AUSTRALIAN MEAT PROCESSING INDUSTRY SECTOR

IRC Skills Forecast and Proposed Schedule of Work

2017-2020

The Meat Industry Reference Committee Skills Forecast and Proposed Schedule of Work 2017–2020

Purpose

This workforce development and skills needs analysis represents the latest industry intelligence and resulting Skills Forecast and Proposed Schedule of Work of the Meat Reference Committee (IRC). It was developed through research of national and industry data sources and ongoing input from IRC members and key stakeholders. The report is designed to provide the Australian Industry and Skills Committee (AISC) on the four-year rolling National Schedule of training product development and review work.

The industry intelligence component covers the following topics:

Sector Overview

An analysis of the depth and breadth of the industry and identification of the macro environmental forces that currently challenge and/or provide opportunities for the industry

Employment

A review of employment projections by the Department of Employment and an outline of the current workforce profile and supply for the industry.

Skills Outlook

Provides insights into the key trends that could potentially drive changes in workplace design and identification of key priority skills and skilled labour shortages for the industry.

The training product review schedule of work – at the end of the report – draws on the industry intelligence, reports and various points of engagement with industry associations, employers and training providers.

CONTENT

EXECUTIVE SUMMARY

This report provides an overview of workforce development and skills needs for the Australian meat processing industry sector. The report was commissioned to support the Australian Industry and Skills Committee (AISC) in developing the four-year rolling National Schedule of training product development and review work. The report is structured, as per the AISC template, in four main sections as follows: sector overview, employment, skills outlook, and training product review plan. Methods of analysis include research of published national and industry data sources and input from Industry Reference Committee (IRC) members and key stakeholders.

The report draws attention to the fact that a growing demand and export trade for red meat in the global markets provides this industry with the potential for growth and new business opportunities. The opportunities are also shaped by the industry's reputation as a supplier of safe, nutritious, ethically produced meat products, current government policies related to free trade agreements, market trends characterised by a growing focus on high quality meat and livestock products, and availability and ongoing development of advanced technologies.

Further, the report describes that compared with other industry sectors, the meat processing sector has the advantage of a younger workforce and a balanced age structure under 50 years of age. While ability to attract people to the industry is not an issue for employers, ongoing and structured training is becoming increasingly important in the journey to maintain business viability and competitiveness.

Importantly, employers will increasingly seek high-level skills to support more demanding job functions in most workplaces. This occurs because businesses respond to opportunities with new value creation strategies, capital structure strategies, product development, and investments in world-leading technologies, among many other innovations.

Examples of new job functions for operational employees include: management, quality inspection, generation of information/reporting, process improvements, and technical maintenance. Similarly, higher level skills will be required of specialist managers to support strategic developments and targets. Such examples include strategic leadership and change management skills, marketing executive skills, developing investment project skills, global supply chain and logistics skills, and other high level skills.

Summary of Key Points in Each Section

Sector Overview

- The meat processing industry sector can be described as having six sectors: meat processing (abattoirs), poultry processing, smallgoods manufacturing, feedlots, wild game harvesting and wholesaling and retailing of the above.

- The industry includes 1,215 processing businesses and about 6,000 wholesalers and retailers. The sector employs approximately 350,000 people who are involved either directly or indirectly in the supply chain.

- In general, the sector is characterised by a large number of small and medium-size producers producing for local or niche markets and a smaller number of large producers that often are multinational companies and operate globally. The chicken meat industry is predominantly vertically integrated and dominated by large companies

- Total sales turnover of the processing sectors increased by 12 per cent (or $2.6 billion) to $25.5 billion between 2012–13 and 2013–14.

- The industry is represented by about 17 peak organisations at a national and state level, including industry associations, industry services bodies such as R&D corporations, employee associations and regulatory bodies.

- Key regulations for the industry include or are related to: export certification for abattoirs, trade description, meat inspection services, licence to operate for all meat processing plants, Australian Standard for the hygienic production and transportation of meat and meat products for human consumption, Food Standards Australia New Zealand, *Biosecurity Act 2015* and various other standards that apply to meat processing.

- The only sector-specific occupation that is regulated[1], requiring a licence to operate, is the role of meat inspector. The registration can be with a federal or state authority, depending on the nature of the enterprise.

- Key macro forces that currently challenge and provide opportunities for the industry sectors include:

  - competitiveness in both domestic and international markets, provided by higher expectations from consumers, retailers and governments, of high environmental and ethical standards including food safety and animal welfare, greater diversification of markets, and the emergence of large-scale smallgoods production facilities

  - growing demand for red meat in the global markets and fluctuating prices for livestock, which create both challenges and opportunities for the Australian red meat and livestock industry sector in relation to finding new pathways for higher productivity and increasing export trade

  - Australia's social and environmental objectives, which demand continual improvement of sustainable farming practices, and stewardship of environmental resources including adaptation to climate variability

  - supportive government policies such as free trade agreements, which bring strong benefits to the industry in terms of export tariff reductions, which increase international competitiveness

  - existing and ongoing development of enabling technologies, which allows for automation of manual tasks, including more efficient handling of carcasses, improved resource efficiency, electronic traceability systems, and integrated packaging of boned and sliced product.

Employment

- Employment in the meat processing sector is anticipated to remain stable over the five years to November 2020.

- About 18 per cent of the industry workforce is likely to retire over the next five years.

- A significant number of the workforce occupies roles specific to the industry, including meat and poultry process workers, meat boners and slicers, slaughterers, butchers and smallgoods makers, and pen riders. A significant workforce is also employed to undertake packing and more general roles such as clerical and administrative work. The sector also employs people for a range of other jobs such as forklift drivers, commercial cleaners, metal fitters and machinists, and production managers.

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[1] Regulated occupations have legal (or industry) requirements or restrictions to perform the work. Regulated occupations require a license from, or registration by, a professional association or occupational licensing authority.

Skills outlook

The trends in skills demand include the following.

DRIVER	SKILLS OUTLOOK	TRAINING PACKAGE PROJECT
The European Union requires qualified animal welfare personnel to be present at all times when unloading stock	Employees will need to be qualified in animal welfare. Gaps have been identified, particularly during night or out-of-hours receival of livestock	Development of an Animal Welfare Assistant Skill Set
Increased value of and international demand for animal skins and hides	Growing demand for formal qualifications in handling and treating animal skins	Possible development of qualifications and units relating to the supervision of handling and treating of animal skins – needs further assessment of industry demand
International and domestic customer focus on risk assessment and management	Recent industry audits have revealed a skills gap in addressing Threat and Vulnerability Assessment (TACCP and VACCP) – a requirement for BRC audits	Identification or development of suitable units to address Threat and Vulnerability Assessment (TACCP and VACCP)
Greater levels of automation and emergence of the Internet of Things	Cross-trade skills in maintenance continue to be required from technical and skilled worker positions; increasing emphasis on formal training in ammonia refrigeration	Possible units and qualification structures to be identified for non-trade engineering maintenance qualifications at Certificate II, III and IV
State regulatory requirements regarding pest management	Participants in industry network meetings have identified a need to address the area of pest management. Regulatory requirements in every state are different, and most processors outsource the management of their pest control systems to accredited suppliers. Key skills gaps have been identified in pest management monitoring by plant personnel	Suitable units in pest control monitoring to be identified and/or developed for inclusion in existing qualifications

DRIVER	SKILLS OUTLOOK	TRAINING PACKAGE PROJECT
Introduction of automation and electronic systems in warehousing; customer requirements for whole of chain traceability	A greater focus will be retained on high-level technological skills, warehouse and logistic skills and knowledge for loadout at labourer and general worker level	Suitable units in warehousing and logistics to be identified and/or developed for inclusion into existing qualifications
Introduction of automation and electronic systems in warehousing	Higher level supply chain, logistics and warehousing skills will be essential for senior technicians and supervisors	Inclusion of suitable warehousing units into AQF level II and III qualifications
Customer requirements for whole-of-supply-chain traceability	Consistency of recording and reporting across the supply chain; move towards electronic recording	Consistency of approach across both the AMP and AHC training packages
Review of the AUSVETPLAN	Research suggests that there will be a need to develop capability to manage the continued operation of a processing plant during an EAD event	Develop suitable unit at either Certificate IV or Diploma level
Economic and business drivers	Skills to calculate yield	Develop suitable unit/s at Certificate III and/or IV levels
Emergence of new packaging technologies and materials including active packaging, intelligent packaging, edible coatings/films, biodegradable packaging and nanomaterial packaging, and research into opportunities for the meat industry	There is an emerging need for medium- and high-level skills to assess, analyse and select appropriate packaging solutions	Too early to identify a specific project at this stage.
Growth in wholesale, automated and centralised boning, value-adding and food service businesses	Greater breadth of skills for food service workers and management	In response to the introduction of new technologies, inclusion of diversified skills in boning and slicing in Certificate III in Meat Processing (Food Services), Certificate III in Meat Processing (Smallgoods – General)

DRIVER	SKILLS OUTLOOK	TRAINING PACKAGE PROJECT
Customer and regulator focus on meat safety, shelf life, and product optimisation through technology, packaging and interventions	There is a growing need for high-level skills in areas of meat micro/food safety, data interrogations, quality systems management skills, energy efficiency, waste water usage, and wholesale value-adding	Regular review of scope and nature of Quality Assurance qualifications; possible future inclusion of further high-level technical units
Greater focus on horse riding and handling safety arising from ASQA's December 2015 report *Training in equine programs in Australia*	There will be a greater focus on education of both horse and handler/rider	
Greater focus on planning, risk assessment and return on investment assessment required of senior personnel as new technologies and systems are developed	Ensure that the feedlot industry is represented in the current Equine Safety in Training review	Project management skills relevant to abattoirs at AQF 5 and 6
Increased focus on animal health data analysis	Project management skills will remain critical for management positions, particularly in relation to implementation of new technologies	Possible development of new units as new systems are implemented

All qualifications, skill sets and units of competency will require a full review over the four-year timeframe of this work plan.

Anticipated involvement in cross-sector projects

The Meat Industry Reference Committee has noted the cross-industry projects recently commissioned by the AISC and anticipates that it will provide input to some of these. However, more information about each project is required before determining the level of industry involvement and input.

The Meat Industry Reference Committee proposes that issues such as animal welfare, biosecurity, and supply chain food safety and provenance should be considered as future cross-sector projects.

Qualifications that are eligible for VET Student Loans program

Only the *Diploma of Meat Processing* from the *AMP Australian Meat Processing Training Package* is listed in the current list of approved courses. While uptake of the VET FEE-HELP option for this unit is unlikely, it is recommended that it remain listed for those students who are unable to access employer or industry assistance when undertaking this program.

IRC actions taken in response to the COAG Industry and Skills Ministers' priorities

Actions taken have included the following:

- the two Certificate I qualifications, previously in the *MTM Australian Meat Industry Training Package*, were removed in the recent review
- the meat processing industry maintains close relationships with all industry RTOs, and regularly conveys information about industry training requirements
- transferability of skills across the industry is a key priority for the meat processing industry, which has a highly mobile workforce
- most of the Certificate II and Certificate III level units are specific to processes related to meat processing, while units from Certificate IV to Graduate Certificate are written more generically to ensure that they are suitable for related industry sectors
- there are 60 skill sets in the *AMP Australian Meat Processing Training Package*.

A.   ADMINISTRATIVE INFORMATION

Name of Applicable Industry Reference Committee (IRC):   Meat Industry Reference Committee (IRC)

Name of Applicable Skills Service Organisation: Skills Impact Ltd

B.   SECTOR OVERVIEW

Sector Description

The Australian meat processing industry comprises processors, retailers and exporters who together are responsible for guaranteeing the supply of meat to domestic and international markets.

Australia exports $6 billion worth of beef and cattle annually, making this sector one of the country's most valuable farm contributors. Sheep meat and sheep exports are worth around $1.6 billion, and goat meat and goats approximately $55 million. Combined, these represent around 23 per cent of total Australian farm exports. Over 70 per cent of red meat production is exported to 110 countries worldwide.

The Australian red meat industry has a total annual value of over $17 billion and is one of the world's largest exporters of red meat and livestock. Approximately 350,000 people are involved either directly in the supply chain or in businesses that service the industry. The Australian domestic market is the industry's largest single market.

The pork industry is focused predominantly on a domestic market whilst maintaining a small export industry to New Zealand and Singapore (valued at $83.5 million). Competition with increasing volumes of subsidised imports from North America and Europe continue to be an issue for the industry.

The Australian production system is diverse, offering a wide variety of products to customers and consumers. Products range from high-quality, tenderness-guaranteed eating products, to hides and pharmaceutical ingredients.

The industry is renowned for its efforts in meeting customer requirements. Major international customers for Australian beef are China, Japan, the US and Korea, while the US and the Middle East are the dominant export markets for lamb, mutton and goat meat.

The Australian meat industry has an enviable international reputation as a leader in food safety, animal welfare and disease control. This earns the trust of domestic and international consumers and allows access to all global markets, where collectively over three million tonnes or Australian product is consumed each year.

The chicken meat industry is predominantly vertically integrated. This means that generally, individual companies own almost all aspects of production – breeding farms, multiplication farms, hatcheries, feed mills, some broiler-growing farms, and processing plants. The poultry processing industry has grown over the past five years due to the popularity of its processed products, with an

annual revenue of $7 billion. Growing demand for chicken meat has been supported by its cheaper price compared with other meats, and aided by dramatic improvements in production efficiencies.[2]

Smallgoods, including sausages, salamis, bacons, hams, patés, and dried, roasted and preserved meat products, are mainly consumed by the domestic market. IBISWorld estimates the total revenue of the industry at $4 billion, with the four top players accounting for less than 50 per cent of total revenue.[3] A significant amount of Australian smallgoods product continues to be manufactured by smaller, speciality processors.

The meat wholesaling sector is a growing sector of newly emerging companies primarily made up of boning rooms and value-adding establishments servicing the hospitality and supermarket industry.

Meat retailers in Australia include traditional independent butchers, supermarkets, butcher shop chains, and gourmet and specialist retail meat outlets. The Australian Meat Industry Council (AMIC) estimates that there are about 2,800 independent butchers throughout Australia, employing about 8,500 people. Woolworths and Coles dominate the supermarket distribution of meat products, with figures produced by Meat and Livestock Australia (MLA) in 2012 indicating that these two organisations accounted for about 58 per cent of beef and lamb sales.

A cattle feedlot is a managed facility where livestock are provided a balanced and nutritious diet for the purpose of producing beef of a consistent quality and quantity. At any one time, there are around 2 per cent of Australia's cattle population located in feedlots.

Relevant Training Package Qualifications

The *AMP Australian Meat Processing Training Package* provides current and applicable training across the broad range of meat processing occupations. It comprises 26 Qualifications, 60 skill sets, 429 AMP units of competency, and a further 211 imported units.

Note 1: Poultry processing is not currently covered by the *AMP Australian Meat Processing Training Package*. Most processors use the Food Processing Training Package.

Note 2: There is currently only one national qualification specifically developed for the Australian feedlot industry – *AHC33311 Certificate III in Feedlot Operations.* There has been minimal uptake of this qualification. Until recently, training in the feedlot industry has been relatively ad hoc. However, under the leadership of the Australian Lot Feeders' Association (ALFA), the industry is currently developing an industry strategic training plan, which is the first step towards a structured training system. While there are currently few drivers to move towards nationally endorsed training, this is likely in the future.

AMP QUALIFICATIONS	
Qualification Level: Certificate II	
AMP20116	Certificate II in Meat Processing (Food Services)
AMP20216	Certificate II in Meat Processing (Smallgoods)
AMP20316	Certificate II in Meat Processing (Abattoirs)
AMP20415	Certificate II in Meat Processing (Meat Retailing)
Qualification Level: Certificate III	

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[2] Source: IBISWorld, 2016, *<http://www.ibisworld.com.au/industry/default.aspx?indid=91>.*

[3] As above

AMP30116	Certificate III in Meat Processing (Boning Room)
AMP30216	Certificate III in Meat Processing (Food Services)
AMP30316	Certificate III in Meat Processing (Meat Safety)
AMP30416	Certificate III in Meat Processing (Rendering)
AMP30516	Certificate III in Meat Processing (Slaughtering)
AMP30616	Certificate III in Meat Processing (General)
AMP30716	Certificate III in Meat Processing (Quality Assurance)
AMP30815	Certificate III in Meat Processing (Retail Butcher)
AMP30916	Certificate III in Meat Processing (Smallgoods – General)
AMP31016	Certificate III in Meat Processing (Smallgoods – Manufacture)
AMP31116	Certificate III in Meat Processing (Livestock Handling)
AMP31216	Certificate III in Meat Processing (Packing Operations)
Qualification Level: Certificate IV	
AMP40215	Certificate IV in Meat Processing (General)
AMP40315	Certificate IV in Meat Processing (Leadership)
AMP40415	Certificate IV in Meat Processing (Quality Assurance)
AMP40516	Certificate IV in Meat Processing (Meat Safety)
Qualification Level: Diploma	
AMP50115	Diploma of Meat Processing (Meat Retailing)
AMP50215	Diploma of Meat Processing
Qualification Level: Advanced Diploma	
AMP60115	Advanced Diploma of Meat Processing
Qualification Level: Graduate Certificate	
AMP80115	Graduate Certificate in Agribusiness
Qualification Level: Graduate Diploma	
AMP80215	Graduate Diploma of Agribusiness

Sector Analysis

Sub-sector description and analysis of businesses involved

Sub-Sector Name	Abattoirs Sector
Scope of Work	*Beef and veal* Australia is one of the world's most efficient producers of cattle and the world's third largest exporter of beef. The off-farm meat value of Australia's beef industry is $12.75 billion. The gross value of Australian cattle and calf production is estimated at $7.7 billion.[4] Australian cattle slaughter over the next five years is expected to decrease from 9.5 to 7.5 million head, as restocking occurs after a period of drought across northern Australia.[5] Australia exports $6 billion worth of beef and cattle annually, making this sector one of the country's most valuable farm contributors. Over the next five years, the major markets will continue to be the United States, Japan, Republic of Korea, and China.[6] *Sheep meat* Australia is one of the world's leading producers of lamb and mutton, the largest exporter of mutton and live sheep, and the second largest exporter of lamb. The Australian public are among the biggest consumers of lamb in the world. The off-farm meat value of the Australian sheep meat industry is $4.2 billion.[7] Lamb slaughter has been making stepped increases for the past 15 years, with 20 million lambs likely to become the new low, as the prime lamb transition continues, and as breeding ewes become more efficient. This has been exemplified by the recent improvements in national average marking rates and consistently high prices. Lamb exports are anticipated to contract year-on-year, underpinned by tighter production.[8] Changes over the next five years include a gradual replenishing of the national sheep flock after a prolonged period of drought, with numbers expected to increase from 71 million head in 2015 to 76 million in 2019–20. Sheep meat exports are worth around $1.6 billion, with strong export demand expected to keep prices high at around 510 cents a kilogram. Demand from the US, the Middle East and China is likely to remain particularly strong, while the smaller markets of Japan, South East Asia and the European Union will continue as important markets to the Australian industry.

[4] Meat and Livestock Australia, 2015, Australia's beef industry <*http://www.mla.com.au/Cattle-sheep-and-goat-industries/Industry-overview/Cattle*>

[5] ABARES, March Quarter 2017, *Agricultural Commodities*, p93

[6] ABARES, 2015, *Agricultural Commodities*

[7] Meat and Livestock Australia, 2015, 'Australia's sheepmeat industry'*, <http://www.mla.com.au/Cattle-sheep-and-goat-industries/Industry-overview/Shee*p>.

[8] Meat and Livestock Australia, 2015, *Australian Sheep Industry Projections*

Domestic lamb consumption has been in a long-term decline, from 23.8 kilograms per person in 1971–2, to 8.9 kilograms per person in 2013–14. The current rate of consumption is expected to remain the same over the next few years.[9]

Goat meat

Over the past 20 years, the Australian goat meat industry has experienced strong growth, largely underpinned by the sale of goats derived from rangeland or extensive production systems. Australia is the world leader in goat meat exports, with around 95 per cent of Australian goat meat sent offshore (mostly to the US and Asia) and accounting for around 50 per cent of the global goat meat trade.

Around 90 per cent of Australia's meat production is derived from rangeland goats, the majority of which are mustered from semi-arid western regions of the eastern states. The rangeland goat population was estimated to be between 4–6 million head in 2011, but an accurate measure of the population is difficult due to the vast spread of the population and its ability to rapidly reproduce under favourable seasonal conditions.[10]

Pork processing

The pork industry is one of the few Australian food industries operating in a truly global marketplace, maintaining a small export industry to New Zealand and Singapore, and competing with increasing volumes of subsidised imports from North America and Europe. Increasing competition from imports is regarded as one of the major challenges facing the industry. The industry is currently exploring access to new markets such as China for the export of fresh pork.

ABARES predicts that pig meat production will rise gradually to 410,000 tonnes over the 2015–20 period, with domestic production directed mainly to the fresh market. In 2006, 82 per cent of Australian pig meat production was consumed domestically, and imports of frozen pork accounted for approximately one-third of consumption.

Deboned pig meat imports are allowed into Australia from approved countries, subject to specific import conditions, and must be cooked before sale. More than 60 per cent of imports came from the United States and Canada, major users of GM feed grain, with almost all of the remainder coming from Denmark.[11]

Current industry initiatives focused on product quality include: developing and testing of consumer messages of 'how to cook' pork; determining and validating key production, processing, post-slaughter and cooking practices to optimise eating quality of different pork cuts in order to implement a cuts-based

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[9] ABARES, 2015, *Agricultural Commodities*
[10] Meat and Livestock Australia, 2015, *Australian Goat Industry Summary*
[11] ABARES, 2015, *Agricultural Commodities*

	eating quality system into industry; as well as understanding the effects of low ultimate pH on pork eating quality.[12]
	Other species
	Australian animals, such as kangaroos, possums, and introduced animals such as rangeland goats, horses and pigs, are the basis of significant commercial industries for human consumption and pet food.
	Other species such as ratites (emus and ostriches), deer, crocodiles, llamas and alpacas, mutton birds and rabbits are also processed in Australia. Most of the meat is processed for domestic consumption, although skins, feathers, oils, etc. are often specialty export products.
	Where they can be harvested humanely and, in the case of native animals, sustainably, wild animals can be profitable supplements or alternatives to domestic animals. Their commercial use can also contribute to pest management objectives.
Processors	The sector is dominated by five major participants, including significant foreign ownership, large scale and multinational operations: ▪ JBS Australia Limited ▪ Teys Australia Limited ▪ NH Foods Australia ▪ Thomas Foods International ▪ Fletcher International. However, there are over 140 meat processing establishments of varying sizes across Australia.
Geographical Location	There are processing plants throughout Australia, with the highest concentration on the eastern seaboard. Most processors are located in regional towns, although there are some large processors in the outer-metropolitan areas of Brisbane/Gold Coast and Melbourne. In many cases, the meat processing enterprise will be one of the largest employers in a regional location, and will have a significant impact on the local economy.
Automation and Digitisation	The sector features a growing level of technological development and computerisation, particularly in relation to WHS and production line efficiencies. A high level of capital investment has been undertaken to reduce the environmental impact of the sector over the past decade through solutions involving energy efficiency, waste-water and biomass systems. As a matter of process, implications and adjustment to the training system are considered and addressed as part of the implementation process. This includes consideration of the WHS implications of the introduction of new technologies. A need for further development has been identified in the engineering maintenance area. The introduction of automation and digital technologies is placing pressure on maintenance staff, particularly in the area of cross-trade

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[12] Australian Pork Limited, 2015, 'Product quality', *<http://australianpork.com.au/industry-focus/product-quality>*

	skills, leading to industry demand for broader technical training for maintenance staff.

Sub-Sector Name	Meat Retailing
Scope of Work	The meat retailing sector focuses on producing and supplying meat products to meet customer needs, and further processing and value-adding to meat products to meet demands for pre-prepared and pre-cooked products. There is a growing interest in the provenance of livestock such as grass fed and free range. Meat retailers increasingly provide food preparation, storage and cooking advice to customers, in response to a growing resurgence of interest in home cooking and non-traditional meat dishes. There is also a growing trend towards further processing and supplying meat products from a variety of different animal species, including poultry, game meat, rabbits and native animals, and combining meat with other food products to produce specific product to meet local needs. The meat retailing sector is facing increasing regulation, particularly in food safety and quality assurance (QA). There are changes in work organisation and work arrangements, including longer opening hours, and increasing skills demands in technology, food safety, QA, workplace health and safety, marketing, customer service and finances. Many meat retailers are diversifying their businesses to provide whole meal solutions; pre-cooked or partially cooked meals; grocery, bakery and consumable items, and café-style dining options. There is also increasing evidence of food trucks and pop-up restaurants. These trends will have an impact on the range of skills required. Retailers are also adopting alternative forms of packaging such as vacuum-seal pouches and thermoform, packaging that offers shelf-life advantages and novel display opportunities, and packaging that includes stronger plastic materials that are puncture-resistant.
Enterprises	Meat retailers in Australia include traditional independent butchers, supermarkets, butcher shop chains, and gourmet and specialist retail meat outlets. There are about 3,000 individual enterprises, and most of these are represented through their peak body, the Australian Meat Industry Council (AMIC).
Geographical Location	Meat retailing enterprises are located in nearly every community across Australia.
Automation and Digitisation	There is a growing trend towards the use of electronic financial systems, and increasing impact of information technologies, particularly on marketing and supply of products, e.g. using the internet and social media.

Sub-Sector Name	Smallgoods Manufacturing
Scope of Work	Smallgoods are meat products where the meat has been manufactured to form a new product, such as sausages, salamis, bacons, hams, patés, and dried, roasted and preserved meat products. Smallgoods are made from pig meat and other meats, such as poultry, mutton and beef. Pork represents anywhere from 60–80 per cent of the smallgoods sector's meat input, of which 60 per cent comes from imported pig meat. Australian-produced smallgoods products are mainly consumed by the domestic market. The largest product segment offered by the industry is bacon. New industry products have included gluten-free, low-fat and low-salt smallgoods, along with a growing array of artisan-style products. Increasingly sophisticated consumer palates have helped drive these developments. Packaging innovations have also supported industry growth, with some products now available in single-serve packaging, while others are pre-diced to make them more convenient.[13] Over the past five years, this product segment has increased from 35.6 per cent to 39.9 per cent of industry revenue.[14]
Enterprises	Australia's $3 billion cured meats and smallgoods industry includes 194 businesses, and employs more than 8,200 people. The two major processors are: • Primo Smallgoods (now part of JBS Australia) • George Weston Foods. The industry has experienced significant consolidation over the last five years. However, a significant proportion of Australian smallgoods product continues to be produced by smaller speciality processors.
Geographical Location	The Cured Meat and Smallgoods Manufacturing industry is concentrated along the eastern seaboard, with Victoria, New South Wales and Queensland combined accounting for a little over 70 per cent of the total number of establishments.
Automation and Digitisation	Technological changes through adoption of new equipment and the computerisation of processes have been implemented in the sector, particularly by the larger businesses with a focus on efficiency of production.

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[13] IBISWorld, *Cured Meat and Smallgoods Manufacturing in Australia: Market Research Report*
[14] As above

Sub-Sector Name	Meat Wholesaling/Food Services
Scope of Work	The meat wholesaling sector is a growing sector of newly emerging companies primarily made up of independent boning rooms and value-adding establishments servicing the hospitality industry and supermarkets. These establishments supply restaurants, fast-food outlets, food chains, hotels, airlines, and supermarkets, and also fill niche markets, making specific products such as portion control products, organic meat products, native meat products, meat patties, pizza toppings, meat products with health benefits, kebabs, and trimmed and pre-packed shelf-ready trays of meat._x000D_

IBISWorld estimates the sector to generate an annual revenue of $13 billion across 1,311 businesses, but it should be noted that these figures include poultry and smallgoods wholesaling.[15] |
Enterprises	There is an increasing trend for major processors to add boning, wholesale and value-adding processing facilities to their operations, often in more metropolitan locations. Some of the major supermarkets are also moving towards introducing more centralised wholesale meat preparation facilities.
Geographical Location	Businesses are increasingly being located in metropolitan areas, close to retail outlets, in VIC, NSW, SA, WA and QLD. There are no dominant businesses.
Automation and Digitisation	Technological changes through adoption of new equipment and the computerisation of processes have been implemented in the sector, particularly by the larger businesses with a focus on efficiency of production. Although there has been no direct need for new units as a result, this has encouraged a greater uptake of the Food Services qualifications.

Sub-Sector Name	Wild Game Harvesting
Scope of Work	A wild game animal is an animal that has not been owned, controlled, herded, penned or confined prior to shooting. This sector includes licensed wild game harvesters and mobile depots that harvest wild game such as kangaroos, wallaby, pigs, deer, rabbits, hares and brushtail possums for both pet food and human consumption, and for a limited export market. This sector does not include farmed game.
Enterprises	For the most part, wild game harvesters are individual operators who cover broad geographical areas such as western Queensland, Northern Territory, western NSW, northern SA and WA. The 'depots' are mobile chillers that receive shot game and transport the product to processors.

Sub-Sector Name	Poultry Processing
Scope of Work	Companies in the industry process live poultry (including chickens, ducks and turkeys) into cuts and value-added products. Industry operations begin when live poultry is purchased for processing (usually aged between five and eight weeks) and includes abattoir operation, dressing, frozen poultry manufacturing, poultry meat manufacturing and poultry packing. The industry's involvement ends at the initial point of sale of poultry products.
Enterprises	The four largest industry enterprises account for a little over 65 per cent of industry revenue. Market share concentration has been increasing significantly since the early 1980s due to the continual development and growth in size of the major industry players. The industry is largely dominated by two larger companies (Inghams Australia and Baiada Poultry).
Geographical Location	Baiada operates eight processing plants, and Inghams operates seven processing plants. These, along with several medium to small-size operators, are mostly located in regional areas of Australia.
Automation and Digitisation	Investment in the automation of processing plants, and the ensuing economies of scale, have contributed to ongoing industry rationalisation.[16]

Sub-Sector Name	Feedlots
Scope of Work	The cattle feedlot industry has a value of production of approximately $2.5 billion and employs about 28,500 people.

Cattle are generally taken to feedlots for two main reasons. Firstly, Australia's dry seasons and/or dry years result in pastures that have insufficient nutritional value to allow cattle to reach customer requirements in a timely and sustainable manner. Notably, cattle require increasing nutrition as they get older and this places greater pressure on pastures and hence the environment. Secondly, customers in both Australia and our export markets actively demand grain-fed beef due to the industry's ability to consistently meet market requirements in terms of quality and quantity (irrespective of seasons or droughts).

The feedlot sector has grown over the past 20 years. The ability to deliver consistency with respect to quality and quantity (regardless of seasons) is a desirable trait for customers in both domestic and international markets. Approximately 40 per cent of Australia's total beef supply and 80 per cent of beef sold in major domestic supermarkets is sourced from the cattle feedlot sector. |

Enterprises	There are around 450 accredited feedlots throughout Australia, with the majority located in areas that are near cattle and grain supplies.
Geographical Location	Queensland is the largest state in terms of cattle numbers on feed, with approximately 60 per cent, followed by NSW with 30 per cent, Victoria with 7 per cent and the remainder shared between South Australia and Western Australia.
Automation and Digitisation	Current investment includes research in the areas of disease detection, pen cleaning and feeding.

Relevant stakeholders

The meat processing industry sector is represented at the national level by the following organisations:

INDUSTRY ASSOCIATIONS

Red Meat Advisory Council
Australian Meat Industry Council
Australian Pork Limited
Kangaroo Industry Association Australia
Australian Lot Feeders' Association

REGULATORY BODIES

Department of Agriculture and Water Resources
PrimeSafe (Vic)
South Australian Meat Hygiene Unit
Meat Branch of NSW Food Authority
Safe Food Queensland
Department of Health (WA)
Department of Primary Industries, Parks, Water and Environment (Tas)
Department of Primary Industries and Resources (NT)
National Association of Testing Authorities, Australia

EMPLOYEES ASSOCIATIONS

Australasian Meat Industry Employees Union

INDUSTRY R&D SERVICES BODIES

Australian Meat Processor Corporation
Meat and Livestock Australia

INDUSTRY SERVICES BODIES

National Meat Industry Training Advisory Council (MINTRAC)

Industry and Occupational Regulations and Standards

Seventy per cent of meat consumed in Australia is produced in export-registered abattoirs under the control of the federal Department of Agriculture and Water Resources. The Department of Agriculture and Water Resources regulates export operations in all states and territories. Apart

from export certification, the Department of Agriculture supplies both a meat inspection service (including veterinarians and meat inspectors) and a regulatory oversight by Area Technical Managers.

In order to supply meat to the domestic market, all meat processing plants must be licensed with the relevant state/territory authorities. Most authorities have different classes of license depending on the type of animal/meat being processed.

Since the early 1990s, the regulation of the domestic meat industry in each state and territory has been conducted by state meat hygiene authorities. The extent and methods vary somewhat between the states, but all abattoirs must meet the agreed Australian Standards, which are called up by legislation in each state. The responsible bodies are:

- PrimeSafe Victoria regulates meat hygiene
- South Australian Meat Hygiene Unit is part of the Department of Primary Industries and Resources (PIRSA)
- the Meat Branch of NSW Food Authority (previously known as Safe Food Production NSW) is responsible for meat hygiene regulation
- Safe Food Queensland incorporates all aspects of food safety in all food products, including meat
- in Western Australia, meat hygiene is controlled by the Department of Health with input from the Western Australian Meat Industry Authority
- the Department of Primary Industries, Parks, Water and Environment regulates the Tasmanian meat industry
- in the Northern Territory, the Department of Primary Industries and Resources regulates the meat industry.

All state and territory meat hygiene authorities base their legislation on the Australian Standards, in particular AS 4696:2007 *Australian Standard for the hygienic production and transportation of meat and meat products for human consumption.*

The Australian Standards largely apply to wholesale businesses handling raw meat. Once a product is further processed by cooking, drying or fermentation, it is regulated by food authorities applying the *Australia New Zealand Food Standards Code*, although the AS 4696:2007 *Australian Standard for the hygienic production and transportation of meat and meat products for human consumption* also applies.

Meat Standards Australia (MSA) is a voluntary eating-quality grading system proven to take the guesswork out of buying and cooking Australian beef and lamb. All products identified with the MSA symbol have met strict criteria to ensure they achieve consumer expectations for tenderness, juiciness and flavour. Only licensed producers can apply the MSA grading system. Australian brands can choose to underpin the eating quality of their products by using MSA standards and grading specifications. These brands may also have additional specifications, which can be applied at grading.

Most retail activity is controlled by state or territory food authorities and by local councils.

Australian Standards that apply to meat processing

There are a number of Australian Standards that apply to meat processing. As mentioned above, meat that is further processed by cooking, drying or fermentation must also meet the requirements of the *Australia New Zealand Food Standards Code*.

The Australian Standard that applies to meat processing depends on the type of processing that is occurring. The various standards and how they apply are listed below.

- AS 4696:2007 *Australian Standard for the hygienic production and transportation of meat and meat products for human consumption*
- AS 5812—2011 *Manufacturing and marketing of pet food* provides requirements for the manufacture and marketing of pet food intended for consumption by domesticated cats and dogs
- AS 4464:2007 *Hygienic production of game meat for human consumption* applies to game animals shot in the field and processed at game processing plants
- AS 4466:1997 *Hygienic production of rabbit meat for human consumption* applies to rabbits and hares, both those shot in the field and those raised commercially
- AS 5010:2001 *Hygienic production of ratite (emu and ostrich) meat for human consumption* applies to emus and ostriches processed at specialist abattoirs, with full ante-mortem and post-mortem inspection
- AS 4465:2005 *Construction of premises and hygienic production of poultry meat for human consumption* applies to all poultry processing, including further processing such as boning and packing
- AS 4467:2006 *Hygienic production of crocodile meat for human consumption* applies to all crocodile processing, including further processing such as boning and packing
- AS 5011:2001 *Hygienic production of natural casings for human consumption* applies only to casing manufacture from animal intestines, not artificial casings
- AS 5008:2007 *Hygienic rendering of animal products* applies to rendering of meat by-products from slaughtering and processing for the production inedible tallow and meat meal.

The *Biosecurity Act 2015* has replaced the *Quarantine Act 1908*, and sets up new requirements and regulatory powers that will affect how the department manages the biosecurity risks of goods, people and conveyances entering Australia.

Meat inspection standards

There are two tiers of meat inspection standard in Australia, based on the level and type of meat inspection system in place:

- Tier 1 – applies to domestic meat establishments that are registered to export meat and meat products to applicable markets under the Australian Standards
- Tier 2 – other export markets require that export registration and oversight of establishments is administered by the Australian government, and this is referred to as Tier 2.

Professional accreditations in the industry

The only sector-specific occupation that requires a licence is the role of meat inspector, and the registration can be with a federal or state authority, depending on the nature of the enterprise.

However, this industry also employs electricians, plumbers, and forklift operators, which are all licensed occupations.

National Feedlot Accreditation Scheme

The National Feedlot Accreditation Scheme (NFAS) is an independently audited quality assurance scheme that was initiated by ALFA and is managed by an industry committee, the Feedlot Industry Accreditation Committee (FLIAC). Participation in the NFAS is voluntary.

Challenges and opportunities in the sector

Structured training is becoming increasingly important as companies seek to maintain the viability and competitiveness of all sectors of the industry in both domestic and international markets. Ongoing training is a critical component of addressing customer demands and expectations.

The industry is responding to:

- expectations from consumers, retailers and governments of high environmental and ethical standards, including food safety and animal welfare

- the competitiveness and ever-changing nature of international markets

- the need to continue to innovate in order to remain competitive and ensure the viability of the industry into the future

- the need to attract, develop and retain a productive workforce

- the need to entice a new generation into the industry and to ensure succession planning is in place for the current workforce

- the need to ensure that learning and education opportunities exist for those already in the industry

- the challenges presented by climate and other environmental factors

- marketing and promotion requirements as markets diversify and more meal options become available

- whole-of-supply-chain accountability in areas such as animal welfare and traceability

- the impact of social conscience and values, price and health considerations on meal choices

- meeting ever-increasing regulatory requirements (including export licensing, food safety, QA, animal welfare, environment, workplace health and safety, and workers' compensation)

- the emergence and consolidation of large-scale, factory-based smallgoods production

- customer demands for higher standards of game meat processing

- increasing demand for post-trade training, particularly in the development of business skills, in the meat retailing sector

- the development of leading edge boutique businesses operating across meat sectors.

MARKET AND TRADE COMPONENTS

Demand for meat and meat products is largely dependent on the demand in the export market. Australia exports approximately 70 per cent of the meat processed. This export demand is a function of:

- the state of the international economy

- the exchange rate

- livestock numbers in our major markets

- increasingly, the benefits derived from free trade agreements.

The supply of livestock in Australia to meet this demand is a function of:

- competition from live exporters

- drought impacting on numbers

- industry cycles in rebuilding of herds and flocks

- producers moving out of livestock and into cropping.

While the industry is a relatively small player in global production terms, it does produce around 3 per cent of the world's beef, 5 per cent of the world's sheep meat and 0.5 per cent of global goat meat production. It is on the global export stage that the Australian industry makes a significant contribution to the world's need for high-quality protein. In 2014, by value, Australia was the world's largest exporter of beef, sheep meat and goat meat. By numbers, Australia was the world's largest exporter of livestock.[17]

Likewise, the industry makes a vital contribution to Australia's overall trade performance. In 2014–15, the industry generated $16 billion in export earnings, placing it in the top five Australian export industries.

Globally, real per capita incomes will increase by 60 per cent to 2030. With red meat consumption and per capita income being closely related, this translates to an increase in red meat demand of 25 per cent over that period, as well as an increase in demand from markets specifically seeking high-quality red meat and livestock products. These forecasts present an enormous opportunity for Australia's red meat and livestock industry in terms of geographical proximity to key markets, and as a recognised supplier of safe, nutritious and ethically produced products.

A productivity challenge continues to face the Australian industry, both on- and off-farm. Off-farm costs are consistently higher than all of Australia's major competitors, while on-farm productivity performance is now below productivity improvements being secured by major competitors.

When combined with the forecast background of declining real prices for livestock, the onus on the production sectors to exhaust existing and find new pathways to productivity is an ongoing challenge for the industry.

Over many years, the industry has invested in the technologies and systems that have built a reputation as a high-quality, safe, ethical and sustainable producer of red meat and livestock. The industry's work and commitment to maintain and improve integrity systems underpins Australia's international reputation. Continuing to invest and innovate in this area is fundamental. The industry requires concerted focus and robust systems to support greater integration through the supply chain, especially with respect to increasing the connectivity and responsiveness of the industry to its customers, and the broader community.

The outlook to 2030 points to ongoing nominal growth in the value of the Australian red meat and livestock industry. All other elements being equal, however, the prolonged period of herd rebuilding required to offset the record cattle slaughter levels of 2014 will limit the industry's ability to capitalise on the increase in global demand for red meat products.

DIGITAL TECHNOLOGIES AND MARKET SHIFTS

The *Meat Industry Strategic Plan* (MISP 2020) states that a key to the industry's success will be the ability to optimise the systems, technologies and practices within immediate control. Of increasing importance is the ability to ensure these elements are used to actively align industry practices with consumer and community expectations.

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[17] RMAC, 2015, *Meat Industry Strategic Plan – MISP 2020*

One of the key requirements identified in MISP 2020 is the need for a whole-of-supply-chain electronic data exchange capability that supports industry specification, quality and integrity systems with open and transparent access by all relevant parties.

Through its primary Research Development Corporations (RDCs), the Australian Meat Processor Corporation (AMPC) and Meat and Livestock Australia (MLA), the industry continues to invest in the development of new technologies.[18]

AMPC's Processing Technologies program focuses on developing and implementing technologies and solutions that automate manual tasks, increase the use of manual assist technologies, and improve resource efficiency to enhance process value and recovery.

The Australian red meat processing industry works with raw material that is highly variable both in shape and composition. Each carcase is different, and the ability to automatically measure characteristics 'online' offers an opportunity to increase processing efficiency and productivity. The AMPC program focuses on developing and implementing systems that can manage these variations to capture the data and images necessary to adjust cutting lines for automation and to inform processing decisions according to carcase type, product specification, and customer and market requirements.

The materials handling stream focuses on developing and implementing cost-effective technologies and solutions to materials handling tasks, including the load-out of carcasses, picking and packing boned and sliced product (e.g. primals, subprimals and shelf-ready portions) and cartoned meat.

The value-adding stream focuses on transforming existing products (e.g. improving the eating characteristics of secondary cuts) and creating new ones (e.g. transforming inedible co-products into raw ingredients for other industries).

AMPC ensures that there is a clear link between its Research and Development programs and implementation via the training system through its Extension programs. This means that the need for new/updated training products is identified as part of the implementation process.

Over the past three years, MLA has worked with industry, research institutes and technology providers to develop the application of DEXA (dual-energy X-ray absorptiometry), an objective measurement tool that measures meat, fat and bone on a carcase (carcase composition). This information can help the entire red meat value chain make more informed business decisions to improve on-farm and processing efficiency and deliver a product that is preferred by customers.

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[18] AMPC, 2016, *Request for Proposals (RFPs) FY2016–17*

FUTURE MARKETS

MISP 2020 identifies the current most valuable export markets as:

United States	$4.0 billion
Japan	$2.0 billion
China	$1.1 billion
Korea South	$1.1 billion
Taiwan	$0.9 billion.

Under MISP 2020, marketing and promotion in export markets will focus on developing markets and the industry's underpinning quality and safety systems. It is expected that commercial parties will undertake the lion's share of effort in developed export markets, underpinned by industry quality and safety systems.

ENVIRONMENTAL

The industry contributes extensively to Australia's social and environmental objectives. As caretakers of around half the continent's landscape, Australian red meat and livestock producers have a vested interest in continually improving sustainable farming practices. MISP 2020 states that greenhouse gas emissions intensity has been reduced by 14 per cent over the last 30 years, while red meat production levels have increased by more than 70 per cent over that period. In addition, the industry has achieved a 42 per cent reduction in emissions associated with vegetation protection and tree planting, and a 65 per cent reduction in water use.

Under the title of 'stewardship of environmental resources', the stated objectives in MISP 2020 are:

- minimising industry impact on the environment
- sustainable management of the natural resource base
- adapting to climate variability.

FREE TRADE

Australia has signed free trade agreements with the USA, ASEAN, Korea, China and Japan. The consensus across the Australian meat processing industry is that the recently signed free trade agreements bring strong benefits to the industry, predominantly in the form of tariff reductions that increase our international competitiveness. However, MISP 2020 states that as economic barriers fall, there will likely be an increase in technical barriers for both meat and live animals – currently costing $1.3 billion annually – that will require a greater proportion of market access effort over the life of the plan.

FUTURE INVESTMENT

Economic modelling has identified the key investment pillars that stand to yield the greatest value in MISP 2020. The industry's ability to support these investments with appropriate resources, and monitor and communicate their value, will ultimately ensure the economic potential of the plan is fully realised.

MISP 2020 recommended a range of strategic investment priorities specifically related to red meat processing, including:

- increased investment in improving information flow and traceability that underpins business decisions through the supply chain
- increased investment on improving livestock and product assurance and specification compliance
- reduced investment in marketing and promotion in developed markets.

C.   EMPLOYMENT

Employment Outlook

The Department of Employment projects[19] that total employment in the meat and meat product industry sub-sector will contract by -0.1 per cent over the five years to November 2020 (Table 3).

Table 3: Department of Employment Industry Projections – five years to November 2020[20]

INDUSTRY SECTOR	EMPLOYMENT LEVEL	EMPLOYMENT PROJECTIONS		
	Nov 2015 ('000)	Nov 2020 ('000)	Growth ('000)	(%)
Food manufacturing				
Meat and Meat Product Manufacturing	53.6	53.6	0.0	-0.1
Total	**53.6**	**53.6**	**0.0**	**-0.1**

Description of Workforce Supply

Meat and meat product manufacturing is a significant industry sector of the food manufacturing workforce and is a major employer of people in regional areas.

The meat processing sector has had a steady reliance on migration, including 457 and 416 visas, as an important source of skilled (and unskilled) workers for the industry, particularly in regional areas with seasonal labour requirements.

Identifiable occupations in the food product manufacturing sector that relate to the meat and meat processing sub-sector are shown in Figure 2 below.

Figure 2: Occupations and their numbers in the meat and meat processing sector[21]

Occupations	Nov 2015	Projected Nov 2020	Growth Nov 2020	Percentage growth
Meat Boners and Slicers, and Slaughterers	**11.4**	**10.7**	**-0.8**	**-6.8**
Meat, Poultry and Seafood Process Workers	**15.8**	**15.5**	**-0.4**	**-2.4**
Butchers and Smallgoods Makers	**21.3**	**21.4**	**0.1**	**0.5**

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[19] Department of Employment, 2016, 'Employment Projections', Release date: May 2016.
<http://lmip.gov.au/default.aspx?LMIP/EmploymentProjections>

[20] As above

The occupations shown in Figure 2 account for nearly 90 per cent of employment in Meat and Meat Product Manufacturing. The remaining workforce occupies roles including factory process workers such as meat inspectors, plant managers, packers, QA managers, and product quality controllers, and more general roles such as specialist managers (i.e. business administration managers, marketing and sales managers, production managers, supply and distribution managers), clerical and administrative workers and sales.

For most technical skills and specific knowledge required in the industry sectors, learning occurs mainly 'on the job' through workforce development activities provided by employers.

Although there is currently little data available on the age profile of the meat and meat product manufacturing sector, MINTRAC believe that this workforce has a slightly younger profile than other food processing sectors. In 2013, Victorian figures[22] showed that over 40 per cent of the meat processing workforce was under 35 years of age.

Responses from the MINTRAC interviews in 2015 confirmed previous indications that the meat processing industry generally does not have an ageing workforce, with most responders indicating that 80–90 per cent of their workforce was under 50 years of age.[23]

MINTRAC 2015 interviews with processors also showed that the proportion of female employees, on average, was about 30 per cent of the total workforce. However, there were some significant variations between companies. While most companies expected these proportions to remain about the same in the future, those planning on adding boning rooms or value-adding operations expected the proportion of female employees to increase.

The 2015 MINTRAC interviews also confirmed that the meat processing workforce had a flat structure consisting of 80 per cent skilled workers and labourers, and 20 per cent other workers.

One of the major issues in extracting accurate meat processing workforce data lies in the nature of the ANZSCO classifications. With the shift from ASCO to ANZSCO classifications in 2009–10, meat processing occupations (except butchers) were re-classified as level 8312 and 8313. This classification thus causes them to fall outside the scope of the national skill shortages lists. In addition, the classification of 8313 Meat, Poultry, and Seafood Process Workers does not enable differentiation of meat process workers from the other two groups. Therefore, gaining accurate estimates of the size of the meat processing workforce is difficult and requires a certain level of estimation.

The *Food and Beverage Workforce study* estimated the meat and meat product manufacturing workforce as 55,800 in 2012, and also states that this sector grew by 5,000 (average of 1.9 per cent) between 2007 and 2012.[24]

However, figures cited in the *Environmental Scan of the AgriFood industry* are significantly higher: 'According to the 2013 Agrifood Value Chain report, the meat processing sector employs approximately 73,000 persons. This comprises 40,000 people employed in downstream processing such as abattoirs, over 4,000 in wholesale and a further 29,000 people employed in retail as butchers.' [25]

More recently, AMPC estimated that, nationally, the red meat processing sector industry generates 134,000 jobs, equivalent to 1.4 per cent of full-time equivalent (FTE) employment when flow-on effects are considered.[26]

[22] Victorian Department of Education and Early Childhood Development, 2013, *Skills and Training Needs 2013 – Victorian Food and Beverage Manufacturing Industry*, p13

[23] AMPC, 2015, *Meat Processing Workforce Development Plan – unpublished*

[24] Australian Workforce Productivity Agency, October 2013, *Food and Beverage Workforce study*, Australian Government, Canberra, p 32

[25] AgriFood Skills Australia, *2015 Environmental Scan of the AgriFood industry*, p 33

[26] AMPC, 2015, *Evaluating the Socio-Economic Benefit of the Red Meat Processing Industry in Regional Australia*

Most of the information in this section has been derived from the *Food and Beverage Workforce study,* and therefore reflects the more conservative estimates of employment numbers. From this document, the following meat processing industry workforce characteristics have been extrapolated:

- the proportion of part-time workers is 12.4 per cent,[27] and increased by 1.0 per cent between 2007–12[28]

- there is a steady increase in the proportion of female workers,[29] with an increase of 6 per cent recorded from 2007–2012[30]

- the average annual growth in the labouring workforce between 2007–12 was 4.3 per cent (note these numbers are for meat, poultry and seafood)[31]

- the average annual growth of meat boners, slicers and slaughterers between 2007–12 was 0.3 per cent, reaching 11,300 in 2012[32]

- MINTRAC has traditionally maintained that the meat processing workforce has a flat structure of roughly 80 per cent labourer/skilled worker, and 20 per cent other. The 2015 interviews confirmed this; however, accurate breakdowns were difficult due to the different ways in which individual plants classified their staff

- there is evidence of a continuing reliance on 457 and 416 visas: 'In occupations such as Meatworkers, there appears to be a high reliance on 457 visas. In 2011, there were 310 visas granted for the Skilled Meat Workers category, although the peak was in 2008 with 670 visas granted. Recent media reports suggest there will be ongoing demand for Meatworkers as new abattoirs are planned to cater for northern Australia beef cattle processing.'[33]

  The MINTRAC 2015 interviews confirmed that skilled 457 visa holders continue to be an important component of the meat industry workforce. It was also evident that there is an increasing reliance on temporary (backpacker and casual) workers.

- Despite the Meat and Meat Products Manufacturing sector recording employment growth to 2012, the *Food and Beverage Workforce study* cited DEEWR employment projections that predicted a decline in the years 2012–17 of -3.0 per cent.[34] The major group contributing to this overall decline was expected to be meat boners, slicers and slaughterers, with an expected overall decline of -23.2 per cent.[35] However, these rather alarming figures are not supported by the Australian Workforce Productivity Agency (AWPA) scenario planning statistics, which even when averaged across the four scenarios predicted an overall growth during this period of 0.2 per cent, and a slight decline of meat boners, slicers and slaughterers of -1.0 per cent.[36] The MINTRAC 2015 interviews confirmed that there is an expected growth in this sector.

- There is currently little data available on the age profile of the industry. However, it is believed by MINTRAC that the meat processing workforce has a slightly younger profile than other food processing sectors. Victorian figures in 2013[37] showed that over

[27] Australian Workforce Productivity Agency, October 2013, *Food and Beverage Workforce study*, Australian Government, Canberra, p35
[28] As above, Table 27, p132
[29] As above, p35
[30] As above, Table 28, p133
[31] As above, Table 20, p67
[32] As above, Table 20, p67
[33] As above, p67
[34] As above, Table 32, p139
[35] As above, Table 33, p141
[36] As above, Tables 34 and 35
[37] Victoria Department of Education and Early Childhood Development, 2013, *Skills and Training Needs 2013 – Victorian Food and Beverage Manufacturing Industry*, p13

40 per cent of the meat processing workforce was under 35 years of age. Responses from the MINTRAC 2015 interviews confirmed previous indications that the meat processing industry generally does not have an ageing workforce, with most responders indicating that 80–90 per cent of their workforce was under 50 years of age.

Current jobs and forecast demand to 2020

Labourers and general workers:

- numbers of employees expected to remain much the same
- customer requirements will place a greater focus on formal qualifications for stock handlers
- increased pressure for the provision of nationally endorsed training for itinerant and temporary workers (note that appropriate qualifications and skill sets already exist, but eligibility and access to funded training are inhibiters)
- expected increase in warehousing and logistic skills and knowledge for loadout; greater requirement for technological skills
- demand for improved skills in the handling and treating of hides and skins through the provision of accredited training
- demand for cross-trade skilling for trades assistants in the maintenance areas
- greater demand for nationally endorsed training in handling and treating animal skins, including new techniques
- increased demand for task-related training (not necessarily nationally endorsed) in feedlots.

Technical, trade and skilled worker positions:

- overall, numbers of employees expected to remain much the same
- customer requirements will place a greater focus on formal qualifications for stock slaughterers and handlers
- expected demand for the new Certificate III in Meat Processing (Quality Assurance)
- transition and Recognition of Prior Learning options for meat inspectors will be required as the revised qualifications are adopted
- a greater diversification of skills, especially in boning and slicing, will be required as new technologies are introduced
- engineering tradespersons will require cross-trade maintenance skills, especially when working with new technology
- specialised skills in the handling and treating of hides and skins
- increased emphasis on formal training in the management and maintenance of ammonia refrigeration
- increased requirements for food service qualifications with the increase in independent boning rooms
- greater demand for Certificate III in Meat Processing (Smallgoods – General) as national consolidation of enterprises is completed.

Senior technical and supervisor positions:

- greater demand for skills and knowledge related to logistics and warehousing
- with the increase in independent boning rooms and greater emphasis on wholesale value-adding, there will be increased demand for the Food Service qualifications at level III

- increased shift of responsibility and accountability for food safety to plant-based QA personnel resulting in training from the *AMP Australian Meat Processing Training Package* continuing to be important, particularly in the areas of meat micro/food safety, data interrogations and quality systems management skills
- meat processors will continue to be active in seeking solutions in energy efficiency and waste water usage
- meat inspection training will involve change to species-specific and different responsibilities at AQF Levels 3 and 4 due to industry restructuring
- skills to incorporate and manage Threat Assessment Critical Control Point (TACCP) and Vulnerability Assessment Critical Control Point (VACCP) assessments into QA programs
- skills to monitor outsourced pest control management systems within the context of a QA program
- meat safety inspectors will need to have improved skills of dispositions as animal health data reports to producers become the norm
- greater knowledge of and capacity to assess emerging packaging technologies
- increased demand for task-related training (not necessarily nationally endorsed) in specialised areas in feedlots
- increased focus on horse riding and handling safety in feedlots and lairages.

Management

- increased demand for *AMP Australian Meat Processing Training Package* training in project management, particularly in relation to implementation of new technologies
- continued demand for formal qualifications such as the Diploma and Advanced Diploma of Meat Processing
- increased demand for financial and project management training in feedlots
- capacity to manage abattoir operations during an Emergency Animal Disease event.

D. SKILLS OUTLOOK

With the continuing growth of technology solutions and strong focus of research and development activity in this area, the meat processing industry needs to prepare for changing skill requirements at all levels of the operation. In addition, international emphasis on food safety and traceability place greater demand on individual businesses to identify and manage associated risks.

This section identifies the priority skills needs in the meat processing industry over the next four years (2017–2020) through an analysis of new and projected demands placed upon the industry. The section focuses on the skill needs that can benefit from improvement or development of national skill standards.

Key priority skills for the sector workforce for 2017

Priority skill
Specialised skills in the handling and treating of hides and skins

Skills description
Careful handling of hides and skins during the pelt removal, trimming, fleshing and short-term preservation stages is essential for producing a high-quality product. Hides and skins being prepared for export must be intact, clean and free from contamination.

Occupations affected
Labouring and supervisory positions in the co-products areas of abattoirs.

Drivers
The export of raw hides, skins and leather doubled between 2009 and 2013, to $1.19 billion in sales, with over 90 per cent of product being exported to China.
While the supply of hides and skins covers sheep, cattle, goats, kangaroos, rabbits and deer, the industry is largely dependent on the supply of hides and skins from cattle and sheep.
The increase in the value of hides and skins as an export commodity has meant that greater attention is being directed to the initial removal and treatment processes.

Training package solution
While there is nationally endorsed training available for many of the basic tasks around the preparation of hides and skins, there is a need, in particular, for development of supervisory level training in areas such as short-term preservation methods (both chilling and chemical), sources and prevention of contamination and damage, and quality control processes.

Further investigation is required, however, and the results of a Chinese audit planned for 2017 will be a useful source of information. In addition, MINTRAC is consulting with the Australian Hides Skins and Leather Exporters Association to assess emerging training requirements.

Benefits from implementation of changes in Training Package
Improved handling and treatment processes will lead to a higher quality product.

Priority skill
Skills to undertake Threat and Vulnerability Assessments (TACCP and VACCP) – a

Skills description
Threat Assessment Critical Control Point (TACCP) is an essential part of food safety management and required under the latest British Retail Consortium (BRC) version 7 Global Food Technical Standard. It was developed in reaction to the increase in food fraud detected in recent years. The most widely reported was the horsemeat scandal in Europe.

requirement for customer audits	Where Hazard and Critical Control Point (HACCP) is concerned with the prevention of food-borne illnesses and the prevention of unintentional or accidental hazards/threats to food safety, TACCP is concerned with the prevention of deliberate and intentional food fraud. This can take the form of substitution of ingredients, passing off of one foodstuff for another, false or misleading statements for economic gain that could impact public health, product tampering, fake or incorrect labelling, etc. Product traceability throughout the supply chain is hence of vital importance.
	TACCP identifies the threat of behaviourally or economically motivated adulteration; Vulnerability and Critical Control Point (VACCP) identifies how vulnerable various points in the supply chain are to the threat of economically motivated adulteration. Again, the assessment of vulnerability is required to satisfy requirements of BRCv7.
	Occupations affected Quality Assurance personnel in meat processing operations.
	Drivers Many processors in Australia are now being audited under BRCv7 and many are finding it difficult to satisfy the requirements for TACCP and VACCP assessments. While unaccredited training specifically to satisfy BRCv7 requirements is rapidly becoming available, there is a need for a nationally endorsed training solution that incorporates these processes into meat processing Quality Assurance systems.
	Training package solution Appropriate units of competency are required for inclusion into the Certificates III and IV in Meat Processing (Quality Assurance) in the *AMP Australian Meat Processing Training Package*.
	Benefits from implementation of changes in Training Package The development of a nationally endorsed training solution moves the introduction of TACCP and VACCP training from a 'quick fix' option to address an audit requirement, into a balanced component of a Quality Assurance program with an appropriate training solution.
Priority skill Cross-trade engineering maintenance skills	**Skills description** Meat processing maintenance staff are required to apply a range of cross-trade diagnostic and maintenance skills when working with new technology. There is a need to be able to apply these skills in a food-safe environment. Increasingly, guidance for corrective action and repair is provided over the internet. **Occupations affected** Occupations affected by these skills requirements are meat processing maintenance personnel, including operators, supervisors and managers.
	Drivers A large proportion of the meat processors in Australia are in regional areas and do not have ready access to on-call specialist technical expertise. The pressure is therefore on maintenance staff to keep systems operating and to carry out repairs with as little downtime as possible. Even if there is a trade-qualified person on staff (and this is not always the case), the demand is to be able to apply a broad range of skills drawn from multiple trade areas.
	Abattoirs are rapidly introducing new technologies, and the challenge is for maintenance staff to be able to keep equipment operating through a

regulated maintenance program. Often, repair work or regular adjustments may be under guidance from a supplier over the internet or telephone.

Research undertaken by the Australian Meat Processor Corporation in 2014–2015 led to recommendations for the development of a series of new qualifications, to be incorporated into the *AMP Australian Meat Processing Training Package*, to cover the skills development needs of engineering staff, particularly in the areas of maintenance and environment. Further investigation during 2015 at industry network meetings confirmed the interest in developing applicable qualifications for maintenance personnel, and a possible framework has been developed, although this is not yet populated with units.

Training Package solution

The proposed solution is to develop engineering maintenance qualifications, particularly for the meat processing sector and applicable to the broader food processing industry at levels II, III and IV (level IV also being a post-trade option). A training pathway suitable for both qualified tradespersons and trades assistants is needed, with an emphasis on gaining a skill set that addresses the range of engineering skills required in the meat industry as well as an awareness and understanding of the food safety, environmental and animal welfare considerations specific to the meat processing industry.

Preference is for the importing of existing engineering units that meet the specific requirements of maintenance personnel, with new units developed where needed. Particular emphasis will be given to undertaking maintenance services in a food-safe environment.

Benefits from implementation of changes in Training Package

AMPC states that the meat processing industry 'is in the midst of a technological revolution, with the pace of change accelerating relentlessly. It is critical for the industry to not only meet its current labour needs but also to be able to make the transition to meet their labour and skills needs to accommodate the paradigm shift associated with the future red meat processing industry.'

The development of these qualifications will ensure there are suitable skills to support the impact of the digital revolution and the introduction of new technologies such as robotics.

Priority skill Pest control monitoring	**Skills description** The implementation of a food-safe pest control management program in meat processing enterprises is required by both state legislation and the Approved Arrangement.[38] Current indications are that the main skill requirements are for skills in monitoring and maintaining an appropriate pest management program as part of a Quality Assurance system. This is being further explored through the industry distribution and consideration of a discussion paper, due for completion in June 2017. **Occupations affected** Quality Assurance personnel in meat processing enterprises. **Drivers** For several years, the issue of the need for suitable national endorsed training in pest control has been raised at Meat Processing Training

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[38] Approved Arrangements, previously Quarantine Approved Premises and Compliance Agreements, are voluntary arrangements entered into with the Department of Agriculture and Water Resources. These arrangements allow operators to manage biosecurity risks in accordance with departmental requirements, using their own premises, facilities, equipment and people, and without constant supervision by the department and with occasional compliance monitoring or auditing.

Network meetings. During 2016, this matter was discussed more formally at network meetings with a view of trying to get direction about what was needed, as well as which state regulations impact on the operation of pest control programs.

Some of the points raised during these discussions were:

- some companies were outsourcing parts of their pest control systems
- the level of regulation varies greatly between states
- there are some nationally endorsed units available
- main concern was the need for training around *monitoring* of pest control programs.

At the conclusion of the previous round of network meetings, MINTRAC undertook to identify possible units that may be considered for inclusion in a *Pest Control Monitoring Skill Set*. The next stage of the consultation process by MINTRAC is underway, with a discussion paper being considered until June 2017.

Training package solution
At this stage, it is expected that the result will be for the development of an appropriate skill set in the management and monitoring of pest control programs. Eight possible units (mostly AHC) have been provided for consideration as part of the discussion paper. If any of these units are recommended for adoption, there may be a need for adjustment to the unit descriptors to address a food processing context.

Benefits from implementation of changes in Training Package
The main concern expressed to-date has been a need to maintain control of the pest control program, including situations where the operation is outsourced to specialist providers. The proposed skill set will address this concern.

Priority skill Warehousing and logistics skills	**Skills description** Meat processing in Australia is a major export industry, with chilled or frozen product being freighted overseas daily by either air or sea. For example, in 2016, Australia shipped overseas: • over one million tonnes of beef and veal • over 31,000 tonnes of lamb and mutton • over 2,800 tonnes of goat meat, and • nearly 2,000 tonnes of pig meat. With the rapid introduction of bar-coding and electronic traceability, labelling and transfer systems, people in storage facilities need to be able to operate sophisticated electronic systems as well as ensure stored products meet export and customer requirements, health certificates are issued and the correct products are stored and despatched. **Occupations affected** Occupations affected by these skills requirements are personnel working in meat cold stores and warehousing, including operators, supervisors and managers. **Drivers** The key drivers are the rapid move towards electronic systems and the increasing quantities, range of products, variety of species and number of customers. In addition, there is pressure to meet shelf-life and microbiological requirements. Accuracy in labelling, storage and transfer processes is critical. **Training package solution**

The industry has recommended that existing warehousing and logistics units be identified and tested against meat industry requirements for incorporation into existing qualifications at Certificate II, III, IV and Diploma levels. Pathways into transport and logistics qualifications should also be identified.

Benefits from implementation of changes in Training Package
The industry is already seeking to develop novel and innovative approaches to remove complexity and add value to material handling through identification and development of technologies such as automated solutions, and new packaging systems and solutions. The introduction of the proposed new units will ensure that processors have staff capable of implementing and working with new systems.

Minor updates also identified in the Training Product Review Plan

The following items have been raised through the Training Package Issues Register, have been considered by the IRC, and are recommended for revision/development as indicated below.

Action required	Recommended year
Develop unit/s specifically related to the calculation of yield	2017
Develop meat-specific replacement for *SIRRSTR001 Undertake strategic planning in retail*, which after recent revision is no longer appropriate for use in the meat processing sector	2018
Need to develop a second version of *AMPA2068 Inspect meat for defects* without the prerequisite of *AMPX209 Sharpen knives* for use in packing areas where knives are not used	2018
Amendments to be made to the assessment conditions of *AMPA3131 Identify and report emergency diseases of food animals*	2018
Slight change to terminology to broaden applicability of *AMPMGT606 Analyse and develop enterprise systems for new opportunities*	2018

Anticipated involvement in cross-sector projects

The Meat Industry Reference Committee has noted the cross-industry projects recently commissioned by the AISC and anticipates that it will provide input to some of these as indicated:

- Management of supply chains: Yes
- Big data skills: Unknown at this stage – more information required
- Automation skills: Yes
- Building information modelling: Unknown at this stage – more information required
- Coding skills: Unknown at this stage – more information required
- Consumer engagement through social and online: No
- Cyber security: No
- Green skills: Yes

The Meat Industry Reference Committee proposes that issues such as animal welfare and biosecurity should be considered as future cross-sector projects.

Qualifications that are eligible for VET Student Loans program

Only one qualification from the *AMP Australian Meat Processing Training Package* is listed in the current list of approved courses. While uptake of the VET FEE-HELP option for this unit is unlikely, it is recommended that it remain listed for those students who are unable to access employer or industry assistance when undertaking this program.

Courses in loan cap band 2	IRC recommendation
Diploma of Meat Processing	Remain

IRC actions taken in response to the COAG Industry and Skills Ministers' priorities

Removal of obsolete qualifications from the system

The two Certificate I qualifications, previously in the *MTM Australian Meat Industry Training Package*, were removed in the recent review.

Ensuring that more information about industry's expectations of training delivery is available to training providers to improve their delivery, and to consumers to enable more informed course choices

The meat processing industry maintains close relationships with all industry RTOs, and regularly conveys information about industry training requirements through:

- industry network meetings and professional development programs
- provision of industry-approved training and assessment materials
- direct advice to RTOs.

Ensuring that the system better supports individuals to move easily from one related occupation to another

Transferability of skills across the industry is a key priority for the meat processing industry, which has a highly mobile workforce. RTOs and employers clearly understand that new employers will expect incoming employees with a meat processing qualification to have:

- knowledge of the process within the context of the production system
- understanding of hygiene and sanitation, yield maximisation, contamination risks, safety requirements, and task sequence
- top-up training to address requirements of a different employer, such as different species, different chain speed, different customer requirements, and different technology.

Improving the efficiency of the system by creating units that can be owned and used by multiple industry sectors

Most of the Certificate II and III units are specific to processes related to meat processing. Units from Certificate IV to Graduate Certificate are written more generically to ensure that they are suitable for related industry sectors.

Fostering greater recognition of skill sets

There are 60 skill sets in the *AMP Australian Meat Processing Training Package*.

E. TRAINING PRODUCT REVIEW PLAN 2017–2020

The IRC Training Product Review Plan 2016–2019 for the Australian meat processing industry sector is provided in Attachment A.

Explanation

Time-critical issues and interdependencies

None identified at this stage.

Training products scheduled for review more than once in four years

None identified at this stage.

Training products with contentious or lengthy review
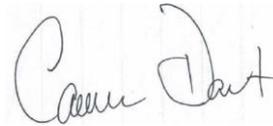
None identified at this stage.

F. IRC SIGNOFF

This *IRC Skills Forecast and Proposed Schedule of Work* was agreed as the result of a properly constituted IRC decision.

Signed for and on behalf of the **Meat IRC** by its appointed Chair

Cameron Dart

(Name of Chair)	Signature of Chair
	Date: 28 April 2017

ATTACHMENT A

IRC Training Product Review Plan 2017–20: IRC for Meat Processing Industry Sector

Contact details: Skills Impact Ltd., 559A Queensberry Street, North Melbourne VIC 3051

Date submitted to Department of Education and Training: 28 April 2017

Important Note: The Meat Industry Reference Committee advises that in addition to the schedule work outlined in this work plan, on occasion it may be necessary to seek urgent additional allocation of work for the meat industry to accommodate urgent requirements as a result of legislation or an overseas audit. If an urgent matter arises, it will be necessary to seek funding not foreshadowed in the work plan in order to enable a timely response that does not inhibit market access.

Planned review start (Year)	TP name	TP code	Qualification name	Qualification code	Unit of competency name	Unit of competency code
2016						
2016	Australian Meat Processing Training Package	AMP	Skill set for Animal Welfare Officer Assistant – to meet European Union regulatory requirements	TBA	Units of competency identified during business case	
2017						
2017	Australian Meat Processing Training Package	AMP	Certificate II in Meat Processing (Abattoirs) and/or Certificate III in Meat Processing (General)	AMP20316 and/or AMP30616	Review need for inclusion of new units, or revision of existing units, to meet customer requirements and new technologies for the handling and treatment of skins and hides	New TBA
2017	Australian Meat Processing	AMP	Certificate III in Meat Processing (General) or (Quality Assurance)	TBA	Identification or development of suitable units to address Threat and Vulnerability Assessment	New TBA

Planned review start (Year)	TP name	TP code	Qualification name	Qualification code	Unit of competency name	Unit of competency code
	Training Package				(TACCP and VACCP), a requirement for BRC audits	
2017	Australian Meat Processing Training Package	AMP	Non-trade engineering maintenance qualifications at Certificate II, III and IV	TBA	Possible units and qualification structures to be identified for further industry consultation	
2017	Australian Meat Processing Training Package	AMP	Certificate II in Meat Processing (Abattoirs) and/or Certificate III in Meat Processing (General)	AMP20316 and/or AMP30616	Suitable units in pest control management to be identified and/or developed for inclusion into existing qualifications	New TBA
2017	Australian Meat Processing Training Package	AMP	Certificate II in Meat Processing (Abattoirs) and/or Certificate III in Meat Processing (General)	AMP20316 and/or AMP30616	Suitable units in warehousing and logistics to be identified and/or developed for inclusion into existing qualifications	New TBA
2017	Australian Meat Processing Training Package	AMP	Certificate III or IV in Meat Processing (General)	AMP30616 and/or AMP40215	Develop unit/s specifically related to the calculation of yield	New TBA
2018						
2018	Australian Meat Processing Training Package	AMP	Advanced Diploma of Meat Processing	AMP60115	Develop meat-specific replacement for *SIRRSTR001 Undertake strategic planning in retail*, which after recent revision is no longer appropriate for use in the meat processing sector	New TBA

Planned review start (Year)	TP name	TP code	Qualification name	Qualification code	Unit of competency name	Unit of competency code
2018	Australian Meat Processing Training Package	AMP	Either Certificate IV in Meat Processing (General) or Diploma of Meat Processing	AMP40215 or AMP50215	Current research suggests that there will be a need for a unit to address processing plant operations during an emergency animal disease (EAD) event	New TBA
2018	Australian Meat Processing Training Package	AMP	Certificate II in Meat Processing (Abattoirs) and (Food Services)	AMP20316 and AMP20116	Need to develop a second version of *AMPA2068 Inspect meat for defects* without the prerequisite of *AMPX209 Sharpen knives* for use in packing areas where knives are not used	New TBA
2017	Australian Meat Processing Training Package	AMP	Certificates III and IV in Meat Processing (Meat Safety)	AMP30316 and AMP40516	Amendments to be made to the assessment conditions of *AMPA3131 Identify and report emergency diseases of food animals*	AMPA3131
2017	Australian Meat Processing Training Package	AMP	Advanced Diploma of Meat Processing	AMP60115	Slight change to terminology to broaden applicability of *AMPMGT606 Analyse and develop enterprise systems for new opportunities*	AMPMGT606
2019						
2019	Australian Meat Processing Training Package	AMP	Either Certificate IV in Meat Processing (General) or Diploma of Meat Processing	AMP40215 or AMP50215	Review need for inclusion of new units to address changes in packaging technologies	New TBA

Four-year rolling unit reviews

2017						
					Units relating to wild game harvesting skill sets and meat retailing qualifications. **All cross-sectoral units with a specific view to ensuring their suitability to nominated sectors.** *All AMPG, AMPR and AMPX units:* AMPG300 Overview wild game meat industry AMPG301 Operate a game harvesting vehicle AMPG302 Eviscerate, inspect and tag wild game carcase in the field AMPG303 Receive and inspect wild game carcases from the field AMPG304 Receive and inspect wild game carcases at a processing plant AMPG305 Store wild game carcases AMPG306 Use firearms to harvest wild game AMPR101 Identify species and meat cuts AMPR102 Trim meat for further processing AMPR103 Store meat product AMPR104 Prepare minced meat and minced meat products AMPR105 Provide service to customers AMPR106 Process sales transactions AMPR107 Undertake minor routine maintenance AMPR108 Monitor meat temperature from receival to sale AMPR201 Break and cut product using a bandsaw AMPR202 Provide advice on cooking and storage of meat products AMPR203 Select, weigh and package meat for sale AMPR204 Package product using manual packing and labelling equipment AMPR205 Use basic methods of meat cookery	

| | | | | | | AMPR206 Vacuum pack product in a retail operation
AMPR207 Undertake routine preventative maintenance
AMPR208 Make and sell sausages
AMPR209 Produce and sell value-added products
AMPR210 Receive meat product
AMPR211 Provide advice on meal solutions in a meat retail outlet
AMPR212 Clean a meat retail work area
AMPR301 Prepare specialised cuts
AMPR302 Assess carcase or product quality
AMPR303 Calculate yield of carcase or product
AMPR304 Manage stock
AMPR305 Meet customer needs
AMPR306 Provide advice on nutritional role of meat
AMPR307 Merchandise products, services
AMPR308 Prepare, roll, sew and net meat
AMPR309 Bone and fillet poultry
AMPR310 Cost and price meat products
AMPR311 Prepare portion control to specifications
AMPR312 Bone game meat
AMPR313 Order stock in a meat enterprise
AMPR314 Calculate and present statistical data in a meat enterprise
AMPR315 Utilise the Meat Standards Australia system to meet customer requirements
AMPR316 Cure, corn and sell product
AMPR317 Assess and sell poultry product
AMPR318 Break carcase for retail sale
AMPR319 Locate, identify and assess meat cuts
AMPR320 Assess and address customer preferences
AMPR321 Collect and prepare standard samples
AMPR322 Prepare and produce value added products | |

					AMPR323 Break small stock carcases for retail sale	
					AMPR319 Locate, identify and assess meat cuts	
					AMPR324 Break large stock carcases for retail sale	
					AMPR325 Prepare cooked meat product for retail sale	
					AMPX201 Prepare and operate bandsaw	
					AMPX202 Clean work area during operations	
					AMPX203 Operate scales and semi-automatic labelling machinery	
					AMPX204 Maintain production records	
					AMPX205 Clean chillers	
					AMPX206 Operate forklift in a specific workplace	
					AMPX207 Vacuum pack product	
					AMPX208 Apply environmentally sustainable work practices	
					AMPX209 Sharpen knives	
					AMPX210 Prepare and slice meat cuts	
					AMPX211 Trim meat to specifications	
					AMPX212 Package product using automatic packing and labelling equipment	
					AMPX213 Despatch meat product	
					AMPX214 Package meat and smallgoods product for retail sale	
					AMPX215 Operate tenderiser	
					AMPX216 Operate mincer	
					AMPX217 Package product using gas flushing process	
					AMPX218 Operate metal detection unit	
					AMPX301 Assess product in chillers	
					AMPX302 Cure and corn product	
					AMPX303 Break carcase into primal cuts	
					AMPX304 Prepare primal cuts	
					AMPX305 Smoke product	
					AMPX306 Provide coaching	
					AMPX307 Provide mentoring	

| | | | | | AMPX308 Follow and implement an established work plan
AMPX309 Identify and repair equipment faults
AMPX310 Perform pre-operations hygiene assessment
AMPX311 Monitor production of packaged product to customer specifications
AMPX313 Contribute to energy efficiency
AMPX401 Monitor meat preservation process
AMPX402 Monitor and overview the production of processed meats and smallgoods
AMPX403 Monitor and overview the production of Uncooked Comminuted Fermented Meat (UCFM)
AMPX404 Conduct an internal audit of a documented program
AMPX405 Conduct statistical analysis of process
AMPX406 Manage or oversee an external audit of the establishment's quality system
AMPX407 Oversee export requirements
AMPX408 Coordinate contracts
AMPX409 Prepare and evaluate resource proposals
AMPX410 Facilitate achievement of enterprise environmental policies and goals
AMPX411 Foster a learning culture in a meat enterprise
AMPX412 Build productive and effective workplace relationships
AMPX413 Manage and maintain a food safety plan
AMPX414 Assess and evaluate meat industry requirements and processes
AMPX415 Specify beef product using AUS-MEAT language
AMPX416 Specify sheep product using AUS-MEAT language
AMPX417 Specify pork product using AUS-MEAT language | |

					AMPX418 Lead communication in the workplace AMPX419 Participate in product recall AMPX420 Participate in the ongoing development and implementation of a HACCP and Quality Assurance system AMPX421 Establish sampling program AMPX422 Develop and implement work instructions and SOPs AMPX423 Supervise new recruits AMPX424 Raise and validate requests for export permits and Meat Transfer Certificates AMPX425 Conduct a document review AMPX426 Undertake chiller assessment to AUS-MEAT requirements AMPX427 Dry age meat	
2018						
					Units relating to Certificate IV, Diploma, Advanced Diploma and Graduate qualifications, all sectors. **All smallgoods qualifications.** ***All AMPCOR, AMPS, AMPMGT and AMPA4 units***: AMPCOR201 Maintain personal equipment AMPCOR202 Apply hygiene and sanitation practices AMPCOR203 Comply with Quality Assurance and HACCP requirements AMPCOR204 Follow safe work policies and procedures AMPCOR205 Communicate in the workplace AMPCOR206 Overview the meat industry AMPCOR401 Manage own work performance AMPCOR402 Facilitate Quality Assurance process AMPCOR403 Participate in workplace health and safety risk control process	

| | | | | | | AMPCOR404 Facilitate hygiene and sanitation performance
AMPMGT501 Design and manage the food safety system
AMPMGT502 Manage new product or process development
AMPMGT503 Develop and assess a meat retailing business opportunity
AMPMGT504 Develop, manage and maintain quality systems
AMPMGT505 Manage maintenance systems
AMPMGT506 Manage utilities and energy
AMPMGT507 Manage and improve meat industry plant operations
AMPMGT508 Manage environmental impacts of meat processing operations
AMPMGT509 Manage, maintain and continuously improve workplace health and safety plans and systems
AMPMGT510 Manage transportation of meat, meat products and meat by-products
AMPMGT601 Benchmark to manage and improve enterprise performance
AMPMGT602 Monitor and manage organisational legal responsibilities
AMPMGT603 Manage meat processing systems to maintain and improve product quality
AMPMGT604 Manage effective operation of meat enterprise cold chain and refrigeration systems
AMPMGT605 Assess and purchase livestock
AMPMGT606 Analyse and develop enterprise systems for new opportunities
AMPMGT607 Establish new markets
AMPMGT801 Manage financial performance
AMPMGT802 Provide strategic leadership
AMPMGT803 Communicate and negotiate in a culturally diverse context | |

| | | | | | AMPMGT804 Develop and enhance collaborative partnerships and relationships
AMPMGT805 Develop and manage international business operations
AMPMGT806 Commercialise research and technology product or idea
AMPMGT807 Manage change to organisational electronic technology systems
AMPMGT808 Undertake research project
AMPMGT809 Analyse data for business decision making
AMPS101 Handle materials and products
AMPS102 Pack smallgoods product
AMPS201 Package product using thermoform process
AMPS203 Operate bar and coder systems
AMPS205 Select, identify and prepare casings
AMPS206 Manually shape and form product
AMPS207 Slice product using simple machinery
AMPS208 Rotate stored meat
AMPS209 Rotate meat product
AMPS210 Inspect carton meat
AMPS211 Prepare dry ingredients
AMPS212 Measure and calculate routine workplace data
AMPS213 Manually link and tie product
AMPS300 Operate mixer or blender unit
AMPS301 Cook, steam and cool product
AMPS302 Prepare dried meat
AMPS303 Fill casings
AMPS304 Thaw product – water
AMPS305 Thaw product – air
AMPS307 Sort meat
AMPS308 Batch meat
AMPS309 Operate product forming machinery
AMPS310 Operate link and tie machinery | |

					AMPS311 Operate complex slicing and packaging machinery AMPS312 Prepare meat-based pates and terrines for commercial sale AMPS313 Prepare product formulations AMPS314 Ferment and mature product AMPS315 Blend meat product AMPA400 Utilise refrigeration index AMPA401 Implement a Meat Hygiene Assessment program AMPA402 Oversee plant compliance with the Australian standards for meat processing AMPA403 Apply meat science AMPA404 Conduct and validate pH and temperature declines to MSA standards AMPA405 Develop and implement Quality Assurance program for a rendering plant AMPA406 Inspect transportation container or vehicle AMPA407 Contribute to abattoir design and construction processes AMPA411 Oversee humane handling of animals AMPA412 Conduct an animal welfare audit of a meat processing plant	
2019							
					Units relating to Certificate III qualifications in the abattoirs sector. *All AMPA3 units:* AMPA3000 Stun animal AMPA3001 Stick and bleed animal AMPA3002 Handle animals humanely while conducting ante-mortem inspection AMPA3003 Assess effective stunning and bleeding AMPA3004 Monitor the effective operations of electrical stimulation AMPA3005 Rod weasand	

						AMPA3006 Seal weasand AMPA3007 Ring bung AMPA3008 Seal bung AMPA3009 Split carcase AMPA3010 Overview legging operation AMPA3012 Make first leg opening cuts AMPA3013 Make second leg opening cuts AMPA3014 Perform legging on small stock AMPA3020 Bone neck AMPA3021 Perform 'Y' cut AMPA3022 Skin head AMPA3023 Explain opening cuts AMPA3024 Perform flanking cuts AMPA3025 Perform brisket cuts AMPA3026 Perform rumping cuts AMPA3027 Perform rosette cuts AMPA3028 Perform midline cuts AMPA3029 Scald and dehair carcase AMPA3030 Operate pelt puller AMPA3031 Operate hide puller AMPA3032 Remove pelt manually AMPA3033 Bed dress carcase AMPA3034 Eviscerate animal carcase AMPA3040 Operate brisket cutter or saw AMPA3041 Eviscerate wild game animal carcase AMPA3042 Backdown pig carcase AMPA3043 Prepare head for inspection AMPA3044 Operate air knife AMPA3045 Drop sock and pull shoulder pelt AMPA3046 Undertake retain rail operations AMPA3047 Prepare and present viscera for inspection AMPA3048 Bone small stock carcase – leg AMPA3049 Slice and trim leg – small stock AMPA3050 Bone large stock carcase – forequarter	

						AMPA3051 Bone large stock carcase – hindquarter AMPA3052 Slice and trim large stock forequarter AMPA3053 Slice and trim large stock hindquarter AMPA3054 Break carcase using a bandsaw AMPA3061 Operate leg boning machine AMPA3062 Operate trunk boning machine AMPA3063 Bone small stock carcase – shoulder AMPA3064 Bone small stock carcase – middle AMPA3065 Slice small stock carcase – shoulder AMPA3066 Slice small stock carcase – middle AMPA3067 Bone carcase using mechanical aids (large stock) AMPA3068 Prepare and despatch meat products AMPA3069 Perform ante-mortem inspection and make disposition AMPA3070 Perform post-mortem inspection and make disposition AMPA3071 Implement food safety program AMPA3072 Perform carcase Meat Hygiene Assessment AMPA3073 Perform process monitoring for Meat Hygiene Assessment AMPA3074 Perform boning room Meat Hygiene Assessment AMPA3081 Perform offal Meat Hygiene Assessment AMPA3082 Operate batch cooker AMPA3083 Operate continuous cooker AMPA3084 Operate press AMPA3085 Operate wet rendering process AMPA3086 Monitor boiler operations AMPA3087 Operate tallow processing plant AMPA3088 Operate blood processing plant AMPA3089 Produce rendered products hygienically AMPA3090 Render edible products	

						AMPA3091 Implement a Quality Assurance program for rendering plant AMPA3092 Grade beef carcases using Meat Standards Australia standards AMPA3093 Use standard product descriptions – sheep and goats AMPA3094 Use standard product descriptions – beef AMPA3095 Use standard product descriptions – pork AMPA3096 Use standard product descriptions – kangaroos AMPA3100 Perform manual chemical lean testing AMPA3101 Overview of the NLIS for sheep and goats AMPA3102 Overview of the NLIS program utilising RFIDs AMPA3103 Manage NLIS data for livestock in lairage AMPA3104 Manage NLIS data for sheep and goats in lairage AMPA3105 Manage NLIS for direct purchase of stock identified with an RFID AMPA3106 Manage NLIS for direct purchase of sheep or goats AMPA3107 Manage NLIS data for saleyard purchase of livestock AMPA3108 Manage NLIS for saleyard purchase of sheep or goats AMPA3109 Manage, report and upload NLIS slaughter data from RFIDs AMPA3110 Manage, report and upload mob based NLIS data for sheep and goats AMPA3111 Conduct start up procedures and preoperational checks on slaughter floor NLIS data equipment	

					AMPA3112 Manage NLIS data from RFIDs on the slaughter floor
					AMPA3113 Prepare a kill sheet
					AMPA3114 Undertake pre slaughter checks of NVDs and PICs for NLIS for sheep and goats
					AMPA3115 Undertake pre slaughter checks of NVDs, PICs and RFIDs
					AMPA3116 Supervise meat packing operation
					AMPA3117 Oversee product loadout
					AMPA3118 Monitor pH and temperature decline
					AMPA3119 Apply food animal anatomy and physiology to inspection processes
					AMPA3120 Perform ante and post-mortem inspection – Ovine and Caprine
					AMPA3121 Perform ante and post-mortem inspection – Bovine
					AMPA3122 Perform ante and post-mortem inspection – Porcine
					AMPA3123 Perform ante and post-mortem inspection – Poultry
					AMPA3124 Perform ante and post-mortem inspection – Ratites
					AMPA3125 Perform ante and post-mortem inspection – Camels
					AMPA3126 Perform ante and post-mortem inspection – Crocodiles
					AMPA3127 Perform post-mortem inspection– Wild game
					AMPA3128 Perform ante and post-mortem inspection– Rabbits
					AMPA3129 Perform ante and post-mortem inspection– Deer
					AMPA3130 Perform ante and post-mortem inspection– Horses
					AMPA3131 Identify and report emergency diseases of food animals
					AMPA3132 Perform ante and post-mortem inspection– alpacas or llamas

					AMPA3133 Manage NLIS data for pigs in lairage AMPA3134 Overview of the NLIS Pork AMPA3135 Perform ante and post-mortem inspection– Calves	
2020						
					All units relating to Certificate II qualifications in the abattoirs sector. *All AMPA2 units* AMPA2000 Prepare animals for slaughter AMPA2001 Feed race AMPA2002 Restrain animal AMPA2003 Perform emergency kill AMPA2004 Assess, purchase and transport calves AMPA2005 Unload livestock AMPA2006 Apply animal welfare and handling requirements AMPA2007 Identify animals using electronic systems AMPA2008 Shackle animal AMPA2009 Operate electrical stimulator AMPA2010 Remove head AMPA2011 Cut hocks AMPA2012 Mark brisket AMPA2013 Complete changeover operation AMPA2014 Trim pig pre evisceration AMPA2015 Number carcase and head AMPA2016 Punch pelts AMPA2017 Remove brisket wool AMPA2018 Prepare hide or pelt for removal AMPA2019 Bag tail AMPA2020 Remove and record tag AMPA2021 Seal or drain urinary tract AMPA2022 Singe carcase AMPA2023 Shave carcase AMPA2024 Flush carcase	

						AMPA2025 Operate scalding and dehairing equipment AMPA2026 Operate whizzard knife AMPA2027 Operate rise and fall platform AMPA2028 Operate vacuum blood collection process AMPA2029 Operate nose roller AMPA2030 Operate pneumatic cutter AMPA2031 Operate circular saw AMPA2032 Prepare carcase and equipment for hide or pelt puller AMPA2035 Operate new technology or process AMPA2036 Operate sterivac equipment AMPA2037 De-rind meat cuts AMPA2038 De-nude meat cuts AMPA2039 Operate rib puller AMPA2040 Operate frenching machine AMPA2041 Operate cubing machine AMPA2042 Cure and corn product in a meat processing plant AMPA2043 Operate head splitter AMPA2044 Trim neck AMPA2045 Trim forequarter to specification AMPA2046 Trim hindquarter to specification AMPA2047 Inspect hindquarter and remove contamination AMPA2048 Inspect forequarter and remove contamination AMPA2049 Remove spinal cord AMPA2050 Operate jaw breaker AMPA2060 Grade carcase AMPA2061 Weigh carcase AMPA2062 Operate semi-automatic tagging machine AMPA2063 Measure fat AMPA2064 Label and stamp carcase AMPA2065 Wash carcase AMPA2066 Operate a decontamination unit	

					AMPA2067 Remove tenderloin
					AMPA2068 Inspect meat for defects
					AMPA2069 Assemble and prepare cartons
					AMPA2070 Identify cuts and specifications
					AMPA2071 Pack meat products
					AMPA2072 Operate carton sealing machine
					AMPA2073 Operate carton scales
					AMPA2074 Operate strapping machine
					AMPA2075 Operate carton forming machine
					AMPA2076 Operate automatic CL determination machine
					AMPA2077 Operate bag forming equipment
					AMPA2080 Assess dentition
					AMPA2081 Drop tongue
					AMPA2082 Wash head
					AMPA2083 Bone head
					AMPA2084 Remove cheek meat
					AMPA2085 Bar head and remove cheek meat
					AMPA2086 Process thick skirts
					AMPA2087 Process thin skirts
					AMPA2088 Process offal
					AMPA2089 Process runners
					AMPA2100 Overview offal processing
					AMPA2101 Prepare and trim honeycomb
					AMPA2102 Recover mountain chain
					AMPA2103 Further process tripe
					AMPA2104 Trim processed tripe
					AMPA2105 Process small stock tripe
					AMPA2106 Process bibles
					AMPA2107 Process maws
					AMPA2108 Loadout meat product
					AMPA2109 Store carcase product
					AMPA2110 Store carton product
					AMPA2111 Locate storage areas and product
					AMPA2112 Complete re-pack operation
					AMPA2113 Bag carcase

| | | | | | AMPA2114 Overview offal processing on the slaughter floor
AMPA2115 Separate offal
AMPA2116 Trim offal fat
AMPX209 Sharpen knives
AMPA2117 Separate and tie runners
AMPA2118 Recover thin skirts
AMPA2125 Remove thick skirts
AMPA2126 Remove flares
AMPA2127 Recover offal
AMPA2128 Overview hide or pelt or skin processing
AMPA2129 Trim hide or skin
AMPA2130 Salt hide or skin
AMPA2131 Grade hide or skin
AMPA2132 Despatch hide or skin
AMPA2133 Treat hides chemically
AMPA2134 Chill or ice hides
AMPA2135 Crop pelts
AMPA2136 Overview fellmongering operations
AMPA2137 Chemically treat skins for fellmongering process
AMPA2138 Prepare chemicals for fellmongering process
AMPA2139 Operate wool drier and press
AMPA2140 Perform sweating operation on fellmongered skins
AMPA2146 Perform skin fleshing operation
AMPA2147 Skirt and weigh fellmongered wool
AMPA2148 Operate wool puller
AMPA2149 Dispose of condemned carcase
AMPA2150 Skin condemned carcase
AMPA2151 Eviscerate condemned carcase
AMPA2152 Process paunch
AMPA2153 Process slink by-products
AMPA2154 Process pet meat
AMPA2155 Skin slinks
AMPA2156 Process blood | |

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AMPA2158 Operate hogger
AMPA2159 Operate blow line
AMPA2160 Operate meat meal mill
AMPA2161 Operate waste recovery systems
AMPA2162 Pack and despatch rendered products
AMPA2163 Break down and bone carcase for pet meat or rendering
AMPA2170 Operate air filtration system
AMPA2171 Clean carcase hanging equipment
AMPA2172 Clean amenities and grounds
AMPA2173 Overview cleaning program
AMPA2174 Clean after operations – boning room
AMPA2175 Clean after operations – slaughter floor
AMPA2176 Transport meat and meat products
AMPA2177 Handle working dogs in stock yards | |