock feed additives (e.g. amino acids, vitamins, enzymes). Applicants must provide information about the growth media

used, animal-derived materials used during production, carriers used, cross-contamination risk controls, and processes of purification.

- **Ingredients of plant origin** need to be processed sufficiently to ensure that imported product contains no whole seeds or other viable plant materials. Information about production systems also needs to be provided which demonstrates that plant products are not contaminated with animal-derived materials.

## Processing parameters

Applicants must provide detailed information from overseas manufacturers about treatments applied to raw ingredients. Treatments considered relevant are those where heat, chemicals, or ionising radiation are applied which have a detrimental effect on any potential contaminating agents.

The level of treatment required to meet Australia's ALOP depends upon several factors, including:

- Offshore methods of production (i.e. small household farms vs. broad acre production systems), and
- The biosecurity risk status of the source country, the country of manufacture, and any subsequent countries through which product is transported.

**NB.** The presence of live animals or animal materials at overseas processing facilities will also have a significant bearing on the level of biosecurity risk.

Plant products sourced from **high animal pathogen risk** countries will need to be processed using a method that achieves a minimum product temperature of **100°C for at least 30 minutes or equivalent**.

Plant products sourced from low animal pathogen risk countries that have been harvested from broad acre production systems will need to be processed using a method that achieves a minimum product temperature of **80°C for at least 10 minutes**.<sup>3</sup>

**N.B.** Thermal processes referenced above relate to the application of **moist heat** such that the **core of the product** is reliably treated to the minimum temperature for the required period. In cases where dry heat is used during processing, the department will consider the water content of the raw material prior to the thermal process.

There is a range of product risk between these two processing end points. The department will undertake a case-specific risk assessment for these goods to determine whether treatment parameters achieve the necessary equivalent level of risk management.

Spray drying, the process whereby small particles of product are sprayed through hot air, usually at high temperatures for very short periods of time, cannot be relied upon to reliably inactivate contaminating pathogens. The rapid temperature increase and then decrease associated with spray drying, which is designed to minimize protein denaturation, can be expected to be minimally disruptive to viral particles.

The processing facility will need to demonstrate not only that they can reliably achieve the thermal process required but that they have adequate systems for measuring and monitoring core temperature applied to raw materials during the production process. These monitoring systems need to reliably identify non-compliant product (i.e. product that has not been sufficiently processed) so that it can be excluded or re-worked to meet Australia's requirements.

## Supply chain assessment

The entire pathway for production, harvest, storage, transport, and processing of stock feed ingredients will be assessed.

Product must be transported in conveyances that are clean and free of contamination from previous cargoes. Product integrity will also need to be maintained so that it cannot be contaminated through environmental

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<sup>3</sup> The department will also consider processing methods that achieve equivalent levels of lethality to those referenced above e.g. higher temperatures for shorter time periods. The department will also consider production processes where raw materials are subjected to multiple treatment processes and will consider the cumulative effect on contamination of the sum-total of treatment processes where relevant information exists to inform such an assessment.

exposure. Product must be moved and stored using equipment (e.g. silos, conveyors, elevators, augurs, storage bins, scales, front end loaders) that is clean.

The likelihood of product contamination based on other goods that are handled or produced in the overseas manufacturing facility will also be assessed. An assessment of how the manufacturer operates their production line(s), the sanitation and hygiene standards within the facility, and cleaning procedures are some of the elements that are taken into consideration as part of this assessment.

The overseas manufacturing facility will also need to demonstrate, to the satisfaction of the department, that they can effectively control post-processing contamination risks i.e. the contamination of product that might happen after the critical heat treatment is applied to the raw material. An example of a process that would adequately manage this risk would be the immediate bagging of product (using impervious bags that are new and clean) after it had exited the heat treatment equipment.

### Audit and verification

Audit and verification form a critical part of the department's biosecurity risk assessment process for imported stock feed. Desk and site audits of offshore processing facilities may be required as part of a biosecurity risk assessment for import permit applications.

Continued approval of a specific product and product pathway for import will be subject to ongoing compliance with the department's biosecurity risk management policies for stock feed imports.

More information about the department's audit requirements for plant-based stock feed can be found [here](#).

### Conclusion

The information above provides a summary of the factors taken into consideration when the department's biosecurity officers perform a risk assessment on an application for permit to import stock feed into Australia.

Risk assessments for stock feed, stock feed ingredients and stock feed additives are often complex and multifactorial. It is only after a review of all relevant information related to biosecurity risks has been completed, including all risk management measures, that a decision can be made as to whether a permit can be issued for a specific product. This process may require repeated contact with the applicant to seek additional information or clarify the information provided. It is expected that the additional information provided in this document may assist importers and manufacturers and expedite this process.

A chain of manufacture and supply that includes even the most robust treatment process as a risk management measure has the potential for failure and therefore the department will need to ensure that there are multiple risk management measures along the chain before issuing a permit to import.

Applicants must confirm that they are able to supply detailed relevant, up-to-date information to support the department's biosecurity risk assessment before they apply for an import permit.

### Definitions

#### Restricted animal material (RAM)

Any material taken from a vertebrate animal, other than tallow, gelatin, milk products or oils. It includes rendered products such as blood meal, meat meal, meat and bone meal, fishmeal, poultry meal, feather meal, and compounded feeds made from these products ([Australian Ruminant Feed Ban](#) National Uniform Guidelines 2019-20). Although RAM is defined as 'any material taken from a **vertebrate** animal other than tallow, gelatin, milk products or oils', meals from aquatic animals that are without a spine (e.g. crustacea meal) are also RAM under this definition.

#### Stock feed

Any single material, or multiple materials, whether processed, semi-processed or raw, which is intended to be fed directly to food producing species (including horses, poultry and for aquaculture) for the maintenance of life, normal

growth, production, work and reproduction. It includes a pre-mix, block, lick, or loose lick. A stock feed comprises one or more stock feed ingredients and may also contain one or more stock feed additives.

#### Stock feed additive

Any intentionally added component of feed not normally consumed as a stock feed ingredient that affects the characteristics of feed or animals fed with it. It includes a pre-mix which consists only of feed additive components. Microorganisms, enzymes, acidity regulators, trace elements, vitamins, preservatives, colouring agents, binders, dust suppressants, carriers, flavours and other products fall within the scope of this definition depending on the purpose of use and method of administration.

#### Stock feed ingredient

A nutritive component, part or constituent of any combination or mixture making up a feed. Ingredients may be of plant, or animal (including aquatic animal) origin, or other organic or inorganic substances. It includes fishmeal, fish oil and other fish feed ingredients intended for hatchery, aquarium and aquaculture use as well as for stock feed.