



# Review of Animal Feed

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## Overview

The New Zealand Food Safety Authority (NZFSA) has reviewed the regulation of animal feed for the domestic market, including petfood, by the *Animal Products Act 1999* (APA) and *Agricultural Compounds and Veterinary Medicines Act 1997* (ACVM Act).

The review covered all animal feed produced for the domestic market. It was prompted by concern that certain practices within parts of the animal feed industry may not be adequately managed.

The products affected by the review are extensive, including feed commodities and compounded feed for both food-producing animals (animals intended for the food supply) and non-food producing animals (animals such as pets). Feed products may be fresh, frozen, dried, unprocessed, processed, unpackaged, packaged or canned.

The review indicates that existing arrangements provide for adequate management of risks associated with the following animal feed products containing:

- only plant material
- material from live animals (for example dairy products, eggs and honey)
- primary processed animal material
- rendered animal material
- animal material for export.

The review indicated that there are significant risks to New Zealand's export trade and domestic animal health from certain manufacturers involved in the *secondary processing* of animal feed containing animal material resulting from the death of the source animal (meat, offal, poultry and fish material), for the domestic market.<sup>1</sup> The risks, in particular, relate to the procurement of source material for secondary processing from unregulated sources.

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<sup>1</sup> 'Manufacturing' as used in this paper includes the preparation, production or processing of material to make animal feed. This can include primary processing or secondary processing. The risks identified in this paper refer only to certain secondary processing operations.

NZFA is reviewing controls on imports of animal feed as part of its Imported Food Review. This may result in future proposals to ensure imported animal feed meets the New Zealand standard.

## Glossary

**Animal feed:** edible material that provides nourishment in the form of energy and for building tissues; and which contributes to the normal physiological function and metabolic homeostasis of an organism, by the oral provision of nutrients to any kind or class of animal (that is, all members of the animal kingdom except humans).

**Animal material:** any live or dead animal, or any tissue or other material taken or derived from an animal.

**Dairy material:** milk extracted from a milking animal and any material derived or processed from milk.

**Domestic consumption:** feed consumed by animals in New Zealand.

**Hazard:** microbiological, chemical or physical agents in, or potentially in, animal feed capable of causing adverse human and/or animal health effects, and/or effects on trade.

**Ingredient:** any substance, including a feed additive, added to animal feed during processing.

**Manufacture:** prepare, produce or process material to make animal feed. This will include primary processing and secondary processing.

**Petfood:** feed intended for consumption by cats or dogs or for animals fed cat or dog feed.

**Primary processing:** the killing, slaughter and dressing of the animal.

**Processing:** the killing, slaughter, dressing, manufacture, preserving, packing, transportation and storage of material for animal feed.

**Regulated source:** includes sources from primary processing covered by a Risk Management Plan (RMP) or procurement from a retail outlet subject to the Food Act 1981.

**Rendering:** the breaking down of animal tissues into constituent fat and protein elements, whether by the application of heat and pressure or otherwise.

**Risk:** as used in this paper, the probability of adverse events occurring and the severity of the impact of such events if they do occur. The *risk profile* of an animal feed is an estimation of the probability of an adverse occurrence multiplied by the severity of potential impact. To determine risk it is therefore necessary to first identify hazards in relation to animal feed.

**Secondary processing:** includes the processing of material for animal feed beyond primary processing (including manufacture, packing, preserving, transport and storage).

# 1 Introduction

NZFSA is required, among other things, to administer all food related legislation and is responsible for ensuring food safety and suitability, including that of animal feed. NZFSA's review of the regulation of animal feed has been prompted by concern that certain practices within parts of the animal feed industry may not now be adequately managed.

## 1.1 Current regulatory framework

Risks associated with the sourcing, processing and distribution of animal feed are currently managed under the *Agricultural Compounds and Veterinary Medicines Act 1997* (ACVM Act), the *Animal Products Act 1999* (APA) and the *Biosecurity Act 1993*.

The ACVM Act regulates agricultural compounds including substances or microbiological compounds constituting 'feed' for animals. The ACVM Act regulates imports of all animal feed (feed of plant origin, animal origin and chemical additives). Animal feed is currently controlled by conditions set by regulation under the Act. These conditions relate to: labelling; animal feed being fit for purpose and not resulting in certain effects; and the incorporation of therapeutic or pharmacological substances and feed additives.

The APA regulates animal feed derived wholly or partly from animal material processed in New Zealand. The APA focuses on primary processing, but also covers on-farm production, secondary processing, and export. An interface with the ACVM Act was established in 2000, allowing secondary processors of animal products for animal consumption to be regulated under the ACVM Act. This does not apply to rendering or blood drying operations or where official assurances for exports are required. In 2005, the APA was amended to include dairy processors which were previously excluded from the scope of the APA.

**Primary processing** includes the slaughter and dressing of the animal. **Secondary processing** includes the processing (including manufacture, packing, preserving, transport and storage) of animal material beyond primary processing.

The *Biosecurity Act 1993* regulates the exclusion, eradication and management of pests and unwanted organisms. The *Biosecurity (Ruminant Protein) Regulations 1999*, among other things, prohibits the feeding of ruminant protein to ruminants and requires operators to be subject to ruminant protein control programmes. The *Biosecurity (Meat and Food Waste for Pigs) Regulations 2005* regulates the feeding to pigs of meat and food waste that is or contains meat. Both sets of regulations are made under the Biosecurity Act. The Biosecurity Act is administered by Biosecurity New Zealand.

## 1.2 Outline of this information paper

- **Section 2** of this paper provides an outline of the purpose, objectives and scope of NZFSA's review of the regulation of animal feed.
- **Section 3** identifies risks and hazards at source, in processing and associated with the use of animal feed.
- **Section 4** explains the animal feed groupings that were utilised in the review.
- **Section 5** describes progressively more interventionist levels of risk management (and regulatory intervention) to manage risk.
- **Section 6** indicates NZFSA's view of the appropriate level of risk management (and regulatory intervention) necessary to manage risk by animal feed grouping.

## 2 Review methodology

### 2.1 Review purpose and objectives

The review purpose was to consider the risks associated with the production, sourcing, processing and use of animal feed in New Zealand and to determine where, if at all, those risks were inadequately managed, and then to propose options for improved regulatory management.

Specific objectives of the review were to:

- a. identify risks impacting on animal feed
- b. make an assessment of the nature and magnitude of any unmanaged risks
- c. identify risk management tools available
- d. develop options for improved regulatory management, if necessary.

### 2.2 General scope of the review

The scope of the review covered all animal feed produced for the domestic market. The range of relevant products is extensive, including feed commodities and compounded feed for both food-producing animals (animals intended for the food supply) and non-food producing animals (such as pets). Feed products may be fresh, frozen, dried, unprocessed or processed, unpackaged, packaged or canned.

The scope of the review included the risks involved in the animal feed chain from sourcing to distribution.

### 2.3 NZFSA's process for developing policy

NZFSA has developed a process for the development of policy to ensure that proposals for legislative change are based on objective analysis, encompass possible options, are consistent with government policy objectives, are coherent, involve the minimum practicable compliance costs and are appropriately consulted on. Policy process methodology is explained in **Appendix A**.

## 3 Risk identification

### 3.1 Hazards and risks associated with animal feed

For the purposes of this review, *hazards* refer to microbiological, chemical or physical agents in animal feed capable of causing adverse human and/or animal health effects, and/or effects on trade, and *risk* relates to the probability of adverse events occurring and the severity of the impact of such events if they do occur. The *risk profile* of an animal feed is an estimation of the probability of an adverse occurrence multiplied by the severity of potential impact. To determine risk it was therefore necessary to first identify hazards in relation to animal feed.

### 3.2 Hazards in animal feed

Hazards in animal feed can be actions or inactions of people involved in the production process, as well as microbiological, chemical or physical entities. Hazards can be present in the ingredients at source or introduced during processing and/or manufacture. Hazards can also be introduced, amplified, or not reduced as is expected, because of the way a feed is processed and/or manufactured. These might be neutral characteristics, but become hazards when they can potentially cause some adverse affect.

#### 3.2.1 Hazards in animal feed ingredients at source

These are:

- microbiological contaminants that could cause infection or illness of the animal, or can be transferred to animal products destined for human consumption, or result in spread of pests
- chemical contaminants (for example herbicide, pesticide, veterinary medicine, cadmium, or lead) that may either cause undesirable reactions, are toxic to the animal, or that would produce levels in animal feed that do not comply with required standards
- physical contaminants such as foreign bodies (for example pieces of metal or broken glass) that could cause harm to the animal.

### **3.2.2 Hazards in processing animal feed**

Processing includes all interventions intended to make raw materials into animal feed. Processing may be limited to the minimal preparation and packaging of the animal feed, or it may involve substantial manufacturing. Hazards in processing animal feed also include the introduction of microbiological, chemical or physical contaminants. Processing hazards in animal feed may arise from ineffective processes not managing ingredient hazards, for example, faulty cooking or heating that were intended to remove microbiological contamination, or faulty formulation processes concentrating chemical contaminants or processing chemicals rather than reducing their concentration.

### **3.2.3 Hazards associated with use of animal feed**

These hazards include the use of the product in a manner other than that intended, such as feeding a species of animal a feed for which it is not appropriate. In most cases, hazards introduced at this stage, while potentially significant, are not practically managed through regulatory intervention, other than labelling of the animal feed. Non-regulatory tools, such as the provision of consumer information and raising awareness among processors mitigate these risks.

## **3.3 Relation of hazards to risks of animal feed**

Hazards associated with animal feed may pose significant variations in risks across the range of animal feed and the kinds of ingredient used. Because data was not available to undertake a quantitative risk assessment, consideration of risk was based on NZFSA's perception of the hazards associated with animal feed, gained from operational experience and on information available to NZFSA.

NZFSA's risk identification was framed by its statutory mandate relating to food (including animal feed) safety and suitability. It is NZFSA's view that the relevant risks extend beyond those that are directly related to the impact of animal feed being used for their intended purpose, and must also include indirect risks. In particular, an indirect risk was identified to New Zealand's export trade from certain secondary processing operations. This could occur from a loss in confidence in New Zealand's ability to control risks, following an adverse occurrence in New Zealand, associated with animal feed produced for the domestic market.

### 3.4 Summary of animal feed risk factors

Following a consideration of the animal feed hazards and risks involved in the sourcing, manufacture and distribution of animal feed, the following risk factors were identified as appropriate:

- human health
- animal health
- export trade
- agricultural security (including biosecurity).

### 3.5 Direct risks identified

The following lists (in no particular priority) the types of direct risks that the review identified as of concern:

- source materials introducing unknown and/or uncontrolled animal feed hazards making them unfit for intended purpose
- animal feed process controls being inadequate to ensure product fitness for intended purpose, resulting in:
  - animal feed causing malnutrition resulting in unnecessary pain or distress in animals
  - animal feed causing physical harm to the animal resulting in unnecessary pain or distress
  - animal feed being a source of pathogenic organisms or other pests that either cause disease or spread pests
- animal feed containing chemical contaminants causing undesirable and unintentional reactions (toxic or pharmacological) in animals
- animal feed containing substances that are prescribed as prohibited (usually because of the possible adverse affects listed above, including being contrary to import requirements or New Zealand government policy)
- inadequate information provided to users of animal feed to enable the appropriate and safe use of the product (including inadequate labelling)

- animal feed failing to meet label claims
- animal feed exported from New Zealand not complying with importing country requirements (although the review was not specifically concerned with additional requirements relating to animal feed for export).

### **3.6 Indirect risks identified**

The following lists (in no particular priority) the types of indirect risks the review identified as of concern:

- presence of substances in feed, in concentrations that would result in subsequent products for human consumption causing illness, including poisoning of the consumer
- presence of substances in animal feed in concentrations that would result in breaches of the domestic food residue standards in animal products for human consumption
- deliberate diversion or substitution (including those in breach of existing regulatory controls) of materials and products from the animal consumption chain into the human food chain
- biosecurity impacts of the introduction and spread of organisms associated with animal feed
- impacts of substances in animal feed, such as antibiotics, on the health of humans
- spread of organisms in animal feed that would cause disease in humans (zoonotic pathogens)
- loss of overseas market access for animal feed or primary products for human consumption, due to an adverse event in New Zealand related to animal feed and/or the loss in confidence in New Zealand's regulatory management of animal feed.

Both the direct and indirect risks listed above are relevant to the control of animal feed for their intended purpose, and NZFSA considers they should influence regulatory strategy and specific regulatory decisions.

There are numerous other risks that were identified and considered by the review, but which were considered either not relevant to NZFSA or specifically to the regulation of animal feed. These included:

- occupational exposure of humans to animal feed in manufacturing or feeding situations resulting in human health problems
- contamination of food in the domestic household due to inadequate hygiene practices
- inadvertent or intentional consumption of animal feed by humans
- misleading labelling in breach of the Fair Trading Act
- risks pertaining to wholesomeness
- environmental contamination (chemical or microbiological) resulting in adverse affects on ecosystems
- animal feed failing to meet claims that are not relevant to the health and welfare of the animals (for example that the feed will result in increased energy or improved skin coat condition).

## 4 Risks by animal feed group

### 4.1 Animal product groupings

For the consideration of unmanaged risks, animal feed was considered in terms of eight groupings:

- Group A: non-compounded animal feed containing animal material resulting in the death of the source animal. This includes meat, offal, poultry and fish material. It includes slaughtered stock, dead lambs, wild animals, and road-kill. Tubifex worms and maggots for aquaria are also included in this group
- Group B: non-compounded containing animal material gathered without the death of the source animal. This includes dairy produce and dairy by-products, honey, eggs and refined animal material (for example proteins, nucleic acids, amino acids, fats and fatty acids, hormone and blood/serum/tissue extracts). This group includes chicken faeces, chicken feathers and wool scraps
- Group C: unprocessed or minimally processed grazing, foraging and feeding crops (including standing grass and other crops, hay, newly harvested grains, legumes and pulses, fruits and vegetables)
- Group D: animal feed that is processed or stored plant origin feed commodities (haylage, silage, stored grains, legumes, pulses and plant origin by-products)
- Group E: feed additives and feed supplements (including vitamin and mineral supplements, flavours and colours, functional substances (for example enzymes, tissue compounds and extracts, probiotics)
- Group F (i): compounded animal feed containing Group A products and materials
- Group F(ii): compounded animal feed containing non Group A products
- Group G: homekill (Group A products produced by the owner, for consumption by the owner's animals).

### 4.2 Determination of animal feed risk

The approach taken in the review was to identify those areas where, with current regulatory controls, there were likely to be significant unmanaged risks somewhere within the production pathway from sourcing, through to distribution and including:

- sourcing ingredients
- master formulation (where applicable)
- processing
- packaging and labelling
- storage and distribution
- use.

A summary of risks by pathway is contained in **Appendix B**.

Animal feed risks were assessed in terms of probability multiplied by the magnitude of impact should an adverse event occur. Risk was categorised as high, medium or low in terms of these dimensions and is presented in Table 1.

**Table 4.1: Risk Assessment Matrix**

	High impact	Medium impact	Low impact
High probability	High Risk Category	High Risk Category	Medium Risk Category
Medium probability	High Risk Category	Medium Risk Category	Low Risk Category
Low probability	High Risk Category	Medium Risk Category	Low Risk Category

Risks from animal feed in the high risk category require regulatory intervention to manage. Risks in the medium risk category usually require regulatory intervention to manage, although it is possible to manage some of these risks by non-regulatory means. Risks in the low risk category can be managed through non-regulatory means, such as the provision of public information, advice and guidance. They may also be managed within a regulatory framework through an obligation to adhere to codes of good operating practice.

NZFSA's operational experience and available information indicates, that with current animal feed risk management controls:

- risks to domestic animal health and welfare and indirect risks to New Zealand's export trade from Group A and Group F (i) animal feed is high
- risks from other groups are low.

**Appendix C** provides a summary of risks by product group. **Appendix D** explains the assumptions on which these conclusions are based. **Appendix E** locates animal feed risk by group on a risk analysis matrix.

## 5 Levels of risk management for animal feed

The review indicated that animal feed risks requiring management are best described in terms of *levels of risk management* rather than requiring the application of existing legislative regimes (for example, APA and ACVM Act). Four levels were identified as requiring specific management. These levels are cumulative and require progressively more intervention to manage risk.

### 5.1 Level 1: obligation to be able to demonstrate due care

Level 1 risk management applies to all manufacturers of animal feed and should continue to do so. Its key requirement is that *the operator must be able to demonstrate due care has been taken*, in that the product is:

- fit for purpose
- does not contain prohibited substances
- is appropriately labelled.

These requirements are made clear in the form of *regulations* that set minimum expectations, but leave to the regulated parties decisions on how they demonstrate due care. A documented system is not compulsory. Registrations or listings of any kind are not necessary. No approvals from NZFSA are required. Independent verification is not necessary.

NZFSA investigates all allegations of compliance and/or adverse events reported. NZFSA also conducts general audits of levels of compliance on a periodic basis.

Where animal feed products are not likely to be inherently hazardous or where risks are reduced to an insignificant level, due to the way the product is prepared or manufactured, NZFSA expects Level 1 risk management *only* to be applied.

Level 1 risk management is currently applied to all animal feed products through the *due care* requirement on all manufacturers under the ACVM Act.

### 5.2 Level 2: 'listing' requirement

Level 2 risk management is an additional level of risk management to Level 1 risk management. It should be applied only where justified by risk. Its key feature is *listing*. This is a requirement to supply information to NZFSA, for example, business name, business address and type of animal feed manufactured.

Level 2 risk management should apply to animal feed containing ingredients from Groups A, F(i) and G which were not specifically excluded by NZFSA. Currently listing is specifically applied to Group G. Animal feed products subject to the RMP regime are in effect listed by virtue of the requirements of maintaining a RMP.

### **5.3 Level 3: requirement to maintain a documented system**

Level 3 is an additional level of risk management to levels 1 and 2 risk management. It should be applied only where justified by risk. Its key requirements are that *procurement for further processing be from a regulated source* and that manufacturers maintain *a documented system* to demonstrate:

- the source of process inputs
- their suitability to meet fitness for intended purpose
- sufficient labelling to enable traceback of the product to the manufacturer
- and inventory control to identify substitution and security during transportation.

The requirement for procurement for further processing to be from a regulated source is to manage the risks associated with unregulated source material, such as stillborn lambs (slinks) and road kill. The requirement for a documented system is to enable the tracking of products to origin and enable effective audit.

The type and format of the documented system manufacturers of animal feed were required to maintain would be prescribed, in order for manufacturers to meet their obligations. However, approval of the documented system would not be required prior to manufacturers of animal feed conducting business. Only minimal independent verification of the document system should be necessary with this level of risk management unless the manufacturer is found to be non-compliant. Should investigations or audits identify that an operator's documented system was not complying with requirements, the manufacturer may be required to supply documentary evidence of compliance and/or be required to undergo more frequent independent verification.

This level of risk management is not currently applied to any animal feed manufacturers.

### **5.4 Level 4: requirement for prior approval to operate and to maintain an independently verified documented system**

Level 4 is an additional level of risk management to Levels 1, 2 and 3. It would be applied only where justified by risk, where:

- the nature of the animal feed or ingredient is particularly hazardous
- or official certification for export is required.

Level 4 would require NZFSA approval of the documented system to demonstrate management of hazards at critical control points, prior to a manufacturer commencing operations. NZFSA approval would be required for any changes to the documented system. Evaluation of the documented system would be required prior to registration of the documented system with NZFSA.

Independent verification that the operator is meeting the requirements would be required, at intervals commensurate with risk and compliance history. NZFSA would prescribe the type and format of the documented system operators needed, in order for manufacturers to meet their obligations. Level 4 risk management is currently, and would continue to be applied, to primary and secondary processors of animal feed containing animal material, unless exempted from this requirement.

## 6 Level of animal feed risk management by product grouping

All animal feed groups are regulated. Currently:

- Level 1 risk management is applied, through regulations under the ACVM Act, to *all* animal feed
- Level 2 risk management is applied specifically to homekill (Group G) and, in effect, to feed subject to Level 4 risk management
- Level 3 risk management is not currently specifically applied to any animal feed although it applies in effect to feed subject to Level 4 risk management
- Level 4 risk management is applied to manufacturers of animal feed containing animal material (groups A, B, F(i) and F(ii)) through the RMP regime under the APA, unless exempted. Those exempted are secondary processors of animal feed containing meat, offal and poultry, unless the feed material is to be rendered or exported. Exempted manufacturers are subject to Level 1 risk management under the ACVM Act.

NZFSA is of the view that the appropriate level of risk management is currently applied to most animal feed operations. The tables 6.1 to 6.8 below indicate NZFSA's view of the animal feed risks by risk area and its expectations regarding the minimum level of risk management needed to control risks by animal feed group.

In a few cases additional regulation would be required to ensure risk management meets this minimum. NZFSA is concurrently consulting on proposals to ensure this minimum level of risk management for these feed.

### **6.1 Group A: non-compounded feed containing animal material resulting in the death of the source animal**

NZFSA is of the view that Group A animal feed requires the application of levels 1 and 2 risk management to all manufacturers (with the exception of tubifex worms and maggots for aquaria), and up to Level 4 where commensurate with risk.

<p><b>Definition</b></p>	<p>Non-compounded feed containing animal material resulting in the death of the source animal. This includes meat, offal, poultry and fish material. Tubifex worms and maggots for aquaria are also included in this group.</p>
<p><b>Risks/hazards (with current controls):</b>  <b>animal health/ welfare</b>  <b>export trade</b>  <b>agricultural security</b>  <b>human health</b></p>	<p>High  High  Low  Low</p>
<p><b>Preferred level of risk management</b></p>	<p><u>For all manufacturers:</u>  Level 1 risk management controls, requiring that the manufacturer must be able to demonstrate that the product is fit for purpose, does not contain prohibited substances and is appropriately labelled should apply. Tubifex worms and maggots sold as aquaria fish food would require <i>only</i> Level 1 risk management.  <u>In addition:</u>  Level 2 risk management, requiring listing with NZFSA by manufacturers being required to supply certain information (for example business name, business address and type of product manufactured). This level of risk management should be the minimum applicable to animal feed in this group.  <u>Where commensurate with risk:</u>  Level 3 risk management requiring the maintenance of a documented system to demonstrate core activities (source of process inputs, their suitability to meet fitness for purpose requirements, sufficient labelling to ensure suitability, product trace-back to producer and inventory control to identify substitution and diversion and security during transportation). This level of risk management should be the minimum applicable to petfood (cat and dog food and feed for animals fed cat and dog feed) in this group.  <u>Where commensurate with risk:</u>  Level 4 risk management controls, requiring prior NZFSA approval of a documented system to demonstrate management of risks at critical control points, and any changes to the system. Evaluation of the documentary system would be required prior to registration with NZFSA and systematic and ongoing independent verification that the operator is fulfilling requirements. This level of risk management should continue to apply, through the RMP regime under the APA, to primary processors of products in this group and secondary processors of such products unless exempted.</p>
<p><b>Implications</b></p>	<p>The appropriate level of risk management is currently applied to feed products in this group with the exception of that applying to secondary processors exempted from a requirement to maintain a RMP. Those exempt are currently subject to Level 1 risk management under the ACVM Act. All products in this group should be subject to Level 2 risk management as a minimum. Petfood, because of the high raw animal product content of the product, should be subject to Level 3 risk management as a minimum.</p>

**6.2 Group B: non-compounded feed containing animal material gathered without the death of the source animal**

NZFSA is of the view that Group B animal feed requires the application of Level 1 risk management to all manufacturers and where commensurate with risk, up to Level 4.

<b>Definition</b>	Non-compounded feed containing animal material that is gathered without the death of the source animal (including dairy produce and dairy by-products, honey, and eggs).
<b>Risks/hazards (with current controls):</b> animal health/welfare export trade agricultural security human health	Medium to low Medium to low Low Low
<b>Preferred level of risk management</b>	<i>For all manufacturers:</i> Level 1 risk management controls, requiring that the manufacturer must be able to demonstrate that the product is fit for purpose, does not contain prohibited substances and is appropriately labelled should apply. This level of risk management should continue to apply to all animal feed in this group. <i>Where commensurate with risk:</i> Level 2-4 risk management provided for by the RMP regime.
<b>Implications</b>	No change is necessary for products in this group. Risks are adequately managed by the RMP regime under the APA, and for secondary processors exempted, by <i>due care</i> obligations under the ACVM Act.

**6.3 Group C: unprocessed and minimally processed grazing, foraging and feeding crops**

NZFSA is of the view that Group C animal feed requires the application of Level 1 risk management to all operators.

<b>Definition</b>	Animal feed that is unprocessed or minimally processed grazing, foraging and feeding crops (including standing grass and other crops, hay, newly harvested grains, legumes and pulses, fruits and vegetables).
<b>Risks/hazards (with current controls):</b> animal health/welfare export trade agricultural security human health	Low Low Low Low
<b>Preferred level of risk management</b>	<i>For all manufacturers:</i> Level 1 risk management controls.
<b>Implications</b>	<u>No change</u> is proposed in the level of risk management for manufacturers of animal feed in this group. The status quo (prescription of minimum requirements by the ACVM Regulations, NZFSA raising awareness of hazards among those involved in the production process, and an expectation that manufacturers will adhere to Good Operating Practice (GOP), is considered adequate.

**6.4 Group D: processed and stored plant origin feed commodities**

NZFSA is of the view that Group D animal feed requires the application of Level 1 risk management to all operators.

<b>Definition</b>	Animal feed that is processed or stored plant origin feed commodities (haylage, silage, stored grains, legumes, pulses and plant origin by-products).
<b>Risks/hazards (with current controls): animal health/welfare export trade agricultural security human health</b>	Risks in these areas relating to microbiological contamination hazards are overall low.
<b>Preferred level of risk management</b>	<i>For all manufacturers:</i> Level 1 risk management.
<b>Implications</b>	<u>No change</u> is proposed in the level of risk management for this animal feed group. The status quo (prescription of minimum requirements by the ACVM Regulations, NZFSA raising awareness of hazards, and an expectation that manufacturers will adhere to Good Operating Practice (GOP)), is considered adequate.

**6.5 Group E: feed additives and feed supplements**

NZFSA is of the view that Group C requires the application of Level 1 risk management to all operators.

<b>Definition</b>	Feed additives and feed supplements (including vitamin and mineral supplements, flavours and colours, functional substances (eg enzymes, tissue compounds and extracts, probiotics).
<b>Risks/hazards (with current controls): animal health/welfare export trade agricultural security human health</b>	Low risks relating to the manufacturing process and inefficacy of health claims.
<b>Preferred level of risk management</b>	<i>For all manufacturers:</i> Level 1 risk management.
<b>Implications</b>	<u>No change</u> is proposed in the level of risk management for this animal feed group. The status quo (prescription of minimum requirements by the ACVM Regulations, NZFSA raising awareness of hazards, an expectation that manufacturers will adhere to Good Operating Practice (GOP) is considered adequate.

**6.6 Group F(i): compounded feed containing animal material resulting in the death of the source animal**

NZFSA is of the view that Group A animal feed requires the application of levels 1 and 2 risk management to all manufacturers, and up to level 4 where commensurate with risk.

<b>Definition</b>	Compounded feed containing animal material that has resulted in the death of the source animal
<b>Risks/hazards (with current controls): animal health/ welfare export trade agricultural security human health</b>	Risks are cumulative and dependent on ingredients and prior processing.
<b>Preferred level of risk management</b>	As with Group A
<b>Implications</b>	As with Group A

### 6.7 Group F(ii): compounded feed containing animal material gathered without the death of the source animal

NZFSA is of the view that Group B animal feed requires the application of Level 1 risk management to all manufacturers and where commensurate with risk, up to Level 4.

<b>Definition:</b>	Compounded feed containing <i>non</i> Group A products
<b>Risks/hazards (with current controls): animal health/ welfare export trade agricultural security human health</b>	Risks are cumulative and dependent on ingredients and prior processing.
<b>Preferred level of risk management</b>	As with Group B.
<b>Implications</b>	As with Group B.

### 6.8 Group G: homekill

NZFSA is of the opinion that Group G animal feed requires levels 1 and 2 risk management. The table below indicates NZFSA's view of level of risk by risk area, preferred level of regulatory control and key implications.

<b>Definition:</b>	Group A products produced by the owner, for consumption by the owner's animals.
<b>Risks/hazards (with current controls): animal health/welfare export trade agricultural security human health</b>	Risks are considered to be managed by virtue of the 'owner' being aware of the history – including animal treatments, exposure to environmental contaminants, disease status – of the particular animals killed for homekill. The export trade risk is managed by prohibiting trade in homekill material for consumption, except for material being rendered. Also dual operator butchers are prohibited from exporting.
<b>Preferred regulatory control and rationale</b>	<u>For all homekill operators:</u> Level 1 risk management. In addition: Level 2 risk management.
<b>Implications</b>	<u>No change</u> is proposed for producers of this animal feed group. Provisions of Part 6 of the APA would continue to apply.

## Appendix A NZFSA's process for policy development

NZFSA has developed a process for the development of policy to ensure that proposals for legislative change are based on objective analysis, encompass possible options, is consistent with government policy objectives, are coherent, involve the minimum practical compliance costs for business, society and government and is appropriately consulted on throughout. The review utilised this process to:

- identify government/NZFSA objectives in relation to animal feed
- determine risks associated with the sourcing, processing, distribution and storage of animal feed (associated risks)
- identify where government intervention, non-regulatory and regulatory, is necessary to manage associated risks
- determine whether current government interventions, non-regulatory and regulatory, are adequate and/or appropriate to manage associated risks
- develop proposals for the management of associated risks where current government interventions are not adequate and/or appropriate
- analyse options in terms of the status quo (or do nothing), non-regulatory solutions and regulatory change solutions, where current government interventions are insufficient or inappropriate to manage associated risks
- provide an indication of the impact, business compliance cost and cost-recovery implications of proposals.

## Appendix B Animal feed pathway analysis

Pathway	Animal feed risks/hazards
sourcing ingredients	<ul style="list-style-type: none"> <li>• inappropriate sourcing of material (specifically raw meat, offal and fish material of unknown and unregulated origin)</li> </ul>
master formulation	<ul style="list-style-type: none"> <li>• incorrect master formulation for specific animal (for example, nitrates, selenium, salt)</li> </ul>
processing	<ul style="list-style-type: none"> <li>• faulty/inappropriate processing systems (temperature, mixing machines etc) whereby the final product differs from master formulation in concentrations of ingredients</li> </ul>
packaging/labelling	<ul style="list-style-type: none"> <li>• inappropriate packaging or faulty seals</li> <li>• incorrect labelling or no label</li> </ul>
storage/distribution	<ul style="list-style-type: none"> <li>• product deterioration/contamination/cross contamination</li> <li>• diversion associated with distribution to type of animal for which feed was intended</li> </ul>

## Appendix C Risk by animal feed product group

Based on information available to NZFSA on current animal feed for domestic consumption use, with current controls

PRODUCT GROUP	Human Health		Animal Health/Welfare	New Zealand's Export Trade	Agricultural Security
	direct	indirect			
Group A (Non-compounded feed containing animal material that results in the death of the source animal)	low	low	high	high	low
Group B (Non-compounded feed containing animal material that are gathered without the death of the source animal)	low	low	low	low	low
Group C (Unprocessed/minimally processed grazing, foraging and feeding crops)	low	low	low	low	low
Group D (Processed or stored plant origin feed commodities)	low	low	low	low	low
Group E (Feed additives and feed supplements)	low	low	low	low	low
Group F(i) (Compounded feed containing Group A products)	low	low	high	high	low
Group F(ii) (Compounded feed containing <i>non</i> -Group A products)	low	low	low	low	low
Group G (Group A products produced by the owner, for consumption by the owner's animals)	low	low	low	low	low

## Appendix D Assumptions for animal feed related risk identification

The following assumptions were made relative to animal feed groups that share characteristics with regard to the hazards and consequential animal feed risks. These assumptions are based on operational experience and information currently available to NZFSA.

### Group A Animal feed

This group includes animal feed containing animal products from domestic mammals, birds and wild animals. While it is recognised that meat meals, blood and bone meals, tallow and other by-products are subject to additional processing, these products share the same initial hazards of concern.

- Risks to domestic animal health/welfare can be considered high in this group. This is because of the potential for microbiological contamination with animal and zoonotic pathogens from the slaughter/dressing process or because of illness in the animals being processed, particularly if the meat, offal or by-products remain raw or only partially cooked. It is far less likely that this group of products could cause adverse animal health/welfare affects due to chemical hazards from treatment of animals prior to slaughter and even less likely due to residues picked up from feed contaminated with chemicals used on feed crops, or naturally occurring contaminants such as cadmium or lead.
- Indirect risks to New Zealand's export trade through the failure to manage a significant adverse occurrence in animal feed intended for the domestic market are considered high for this group. In particular, should there be an adverse occurrence, the inability to be able to trace product or material in this Group to source, would have a high adverse impact on New Zealand's credibility in managing risks associated with animal feed.
- Direct risks to New Zealand's export trade can be considered high because most import requirements are very specific and stringent for these kinds of products and market access is often based on a level of comfort with the regulatory programme for animal feed that are meat, offal and by-products. The most likely hazards are microbiological rather than chemical residues that would exceed the importing countries minimum residue limits. However NZFSA considers these risks are currently adequately and appropriately managed.
- NZFSA is not aware of any evidence to indicate that risks to agricultural security of domestically produced animal feed containing meat, offal or by-products is other

than low. Similarly risks to agricultural security of such imported material complying with New Zealand import health standards is considered low.

- Risks to human health in the domestic environment due to cross-contamination or inadvertent/intentional consumption of animal feed may be considered low overall (although medium relative to the microbiological hazards). However, the risks are not directly related to the regulatory control of animal feed for their intended purpose.
- The risk to human health due to the diversion of animal feed in this group into the human food chain is considered low (although medium relative to the microbiological hazards). Food safety risks in the context of food for human consumption are not directly related to the regulatory control of animal feed for their intended purpose.

### **Group B Animal feed**

- Risks to domestic animal health/welfare are considered medium to low in this group because the potential for microbiological contamination with animal and zoonotic pathogens is significantly less than for animal material from Group A (that can be contaminated during the slaughter/dressing process). Chemical contamination from treatments with veterinary medicines or from contaminated feed would be as low as, or lower, than for Group A.
- Direct risks to New Zealand's export trade can be considered low. The processes used to make animal feed in this group appear to be adequate to manage these risks. Hazards present that might affect trade are most likely to be microbiological rather than through chemical residues that would exceed importing countries' minimum residue limits.
- Indirect risks to New Zealand's export trade through the failure to manage a significant adverse occurrence in animal feed intended for the domestic market are considered low for this group.
- NZFSA is not aware of any evidence to indicate that risks to agricultural security are other than low when the animal products are of New Zealand origin or comply with import health standards.
- Risks to human health in the domestic environment or due to cross-contamination or inadvertent/intentional consumption of animal feed may be considered low (medium relative to the microbiological hazards). However, these risks are not directly related to the regulatory control of animal feed for their intended purpose.
- The risk to human health due to the diversion of animal feed in this group into the human food chain is considered low (medium relative to the microbiological

hazards). Food safety risks in the context of food for human consumption are not directly related to the regulatory control of animal feed for their intended purpose.

### **Group C Animal feed**

All the risks in this group seem to be too low to warrant rigorous regulatory intervention.

- Risks to domestic animal health/welfare can be considered low from this group. Microbiological contamination is likely to be minimal with little opportunity for exacerbation of what microbiological contamination there might be. Chemical contamination is likely to be too low to cause adverse health and welfare affects.
- Direct risks to New Zealand's export trade can be considered low because there are few import requirements to meet and little dependence of regulatory control to support international trade. Indirect risks to New Zealand's export trade through the failure to manage a significant adverse occurrence in animal feed intended for the domestic market are considered low for this group.
- Risks to agricultural security are low because the feed is of New Zealand origin or complies with import health standards. As plant material, there could be sanitary/phytosanitary requirements that would have to be met. However, this is not a significant issue in New Zealand because very little such feed is exported.
- Risks to human health in the domestic environment or due to cross-contamination or inadvertent/intentional consumption of animal feed is not applicable. The risk to human health due to the diversion of animal feed in this group into the human food chain is not applicable.

### **Group D Animal feed**

All risks in this group seem to be too low to warrant rigorous regulatory intervention.

- The risk of microbiological contamination would be greater than for Group C due to the environment created by processing or storage. These conditions can facilitate the growth of certain organisms that are either pathogens in their own right or produce toxins that are harmful to animals. Nevertheless these risks can still be considered overall low. The risk of chemical contamination is likely to be too low to cause adverse health and welfare affects.
- NZFSA is not aware of any evidence to indicate that risks to domestic animal health/welfare are other than low.
- Direct risk to New Zealand's export trade can be considered low. This is because there are few import requirements for this kind of animal feed to meet and little

dependence on regulatory control to support international trade in these feed products. As plant material, there are sanitary/phytosanitary requirements to be met. However, this is not a significant issue in New Zealand because very little such feed is exported.

- Indirect risks to New Zealand's export trade through the failure to manage a significant adverse occurrence in animal feed intended for the domestic market are considered low for this group.
- Risks to agricultural security are low because the feed is of New Zealand origin or complies with import health standards.
- Risks to human health in the domestic environment or due to cross-contamination or inadvertent/intentional consumption of animal feed are not applicable. Diversion into the human food chain is not applicable.

#### **Group E Animal feed**

The hazards in this group relate to formulation for the intended purpose and the manufacturing process used. They also relate to the claims made for the product. None of the risks seem significant enough to warrant any additional regulatory intervention.

#### **Group F(i) and Group F(ii)**

The risks posed by compounded feed vary greatly depending on the ingredients, the processing/manufacturing and the intended purpose. Such products can contain any or all of the other animal feed types listed above as ingredients. It can be assumed that the risks that can be assumed for each of the product groups would also apply if any feed from that product group were ingredients in a compounded feed and that the risks are cumulative. For example the risks that apply to animal feed that are meat, offal or by-products and the risk posed by processed or stored plant origin material may both be relevant to a compounded feed that has both as ingredients. Accordingly, Group F has been split into: F(i), containing feed identified as high risk ingredients from product Group A; and F(ii), other ingredients.

#### **Group G**

Risks associated with Group G are considered to be managed by virtue of the 'owner' being aware of the history of the animal(s) killed and current regulation under the APA. Direct risks to New Zealand's export trade are managed by a prohibition on trade in homekill material for consumption, except for rendered material.

## Appendix E Risk analysis matrix

	High impact	Medium impact	Low impact
High probability	High Risk Category	High Risk Category	Medium Risk Category
Medium probability	High Risk Category Group A Group F(i)	Medium Risk Category	Low Risk Category
Low probability	Medium Risk Category	Medium Risk Category	Low Risk Category Group B Group C Group D Group E Group F(ii) Group G

This table summarises overall risk given current regulatory controls and NZFSA's view of appropriate interventions by group and risk area to manage associated animal feed risk.