

Supporting document 5

Food safety management in the meat industry Proposal P1014

Primary Production & Processing Standard for Meat & Meat Products

Executive summary

Food Standards Australia New Zealand (FSANZ) is examining food safety management in the primary production and processing stages of the meat supply chain. During the first round of consultation, FSANZ progressed the work under two separate proposals, P1005 (covering cattle, sheep, goats, pigs) and P1014 (covering other animals and wild game). These two proposals have now been consolidated into the one proposal, P1014.

Under P1014, FSANZ is addressing meat and meat products from major and minor meat species (e.g. cattle, sheep, goats, pigs, buffalo, camels, alpacas, llamas, deer, horses, donkeys, rabbits, crocodiles, ostrich and emu) and wild game. P1014 is also considering rendered products for human consumption and natural casings.

Primary Production

Primary production includes the rearing of animals for human consumption, feedlots, saleyards and transporters of animals (to saleyards, between properties, and to the abattoir).

The management of inputs such as the use of agricultural and veterinary chemicals (including in feed and water), the ruminant feed ban and controls on grazing are controlled under various State and Territory Acts and Regulations. Animal/property identification is mandated in legislation and State and Territory governments require evidence at the point of animal receipt in the form of National Vendor Declarations or equivalent documentation recording management of feed and waste and animal traceability as proof or assurance that the animals have been raised in accordance with good husbandry practices and are traceable.

The harvesting and primary processing of wild game animals is addressed by the AS 4464-2007 *Hygienic Production of Wild Game Meat for Human Consumption* and has requirements on field harvesters regarding sourcing and identification of wild game animals.

Processing

Processing includes the admission of animals for slaughter, slaughter, dressing, boning, packing and production of meat and meat products. The safety of meat and meat products in Australia is currently implemented through reference to Australian Standards. All States and Territories have legislation that requires businesses operating abattoirs/meat slaughtering facilities to be licensed or accredited and to operate in accordance with approved systems to manage meat safety and suitability. The processing of the major and minor meat species is covered by the following Australian Standards:

- AS4696 - 2007 Hygienic Production and Transportation of Meat and Meat Products for Human Consumption
- AS 4466 - 1998 *Hygienic Production of Rabbit Meat for Human Consumption*
- AS 4467-1998 Hygienic Production of Crocodile Meat for Human Consumption
- AS5010 - 2001 *Hygienic Production of Ratite Meat for Human Consumption*
- AS 4464 - 2007 *Hygienic Production of Wild Game Meat for Human Consumption*

Process control is achieved through the application of hazard analysis critical control point (HACCP) methodology. These Australian Standards also require documented systems for the accurate identification of, and the ability to trace and recall, meat and meat products produced by the business. FSANZ acknowledges the role of the Australian Standards but considered that with the disbandment of the Meat Standards Committee in 2007, there was no longer a mechanism to update or review the current standards in the meat processing sector. This issue is being resolved and therefore these standards, including the animal welfare provisions, will be retained under State and Territory legislation.

FSANZ concluded that microbiological and chemical hazards associated with major and minor meat species and wild game are controlled by current meat processing requirements. These Australian Standards impose obligations relating to on-farm activities on processors but there are no corresponding obligations on producers. The Food Standards Code currently does not currently contain requirements that address hazards and traceability during primary production of the major and minor meat species.

Preferred risk management option

The preferred option for consultation is amending Standard 4.2.3 to include primary production requirements for traceability, inputs and management of waste for the major and minor meat species e.g. cattle, sheep, goats, pigs, buffalo, camels, alpacas, llamas, deer, horses, donkeys, rabbits, crocodiles, ostrich and emu. These primary production requirements are not applicable to wild game animals. The AS 4464-2007 *Hygienic Production of Wild Game Meat for Human Consumption* already has requirements on field harvesters regarding sourcing and identification of wild game animals.

This option reflects current practices, would assist meat processors in complying with the requirements under the Australian Standard and improve the application of corrective actions at the appropriate point in the supply chain.

Rendered products for human consumption and natural casings

The requirements in the AS 5008-2007 *Hygienic Rendering of Animal Products* and AS 5011- 2001: *Hygienic Production of Natural Casings for Human Consumption* manage any microbiological and chemical hazards associated with the production and processing of rendered products for human consumption and natural casings respectively. The on-going maintenance of the Australian Standards is being resolved and there is no need to duplicate or incorporate the Australian Standards requirements, or include additional requirements, into the Food Standards Code.

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1. Introduction

Food Standards Australia New Zealand (FSANZ) is examining food safety management in the primary production and processing stages of the meat supply chain. During the first round of consultation, FSANZ progressed the work under two separate proposals, P1005 (covering cattle, sheep, goats, pigs) and P1014 (covering other animals and wild game). These two proposals have now been consolidated into the one proposal, P1014.

Under P1014, FSANZ is addressing meat and meat products from:

- major and minor meat species e.g. cattle, sheep, goats, pigs, buffalo, camels, alpacas, llamas, deer, horses, donkeys¹, rabbits², crocodiles³, ostrich and emu⁴
- wild game⁵

A description of the minor species and wild game sectors is at Attachment 1.

P1014 is also considering:

- rendered products for human consumption⁶
- natural casings⁷

FSANZ's *Assessment of Microbiological Hazards Associated with the Four Main Meat Species* (cattle, sheep, goats, pigs) identified hazards that may be found in meat, where in the meat supply chain they may be introduced into the animal or the meat and where in the supply chain they may be controlled. The amended report, following public consultation in 2009, is at SD2 of the P1014 2nd Call for Submissions report. The *Assessment of the Microbiological Hazards Associated with the Minor and Wild Game Meat Species* is at SD3. A *Chemical Risk Profile of Meat and Meat Products* is at SD4.

2. Managing hazards

The meat supply chain consists of:

- production of animals (primary production)
- transport to saleyards, between properties and to the abattoir (primary production)
- holding the animals at the saleyards (primary production)
- processing – lairage, slaughter and dressing (and boning) (processing)
- further processing into products such as natural casings and rendered products (processing).

Information on controls that prevent, reduce or eliminate hazards in meat was sourced from the Guide to Good Practices in the Meat Industry (FAO 2004), Codex Code of Hygienic Practice for Meat⁸, Food Safety Controls in the Australian Meat Industry⁹, Codes of Practice

¹ All of the species within the scope of AS4696-2007 *Hygienic Production and Transportation of Meat and Meat Products for Human Consumption*

² Species covered under AS 4466-1998 *Hygienic Production of Rabbit Meat for Human Consumption*

³ Species covered under AS 4467-1998 *Hygienic Production of Crocodile Meat for Human Consumption*

⁴ Species covered under AS5010 – 2001 *Hygienic Production of Ratite Meat for Human Consumption*

⁵ Wild game is that as defined under AS 4464-2007 *Hygienic Production of Wild Game Meat for Human Consumption*

⁶ As defined in AS 5008 - 2007: *Hygienic Rendering of Animal Products*.

⁷ As defined in the scope of AS 5011- 2001: *Hygienic Production of Natural Casings for Human Consumption*

⁸ Code of Hygienic Practice for Meat CAC/RCP 58-2005

⁹ Report prepared for FSANZ by SafeFood Queensland 2008.

for the Welfare of Animals and other Australian information, including that gained from visits to producers and processors.

2.1 Primary production

Primary production includes the rearing of animals for human consumption, feedlots, saleyards and transporters of animals (to saleyards, between properties, and to the abattoir and should be managed in a way that reduces the likelihood of introduction of hazards. The food safety outcome is to ensure that animals are healthy and are not presenting symptoms of disease, or conditions, or to the extent practicable, do not carry pathogens that affect the safety and suitability¹⁰ of meat and meat products.

2.1.1 Major and minor meat species

Managing inputs and waste will reduce the likelihood of introduction of hazards during primary production. Inputs can include animal feed (such as pasture, grains, silage and concentrate supplements), water (including recycled water), chemicals or other substances used in connection with the primary production activities.

Animal feed including roughage (e.g. hay and silage), grain, concentrates and supplements may be contaminated with pathogens, which may result in a route of pathogen transmission to animals. Feed should be managed so that animals do not ingest pathogens introduced into feed during manufacture or from vermin or domestic animals. For example, feed should be sourced from reputable manufacturers and follow manufacturer's instructions as to storage and use. In the case of rendered product, heat treatments must be sufficient to kill vegetative bacteria and should be capable of eliminating the risk of transferring pathogens that may be in raw materials to livestock.

Water (including town, reticulated, ground, recycled, surface and run-off water) may be a source of microbiological contamination for stock. Meat producers must ensure drinking water is managed in a way that protects it from seepage from drains, sewerage, septic systems, manure pits and other sources of contamination. Additionally, any use of veterinary medicines and other chemicals in animal husbandry must be managed to ensure that animals do not ingest harmful, undesirable or illegal chemicals which could accumulate in the meat.

Waste includes solid or liquid waste; animal carcasses; garbage; chemical residues; and seepage or runoff from drains, septic systems or manure pits and appropriate storage, handling and disposal is necessary to prevent the transmission of pathogens from environmental sources to animals e.g. waste contaminating the animals' water supply or feed.

The importance of traceability was raised during public consultation on this work. The purpose of traceability is two-fold; to protect consumers from products that are injurious to health by being able to identify the products and withdraw or recall them from sale, and also to trace the products back through the chain to identify where the food safety problem occurred in order to prevent its re-occurrence. For example, the meat producer should have a tracing or traceability system to ensure that animals can be traced from the holding of origin to the holding of consignment. This enables animals to be traced in the event of a food safety problem.

¹⁰ The definitions of unsafe and unsuitable are important in relation to meat. The term 'unsafe and unsuitable' covers hazards that could affect the health of consumers and meat affected by diseases and conditions that consumers prefer not to eat but which do not necessarily cause them illness. The definition of unsuitable also covers levels of contaminants and residues which, while not unsafe, are in excess of the limits in the Code (Standard 3.1.1)

Practices to minimise the presence of hazards potentially arising from various inputs are detailed in Table 1A. There are a number of common inputs and activities during animal (on-farm) production for the major and minor species, however not all of the controls may be appropriate.

In transporting animals from the farms to other properties, saleyards or abattoir, the aim is to ensure that the animals arrive in as good a condition as when they left to prevent any disease, injury or other issues that could affect the meat. The minor species are transported directly from the farm to the abattoir thereby bypassing the saleyard. The transporter can contribute to managing hazards by:

- ensuring vehicles are clean prior to loading
- ensuring animals are not unduly stressed due to feed and water deprivation
- mixing with unfamiliar animals or because of heat or distance
- complying with rest stop requirements and any associated loading and unloading, feed and water provision
- careful loading and unloading and driving manner to avoid injury

Practices to control hazards at saleyards are detailed in Table 1B.

2.1.2 Wild game species

For animals slaughtered in the wild (e.g. kangaroo, wild boar), the Australian Standard for the *Hygienic Production of Wild Game Meat for Human Consumption (AS4464-2007)* includes the harvesting of wild game animals and holding of carcasses at field depots¹¹ within its scope. Harvesting includes the killing of wild game animals, their identification, bleeding, field dressing, cooling, hygienic storage and transport up to the point of their presentation for inspection at a wild game meat processing premises.

The AS4464-2007 requires:

- the harvesting of wild game animals to only be carried out by a field harvester¹²
- wild game animals not to be harvested from known areas where the presence of potentially harmful substances such as pesticides, fungicides, heavy metals or poisons could lead to unacceptable levels of such substances in the wild game meat
- only healthy wild game animals to be harvested
- wild game animal carcasses to be marked with an approved tag¹³
- the harvesting and field dressing of a wild game animal is done in a way that reduces the risk of contamination of the wild game animal carcass and its carcass parts and ensures an accurate post-mortem disposition can be applied.

Harvesters and field depots are also required to have an effective waste disposal program for the storage, handling and removal of waste that does not jeopardise the wholesomeness of wild game animal carcasses. These requirements are detailed in Table 2.

¹¹ This is defined in AS4464-2007 as a depot approved by the controlling authority (or any other authority as required under state or territory legislation) in which wild game animal carcasses are held temporarily under refrigeration, pending transport to a wild game meat processing premises.

¹² means a person who is given approval by the controlling authority to harvest, conduct harvest inspection, bleeding and field dressing of wild game animal carcasses for human consumption; and is considered by that authority to be competent to conduct those activities.

¹³ means a tag, which shall be marked with the date of harvest and sufficient other information to allow the identification of the field harvester and place of harvest.

Table 1A: Inputs and general control measures

Input	General control measures
Pasture	<ul style="list-style-type: none"> • Minimise the risk of infection by good pasture management and good grazing management particularly following treatment of pasture with manures or slurries for example, by observing adequate periods between grazing rotations and before allowing animals to graze on treated pasture • Ensure that pasture is not overstocked
Feed including manufactured feed, licks and supplements and fodder (including silage)	<ul style="list-style-type: none"> • Produce animal feeds, licks and supplements in accordance with good practice and ensure storage conditions prevent access by vermin and domestic animals • Source feed from reputable manufacturers and follow manufacturer's instructions for storage and use. • Producers access feed that is fit for intended use (microbiological and chemical status) • Manage feed availability and type and also changes in feed • In the case of rendered product, heat treatments should be sufficient to kill vegetative bacteria and should be capable of eliminating the risk of transferring pathogens that may be in raw materials to livestock
Water (including town, reticulated, ground, recycled, surface and run-off water)	<ul style="list-style-type: none"> • Obtain drinking water from sources that are protected from seepage from drains, sewerage, septic systems, manure pits and other sources of contamination • Ensure water is of a microbiological quality that minimises animal contamination and if there is doubt, the water should be treated. For example, waste (which would include solid and liquid waste, animal carcasses and garbage) does not contaminate an animal's water supply or feed
Veterinary and agricultural chemicals (including in feed and water)	<ul style="list-style-type: none"> • Ensure that all veterinary medicines and other chemical used in animal husbandry are legal to use and are used within technical recommendations • Apply pesticides, weed control chemicals and fertilisers only when necessary and in accordance with manufacturers' instructions and good agricultural practice • Strictly adhere to after-treatment withdrawal periods from feed, medicines, pasture treatments • Do not graze animals where environmental chemical contamination has occurred for example, water sources affected by mining • Do not allow animals to access stored chemicals.
The environment – premises and equipment and bedding	<ul style="list-style-type: none"> • Design, construct and maintain premises and equipment so as to facilitate cleaning and maintain them in a clean condition (in accordance with their use) • Control pests and domestic animals
Stress ¹⁴	<ul style="list-style-type: none"> • Handle animals in ways that cause the least disturbance, stress and to avoid injury

¹⁴ Stress may impact on the animals natural defence mechanisms resulting in increased susceptibility to pathogens, increased shedding in faeces and also distress the animal making it more likely to fall or panic and be injured.

Table 1B: Control of hazards at the saleyard

Source of hazard	Control
Inputs - pathogens and chemical contaminants in feed and water and use of veterinary chemicals	<ul style="list-style-type: none"> • Ensuring water is of appropriate quality – water must be available and at all times in paddocks, yards and pens (with some minor exceptions) in line with industry good practice/welfare. • Ensuring feed is 'of known status' and is free of contaminants – feed is likely to be available if the animals are remaining more than 24 hours in line with industry good practice/welfare. • Controlling use of chemicals.
Transfer of pathogens due to mixing animals from multiple sources	<ul style="list-style-type: none"> • Keeping yards and pens clean, segregating diseased or injured animals¹⁵, discouraging supply of dirty stock. Ensuring that effluent and dead animals are disposed of appropriately.
Injuries that could affect safety and suitability	<ul style="list-style-type: none"> • Ensuring design and construction are such that likelihood of injuries is minimised.
Stress that could affect safety and suitability – e.g. herding with unfamiliar animals in unfamiliar surroundings	<ul style="list-style-type: none"> • Managing the operations of the saleyard to ensure the well-being of the animals is maintained.

¹⁵ Some animals are sold at the saleyard under the 'vendor's risk' approach – the buyer purchases the animals but the risk is with the seller if the animals are condemned i.e. the purchase price will be adjusted if the animal or carcass is downgraded or condemned at the abattoir. A consequence of this is that some animals (potentially) are sent to the saleyard and then for slaughter when they are not fit for slaughter.

Table 2: Controls in the *Hygienic Production of Wild Game Meat for Human Consumption (AS4464-2007)* on the harvesting of wild game animals

Activity	General control measure
Sourcing of wild game animals for processing	<ul style="list-style-type: none"> • Wild game animals shall be harvested in accordance with other relevant legislation for the welfare and conservation of wild game animals • Wild game animals shall not be harvested from areas subject of an official prohibition on the harvesting of wild game animals or known areas where the presence of potentially harmful substances such as pesticides, fungicides, heavy metals or poisons could lead to unacceptable levels of such substances in the wild game meat • Only healthy wild game animals shall be harvested
Harvesting and field dressing	<ul style="list-style-type: none"> • The examination of the wild game animals for harvesting for human consumption shall be carried out by the field harvester. • The field harvester shall not harvest any wild game with any evident abnormality that could render the carcass or part of the carcass unfit for human consumption. <p>No wild game animal shall be harvested if it can be seen that it:</p> <ul style="list-style-type: none"> (a) has an abnormal gait; or (b) is weak or lethargic; or (c) lacks alertness; or (d) sits in an unusual way; or (e) holds its head in an unusual angle; or (f) has any abnormal discharge from the nose or mouth; or (g) has any skin abnormalities; or (h) is poorly fleshed; or (i) is otherwise apparently injured or suffering from an abnormality that may render meat derived from it unwholesome. <ul style="list-style-type: none"> • The harvesting and field dressing of a wild game animal is done in a way that: <ul style="list-style-type: none"> (a) reduces the risk of contamination of the wild game animal carcass and its carcass parts to a level that ensures their wholesomeness and the wholesomeness of other wild game meat at the premises is not jeopardised; and (b) ensures an accurate post-mortem disposition can be applied to the wild game animal carcass and each of its carcass parts.

2.2 Processing

Processing includes the admission of animals for slaughter, slaughter, dressing, boning, packing and production of meat and meat products. The animal processing sector is in a position to manage:

- the condition (or fitness) of animals accepted for slaughter to the extent that safety and suitability can be assessed visually in the live animal and from documentation accompanying the animal
- hazards that could present while animals are in the lairage such as injury and stress
- hygiene during the slaughter and dressing process
- disposition of meat that has been assessed (mainly visually) as not fit for human consumption.

The main controls that can be implemented at processing are:

- ensuring the condition (or fitness) of animals is in accordance with specified criteria as to the animals health and exposure to chemicals to the extent that safety and suitability can be assessed visually in the live animal and from documentation accompanying the animal
- ensuring hygiene during the slaughter and dressing process
- disposing of meat that has been assessed (mainly visually) as not fit for human consumption for purposes other than human consumption.

In addition to the practices described above, there are a number of supporting measures to enable businesses to control hazards more effectively. These measures include:

- ensuring that personnel involved in food production have appropriate skills and knowledge in food safety
- being able to identify its products to ensure rapid and effective recall and investigate the cause of any food safety problem
- being responsible for ensuring that hazards specific to its business (each business operates slightly differently) are identified and controlled

3. *The regulatory background*

3.1 Primary production

There is existing legislation in all States and Territories for:

- control of diseased stock including notification of diseases and quarantine and restrictions on moving diseased stock (Table 3)
- welfare standards to be either adopted by reference or included in regulations. Model Codes of Practice for the welfare of animals have been developed by government in consultation with industry and endorsed by the Standing Council on Primary Industries (or predecessor).
- requirements for feed i.e. manufactured feed, licks and supplements and fodder (including silage), for example implementing the ruminant feed ban. The requirements cover labelling, feed content and feeding prohibitions such as feed that will spread diseases
- controlling veterinary and agricultural chemicals including in feed and water (Table 4)

Table 3: State and Territory legislation

State or Territory	Relevant Acts (regulations made under the Acts contain more specific requirements)
New South Wales	Stock Foods Act 1940 Stock Diseases Act 1923 Exotic Diseases of Animals Act 1991 Prevention of Cruelty to Animals Act 1979
Victoria	Livestock Disease Control Act 1994 Prevention of Cruelty to Animals Act 1986
Queensland	Stock Act 1915 Exotic Diseases in Animals Act 1981 Animal Care and Protection Act 2001 Agricultural Standards Act 1994
South Australia	Livestock Act 1997 Prevention of Cruelty to Animals Act 1985
Tasmania	Animal Health Act 1995 Animal Welfare Act 1993
Western Australia	Stock Diseases (Regulations) Act 1968 Exotic Diseases of Animals Act 1993 Biosecurity and Agricultural Management Act 2007 Stock Identification and Movement Act 1970 Animal Welfare Act 2002 Veterinary Preparations and Animal Feeding Stuffs Act 1976
Australian Capital Territory	Stock Act 2005 Animal Diseases Act 2005 Animal Welfare Act 1992
Northern Territory	Stock Diseases Act 2004 Animal Welfare Act 2004

There are no requirements in the *Australia New Zealand Food Standards Code* (the Food Standard Code) applying to on-farm production of meat animals but there are requirements applying to dairy cows through the measures to ensure safe dairy products under Standard 4.2.4 – Primary Production and Processing Standard for Dairy Products. The current Production and Processing Standard for Meat in Chapter 4 (Standard 4.2.3) includes requirements for producing ready-to-eat meat only and does not include primary production requirements. The Food Acts in the States and Territories contain offences for the production of unsafe and unsuitable food, require compliance with the Food Standards Code and contain provisions to improve safety and manage non-compliance. However, generally speaking, these Acts are not designed to manage hazards that potentially occur in live animals. Although primary production businesses are not exempt from the general provisions to produce safe food ('food' includes live animals intended for food), primary production is exempt from certain provisions for example, improvement notices, registration and approval of premises and auditing requirements. Also, for primary production, powers of officers are limited to reactive situations i.e. where an offence is likely to have occurred or enforcing emergency orders. The Meat Standard Development Committee¹⁶ has

¹⁶ A Standard Development Committee is advising FSANZ on this work. Members include major industry associations for the cattle, sheep, goat and pig industries, meat processors, the rendering industry, feedlot industry, stock feed manufacturers, Department of Agriculture, Fisheries and Forestry, state and territory meat

acknowledged there is no unmanaged risks, however incidents still occur and will occur in future which warrant follow up back to primary production level. It has been identified that there is a jurisdictional gap in the food regulatory coverage with respect to agencies with public health functions under the Food Act, back to primary production level in the event of an incident.

Table 4: State and Territory legislation controlling agricultural and veterinary chemicals

State or Territory	Activity		
	Evaluation, registration and review of agricultural and veterinary chemicals, and their control, up to the point of retail sale. (The Agvet Code is law in the states and territories)	Control of use after sale of chemicals in feed and produce	Residues in feed
New South Wales	Agricultural and Veterinary Chemicals (NSW) Act 1994	Pesticides Act 1999 and Pesticide Regulations 1995- for pesticides only not veterinary medicines Stock Medicines Act 1989 and Regulations 2005– for veterinary medicines	Stock Foods Act 1940 and Regulations 2005 Pesticides Act 1999 and Regulations- re pesticides Stock Medicines Act 1989 and Regulations 2005– for veterinary medicines
Victoria	Agricultural and Veterinary Chemicals (Victoria) Act 1994	Agricultural and Veterinary Chemicals (Control of Use) Act 1992 Agricultural and Veterinary Chemicals (Control of Use) Regulations 2007. Agricultural and Veterinary Chemicals (Control of Use)(Fertilisers) Regulations 2005	Agricultural and Veterinary Chemicals (Control of Use) Act 1992
Queensland	Agricultural and Veterinary Chemicals (Qld) Act 1994	Chemical Usage (Agricultural and Veterinary) Control Act 1988 Agricultural Chemical Distribution Control Act 1966	Chemical Usage (Agricultural and Veterinary) Control Act 1988- Chemical Usage (Agricultural and Veterinary) Control Regulations 1999 Agricultural Standards Act 1994 and Agricultural Standards Regulation 1997 Stock Act 1915 provides power to regulate chemicals in fodder
South Australia	Agricultural and Veterinary Chemicals (SA) Act 1994	Agricultural and Veterinary Products (Control of Use) Act 2002 Agricultural and Veterinary Products (Control of Use) Regulations 2004 – standards for fertiliser incl. for cadmium, lead and mercury prescribed veterinary substances and restricted veterinary products.	Livestock Act 1997. Livestock Regulations

	Activity		
State or Territory	Evaluation, registration and review of agricultural and veterinary chemicals, and their control, up to the point of retail sale. (The Agvet Code is law in the states and territories)	Control of use after sale of chemicals in feed and produce	Residues in feed
Western Australia	Agricultural and Veterinary Chemicals (WA) Act 1994	Veterinary Chemical Control and Animal Feeding Stuffs Act 1976 This Act is to be repealed by the proposed Biosecurity and Agriculture Management Act	Veterinary Chemical Control and Animal Feeding Stuffs Act 1976
ACT	Agricultural and Veterinary Chemicals (Commonwealth) Act 1994	Commonwealth	Commonwealth
NT	Agricultural and Veterinary Chemicals (NT) Act (as in force 2005)	Agricultural and Veterinary Chemicals (Control of Use) Act 2004	Agricultural and Veterinary Chemicals (Control of Use) Act 2004
Tasmania	Agricultural and Veterinary Chemicals (Tasmania) Act 1994	Agricultural and Veterinary Chemicals (Control of Use) Act 1995	Agricultural and Veterinary Chemicals (Control of Use) Act 1995- Part 5

3.2 Processing

3.2.1 Australian Standards

The safety of meat and meat products in Australia is currently implemented through reference to Australian Standards¹⁷. All States and Territories have legislation that requires businesses operating abattoirs/meat slaughtering facilities to be licensed or accredited and to operate in accordance with approved systems to manage meat safety and suitability. The processing of the major and minor meat species is covered by the following Australian Standards:

- AS4696-2007 *Hygienic Production and Transportation of Meat and Meat Products for Human Consumption* (scope includes buffalo, camels, alpacas, llamas, deer, horses, donkeys)

This Standard sets out the outcomes required for the receipt and slaughter of animals, the dressing of carcasses, and the processing (including further processing), packaging, handling and storage of meat or meat products. It also details rules for the construction of premises and transportation of meat and meat products. The Standard applies to retailers who store or prepare meat and meat products and to the transportation of meat and meat products from the retailer to the consumer.

- AS 4466 - 1998 *Hygienic Production of Rabbit Meat for Human Consumption*

This Standard applies to production and hygiene quality control of meat from rabbits processed for human consumption at all registered establishments in Australia. The overall goal of the standard is that there is no more than a 1-log (10-fold increase) in the count of total viable bacteria on the surface of the meat from the time of dressing until the product is packaged for sale or used as an ingredient for further processing.

- AS 4467-1998 *Hygienic Production of Crocodile Meat for Human Consumption*

This Standard applies to the construction and equipment and procedures of all premises where crocodiles are slaughtered and processed for the production of crocodile meat for human consumption. It contains the minimum construction and procedural requirements for premises used for the production of wholesome crocodile meat. Authorities with regulatory responsibilities for the processing of crocodiles for human consumption shall enforce compliance with this Standard. The overall goal of the standard is that there be no more than a log (10-fold) increase in the load of indicator bacterial pathogens on the surface of meat from the time of dressing until the product is packaged for sale or used as an ingredient for further processing.

- AS5010 – 2001 *Hygienic Production of Ratite Meat for Human Consumption*

This Standard applies to the construction and equipment of all processing premises where ratites are slaughtered for the production of ratite meat for human consumption. It contains the minimum construction, and hygienic production requirements for premises used for the production of wholesome ratite meat. The overall goal of the standard is that there be no more than a one-log (10-fold) increase in the load of bacterial pathogens on the surface of the meat from the time of dressing until the product is packaged for sale or used as an ingredient for further processing.

¹⁷ Productivity Commission Research Report December 2009. Performance Benchmarking of Australian and New Zealand Business Regulation: Food Safety.

The harvesting and primary processing of wild game animals is addressed by a specific Australian Standard:

- AS 4464-2007 *Hygienic Production of Wild Game Meat for Human Consumption*.

This Standard sets out the outcomes required for the production for human consumption of products derived from wild game animals. It contains the minimum requirements of hygiene in harvesting and processing to assure a safe and wholesome product. Provision is made for small animals such as hare and wild game birds presented whole. The Standard does not apply to production of products from animals or birds unable to roam free, herded or kept under supervision. It does not apply to birds presented for sale eviscerated and without feathers. This Standard does not apply to the packaging, storage, transportation and further processing of wild game meat. Such activities are to be carried out in the same manner as stipulated for meat in AS4696:2007.

Process control is achieved through the application of hazard analysis critical control point (HACCP) methodology and programs must address:

- receipt
- inputs
- waste disposal
- skills and knowledge
- design, construction and maintenance of premises, equipment and transportation vehicles
- traceability
- sale or supply
- transportation of meat and meat products

An analysis of the requirements in the Australian Standards is at Attachment 2.

3.2.2 The Australia New Zealand Food Standards Code (the Code)

The food standards in Chapter 1 of the Food Standards Code apply to all food sold or traded at retail and wholesale level in Australia and New Zealand. The exceptions are Standard 1.6.2 – *Processing requirements* and Standard 1.4.2 – *Maximum Residue Limits* which apply in Australia only. Chapter 2 contains requirements for specified classes of foods and includes Standard 2.2.1 Meat and Meat Products. Therefore, meat and meat produced must comply with these requirements when offered for sale.

Although the meat produced as a result of the slaughtering of animals must meet the above requirements, there are no requirements in Chapter 1 or Chapter 2 of the Food Standards Code that apply to the slaughter, dressing and secondary activities such as boning or production of primary products.

Chapter 3 Chapter 3, Standards 3.2.2 -*Food Safety Practices and General Requirements* and 3.2.3- *Food Premises and Equipment* set out specific requirements for food businesses, food handlers and the food premises and equipment with which they operate to ensure the safe production of food. The Chapter 3 Food Safety Standards apply in Australia only and apply to all food businesses, other than primary production businesses¹⁸, involved in the handling of food intended for sale. Under the application provisions in Chapter 3, these standards would apply to meat processing.

¹⁸ Primary food production means the growing, cultivation, picking, harvesting, collection or catching of food and includes transportation or delivery, and the packing, treating (such as washing) or storing of food on the premises on which it was grown, cultivated, picked etc.

Standard 3.2.2 requires food to be protected from contamination, to be stored under appropriate temperatures and other environmental conditions (to ensure safety and suitability), to use safe ingredients and to be processed so that the food is safe to eat. There are also requirements for health and hygiene of personnel and for cleaning and sanitation. Standard 3.2.3 has requirements for premises and equipment that facilitates compliance with Standard 3.2.2¹⁹.

Standard 4.2.3 Primary Production and Processing Standard for Meat (Division 3 – Production of ready-to-eat meat) require producers of ready-to-eat meats to systematically identify evaluate and control food safety hazards using a documented food safety management system.

3.2.1 Export Control Orders

The export of meat is regulated by the Australian Government Department of Agriculture, Fisheries and Forestry under the *Export Control Act 1992*, Export Control (Prescribed Goods - General) Order 2005 and the Export Control (Meat and Meat Products) Order 2005. Meat from animals processed for the export market is sold domestically. Therefore the requirements applicable to processing of export meat are relevant to this Proposal. The Export Meat Orders referred to above reference the Australian Standard for the *Hygienic Production and Transportation of Meat and Meat Products for Human Consumption AS 4696-2007* as the basis for operational controls for the export meat industry.

The *Export Control (Wild Game Meat and Wild Game Meat Products) Orders 2010* incorporate, by way of reference, the Australian Standard for the *Hygienic Production of Wild Game Meat for Human Consumption (AS4464:2007)*. This standard provides the basis for operational controls for food safety and wholesomeness in the game meat industry, whether for export or domestic production. The Wild Game Orders also incorporate, by way of reference, the further processing sections of the Australian Standard for the *Hygienic Production and Transportation of Meat and Meat Products for Human Consumption (AS 4696:2007)* as once the unique issues related to harvesting and initial processing have been addressed, the food safety controls become the same as for red meat.

The *Export Control (Rabbit and Ratite Meat) Orders 1985* apply to rabbit meat and products and ratite meat and products and reference the respective Australian Standards.

¹⁹ Detailed inclusions in these Standards can be found on the FSANZ website.

4. The non - regulatory background

Producers' participation in industry quality assurance or food safety schemes is voluntary. However, implementation of a program that provides assurance that food safety, or specific components of food safety, may be required to produce for supply to certain markets and to meet processor obligations.

In regard to cattle, sheep, goats and pigs, a detailed summary of regulatory and non-regulatory (industry) measures that include requirements to control hazards at primary production (on-farm, transport and at the saleyards) was provided in SD4 for the P1005 1st Assessment Report.

Industry programs/schemes for cattle, sheep, goats and pigs include:

- Livestock Production Assurance (LPA)

The scope of the LPA program is cattle (including dairy cattle) sheep and goats production. The LPA Level 1 provides a set of guidelines and checklists including a National Vendor Declaration (NVD) to help producers declare the food safety status of their livestock. The LPA guidelines present producers with very basic animal production and record keeping requirements designed to ensure the production of safe food. The respective species NVDs require accurate declaration of livestock integrity, chemical treatments and feeding regimes.

Livestock producers fully accredited in LPA Level 1 may participate in LPA Quality Assurance (LPA Level 2). This on-farm quality assurance program, incorporating the Cattlecare and Flockcare programs, enables producers to be able to readily adopt quality assurance systems on their properties.

Currently LPA is the largest on-farm food safety initiative in Australia with an estimated 99.9% of livestock production farms being covered by the system. The drivers for LPA adoption are the processors and feedlot operators.

- Cattlecare

The Cattlecare system is an on-farm quality assurance program for producers raising cattle now incorporated in LPA. Cattlecare places particular importance on minimising risk of chemical contamination through the safe, responsible use of chemicals; minimising bruising and hide damage and more effective management and herd improvement through better record keeping.

- Flockcare

The Flockcare system is an on-farm quality assurance program for producers raising lambs and sheep now incorporated in LPA. Flockcare addresses food safety, chemicals and residues; animal health, husbandry and welfare; preparation, presentation and transport.

- Australian Pork Industry Quality (APIQ) Program

APIQ is the Australian pork industry's on-farm auditable quality assurance program that enables producers to demonstrate that their on-farm practices reflect good farming practice for management, animal welfare, food safety, biosecurity and traceability. This program, developed by Australian Pork Limited (APL), is part of the Pork Supply Chain Integrity Program (PSCIP). Australian Pork Limited (APL), as the national representative body for pig producers, is the owner and managing agent of the APIQ[®] program. APL has stewardship

of the APIQ[®] program on behalf of the industry. The aim of the food safety component is to ensure that production and transport practices reduce or prevent carcass contamination by microorganisms that cause food-borne illness. In its submission to P1005, APL advised that, at that time, approximately 93% of the entire Australian pig breeding herd was covered by APIQ and PigPass QA (which only included food safety standards). Following the review of the APIQ standards in 2010, APIQü was released in 2011.

- National Feedlot Accreditation Scheme

The National Feedlot Accreditation Scheme (NFAS) is an industry self-regulatory, quality assurance scheme covering the grain-fed cattle feedlot industry. It was initiated by the Australian Lot Feeders Association (ALFA) and managed by the Feedlot Industry Accreditation Committee. It is an industry funded and managed quality assurance scheme that includes compliance with food safety and integrity legislation.

Therefore, all feedlots which produce cattle intended for the export markets are accredited'. Whilst accreditation is not compulsory for grain fed beef directed towards the domestic market, the vast majority of domestic beef is sourced from larger accredited feedlots given that 30% of feedlots produce 90% of grain fed cattle.

- Feedsafe

'FeedSafe', operated by the Stock Feed Manufacturers' Council of Australia, aims to mitigate risks to food safety in the manufacture and use of animal feeds. Members are required to comply with the *Code of Good Manufacturing Practice for the Feed Milling Industry* to maintain their membership and undergo annual site audits by third party auditors. Livestock producers are recommended to purchase feed from 'FeedSafe' accredited suppliers.

The Australian Fodder Industry Association Inc (AFIA) has produced a Product Code of Practice which involves an annual declaration by the fodder producer/supplier, certifying that conditions of product safety and quality have been met. In regard to safety, the Product Code of Practice requires sellers of hay and silage to apply any chemicals to the crop during production in accordance with the respective label and comply with any withholding periods and supply a vendor declaration forms with each lot of fodder.

- TruckCare

TruckCare is a voluntary quality assurance program aimed at delivering good animal welfare, biosecurity, animal traceability and resultant food safety outcomes whilst transporting livestock. It is administered by the Australian Livestock Transporters Association.

- The National Saleyards Quality Assurance Program (NSQA)

The NSQA Program was developed to underpin the *National Standard for the Operation of Australian Saleyards*. The program focuses on six areas that impact on quality; animal welfare, residue status, food safety, meat quality, traceability and stakeholder satisfaction. AUS-MEAT Limited has been appointed by NSQA Ltd as auditors.

- Australian Code of Practice for the Selling of Livestock²⁰

The Code of Practice has been developed by the Saleyards Operators Australia as a guide to aid saleyard operators comply with requirements for health, safety and welfare of all classes

²⁰ Saleyards Operators Australia, *Australian Code of Practice for the Selling of Livestock 2007*

of livestock for sale at saleyards. The Code of Practice covers several meat safety factors mainly aimed at preventing stress, including provision of feed and water of suitable quality. There are also provisions for animal identification, emergency disease response, and guidelines for biosecurity.

In regard to other species, there are specific industry codes of practice and guidelines:

- The Australian Deer Industry Code of Practice for the Welfare of Deer

This Code of Practice requires production records enabling animals to be identified to the property of origin, ensuring feed is free of spoilage and stored appropriately to reduce growth of moulds and contamination from insects, birds and rodents and measures are implemented to minimise faecal contamination of water sources.

- The Deer Farming Best Practice Manual

The manual includes HACCP analysis to ensure that deer sold or moved from properties comply with all legislative requirements of the industry. The analysis covers land selection, animal purchase, animal reproduction and management, marking and identification of animals, animal medication, pasture management, pasture feed and water, supplementary feeding, velvet harvesting, sale of animals and transport of animals.

- The Deer Transport Best Practice Manual

The manual focuses on best practices in handling deer during farming and transport to minimise stress or injury.

- The Deer Industry Quality Assurance Manual

These guidelines apply across the deer supply chain to ensure safe and wholesome product. For example, specifications for animal selection include evidence that animals have expired the recommended withholding period following any drug administration, animals have not grazed on contaminated pastures or been fed contaminated feed supplements, preferentially source deer from properties accredited by the Australian Deer Industry Quality Assessment Program and check animal or mob identification status,

- The Australian Ratite Industry On-farm Surveillance Plan

This guideline, developed to facilitate the export of Australian ratite meat to the European union, contains biosecurity requirements to manage ratite health and disease issues on farms.

5. Traceability

Traceability systems involve branding and animal tags used in conjunction with either a paper based system or electronically stored information to accompany or record the movement of animals (or mob or herd).

5.1 Requirements for primary production

5.1.1 Australia New Zealand Food Standards Code

The completed primary production and processing standards include requirements for traceability. For example, the requirement in the dairy products standard (Standard 4.2.4) for primary production of milk specifies that the dairy primary production business must include

a tracing or traceability system as part of their food safety program for the inputs used, the milking herd and the milk collected. The intent is to trace the movement one step back and one step forward. Currently there are no requirements for meat animals.

5.1.2 State and Territory legislation (and industry partnerships)

Legislation to control use of brands and other identification systems has been in place for many years aimed at preventing fraud and to ensure that an animal could be traced back to its owner.

Since the 1960s a mandatory tagging system known as the Property Identification Code (PIC) has been used throughout Australia based on a unique identification code assigned to each farm or parcel of land. Property identification is required in order to trace livestock for disease control purposes. The PIC identifies the State, region and location of the property. Livestock includes one or more cattle, sheep, goats, pigs, bison, buffalo, camelids (eg alpacas, llamas, camels), equines (horses, donkeys), deer, emus or ostriches but does not include feral animals (e.g. goats, pigs, horses) while they are living in a wild or in an undomesticated state. All livestock business, such as saleyards and abattoirs must also have a PIC. However, once feral animals of a prescribed livestock species are lawfully captured and confined, the property on which they are held must have a PIC. The intention is that animals are tagged with this number prior to leaving the property.

Animal/property identification is mandated in legislation and State and Territory governments are progressively extending the scope of the animals that must be identified. Table 5 summarises legislation requiring identification of animals and recording stock movements. Industry/government partnerships are promoting identification systems particularly electronic traceability systems which record information about the animal not only for traceability but also to provide a history of the husbandry the animal has received.

Table 5: Legislation requiring identification of animals and recording stock movements

State or Territory	Legislation
New South Wales	Stock Diseases Act 1923 ²¹ Stock Diseases Regulations 2004
South Australia	Livestock Act 1997 Livestock Regulations 1998 Part 6 Livestock Identification
Queensland	Stock Act 1915 Stock Identification Regulations 2005
Victoria	Livestock Disease Control Act 1994 part 2 Division 1 (sections 9 and 9A) Livestock Disease Control Regulations 2006 Part 3 Identification of Livestock
Tasmania	Animal (Brands and Movement) Act 1984 Part IVA Permanent identification devices Animal (Brands and Movement) Regulations 2003
Western Australia	²² Stock (Identification and Movement) Act 1970 and Regulations Stock Diseases (Regulations) Act 1968 and the Enzootic Diseases Regulations 1968 Part 8A Cattle or buffalo identification
Australian Capital Territory	Animal Diseases Act 2005 Animal Diseases Regulations 2006 Part 2 Identification of stock
Northern Territory	Stock Diseases Act Stock Diseases Regulations

5.2 Traceability of the major and minor meat species

The AS4696-2007 *Hygienic Production and Transportation of Meat and Meat Products for Human Consumption* requires animals to be sourced from holdings that have a system identify the places of production or saleyards of the animals in the consignment (for sheep, goats, camels, alpacas and llamas) and for other animals, the place of production.

5.2.1 Beef and dairy cattle

Cattle are identified through the National Livestock Identification System (NLIS) using a 'whole of life' electronic tag and a centralised national data base. It has been implemented by State and Territory legislation since 1 July 2005 to require cattle have to be identified with an NLIS device before they leave the property and all cattle coming from interstate must be identified with an NLIS device. The device must remain on the animal and should not be reused without approval. This is important for traceability of animals at saleyards as they are consolidated and dispersed.

²¹ See also The Stock Medicines Act 1989 section 46

²² Currently under two sets of legislation which will be consolidated as a result of the Biosecurity and Agriculture Management Act 2007 and Biosecurity and Agriculture Management (Repeal and Consequential Provisions) Act 2007

The NLIS device has an electronic number unique to that device (so each animal has a separate electronic identifier) and a visual number which includes the PIC and a unique serial number for the animal. For a rumen bolus there is a matching visual tag. These numbers link to the NLIS database. It works with the PIC and the NVD to ensure traceability to the back door of the abattoir and through processing.

The NVD system for cattle, sheep and goats has been developed by the industry as part of the NLIS to facilitate the documentation of the history of chemical use and treatment of animals offered for sale. It is not compulsory but when combined with the waybill and health certificates satisfies the legal requirements for animal movement and saves duplication of information and forms. Although the NVDs are not compulsory, it is an offence to give false information on any documentation accompanying the animals.

NLIS is endorsed by major producer, feedlot, agent, saleyard and processor bodies. In addition to this it is underpinned by State/Territory legislation, which forms the regulatory framework for the system.

5.2.2 Sheep and goats

Sheep and managed goats must be identified with an NLIS visual or radio-frequency identification ear tag before they leave the property on which they were born (exemptions may apply for dairy, show, feral or unmanaged goats in some states). The combination of tags and movement documents provides for mob-based identification.

In most States and territories, it is mandatory to record the movement of mobs of sheep and goats between properties on the NLIS database. Mob-based recording is currently voluntary in Victoria and Queensland²³.

If animals are identified with a radio-frequency identification RFID tag, and the device numbers are supplied to the NLIS database when a movement is recorded, their movements can be traced on an individual basis.

5.2.3 Pigs

NLIS (Pork)²⁴ is a consignment (mob) based livestock traceability system covering the production system from property of birth to the point of disposition at processing. The system uses pig identification (either body tattoos or visually readable ear tags) in conjunction with paper-based movement documentation (either the Pig Pass NVD or state waybill) to trace pig consignments. During consultation on the P1005 1st Assessment Report (primary production and processing standard for meat and meats products from cattle, sheep, goats, pigs), the industry advised that the development of the system provided a framework for harmonisation between States and territories on the vendor declaration, pig producer registration, pig identification and PICs.

Under this system, the owner of the pigs, and each participant responsible for the pigs along the supply chain, has responsibility to ensure that the pigs do not move forward in the supply chain unless they can be reliably traced back to their last property of residence. Pigs must be identified and accompanied by a movement document whenever they are sold and/or move off a property to any other location with a different PIC.

²³ MLA website - <http://www.mla.com.au/Meat-safety-and-traceability/National-Livestock-Identification-System/NLIS-sheep-and-goats>

²⁴ NLIS (Pork) –National Business Rules November 2012

5.2.4 Camels²⁵

Camels are able to be traced to a rough area/station from where they were mustered.

5.2.5 Deer²⁶

Animals on farms are ear tagged (coloured) and numbers provide information to the animal level and also provide data on breeding genetics and age. NVD forms are completed and submitted to the abattoir prior to slaughter. Processed product can be traced from carton to the individual farm.

All farms have PICS but these do not need to be recorded on the NVDs. Animals are loaded from farms on the same truck but are identified separately with their own NVD and batch identification.

The *Australian Deer Industry Code of Practice for the Welfare of Deer* requires production records enabling animals to be identified to the property of origin, ensuring feed is free of spoilage and stored appropriately to reduce growth of moulds and contamination from insects, birds and rodents and measures are implemented to minimise faecal contamination of water sources.

5.2.6 Ostrich and emu

The *Australian Ratite Industry On-Farm Surveillance Plan (ARIOSP)* has provision for traceability; however adherence to these guidelines is not mandatory. Ratite identification is a key component of the ARIOFSP and allows the traceability of ratifies between farms and to abattoirs and is based on permanent and individual identification.

Ostriches are tagged through the neck. Information on the tag is read out at slaughter for checking against the NVD information which includes property's PIC numbers (where available), where chicks originated from and any use of hormones etc. Tags remain on the bird until skinning. The processors own identification is used after skinning. Trace back can go back to the producer level.

In the case of emus, birds can be traced to the farm level however individual animal tagging is currently not practiced and it is extremely difficult to achieve due to birds losing tags through fighting, pecking and clawing off tags.

5.2.7 Rabbits²⁷

Trailers on which the rabbits are loaded are mapped from one side and tagged with the batch number (supplier/farm number) at the beginning of each batch. The same layout of the trailer is followed each time. The trailer traceability sheet is kept with the farmers declaration sheets inside the abattoir. There is no specific receipt clause for the sourcing of rabbits in the AS4466 - 1998, unlike in the AS 4696 - 2007, although Clauses 10.1 and 10.2 require ante mortem inspection to prevent processing of animals showing evidence of disease or any other condition that would make the carcass unfit for human consumption (and noted as a critical control point).

Farmer declaration sheets record the supplier number, supplier's name, number of rabbits supplied, date and their signature and a statement that the rabbits supplied are free of disease and have passed any withholding period for medication used.

²⁵ Information from industry visits

²⁶ Information from industry visits

²⁷ Source – industry visits

5.2.8 Alpacas and llamas

The NLIS is now being implemented by the Australian alpaca and llama industry for biosecurity purposes. The NLIS Alpaca will use a visually readable electronic tag which will stay with each animal for life.²⁸

Industry assurance programs also include requirements for traceability for example, the National Feedlot Accreditation Scheme requires a stock identification system implemented on the property including maintenance of appropriate management records and traceability of stock on the property and when dispatched from the property. The purpose of this is to maintain the integrity of product described as grain fed and to prevent contaminated or treated animals unknowingly being sold for human consumption prior to expiry of the withholding period or Export Slaughter Interval.

5.3 Traceability of wild game animals

The AS 4464-2007 *Hygienic Production of Wild Game Meat for Human Consumption* requires wild game animal carcasses to be marked with an approved tag with the date of harvest and sufficient other information to allow the identification of the field harvester and place of harvest.

In addition to the Jurisdiction's National Parks and Wildlife tag, the processor's tag is also required to be placed on all harvested kangaroos. The second tag manage the processors traceability and manually written data provided by the harvester includes carcass weight, harvest location (property name or PIC number (PIC numbers required for export meat)), harvest date and harvest time. The tag has a declaration regarding the behaviour of the kangaroo, the condition of the carcass, that no environmental contamination occurred and that carcasses were transported to a field depot within in specified times. The tag must be signed by the harvester for the tag to be accepted as valid. Tags are placed on the hind leg. This level of documentation is required for the export market.

The National Parks and Wildlife tags are required to manage sustainability of kangaroo populations and monitor quotas.

5.4 Traceability in processing

The AS4696-2007 *Hygienic Production and Transportation of Meat and Meat Products for Human Consumption* requires meat businesses to have a documented system that provides for the accurate identification of, and the ability to trace and recall, meat and meat products produced by the business. The AS 4466 - 1998 *Hygienic Production of Rabbit Meat for Human Consumption*; the AS 4467-1998 *Hygienic Production of Crocodile Meat for Human Consumption* and the AS5010 – 2001 *Hygienic Production of Ratite Meat for Human Consumption* (ostrich/emu) requires product identification and traceability under the quality assurance program.

The AS 4464-2007 *Hygienic Production of Wild Game Meat for Human Consumption* requires operators to ensure carcasses have approved tags and accurate records kept of product received; maintain an identification system and records to identify product to the processing premise and wild game meat businesses have a documented system that provides for the accurate identification, and the ability to trace and recall meat and meat products.

²⁸ Source – Australian Alpaca Association www.alpaca.asn.au

6. Analysis

6.1 Primary production

Inputs such as the use of agricultural and veterinary chemical products have the potential to cause contamination of meat and significantly affect consumer confidence in meat safety. These inputs e.g. animal feed (such as pasture, grains, silage and concentrate supplements), water (including recycled water), chemicals or other substances used in connection with the primary production activities are more easily controlled at the primary production stage, rather than the application of costly monitoring at the processor level and the cost in traceback and corrective action.

The importance of managing these potential hazards at the appropriate stage of the meat supply chain was highlighted during the consultation on this work. The Australian Standards impose obligations relating to on-farm activities on processors but there are no corresponding obligations on producers in food safety legislation. For example, AS4696-2007 *Hygienic Production and Transportation of Meat and Meat Products for Human Consumption* AS4696-2007 requires processors to only accept animals that are sourced from holdings where animals are raised according to good husbandry practices and are not fed feedstuffs that could jeopardise the wholesomeness of meat and meat products derived from the animals. The holding must also have a system for identifying disease, abnormality or treatment of animals that could affect their fitness for slaughter. In addition, Clause 6.2 of AS4696-2007 requires that meat processors source animals only from a holding that has a system in place that is capable of reliably providing a list of the place of production or the saleyards of the animals in the consignment, or the place of production of each animal or the areas from which the animals in the consignment were captured. States and Territories require evidence at the point of animal receipt, in the form of NVDs or equivalent documentation, as proof or assurance that the animals have been raised in accordance with the above good husbandry practices and are traceable.

The management of inputs such as the use of agricultural and veterinary chemicals (including in feed and water), the ruminant feed ban and controls on grazing are controlled under various State and Territory Acts and Regulations. Animal/property identification is mandated in legislation and State and Territory governments are progressively extending the scope of animals that must be identified however there are currently no requirements for traceability during primary production in the Food Standards Code. During consultation, the issue of State and Territories having different regulatory approaches with regards to animal traceability was raised. Submissions also stressed the importance of starting traceability on farm to allow processing traceability systems to be effective and to ensure effective trace back and incident response.

Controls to address potential hazards on-farm, at the saleyards and during transport²⁹ for the major and minor meat species animals e.g. cattle, sheep, goats, pigs, buffalo, camels, alpacas, llamas, deer, horses, donkeys, rabbits, crocodiles, ostrich and emu include:

- ensuring inputs do not adversely affect the safety or suitability of meat or meat products
- storing, handling and disposing of waste in a manner that will not adversely affect the safety or suitability of meat or meat products
- having a system in place that can identify the persons from whom the meat producer received an animal and to whom the meat producer supplied an animal.

²⁹ There are requirements applying to dairy cows through the measures to ensure safe dairy products under Standard 4.2.4 – Primary Production and Processing Standard for Dairy Products

The Code currently does not currently contain these requirements. Programs administered by industry, particularly for cattle, sheep, goats and pigs address safety and suitability. Specific guidelines and manuals covering the management of inputs and traceability have been developed for other animals.

The AS 4464-2007 *Hygienic Production of Wild Game Meat for Human Consumption* already has requirements on field harvesters regarding sourcing and identification of wild game animals.

6.2 Processing

The processing of meat and meat products for human consumption is currently regulated in all State and Territories through Australian Standards (described in section 3.2.1). State and Territory laws require persons involved in the slaughter and processing of animals for human consumption, including of animals in the wild, and in the preparation, packing, transportation or storage of meat or meat products to comply with the Australian Standards. These standards contain the controls to manage hazards that could potentially occur and play a significant role in ensuring the safety of meat and meat products in Australia. It was highlighted during consultation on this work that the implementation by all jurisdictions of the Australian Standards provisions has facilitated effective market access and ensured food safety and provided an acceptable level of national consistency.

6.3 Preferred risk management option

At 1st Assessment for the major meat species (cattle, sheep, goats and pigs), three options were proposed:

- Option 1 – *Status quo* i.e. FSANZ would not make any changes to the Code
- Option 2 – The current self-regulatory approach with primary production and for processing, the existing meat safety requirements embodied in Australian Standards be incorporated into the Code
- Option 3 – Development of food safety requirements for primary production and for processing, the existing meat safety requirements embodied in Australian Standards be incorporated into the Code

For the minor meat species and wild game, FSANZ proposed two options at 1st Assessment:

- Option 1 - develop a draft national standard containing minimal primary production requirements, where relevant (e.g. for traceability, inputs and managing waste) and transfer of the processing controls currently in place under existing state and territory legislation (i.e. Australian Standards). This option reflected the proposed option for the major meat species following consideration of the issues raised during the public consultation (that had occurred at an earlier time that that for the minor meat species and wild game)
- Option 2 - retaining the current situation and abandoning the Proposal following consideration of the submissions received from the first round of public comment. That is, FSANZ would not make any changes to the Food Standards Code. Under this option, the elements of the existing Australian Standards would not be incorporated into the Code.

In the early stages of this work, FSANZ acknowledged the role the Australian Standards for processing have played in ensuring the safety of meat in Australia, but considered that with the disbandment of the Meat Standards Committee in 2007, there was no longer a mechanism to update or review the current standards in the meat processing sector. This

issue is being resolved and therefore the food safety elements in the Australian Standards do not need to be incorporated into the primary production and processing standard for meat and meat products in the Code. These documents, and therefore the animal welfare provisions, will be retained under state and territory legislation.

The Australian Standards impose obligations relating to on-farm activities on processors but there are no corresponding obligations on producers in food safety legislation. The Food Standards Code currently does not contain requirements that address hazards and traceability during primary production of the major and minor meat species e.g. cattle, sheep, goats, pigs, buffalo, camels, alpacas, llamas, deer, horses, donkeys, rabbits, crocodiles, ostrich and emu. Consequently the options for consultation now focus on whether the Code should include primary production requirements for all meat species, where applicable.

FSANZ has considered the issues raised during consultation and the advice provided by the Meat Standard Development Committee³⁰ and the Minor Meat Species and Wild Game Working Group³¹ in developing a preferred option applicable to major and minor meat species. As with other industries where FSANZ has developed primary production and processing standards namely seafood, eggs, poultry and dairy, many hazards for meat can be more practically managed during the primary production stages.

All species are currently bound by Australian Standards at processing, with some species also having coverage at the primary production level e.g. game meat. The inclusion of minimum primary production requirements for managing inputs and waste and traceability into the Code will standardise these requirements across all identified species and further add legislative requirements behind what meat producers claim on NVDs, which is fundamental in enabling meat processors or abattoirs to comply with their requirements.

While the tools exist for tracing animals in an animal disease emergency³², it would be preferable for food safety agencies to be able to proactively manage any potential issues, before a reactive emergency response is necessary. Regulatory requirements at primary production enable food agencies to manage a response and have powers to go back on farm. These requirements are:

- ensuring that inputs do not adversely affect the safety or suitability of meat or meat products
- storing, handling and disposing of waste in a manner that will not adversely affect the safety or suitability of meat or meat products
- having a system in place that can identify the persons from whom the meat producer received an animal and to whom the meat producer supplied an animal

³⁰ A Meat Standard Development Committee is advising FSANZ on the major species work. Members include major industry associations for the cattle, sheep, goat and pig industries, meat processors, the rendering industry, feedlot industry, stock feed manufacturers, Department of Agriculture, Fisheries and Forestry, state and territory meat regulators and the Country Women's Association of Australia.

³¹ The Meat Minor Species and Wild Game Working Group (Working Group) is advising FSANZ on the minor species and wild game work. Members include producers and processors of minor meat species and wild game e.g. crocodile, buffalo, camel, rabbit, deer, ostrich, kangaroo and emu.

³² For instances where the hazards are not controlled, the respective Food Acts in the States and Territories are not designed to manage hazards that potentially occur in live animals and the legislative power for regulators to take action is currently very limited.

Similar controls are not appropriate for animal production, feed, water or the environment for animals slaughtered in the wild. There are already requirements for sourcing of wild game animals and determining their health status prior to slaughter are legislated in all States and Territories referencing the Australian Standard for the *Hygienic Production of Wild Game Meat for Human Consumption* (AS4464-2007)). These have been detailed in section 2.1.2.

The **preferred option** at the 2nd Call for Submissions is amending Standard 4.2.3 to include minimal primary production requirements for traceability, inputs and management of waste for the major and minor meat species e.g. cattle, sheep, goats, pigs, buffalo, camels, alpacas, llamas, deer, horses, donkeys, rabbits, crocodiles, ostrich and emu. These primary production requirements are not applicable to wild game animals. Standard 4.2.3 would not duplicate or incorporate the Australian Standards for processing (i.e. no additional meat processing requirements would be included in Standard 4.2.3) but include an editorial note stating that processors are required to comply with specified Australian Standards under State/Territory law and list the relevant standards. As outlined in section 3.1, Standard 4.2.3 (Division 3) contains requirements for the production of ready-to-eat meat. As advised by the Meat Standard Development Committee, the current requirements in Standard 4.2.3 requirements for ready-to eat-meat and additional requirements for uncooked comminuted fermented meat are retained.

This enables management of hazards through the entire meat supply chain by establishing a set of food safety requirements that all businesses must meet. As raised in submissions, it is ineffective and costly to manage a number of hazards during processing as the options for remedial action are limited during processing (i.e. dispose of product is usually the only option available to the processor with consequent costs).

This approach is consistent with the principles articulated in the *Overarching Policy Guideline on Primary Production and Processing Standards* that standards address food safety across the entire food chain where appropriate and deliver a consistent regulatory approach across the primary production and processing standards.

7. Natural casings

Natural casings derived from animal intestines are almost exclusively prepared from different parts of the alimentary canal of pigs and ruminants. Pig casings are derived from the stomachs, small intestines (pig casings, smalls or rounds), large intestines (caps and middles) and terminal straight end of the large intestines (bungs). Cattle casings are obtained from the small intestines (rounds or runners), caecum (bungs) or large intestines (middles). Only the small intestines of sheep are used for natural casings.

Existing regulatory requirements

Under the State and Territory legislation³³ businesses are required to comply with AS 5011-2001: *Hygienic Production of Natural Casings for Human Consumption*. This standard contains the minimum requirements for the preparation and processing of natural casings from the intestines of cattle, sheep, goats and pigs. Key measures are:

- the business must implement an approved HACCP based quality assurance program to augment the Standard
- the runners must only be obtained from healthy animals and kept separate from other edible meat and not be collected until post mortem inspection is completed
- construction and equipment facilitates hygienic processing of natural casings and prevents or eliminates contamination

³³ Except possibly NSW

- processing of intestines into green runners - consistent, routine processing, storage and transportation procedures that minimise or eliminate risk of contamination of natural casings
- processing green runners into casings - hygiene controls are in place to prevent physical and microbiological contamination of product
- treatment of natural casings - controls are used to ensure that product remains in a wholesome condition³⁴
- transportation of green runners – controls are in place to ensure public health is not jeopardized

The businesses are also required under AS 5011-2001 to comply with AS4696-2007 *Hygienic Production and Transportation of Meat and Meat Products for Human Consumption*. The scope is meat and meat products and it covers carcasses and carcase parts. Carcase parts include viscera. Therefore the removal of intestines and preparation of runners at the abattoir and the preparation of casings at a separate location (whether or not the same business) are covered by AS 4696-2007. Under AS 5011-2001 the intestines can only be obtained after post mortem inspection (so the dispositions in AS 4696-2007 would apply).

The requirements in these standards manage any microbiological and chemical hazards associated with the production and processing of natural casings. The on-going maintenance of the Australian Standard following the disbandment of the Meat Standards Committee is being resolved and there is no need to duplicate or incorporate the Australian Standards requirements into the Code.

8. Rendered products for human consumption

Rendering is a by-products industry providing additional value from the animal above the value of the meat. This industry enables those parts of meat animals that are not used for human consumption as meat or offal to be used for human consumption (tallow, oils), for animal food (tallow, pet food, meat and bone meal etc) or for non-food industries (pharmaceuticals).

8.1 Existing requirements

There are two Australian Standards relevant to renderers; AS 4696-2007 *Hygienic Production and Transportation of Meat and Meat Products for Human Consumption* and the AS 5008-2007 *Hygienic Rendering of Animal Products*. There is also a Code of Practice for Hygienic Rendering of Animal Products 2007 produced by the Australian Renderers Association Inc.

The AS 5008-2007 *Hygienic Rendering of Animal Products* contains requirements for the production of safe rendered product by ensuring the hygienic rendering of biological materials from animals. Under State and Territory food legislation it is an offence to sell food that is unsuitable which includes food that is the product of a diseased animal or animals killed otherwise than slaughter.

The main hazards controlled by the rendering industry are:

- *Salmonella*, particularly from post processing contamination, which if it is present in

³⁴ Wholesome means a) will not cause foodborne infection or intoxication when properly handled and prepared for its intended use; b) does not contain chemical residues in excess of established limits; c) is free from obvious contamination; d) is free from defects recognised as unsafe to consumers; and e) is produced under adequate hygiene control.

- animal protein used for animal feed may result in infection in food animals
- Bovine Spongiform Encephalopathy (BSE) managed through raw material selection and labelling
- Other pathogens which may survive treatment and be present in the protein or tallow and which may infect humans or animals e.g. anthrax and clostridial diseases³⁵
- Veterinary drugs and other chemical residues particularly if material from animals not intended for (or rejected for) human consumption are included

The controls for the hazards are in AS 5008-2007 *Hygienic rendering of animal products*. The Standard applies to the production of rendered products for all end uses and specifies that rendered products intended for human consumption must also comply with the Code.

The main provisions are:

- there must be documented procedures in the form of an approved arrangement in place. The approved arrangement must include:
 - policy objectives to ensure products are safe and fit for purpose
 - procedures for producing the products
 - hygiene process controls including post-processing verification for *Salmonella*
 - validation and verification records, records of internal reviews and audits
 - HACCP plan conforming to the seven HACCP principles described by Codex
 - a trace-back system
- requirements for premises to facilitate the safe and hygienic production and storage of product and inspection or auditing, provide for a supply of water, energy, waste disposal systems and ventilation and lighting. There are also requirements for cleaning and hand washing facilities
- processing requirements including process validation for *Clostridium perfringens* (see later)
- requirements for cleaning, packaging and storage, pest control and vehicles and preventing post-production contamination
- labelling of animal feed as part of Australia's BSE risk reduction measures
- documentation to allow traceability and recall

The requirements for further processing of products in AS4696-2007 *Hygienic Production and Transportation of Meat and Meat Products for Human Consumption* specify that the rendering of meat and meat products must achieve the destruction of target micro-organisms in the rendered product and must ensure viable *Clostridium perfringens* spores are not present in the rendered product immediately on completion of rendering. *Clostridium perfringens* is used as an indicator of the effectiveness of the heat treatment.

The AS 5008-2007 requires annual validation and whenever the process changes or is modified. Laboratory results must indicate that *Clostridium perfringens* is <10/g of each of 10 consecutive days of operation. If *C. perfringens* is detected the heat process must be adjusted and further samples taken to 'validate' the process.

For post processing contamination the business is required to 'effectively manage the risk of salmonella contamination in all processed animal protein', sample to verify this is occurring and, should a sample be positive, review hygiene procedures, take corrective action and verify the action through sampling. These animal protein products are for animal feed with the aim of limiting the likelihood of human health issues arising from animals fed with contaminated feed.

³⁵ Through chain risk profile for the Australian red meat industry MLA 2003

The requirements in these standards manage any microbiological and chemical hazards associated with the production and processing of rendered products for human consumption. The on-going maintenance of the Australian Standard following the disbandment of the Meat Standards Committee is being resolved and there is no need to duplicate or incorporate the Australian Standards requirements into the Code.

Attachment 1

A brief Description of the Minor Meat Species and Wild Game Industries

Minor species

For the purpose of P1014, minor species are those animals currently defined under existing Australian Standards (excluding *AS4464-2007* and cattle, sheep, goats, pigs) i.e. buffalo, antelope, camels, alpacas, llamas, deer, horses, donkeys, rabbits, crocodiles, ostrich, emu.

Buffalo

Buffalo (*Bubalus bubalis*) herds are concentrated in the Northern Territory where there are around 15,000 domesticated buffalo and a feral population of around 40,000 buffalo. There are also small herds in all states of Australia; some for dairy production as well as meat production.

Buffalo are processed under the Australian Standard for the *Hygienic Production and Transportation of Meat and Meat Products for Human Consumption (AS 4696:2007)*. In South Australia, approximately 100 animals per year are slaughtered and most carcasses are transported to the Darwin for further processing with some sent to Adelaide and Melbourne. It is estimated that less than 150 beasts are processed across Australia annually for domestic consumption.

Approximately 75% of the buffalo carcasses (27 tonnes per year of carcasses) are manufactured into smallgoods, sausages and hamburgers for use by the Northern Territory catering and hospitality industry. A restaurant trade carcass would retail at \$3.60-\$4.00 per kilogram (farmgate).

Camel

The Australian camel industry is largely based on the harvesting of feral camels from arid central regions; however there are some farmed camels in central Australia. Australia's feral camel population is estimated at 1 million with an estimate of 50% in Western Australia, 25% in the Northern Territory and 25% in western Queensland and northern South Australia. The dromedary camel is ideally suited to desert conditions and feral camels now occupy much of the Australian interior.

Farmed production occurs on five properties in central Australia with 3000–4000 breeders. Herds have been established from feral animals which have subsequently been domesticated. Processing is done according to the Australian Standard for the *Hygienic Production and Transportation of Meat and Meat Products for Human Consumption (AS 4696:2007)*.

Camel meat production is estimated at 250 tonnes annually. There has been some domestic consumption of camel meat through restaurants and supermarkets predominantly aimed at the tourist market. In recent years, approximately all camel meat produced is exported to the United States, Canada and the European Union.

Deer

Deer were introduced to Australia more than 100 years ago. Red deer are becoming the most predominant farmed species in Australia proving advantageous through better production of velvet antler and a larger carcass size which reduces slaughter and processing costs. However, fallow deer are also widely farmed, as are smaller numbers of rusa, chital

and sambar.

There are approximately 150 farmers in Australia concentrated in Victoria, South Australia, New South Wales and Tasmania with some production in Queensland and Western Australia. The Australian on-farm deer population in 2002 was estimated at 200,000. However, it has reduced to approximately 50,000 animals as a result of the prolonged drought and farmers exiting the industry when prices were low.

Processing is done according to the Australian Standard for the *Hygienic Production and Transportation of Meat and Meat Products for Human Consumption (AS 4696:2007)*.

The Australian deer industry is approximately 5% of the size of the New Zealand industry and produces around 288 tonnes of venison (estimate for 2010). Over 65% of venison is exported, predominantly to the European Union and South-east Asia, with velvet exported to Korea, Hong Kong and China. The domestic market is predominantly restaurants and speciality butchers with retail value ranging from \$35/kg for hind quarter cuts to \$65/kg for tenderloins.

Rabbit

Rabbits are mainly farmed intensively but are also shot in the wild. There are twenty-one rabbit farms in Australia, located in New South Wales, Victoria, South Australia and Western Australia. In the early stages of the industry, meat production was contributed by smaller producers but the trend has changed to larger (800–2000 breeders) but fewer farms.

Rabbits are farmed primarily for the human consumption of their meat. This is usually supplied in whole-carcass form, though value-added products such as sausages. Chipolatas are also produced. Rabbit meat is mainly sold through European-style butchers and restaurants, with a limited market also in produce markets and supermarkets. The near-white meat from farmed rabbits varies considerably from the darkish meat of wild rabbits, with farmed rabbit meat selling for a premium over wild meat. It is estimated that 260 tonnes of meat is produced annually with a retail value of \$14.50 per kilogram. All meat produced is consumed domestically and supplied through restaurants and retail outlets (wholesalers, butchers and smaller supermarkets). Some wild rabbits are processed but must be supplied head shot for slaughter.

Crocodile

Commercial crocodile farming began in Australia in the 1980s and the main species farmed is the saltwater crocodile (*Crocodylus porosus*). The industry currently comprises 14 farms situated in Queensland, the Northern Territory and Western Australia. The main products are skins and a small quantity of meat.

Crocodiles are processed under the Australian Standard for the *Hygienic Production of Crocodile Meat for Human Consumption (AS 4467:1998)* and the Code of Practice on the Humane Treatment of Wild and Farmed Australian Crocodiles.

In 2011, the Crocodile Farmers Association of the Northern Territory (CFANT) was established with membership from four of the six existing farms (Crocodylus Park, Lagoon, Porosus and Coolibah). The submission from the the CFANT estimated that 125 – 150 tonnes of meat is processed annually with less than 20% being exported to Japan, Malaysia, Hong Kong and Taiwan. The remaining quantity is consumed domestically through restaurants and caterers with very little retailed through supermarkets. The retail value for crocodile meat ranges from \$10 per kilogram (boned-in meat) to \$20 per kilogram (high

quality cuts e.g. tail fillet, tenderloin and strip loin). Industry advice confirmed that all product is sold frozen and vacuum packing is common.

Ostrich

Ostrich comes from the family of ratites and is a flightless bird. The bird is farmed for its meat, leather, oil and feathers. Ostriches are mainly farmed in free-range complexes with targeted breeding for slaughter. The Australian Ostrich Association represents all commercial producers.

In the last five years, ostrich numbers have reduced from 25,000 birds to less than 10,000 birds. As a result of drought conditions, there are only four to five commercially-producing farms with an annual production of 30 tonnes of meat compared to 208 tonnes in 2006. The industry is expected rebuild to about 100 tonnes of product in the next 5 years.

Ostriches are processed at Myrtleford, Victoria under the *Australian Standard for the Hygienic Production of Ratite (Emu / Ostrich) Meat for Human Consumption (AS 5010:2001)*.

All ostrich meat is currently exported to premium markets in the United States, Canada and Japan. When production is larger, the EU market is also a critical market being the largest consumers of ostrich meat. Ostrich meat is a red meat, high in iron and low in cholesterol and is derived from the legs and along the back of the birds, which is chilled after skinning and then boned out into approximately 15 sub-primal cuts of prime fillets steaks and trim. Ostrich meat is highly sought after with significant growth in the health food sector particularly in Canada and the USA. Ostrich meat is usually traded in individual cuts, although at times may be traded as deboned thigh and drum and broken down by the importer. Currently, Ostrich is selling ex processing plant at an average of approximately \$16.50/kg ranging from \$30/kg for premium fillets to \$8/kg for trim. Meat prices have continued to rise over the past few years in spite of the strong Australian dollar.

Emu

The emu is a native bird of Australia and farming occurs in all states. Commercial farming of emus began in Western Australia in 1987 and is now practiced in all states. Wild harvesting is prohibited. In 2001, there were 145 farms producing emus, declining to 41 in 2006 and currently there are fifty to sixty licenced farmers around Australia.

Processing of emus is carried out under the Australian Standard for the *Hygienic Production of Ratite (Emu/Ostrich) Meat for Human Consumption (AS 5010: 2001)*. The main products from emus are meat, oil and skins with oil being the commercially important commodity. Meat in various cuts is then prepared from the legs of the bird which are removed after skinning.

Additional information

During the public consultation, information was provided by an alpaca producer advising there are about 2000 alpaca farmers across Australia with about 200,000 alpacas registered for breeding purposes. The meat is currently sold into restaurants however the industry is aiming to export boxed carcasses. The amount of meat produced is not known but estimated to be a few hundred carcasses produced annually. There is not an association that represents the processors however there is the Australian Alpaca Association which represents all Australian breeders.

Wild Game

For the purpose of P1014, wild game is defined as currently under AS4464-2007.

Kangaroo

Kangaroos are only harvested on mainland Australia and the industry is based on wild harvest. The average annual harvest since 1997 has been 2.78 million kangaroos. Only four species can be harvested:

- red kangaroo (*Macropus rufus*), harvested in NSW, Qld, SA, WA
- eastern grey kangaroo (*M. giganteus*), harvested in NSW, Qld
- western grey kangaroo (*M. fuliginosus*), harvested in NSW, SA, WA
- common wallaroo or euro (*M. robustus*), harvested in NSW, Qld, SA, WA.

Kangaroo meat is used for human consumption and pet meat, however kangaroos are also harvested for skins and leather. Currently, there are 21 abattoirs processing kangaroos in Australia. Processing of kangaroo meat is regulated by the Australian Standard for the *Hygienic Production of Game Meat for Human Consumption* (AS 4464: 2007).

An estimated 21,000 tonnes of meat is produced for human consumption and 9,000 tonnes produced for pet food. Kangaroo carcasses are processed and packaged in various formats such as pieces of meat packed in overwrap, vacuum and modified-atmosphere packed cuts of meat, chilled trim in tubs and cartons and frozen meat. Meat for human consumption is retailed in butcher shops which receive meat as boneless, bulk meats and in supermarkets in retail-ready packs. Approximately 70% of all kangaroo meat (i.e. 15,000 tonnes for human consumption) is exported to a wide range of countries including Russia, France, South Africa and Germany.

Wallaby

The wallaby industry is similar to the kangaroo industry as wallabies are harvested in the wild. Wallabies are harvested for their meat and skins. Figures from 2005–2006 indicate that 135.8 tonnes of meat was produced.

Mutton birds

The mutton bird, also known as the short tailed shearwater, is an international migratory bird which is harvested commercially and non-commercially in Tasmania each year between 27 March and 30 April. The harvesting of mutton birds is limited by the Tasmanian Parks, Wildlife and Heritage to prevent over-harvesting. Approximately 23 million breed in 285 colonies in south-eastern Australia and 200,000 are annually harvested and sold in Tasmania.

There is a small demand for meat in New Zealand but most meat is sold in the domestic market as the meat has a non-gourmet image with an acquired taste.

Wild boar

There are an estimated 23 million feral pigs in Australia however production has been reduced in the last 10 years due to droughts in Eastern Australia. There is little demand for domestic wild pig meat and most is exported to the European Union. In 2007, 1838 tonnes of game pigs were produced in Australia, of which 1818 tonnes were exported.

Table 1: Food safety elements of the Australian Standard for the *Hygienic Production and Transportation of Meat and Meat Products for Human Consumption (AS4696 – 2007)*

Activity	Requirement
Application of food safety standards	AS4696-2007 covers all of the requirements of Standards 3.2.2 and 3.2.3
General food safety management	The proprietor of a meat business has an approved arrangement that covers each stage of the production, contains controls to ensure wholesomeness of meat products, implements HACCP and has a verification system and documents results. Clauses 3.1 – 3.15
Receiving	Animals are sourced only from holdings where: animals are raised according to good husbandry practices and not fed feedstuffs that could jeopardise the wholesomeness of meat products there is a system capable of reliably identifying any disease, other abnormality or treatment of animals that could affect their fitness for slaughter. Clauses 6.1 – 6.13
Inputs	Operational hygiene process controls ensure production of meat and meat products are wholesome. Clause 4. Meat and meat products are not contaminated Clause 5. Supply of water appropriate to the operations undertaken. Clause 21.4 – 21.13.
Waste disposal	The meat processor has an effective waste disposal program for storage, handling and removal of waste that does not jeopardise the wholesomeness of meat products. Clause 21.14 – 21.17.
Skills and knowledge	The organisational structure, provision of resources and provision and training of personnel are appropriate to the operations undertaken. Clause 3.5.
Design, construction and maintenance of premises, equipment and transportation vehicles	Design and construction – Clauses 19.1, 19.2, 19.3, 19.5, 19.7, 19.8, 19.11, 19.1220.1. Cleaning and sanitising: Premises and equipment - Clause 19.2 Premises Clause 4.2 and 4.4 Equipment Clause 5.10 Meat premises and equipment are maintained in a good state of repair and working order having regard to their use. Clause 4.5. Premises and equipment – Clause 19.2. Meat transport vehicles – Clause 23.4 and 25.3.
Traceability	Meat businesses have a documented system that provides for the accurate identification, and the ability to trace and recall meat and meat products. Clauses 16.1 – 16.10
Sale or supply	Conditions on the admission of animals. Clauses 6.6. – 6.10. Unwholesome meat is excluded from the human food chain. Clauses 10.1 – 10.22.
Transportation of meat and meat products	Meat and meat products are transported under conditions that maintain their wholesomeness (including temperature control for microbiological safety). Clauses 24.1 – 24.10.

Table 2: Food safety elements of the Australian Standard for the *Hygienic Production of Rabbit Meat for Human Consumption* (AS4466-1998)

Activity	Requirement
Application of food safety standards	Clause 5 – Operational Requirements – Construction Clause 6 – Hygiene Requirements Clause 7 – Operational Hygiene Requirements Clause 8 – Personal Hygiene Requirements Clause 11- Processing Procedures Clause 13 - Chilling
General food safety management	The rabbit establishment operates under a quality assurance arrangement (AS/NZS ISO 9002) including management responsibility, quality system, design control, document and data control, product identification and traceability, process control, inspection and testing, control of nonconforming product, corrective and preventive action, training. Clauses 4.1 – 4.20. Process control is achieved through the application of HACCP principles. Clause 4(b).
Receiving	All animals presented for processing shall be examined to the extent necessary to determine their suitability for processing. Clause 10.2 Antemortem inspection is performed to prevent processing of animals showing evidence of disease or any other condition that would make the carcass unfit for human consumption. Clause 10.1.
Inputs	Cleaning compounds or other materials likely to cause contamination of product shall not be stored in edible product areas. Clause 6.4. Only potable water used on slaughter floor Clause 6.9. Approved chemicals shall only be used in processing Areas. Clause 6.18. Only chemicals approved for use in food premises may be added to water used in processing. Clause 7.8.
Waste disposal	Waste material shall be handled in a manner as to prevent contamination of food or potable water. Clause 6.13. Effluent removed from processing areas daily in manner compliant with S/T requirements. Clauses 6.14, 6.15.
Skills and knowledge	A program of continual training in the hygienic handling of edible product shall be implemented. Clause 8.1 Ante-mortem inspection performed by inspector or company nominee in a QA arrangement approved by the controlling authority. Clause 10.2. Post-mortem inspection performed by a person with training and qualifications to accurately recognise conditions and correct disposition. Clause 12.1.
Design, construction and maintenance of premises, equipment and transportation vehicles	References the old Australian Standards for Construction of Premises for processing Animals and Meat for Human Consumption and the Australian Standard for Transportation of Meat for Human Consumption now AS4696 – 2007. Clause 5.1 – 5.8.
Traceability	Product identification and traceability is a requirement under the quality assurance program. Clause 4.8.
Sale or supply	Operators have responsibilities to ensure only wholesome meat is passed for human consumption. Clause 12.1-12.14.
Transportation of meat and meat products	References the AS4696 – 2007.

Table 3: Food safety elements of the Australian Standard for the *Hygienic Production of Crocodile Meat for Human Consumption* (AS4467-1998)

Activity	Requirement
Application of food safety standards	Clause 5 – Site and Services Clause 7 – Premises Construction – General Clause 8 – Transport – Vehicle Wash Area Clause 9 – Drainage and Effluent Clause 10 – Hygiene and Sanitation Facilities Clause 11 – Processing Areas Clause 12 – Chiller and Freezers Clause 15 – Cleaning Facilities Clause 19 – Operational Hygiene Requirements Clause 20 – Amenities Clause 22 – Slaughter and Processing Procedures Clause 23 – General Hygiene on the Processing Plant Clause 24 – Transportation of Crocodile Meat
General food safety management	The premises where crocodiles are slaughtered and processed operates under a quality assurance arrangement (AS/NZS ISO 9002) including management responsibility, quality system, design control, document and data control, product identification and traceability, process control, inspection and testing, control of nonconforming product, corrective and preventive action, training. Process control is achieved through the application of HACCP Clause 4 – Quality assurance programs
Receiving	Clause 20 requires that only crocodiles suitable for human consumption are processed and the operator of a processing premise shall have a system which ensures moribund, unhealthy or rejected crocodiles are not processed for human consumption. Clause 20.1 – 20.3.
Inputs	Materials shall be stored to prevent becoming contaminated or contaminating meat. Clause 16.2. Cleaning compounds shall be approved in meat processing facilities and not allowed to come into contact with carcasses, meat or packaging materials. Clause 19.7. Only potable water shall be used in processing premises. Clause 23.4. Only chemicals approved for use in food premises may be added to water used in processing. Clause 23.5. Equipment used during slaughtering, dressing and chilling cleaned or sterilised between use. Clause 23.14. Requirements on operators to ensure high standard of hygienic dressing. Clause 23.17
Waste disposal	A drainage system effectively removes solid and liquid waste in a manner that does not contaminate the meat. Clauses 9.1 – 9.6. Waste material shall be handled in a manner as to prevent contamination of food or potable water. Clause 19.30. Effluent removed from processing areas daily in manner compliant with S/T requirements. Clauses 19.31, 19.42.
Skills and knowledge	The Quality Assurance program will have a training element. Clause 4.18 Animals and carcasses shall be inspected by people holding recognised meat inspection qualifications. Clause 4 (c)

Design, construction and maintenance of premises, equipment and transportation vehicles	Construction facilitates the hygienic processing of animals and prevents contamination of meat. Clauses 7.1 – 7.14. Transport wash areas enable effective cleaning of vehicles and are not a source of contamination. Clause 8.1. Processing area design and construction facilitates process flow and hygienic processing. Clauses 11.1 – 11.8. Premises and equipment are maintained to ensure that the hygienic processing of crocodiles is not jeopardised. Clause 18.1.
Traceability	Product identification and traceability is a requirement under the quality assurance program. Clause 4.8.
Sale or supply	Operators have responsibilities to ensure only wholesome crocodile meat is passed for human consumption. Clauses 21.1 – 21.2.
Transportation of meat and meat products	Crocodile meat must be transported in a manner that does not jeopardise the wholesomeness of the meat. Clause 24.1 references AS4696-2007.

Table 4: Food safety elements of the Australian Standard for the *Hygienic Production of Crocodile Meat for Human Consumption* (AS4467-1998)

Activity	Requirement
Application of food safety standards	<p>Clause 5 – Site and Services Clause 7 – Premises Construction – General Clause 8 – Transport – Vehicle Wash Area Clause 9 – Drainage and Effluent Clause 10 – Hygiene and Sanitation Facilities Clause 11 – Processing Areas Clause 12 – Chiller and Freezers Clause 15 – Cleaning Facilities Clause 19 – Operational Hygiene Requirements Clause 20 – Amenities Clause 22 – Slaughter and Processing Procedures Clause 23 – General Hygiene on the Processing Plant Clause 24 – Transportation of Crocodile Meat</p>
General food safety management	<p>The premises where crocodiles are slaughtered and processed operates under a quality assurance arrangement (AS/NZS ISO 9002) including management responsibility, quality system, design control, document and data control, product identification and traceability, process control, inspection and testing, control of nonconforming product, corrective and preventive action, training. Process control is achieved through the application of HACCP principles. Clause 4 – Quality assurance programs</p>
Receiving	<p>Clause 20 requires that only crocodiles suitable for human consumption are processed and the operator of a processing premise shall have a system which ensures moribund, unhealthy or rejected crocodiles are not processed for human consumption. Clause 20.1 – 20.3.</p>
Inputs	<p>Materials shall be stored to prevent becoming contaminated or contaminating meat. Clause 16.2. Cleaning compounds shall be approved in meat processing facilities and not allowed to come into contact with carcasses, meat or packaging materials. Clause 19.7. Only potable water shall be used in processing premises. Clause 23.4. Only chemicals approved for use in food premises may be added to water used in processing. Clause 23.5. Equipment used during slaughtering, dressing and chilling shall be cleaned or sterilised between use. Clause 23.14. Requirements on operators to ensure high standard of hygienic dressing. Clause 23.17</p>
Activity	Requirement
Waste disposal	<p>A drainage system effectively removes solid and liquid waste in a manner that does not contaminate the meat. Clauses 9.1 – 9.6. Waste material shall be handled in a manner as to prevent contamination of food or potable water. Clause 19.30. Effluent removed from processing areas daily in manner compliant with S/T requirements. Clauses 19.31, 19.42.</p>

Skills and knowledge	The Quality Assurance program will have a training element. Clause 4.18 Animals and carcasses shall be inspected by people holding recognised meat inspection qualifications. Clause 4 (c)..
Design, construction and maintenance of premises, equipment and transportation vehicles	Construction facilitates the hygienic processing of animals and prevents contamination of meat. Clauses 7.1 – 7.14. Transport wash areas enable effective cleaning of vehicles and are not a source of contamination. Clause 8.1. Processing area design and construction facilitates process flow and hygienic processing. Clauses 11.1 – 11.8. Premises and equipment are maintained to ensure that the hygienic processing of crocodiles is not jeopardised. Clause 18.1.
Traceability	Product identification and traceability is a requirement under the quality assurance program. Clause 4.8.
Sale or supply	Operators have responsibilities to ensure only wholesome crocodile meat is passed for human consumption. Clauses 21.1 – 21.2.
Transportation of meat and meat products	Crocodile meat must be transported in a manner that does not jeopardise the wholesomeness of the meat. Clause 24.1 references AS4696-2007.

Table 5: Food safety elements of the Australian Standard for the *Hygienic Production of Wild Game Meat for Human Consumption* (AS4464-2007)

Activity	Requirement
Application of food safety standards	Clause 3 – Operational Hygiene Clause 5 – Cross-contamination Clause 10 – Chilling Clause 11 – Dressing of wild game animal carcasses and other processing of raw wild game meat Clause 15 – Premises and Equipment Clause 16 – Hygiene and Sanitation Facilities Clause 17 - Essential Services
General food safety management	The proprietor of a wild game meat business has an approved arrangement that covers each stage of the production, contains controls to ensure wholesomeness of meat products, implements HACCP and has a verification system and documents results. Clauses 3.1 – 3.15
Receiving	Wild game animals shall not be harvested from areas where the presence of potentially harmful substances such as pesticides, fungicides, heavy metals or poisons could lead to unacceptable levels of such substances in the wild game meat. Clause 6.3 Wild game animal carcasses shall be marked with an approved tag. Clause 6.4. Only healthy wild game animals shall be harvested. Clause 8.1.
Inputs	Operational hygiene process controls ensure production of meat and meat products are wholesome. Clause 4. Ingredients are fit for the purpose for which they are to be used. Clause 4.7. Accumulation of material likely to cause contamination of carcasses or game meat is prevented. Clause 4.8. Hazardous material and compounds are fit for purpose. Clause 4.9.
Waste disposal	The wild game meat business has an effective waste disposal program for the storage, handling and removal of waste that does not jeopardise the wholesomeness of meat products. Clause 17.13 – 17.16.
Skills and knowledge	The organisational structure, provision of resources and provision and training of personnel are appropriate to the operations undertaken. Clause 3.5.
Design, construction and maintenance of premises, equipment and transportation vehicles	Cleaning and maintenance of premises and equipment – Clauses 4.3 – 4.6. Pest control – Clause 4.11. Vehicles construction and design – Clauses 8.17 – 8.18. Premises and equipment do not jeopardise the wholesomeness of wild game meat. Clauses 15.1 – 15.10 Construction of field depots, premises and equipment – Clauses 15.11 – 15.15.
Traceability	Operators' responsibilities for ensuring carcasses have approved tags and accurate records kept of product received. Clauses 9.2 – 9.3. Operator shall maintain identification system and records to identify product to the processing premise. Clause 11.12. Wild game meat businesses have a documented system that provides for the accurate identification, and the

	ability to trace and recall meat and meat products. Clauses 12.1 – 12.9.
Sale or supply	Conditions on the admission of animals. Clauses 6.3 – 6.4. Unwholesome meat is excluded from the human food chain. Clauses 9.1- 9.27
Transportation of meat and meat products	Transport of wild game animal carcasses to processing premises must be under temperature control. Clause 10.4. Storage and transportation of wild game meat requirements in AS4696-2007 (i.e. Meat and meat products are transported under conditions that maintain their wholesomeness (including temperature control for microbiological safety. Clauses 24.1 – 24.10.