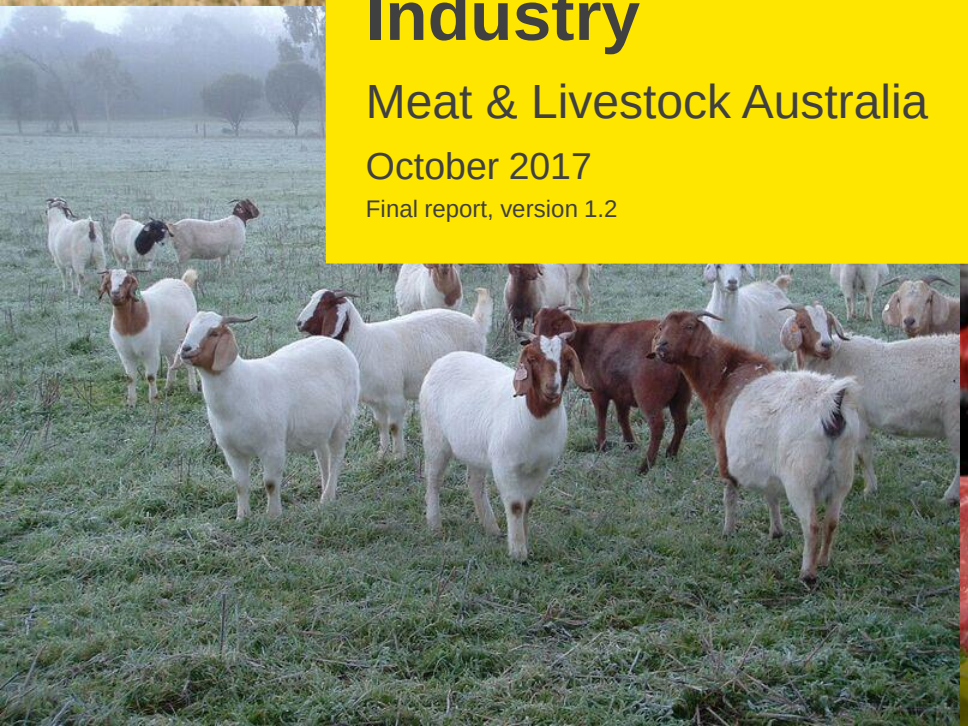



State of the Industry Report: The Australian Red Meat and Livestock Industry

Meat & Livestock Australia

October 2017

Final report, version 1.2




Building a better working world

Image source: Meat & Livestock Australia Ltd www.mla.com.au

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Report foreword

This inaugural State of the Red Meat and Livestock Industry report outlines the importance of the red meat and livestock industry to the Australian economy. It describes the current operating environment and analyses key economic indicators for the industry – across the supply chain and for the red meat species (beef cattle, sheepmeat and goatmeat).

The red meat industry is part of our national identity and a major contributor to Australia's economic growth and development. Comprising the beef, sheepmeat and goatmeat sectors, our red meat industry feeds 24 million Australians, contributes to 405,000 Australian jobs through direct and indirect employment and generates $14 billion in export revenue through the supply of more than 100 global markets.

Through 75,000 Australian businesses we contribute $18 billion to Gross Domestic Product (GDP). It is a strong and vibrant industry that puts consumers first. An industry committed to the ethical and sustainable production of safe, high quality food. An industry that is embracing innovation and technology to help drive our competitiveness and profitability in a global marketplace. At our core we are an industry driven by people who are passionate and proud of their work and contribution to the nation. Our people work in the paddocks, the feedlots, the processing and manufacturing plants, the shopfronts and the boardrooms to ensure the continuing prosperity of the industry into the future.

This is why I am honoured to present this State of the industry report: The Australian red meat and livestock Industry, the first-ever industry snapshot of the Australian beef, sheepmeat and goatmeat industry from 'paddock to plate.' Red meat continues to be a staple on the dinner plates of Australian households. Our domestic market remains the single biggest and most important market for red meat, with Australian consumers eating more than four times the amount of beef and veal and six times the amount of sheep and mutton when compared to global consumption averages.

Looking beyond our shores, we are a boutique but mighty producer of red meat to the world, exporting 74% of all beef and veal produced in Australia, 72% of all sheepmeat and 92% of all goatmeat in 2015. To put this in perspective, in this same period, Australia was the world's largest exporter of beef and veal worldwide followed by agricultural powerhouses like India, Brazil, the United States and New Zealand; and the second largest sheepmeat exporter behind New Zealand. We also exported over 1 million head of live Australian cattle and nearly 2 million head of sheep in 2016.

These export accomplishments are all the more astonishing considering Australia's domestic herd size represents only 2% of the global beef herd and 6% of the global sheep flock. Australia's goat production is also contributing strongly to the domestic economy, with Australia the largest global exporter of goatmeat in 2013 and average prices increasing by 177% between 2013 and 2016.

But we are always striving to improve and grow. We live in a world where economic and political instability has become a significant factor influencing the behaviour of customers and consumers alike. This report highlights a world where food producers and consumers are continually evolving. Amongst other things, we expect more from less, have an ageing population and need to focus on innovation and customer service in producing 'meals not meat'. Australian red meat exports declined by 2% in the last recorded twelve month period; whilst on the horizon beef imports from other nations to Australia is a reality.

We simply cannot take our customers domestically or in global markets for granted. There is far too much at stake for the jobs our industry sustains, the consumers we serve and the economic contribution we make to the nation. We must capitalise on market opportunities, including for example those presented by Brexit in the European Union and the United Kingdom. We must strengthen relations with our neighbours in Asia, particularly Indonesia, and actively plan to keep our vibrant and thriving 400,000-strong Australian jobs and regional presence in the food manufacturing industry. Now more than ever we must work together to adapt and achieve these collective goals.

This report provides our industry, state and national decision-makers with the facts on the Australian red meat industry. As such, it's a powerful resource to assist in the development of good policy to ensure the prosperity and sustainability of the industry into the future. We must be more collaborative, more innovative and continue to place our customers and consumers at the heart of our thinking, reform agenda and decision making. Ultimately, our red meat industry's success is Australia's success.

Image source: Red Meat Advisory Council www.rmac.com.au

Don Mackay
Independent Chair
Red Meat Advisory Council

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Image source: Meat & Livestock Australia Ltd www.mla.com.au

Red meat and livestock industry highlights

Red meat and livestock species

Beef cattle

Sheepmeat

Goatmeat

Red meat and livestock supply chain

Production

Sheep farming (wool excluded) | Cattle farming | Mixed farming (beef / sheep) | Feedlots

Processing

Red meat processing

Sales

Wholesale | Retail

Image source: Meat & Livestock Australia Ltd www.mla.com.au

The operating environment

Australia had a modest proportion of the global beef herd and sheep flock

2% of the global beef herd

6% of the global sheep flock

(2014)

Global consumption of protein sources continues to evolve

7% Increase in the global consumption of sheepmeat

Between 1996 and 2015

Global consumption of beef decreased by **3%**

Between 1996 and 2015

Australia is a key player in the global export market

Largest global exporter of beef *(2015)*

Second largest global exporter of sheepmeat *(2015)*

Largest global exporter of goatmeat *(2013)*

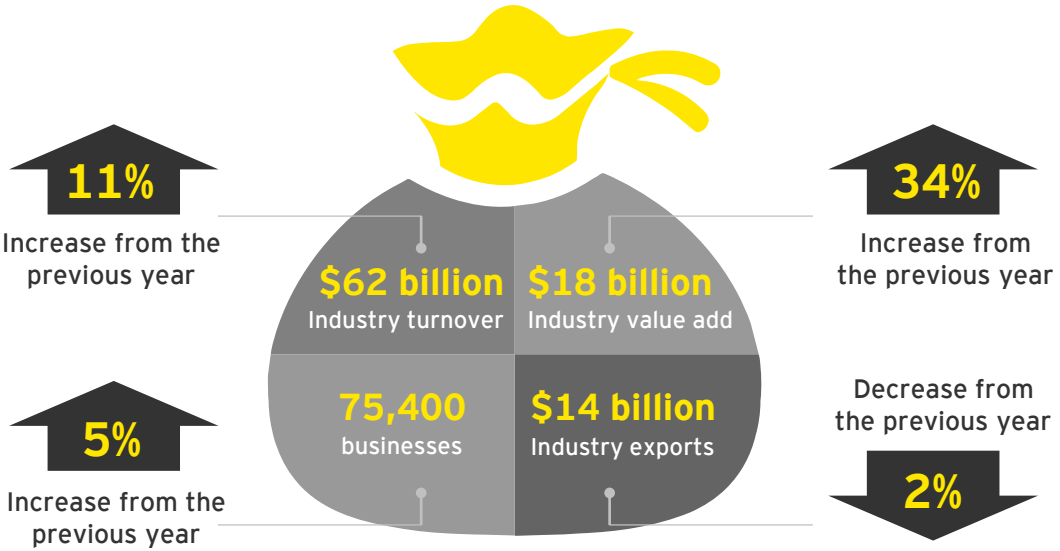
Australian per capita red meat consumption is higher than global meat consumption

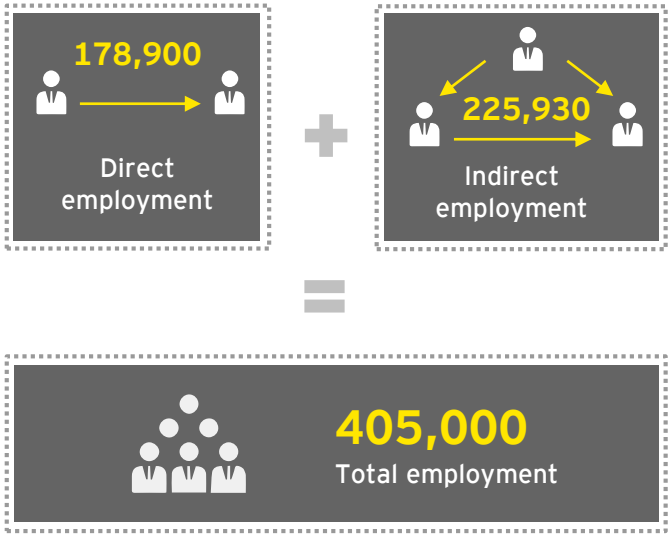
4 times higher for beef and veal *(2015)*

6 times higher for sheep and mutton *(2015)*

The data gathering for this report concluded on 30 June 2017.

The economic importance of the red meat and livestock industry (2015-16)





Key species statistics and performance

Beef cattle

- Australia's herd size declined by 6% between 2014 and 2015 to 27.4 million head
- Producer's share of retail dollar in 2016 increased to 47%
- Between 1996 and 2015, saleyard prices increased by 129% while retail prices increased by 75%
- The rate of return for cattle producers in the Northern region increased to 3.5% and 2.4% for the those in the Southern region in 2016-17

Sheepmeat

- Australia's flock reached a record low of 70.9 million in 2015, declining by 22% between 2006 and 2015
- Between 1996 and 2015, saleyard prices increased by 180% while retail prices increased by 126%
- Producers share of retail dollar decreased to 55% in 2016
- Australian sheep farm cash income increased by 37% between 2014 and 2017

Goatmeat

- Between 2013 and 2015, goat prices increased by 117%
- Production of goatmeat expanded by 88% over the ten year period ending 2016
- Between 2006 and 2015, Australian goat slaughter increased by 78%
- Between 2012 and 2016, Australian goatmeat exports decreased by 8%

The red meat and livestock industry supply chain

The red meat and livestock industry supply chain begins with the on-farm breeding, harvesting and finishing of livestock (beef, sheep and/or goats). From the farm, some animals (predominantly cattle) are transported to feedlots, while others are exported as live animals. These elements all relate to **production**.

The next stage of the supply chain involves the processing of animals. Animals for processing are sourced through on farm or saleyard purchases or from feedlots. This process has been defined as **processing** (equivalent to manufacturing) for the purposes of this report.

Following processing, meat goes to retail or food service outlets, either directly or via wholesalers. These outlets comprise of grocery, independent or speciality stores (for retail) and takeaway, dining out, events or institutions (for food service). Together these are defined as **sales** for the purposes of this report.

Importantly, the industry relies on a variety of inputs, and supports a multitude of associated industries. Transport is of particular importance throughout the supply chain, facilitating the movement of animals, meat and food products (as seen in the figure below).

Detail view of retail and foodservice

- Retail
  - Grocery
  - Independent
  - Specialty
- Foodservice
  - Takeaway
  - Dining out
  - Event
  - Institutional

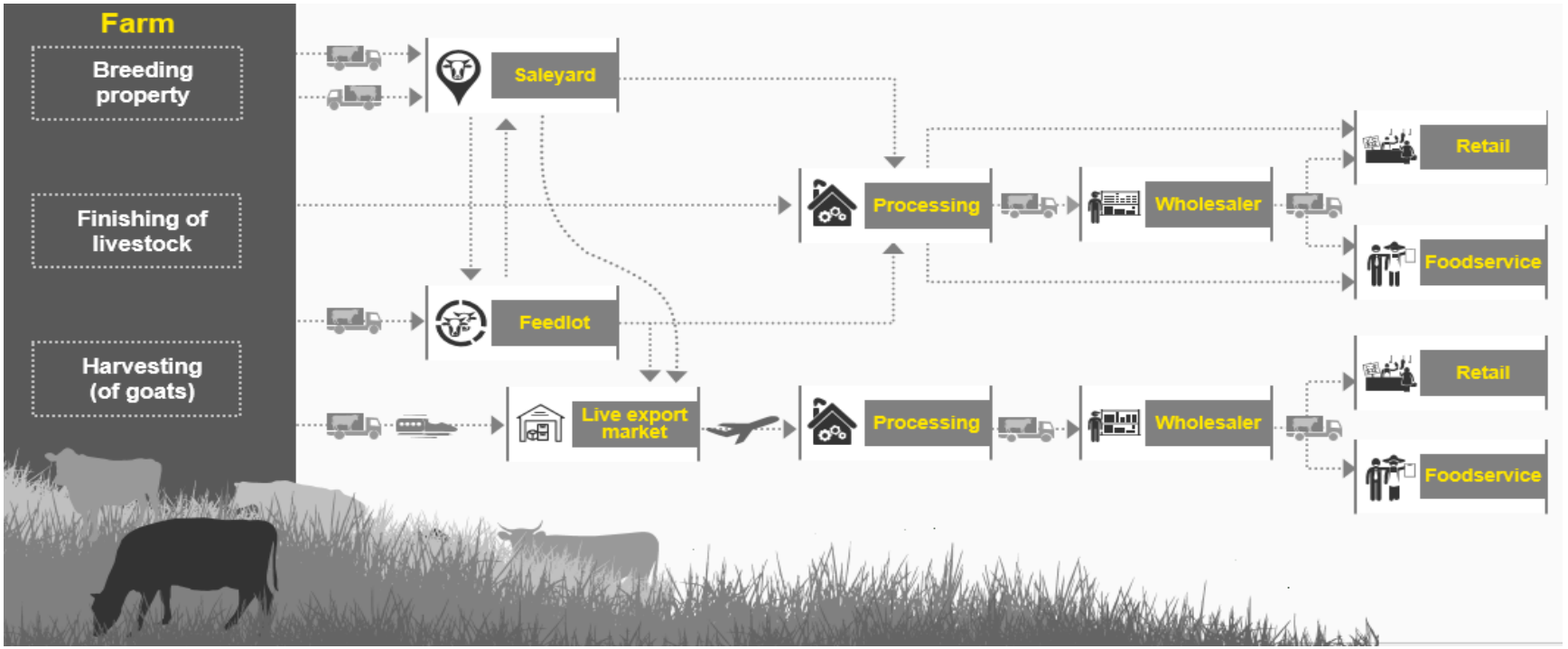


Image source: Meat & Livestock Australia Ltd www.mla.com.au

A

Part A: The operating environment

This section of the report provides an overview of the operating environment of the red meat and livestock industry, providing context for the industry analysis including historical trends of the production of livestock and consumption per capita, as well as the major global importers and exporters of red meat.

It is noted that due to data limitations, goat statistics are not reported in relation to production and consumption. Goat specific information can be found in Part C (pp. 51).

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Key export and import players	11

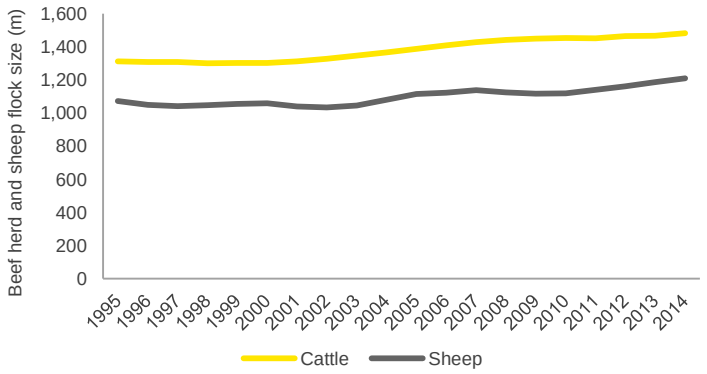
Production of livestock

In 2014, Australia accounted for **2% of the global cattle herd** and **6% of the global sheep flock.**

Global and Australian herd and flock size[1]

- In 2014, the global cattle herd was 1.5 billion (b), while the global sheep flock numbered 1.2b head.
- Australia accounted for a relatively modest proportion of this total (2.0% of the global cattle herd and 6.0% of the global sheep flock in 2014).
- The global cattle herd and sheep flock both increased by 12.9% and 12.8% respectively between 1995 and 2014.
- In contrast, Australia's cattle herd and sheep flock declined by 3.5% and 22.1% respectively over the decade ending in 2015.
- In 2015, Australia's flock dropped to a record low of 70.9 million (m), whilst Australia's cattle herd declined by 5.8% from 29.1m in 2014 to 27.4m head in 2015.

Global herd / flock size (m)

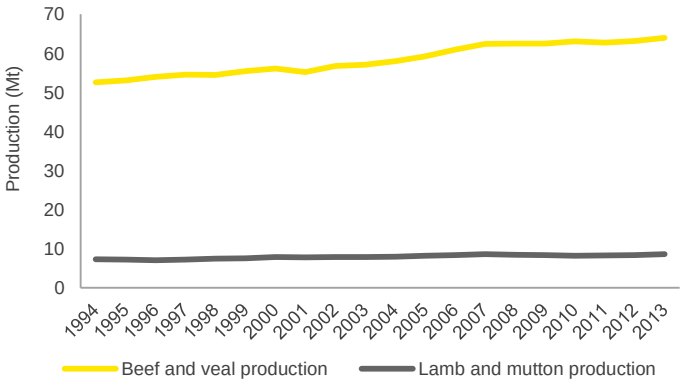


Source: ABARES

Production

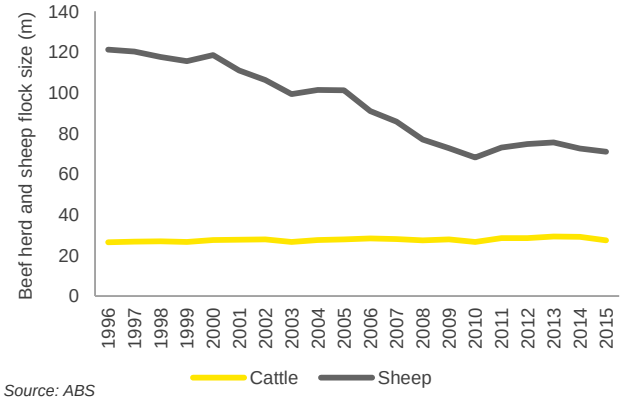
- In 2013, global sheep production was 8.6 million tonnes (Mt), while global beef production was 64.0Mt.
- Global beef and sheep production increased at a faster rate than herd size between 1994 and 2013 (21.7% and 17.9% respectively).

Global red meat production (Mt)[2]



Source: ABARES

Domestic herd / flock size (m)



Source: ABS

[1] The sheep flock incudes sheep for both wool and meat, whilst cattle herd includes both beef and dairy. It is noted that 2014 is the most recent data available for global herd and flock sizes.
[2] It is noted that 2013 is the most recent data available for global meat production.

Consumption of red meat

Between 1996 and 2015, global consumption of **sheepmeat increased by 13%,** whilst **beef consumption declined by 5%.**

Global consumption trends

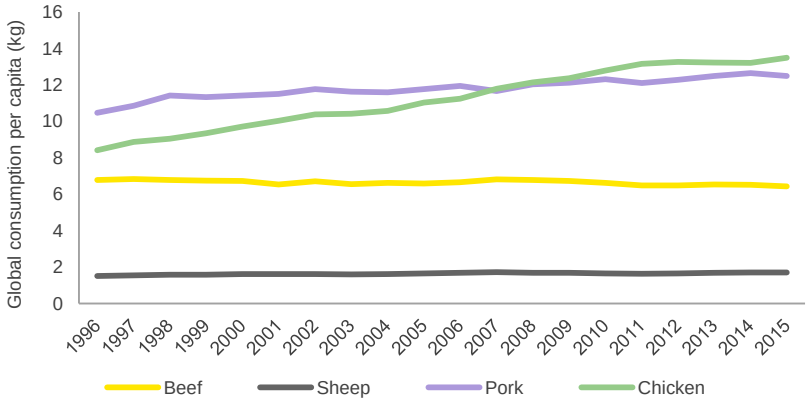
- In 2015, chicken accounted for 39.5% of global meat consumption (excluding seafood), followed by pork (36.6%), beef (18.8%) and sheep (5.0%).
- Between 1996 and 2015, global beef consumption declined by 5.2%, while sheepmeat consumption increased by 13.0% over the same period on a per capita basis.
- In 2007, chicken surpassed pork as the most consumed global meat source, with an average consumption of 11.2 kg per capita between 1996 and 2015, an increase of 60.2%.
- Between 2011 and 2015, global sheepmeat consumption increased by 4.6%, whilst beef declined by 0.8% over the same period on a per capita basis.

Domestic consumption trends

- In 2015, Australians consumed an average of 45.3 kg chicken, 27.9 kg pork, 27.6 kg beef and veal and 10.6 kg sheep and mutton per capita.
- Between 1996 and 2015, Australians consumed an average of 35.2 kg per capita of beef and veal annually.
- Similar to the trend in global consumption, chicken became the most consumed meat type in Australia in 2006, with a long-term average of 36.2 kg, an increase of 75.5% between 1996 and 2015.
- In 2015, chicken accounted for 40.7% of meat (excluding seafood) consumption among Australians, followed by pork (25.0%) and beef and veal (24.8%).
- Domestic beef and veal consumption (per capita) declined by 29.2% between 1996 and 2015, whilst sheep and mutton declined by 36.4% over the same period.

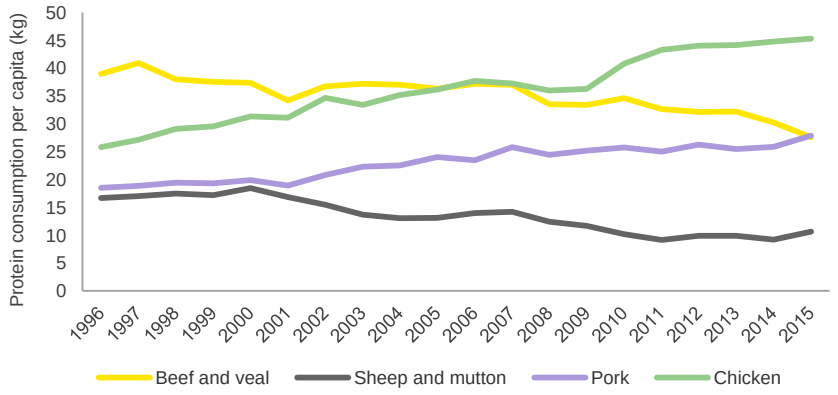
Australian domestic meat consumption is significantly higher than global meat consumption. In 2015, Australians consumed 111.4 kg of meat (excluding seafood) per capita, compared to global meat consumption of 34.1 kg per capita.

Global protein consumption per capita (kg)



Sources: OECD and Food and Agriculture Organization of the United Nations

Australian protein consumption per capita (kg)



Source: ABARES

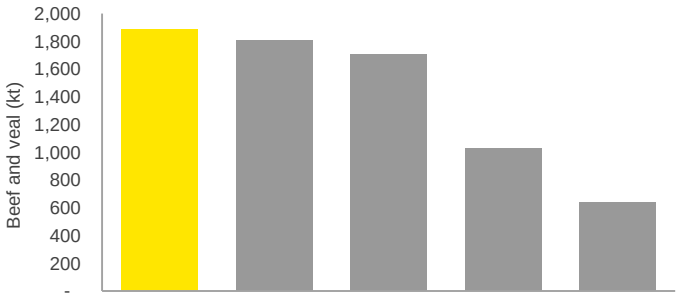
Key export and import players

Australia is a **key player in the international trade** of red meat and livestock.

Exports

- In 2015, Australia was the largest exporter of beef and veal, followed by India, Brazil, the United States and New Zealand.
- In 2013, Australian and New Zealand accounted for 70.8% of global sheepmeat exports, contributing 36.1% and 34.7% respectively.
- Australia was the second largest sheepmeat exporter globally alongside New Zealand in 2015 (392.5 thousand tonnes (kt) and 384.9kt respectively).

Top five exporting countries of beef and veal (2015, kt)[1]



Source: ABARES

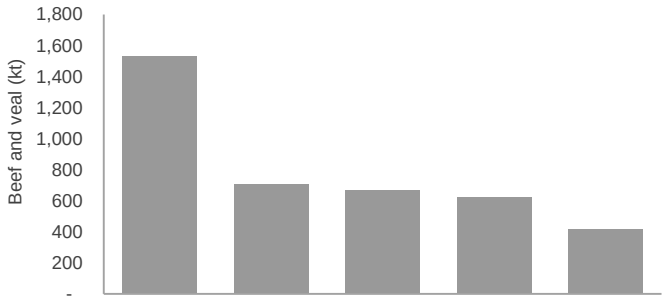
Top two exporting countries of sheepmeat (2015, kt)[2]

Source: ABARES

Imports

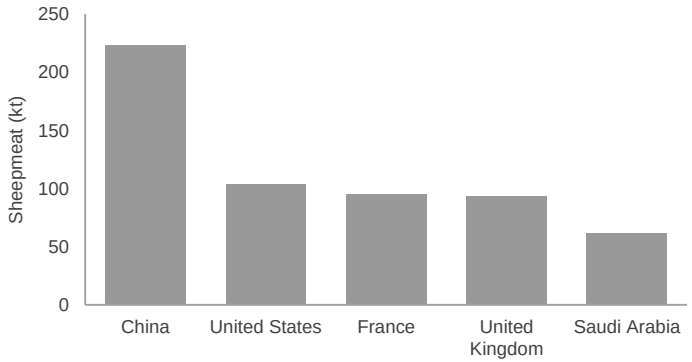
- The key global importers of beef and veal during 2015 were the United States, Japan, China, Russia and South Korea.
- The key importers of sheepmeat were China, the United States, France, the United Kingdom and Saudi Arabia.

Top five importing countries of beef and veal (2015, kt)[1]



Source: ABARES

Top five importing countries of sheepmeat (2015, kt)[2]



Sources\: ABARES

[1] *Volume of trade in beef and veal is recorded in 'carcase weight' equivalent basis.*
[2] *Volume of trade in sheepmeat is recorded in 'shipped weight' equivalent basis.*

Key export and import players

Australia is a **key exporter of goatmeat** on the global market, accounting for **58% of export volumes in 2013.**

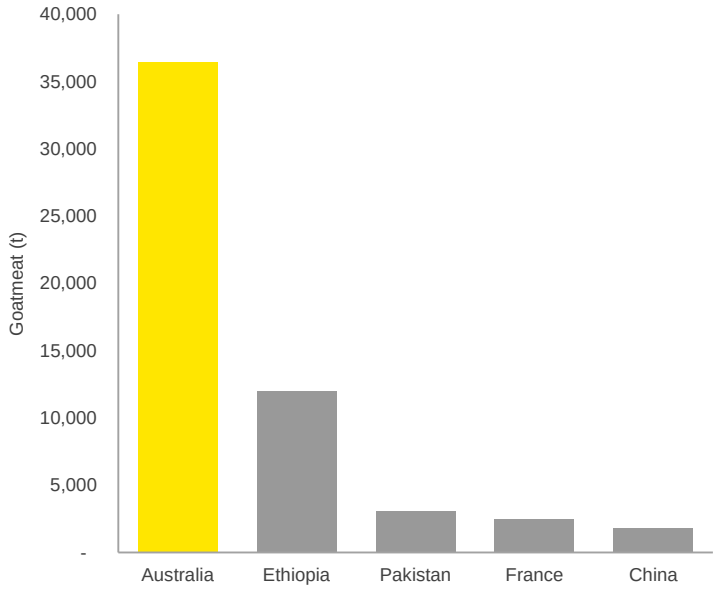
Exports

- Australia was the largest global exporter of goatmeat in 2013, followed by Ethiopia, Pakistan, France and China.
- In 2013, Australia accounted for 58.2% of global goatmeat export volumes, whilst Ethiopia and Pakistan contributed 19.2% and 4.9% respectively.

Imports

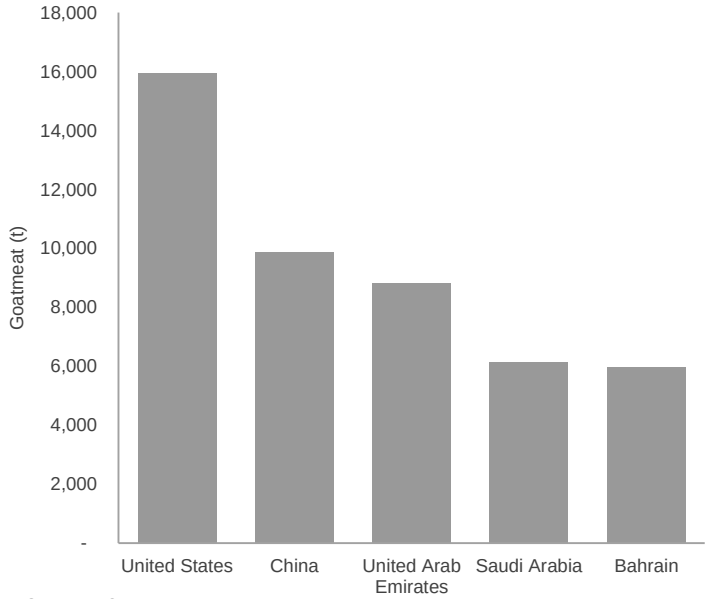
- The key global importers of goatmeat during 2013 were the United States, China, United Arab Emirates, Saudi Arabia and Bahrain.
- In 2013, the United States accounted for 23.3% of global goatmeat imports, whilst China and United Arab Emirates accounted for 14.4% and 12.9% respectively.

Top five exporting countries of goatmeat (2013, t)



Source: FAO

Top five importing countries of goatmeat (2013, t)



Source: FAO

Case study: Trade reform – a priority for ongoing competitiveness of the Australian red meat industry

The Australian red meat and livestock industry is heavily trade dependent. In 2015, Australian red meat and livestock exports comprised[1]:

- ***74% of beef and veal production;***
- ***72% of sheepmeat production[2]; and***
- ***92% of goatmeat production.***

Australia exports red meat and livestock to more than 100 countries, representing over 70% of the red meat industry's production. Protecting existing markets, further improving access conditions and continuing to diversify export destinations is essential for industry prosperity.

Given this export exposure, the industry is sensitive to changes in global trade dynamics which affect the profitability of both individual livestock producers and meat processors. Changes to market dynamics include increasing competition from other red meat suppliers, demand from international customers, domestic supply constraints, changes in economic conditions and the emergence of alternative protein products.

The industry strives to achieve unimpeded global market access in order to reduce supply chain costs, maximise export value and improve competitiveness.

Free Trade Agreements (FTAs), encompassing tariff elimination and/or quota expansion, have been at the forefront of recent economic trade improvement efforts. The gains from the trifecta of FTAs in North Asia are estimated to provide significant benefits to industry over the next 20 years. Critical areas for economic trade reform for the red meat industry over the coming years will be the European Union and subsequently the United Kingdom following Brexit.

Whilst economic trade reform is highly advantageous, Non-Tariff Barrier (NTB) alleviation can deliver a similar magnitudinal benefit. NTBs can restrict or prevent trade, increase the cost of preparing a product, increase the cost of supplying a product, require conditions which exceed commonly accepted standards, or add to administrative burden. The value of NTBs currently impacting the Australian red meat industry has been estimated at A$3.4b per annum[3]. Countries and regions with high priority NTBs include China, the Middle East, Indonesia and Mexico.

Image source: Meat & Livestock Australia Ltd www.mla.com.au

Image source: Australian Livestock Exporters' Council www.auslivestockexport.com

[1]Export percentages have been derived using ABARE's 2015 Australian export figures as a proportion of overall production numbers in 2015.
[2]Sheepmeat is calculated using the average of both mutton and lamb production numbers.
[2]Source: MLA.

Case Study Source: Meat & Livestock Australia

B

Part B: The economic importance of the red meat and livestock industry

This section of the report outlines the economic importance of the red meat and livestock industry, based on five indicators: 1) industry turnover, 2) industry value add, 3) employment, 4) number of businesses and 5) exports. It is noted that due to data limitations, goat statistics are not included within the red meat and livestock industry economic indicators throughout this section, meaning a conservative approach has been adopted when reporting the economic indicators of the industry.

Industry turnover	15
Industry value add	17
Industry employment	19
Number of businesses	22
Exports	24

Industry turnover

Industry turnover is defined as income generated by businesses within the industry from the sales of goods and services

Australia's red meat and livestock industry turnover was **$62b** in 2015-16, increasing by **11%** year on year.

Trend over time

- Red meat and livestock industry turnover increased by 35.1% from 2011-12 to 2015-16, with the change resulting from a large increase in turnover of feedlots (71.4%), processing (61.1%) and mixed farming (45.4%).
- Red meat and livestock turnover declined by 4.1% between 2011-12 and 2012-13, however this trend subsequently reversed and an increase of 31.8% was observed between 2013-14 and 2015-16.

Composition by sub-sector

- Red meat and livestock production (beef cattle, sheep and mixed farming and feedlots) accounted for 47.8% of overall industry turnover in 2015-16, followed by processing (32.0%) and sales (wholesaling and retail) (20.2%).

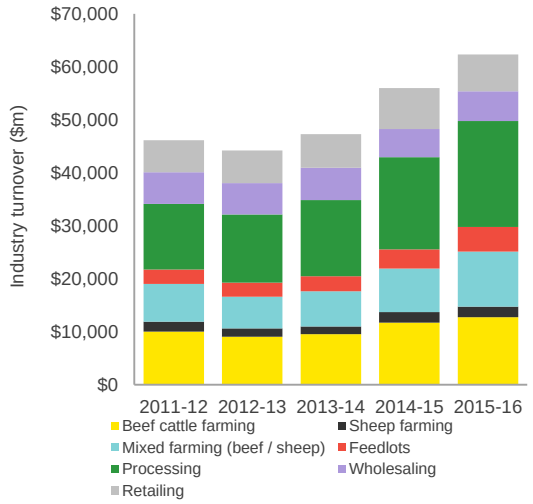
By state

- In 2015-16, New South Wales and Victoria accounted for 27.6% and 24.7% respectively of red meat and livestock industry turnover in Australia, followed closely by Queensland (21.9%).

Comparison to other industries

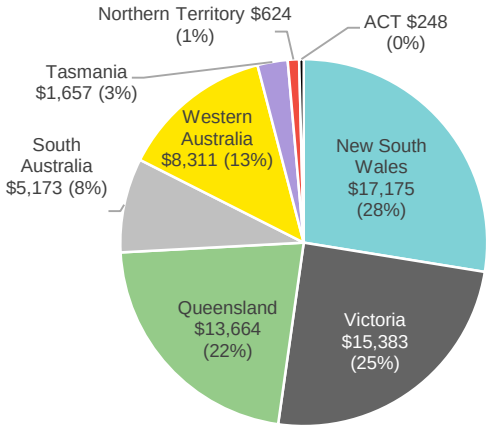
- In 2015-16, red meat and livestock industry turnover reached $62.3b, which was approximately 2.5% of Australia's total key industry turnover recorded in 2015-16.
- The defined industry was greater than the arts and recreation services industry, public administration and safety (private) and education and training (private).
- Wholesale trade recorded the highest turnover in 2015-16, which was approximately 7.8 times larger than that of the red meat and livestock industry.

Industry turnover by sub-sector ($m, 2011-12 to 2015-16)[1]



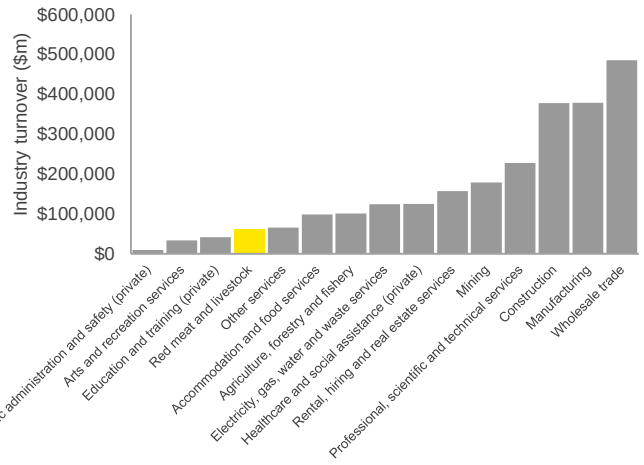
Source: IBISWorld

Industry turnover by state ($m, (%), 2015-16)



Sources: ABS and IBISWorld

Industry turnover compared to other industries ($m, 2015-16)



Sources: ABS and IBISWorld
Note: This only includes direct industry turnover for the defined industry, as outlined in the methodology section.

[1] The contribution of live exports to industry turnover is represented in beef, sheep and mixed farming.

Industry turnover

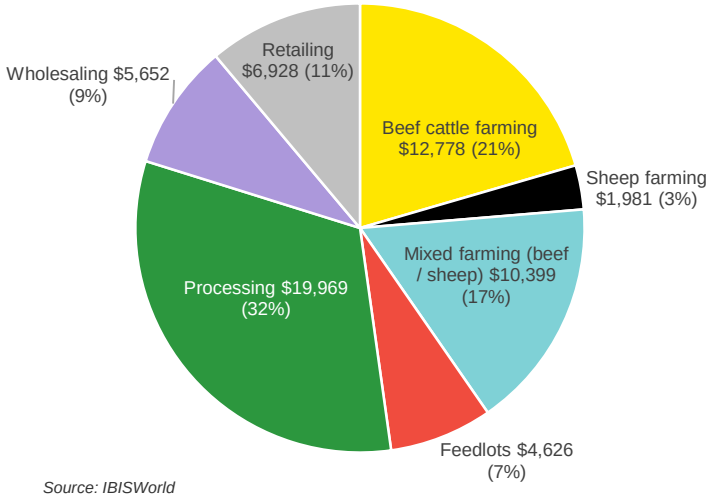
In 2015-16, **processing** was the largest contributor to red meat and livestock industry turnover, accounting for **32%.**

Industry turnover by sub-sector ($m, 2011-12 to 2015-16)

Sub-sector	2011-12	2012-13	2013-14	2014-15	2015-16
Beef cattle farming	$10,024	$9,082	$9,556	$11,754	$12,778
Sheep farming	$1,879	$1,567	$1,469	$1,967	$1,981
Mixed farming (beef / sheep)	$7,150	$5,945	$6,594	$8,191	$10,399
Feedlots	$2,699	$2,661	$2,877	$3,650	$4,626
Processing	$12,396	$12,890	$14,368	$17,363	$19,969
Wholesaling	$5,945	$5,886	$6,106	$5,325	$5,652
Retailing	$6,029	$6,200	$6,337	$7,726	$6,928
Total	**$46,124**	**$44,231**	**$47,307**	**$55,975**	**$62,334**

Source: IBISWorld

Industry turnover by sub-sector ($m, (%), 2015-16)



Source: IBISWorld

Composition by sub-sector

- In 2015-16, processing was the largest contributor to red meat and livestock industry turnover, contributing $20b or 32.0% to overall industry turnover. Beef cattle farming and mixed farming were the next largest contributors, accounting for 20.5% and 16.7% of industry turnover respectively.

Composition of mixed farming turnover

While data is not available to enable the clear delineation of mixed farming into its beef and sheep components, using the proportion of products and services segmentation as a proxy, the proportion of mixed farming turnover attributable to sheep and beef cattle farming can be estimated[1].

- **Sheep farming** – The proportion of mixed farming attributable to sheep farming in 2015-16 is estimated to be just under 30%. This means that that total industry turnover from mixed farming attributable to sheep farming is estimated to be $2.9b, bringing total sheep farming turnover to approximately $4.9b in 2015-16.
- **Beef cattle farming** – The proportion of mixed farming attributable to beef cattle farming in 2015-16 is estimated to be just over 70%. This means total industry turnover from mixed farming attributable to beef cattle farming is estimated to be $7.5b, bringing total beef cattle farming turnover to approximately $20.3b in 2015-16.

[1]Note: The proportion of products and services segmentation attributable to sheep and beef cattle farming varies each year.

Industry value add

Industry value add (also known as contribution to Gross Domestic Product (GDP)) is the measure of contribution of businesses within each sector to overall gross domestic product

Australia's red meat and livestock industry value add (IVA) was **$18b** in 2015-16, increasing by **34%** year on year.

Trend over time

- Australia's red meat and livestock IVA increased by 74.2% between 2013-14 and 2015-16. This followed a 18.0% decline between 2011-12 and 2013-14.
- The recent expansion in IVA is largely driven by the growth in beef farming, which experienced a growth of 69.9% between 2014-15 and 2015-16.

Composition by sub-sector

- In 2015-16, beef cattle farming had the largest IVA of sub-sectors (38.0%), followed by processing (25.1%) and mixed farming (19.7%).

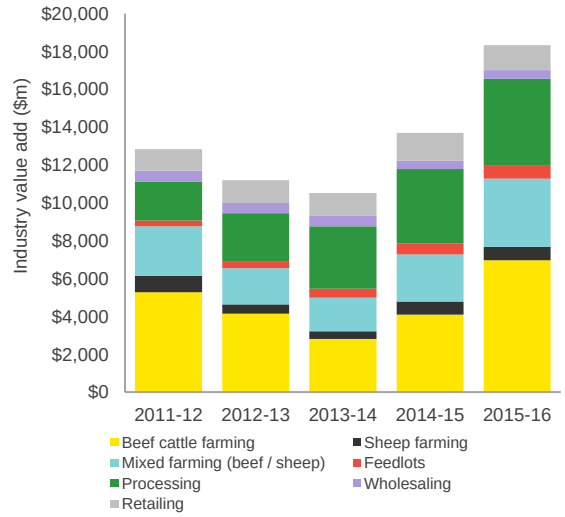
By state

- Queensland, New South Wales and Victoria have a similar level of IVA (between 23.0% and 26.5% of total Australian red meat IVA).

Comparison to other industries

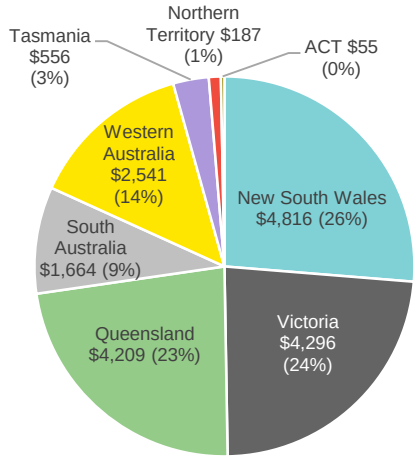
- In 2015-16, red meat and livestock IVA was $18.3b, which was greater than that of the arts and recreation services ($12.6b).
- The red meat and livestock industry was approximately 2.1% of Australia's key industry total IVA recorded in 2015-16.
- Construction recorded the highest IVA in 2015-16 ($116.7b), which was approximately 6.4 times larger than that of the red meat and livestock industry.

IVA by sub-sector ($m, 2011-12 to 2015-16)[1]



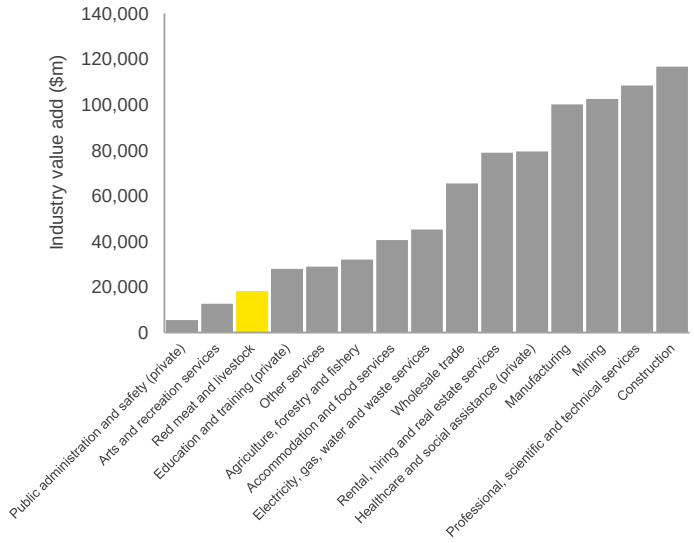
Source: IBISWorld

IVA by state ($m, (%), 2015-16)



Sources: ABS and IBISWorld

IVA compared to other industries ($m, 2015-16)



Sources: ABS and IBISWorld

[1] *The contribution of live exports to industry value add is represented in beef, sheep and mixed farming.*

Industry value add

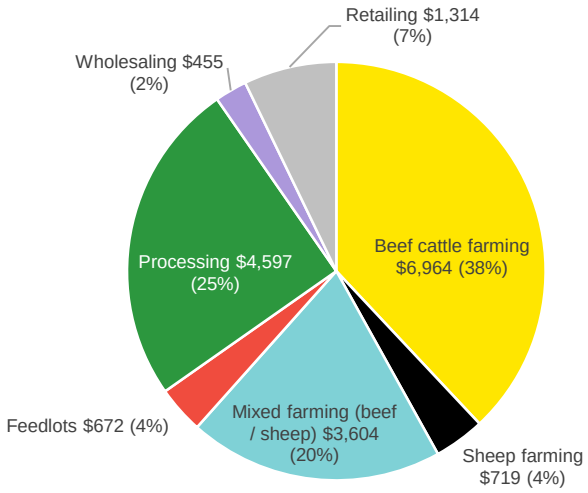
In 2015-16, **beef cattle farming** was the largest contributor to red meat and livestock IVA, accounting for **38%.**

IVA by sub-sector ($m, 2011-12 to 2015-16)

Sub-sector	2011-12	2012-13	2013-14	2014-15	2015-16
Beef cattle farming	$5,286	$4,143	$2,813	$4,098	$6,964
Sheep farming	$848	$502	$407	$688	$719
Mixed farming (beef / sheep)	$2,633	$1,907	$1,769	$2,483	$3,604
Feedlots	$296	$330	$484	$590	$672
Processing	$2,060	$2,565	$3,289	$3,922	$4,597
Wholesaling	$572	$542	$554	$453	$455
Retailing	$1,138	$1,206	$1,201	$1,469	$1,314
Total	**$12,833**	**$11,196**	**$10,518**	**$13,704**	**$18,324**

Source: IBISWorld

IVA by sub-sector ($m, (%), 2015-16)



Source: IBISWorld

Composition by sub-sector

- In 2015-16, beef cattle farming was the largest contributor to red meat and livestock IVA, contributing $7b or 38.0% to overall industry IVA. Processing and mixed farming were the next largest contributors, accounting for 25.1% and 19.7% respectively.


Image source: Meat & Livestock Australia Ltd, www.mla.com.au

Employment

Australia's red meat and livestock industry employed[1] **178,900 people** in 2015-16, increasing by **2%** year on year.

Trend over time

- In 2015-16, red meat and livestock employment increased by 1.7% year on year, creating an additional 2,971 jobs.
- Employment within the industry grew by 6.6% between 2011-12 and 2015-16, with the largest annual increase (4.6%) occurring between 2013-14 and 2014-15.

Composition by sub-sector

- Red meat and livestock production (being beef cattle, sheep and mixed farming and feedlots) accounted for 64.4% of overall industry employment in 2015-16, followed by processing (19.3%) and sales (16.3%).

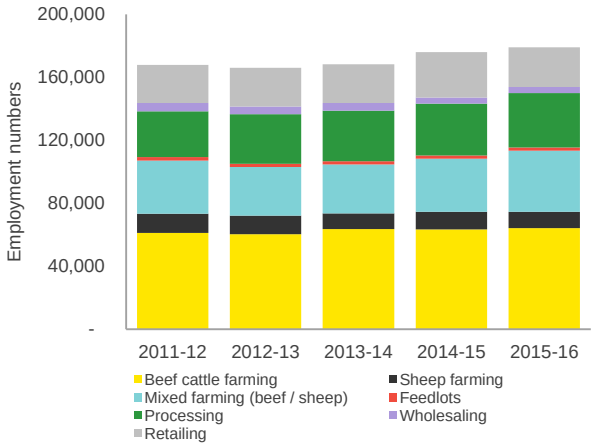
By state

- In 2015-16, New South Wales had the highest levels of employment in the red meat and livestock industry (28.4%), closely followed by Victoria (24.5%) and Queensland (21.0%).

Comparison to other industries

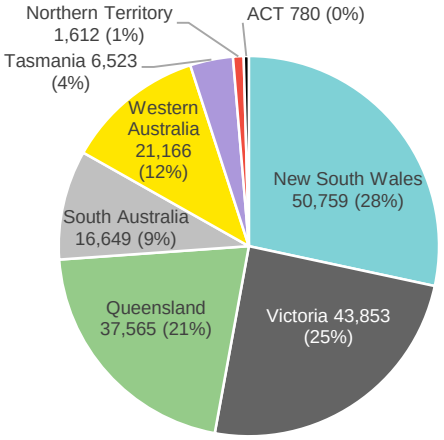
- The red meat and livestock industry was approximately 2.2% of Australia's key industry total employment recorded in 2015-16.
- Healthcare and social assistance (private) recorded the highest employment levels in 2015-16 (1.1m).

Employment by sub-sector (2011-12 to 2015-16)[2]



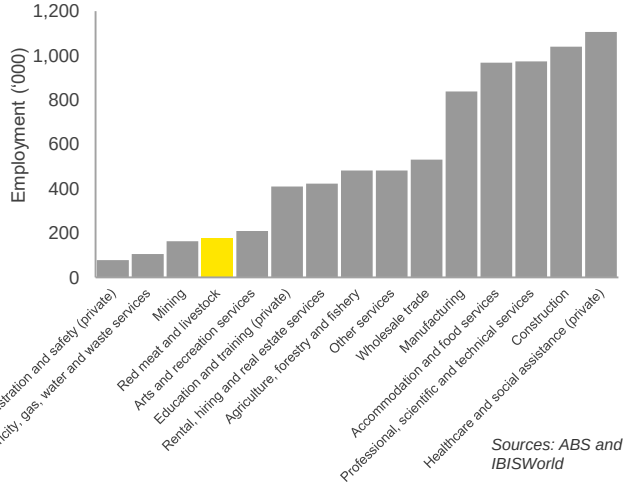
Source: IBISWorld

Employment by state (2015-16)



Sources: ABS and IBISWorld

Employment compared to other industries ('000, 2015-16)



Sources: ABS and IBISWorld

[1] *The employment figures outlined in this section draw on employment data outlined in the various IBISWorld reports, with the methodology applied outlined in Appendix A. Importantly, this definition only includes direct employment in the industry. For example, livestock agents are not included in this definition as they fall into a different sub-industry and the red meat component of this industry cannot be derived. Similarly, this definition does not include red meat related transport employment for the reason outlined above. As such the total number reported does not represent the full contribution of the red meat and livestock industry to employment. Indirect employment is estimated on page 21.*

[2] *The contribution of live exports to employment is represented in beef, sheep and mixed farming.*

Employment

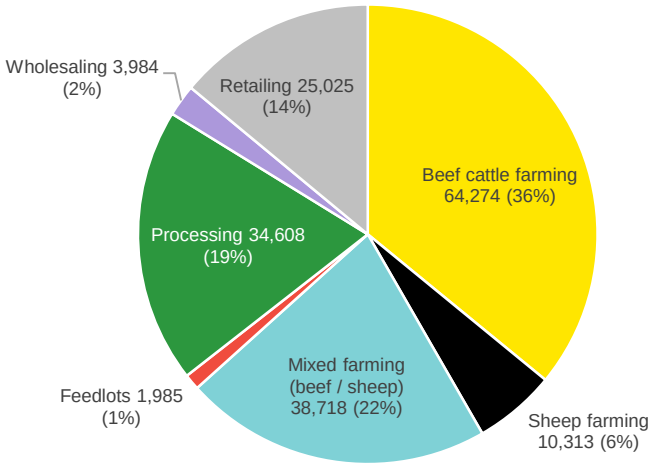
In 2015-16, **beef cattle farming** was the largest contributor to red meat and livestock industry employment, accounting for **36%.**

Employment by sub-sector (2011-12 to 2015-16)

Sub-sector	2011-12	2012-13	2013-14	2014-15	2015-16
Beef cattle farming	61,160	60,390	63,585	63,404	64,274
Sheep farming	12,248	11,775	9,976	11,065	10,313
Mixed farming (beef / sheep)	33,734	30,866	31,090	33,820	38,718
Feedlots	2,169	2,037	2,000	1,989	1,985
Processing	29,118	31,411	32,175	32,881	34,608
Wholesaling	5,147	4,968	4,831	3,922	3,984
Retailing	24,229	24,480	24,469	28,854	25,025
Total	**167,805**	**165,927**	**168,126**	**175,936**	**178,907**

Source: IBISWorld

Employment by sub-sector (%, 2015-16)



Source: IBISWorld

Composition by sub-sector

- In 2015-16, beef cattle farming was the largest contributor to red meat and livestock employment, with 64,274 jobs or 35.9% of overall industry employment figures. Mixed farming and processing were the next largest contributors, accounting for 21.6% and 19.3% respectively.


Image source: Meat & Livestock Australia Ltd www.mla.com.au

Case study: The red meat and livestock industry – supporting employment across the economy

- ***In addition to directly employing 178,900 people, the red meat and livestock sector indirectly contributes to the employment of an estimated 225,900 people across the economy, generating total employment of approximately 404,800 people.***
- ***The level of indirect employment is important as it provides a holistic perspective of total employment through the consideration of individuals employed in businesses that supply goods and services to the defined industry or who support processes and activities undertaken within it.***
- ***Different elements of the supply chain support differing levels of indirect employment with the processing sector supporting the highest level of indirect employment, an estimated additional 2.75 indirect employees for every direct job[1].***

The red meat and livestock industry directly employs 178,900 people across the supply chain. However, the level of indirect employment is also important, providing a holistic understanding of the industry's contribution to national employment through the consideration of employment generated in businesses that supply goods and services to the defined industry or support processes and activities undertaken within it.

The red meat sector purchases products and services from businesses within a number of supporting industries. Inputs and supporting services include:

- Transport (live and chilled);
- Activities related to livestock sales (such as livestock agents);
- Animal health services and products;
- On farm inputs such as fencing materials, fodder and grain, fertiliser and on-farm equipment (such as motorbikes);
- Manufacturing and sales inputs (such as electricity, packaging and chemicals);
- Scientific and technical services;
- Marketing and advisory services; and
- Financial services and insurance.

Across the red meat and livestock supply chain, different activities support differing levels of indirect employment. In particular:

- For every job within red meat production, it is estimated that just under one additional job is supported;
- Within processing, for every direct employee, it is estimated an additional 2.75 people are employed indirectly;
- Red meat wholesaling is estimated to support an additional 1.86 jobs per employee; and
- Within retailing, every job associated with the red meat and livestock industry is estimated to support an additional half employee across other industries.

Based on these multipliers, the level of direct and indirect employment across the red meat supply chain is outlined in the table below.

Supply chain component	Direct employment	Indirect employment	Total employment
Production	115,291	109,785	225,076
Processing	34,608	95,322	129,930
Wholesaling	3,984	7,412	11,396
Retailing	25,025	13,412	38,437
Total	**178,908**	**225,930**	**404,838**

An estimated 225,900 people are indirectly employed within the red meat and livestock industry. This means that when considered in totality, the red meat and livestock industry contributes to the employment of 404,800 people. Notably, a large number of these jobs are in rural and regional locations.

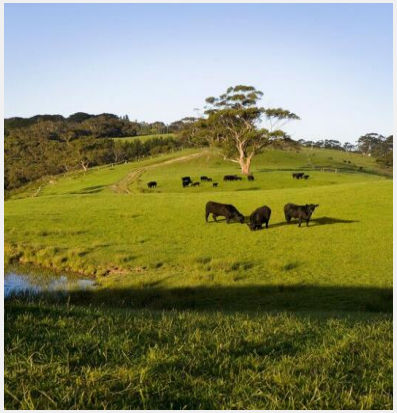


Image source: Meat & Livestock Australia Ltd www.mla.com.au

Sources: IBISWorld (direct employment) and REMPLAN analysis (indirect employment)

[1] REMPLAN (an economic analysis software package designed for use by economic development practitioners) has been used to estimate the indirect employment associated with the red meat and livestock industry for the purposes of this case study (further information is contained in Appendix A).

Number of businesses

In 2015-16, Australia had just over **75,400** red meat and livestock businesses, increasing by **5%** year on year.

Trend over time

- The number of businesses within the red meat and livestock industry has remained relatively consistent between 2011-12 and 2015-16, with an overall growth rate of 3.5%.
- Red meat and livestock businesses increased by 5.0% in 2015-16.

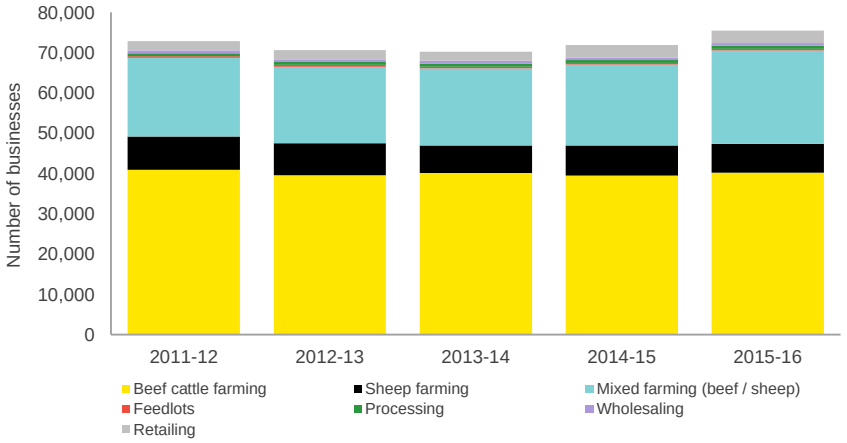
Composition by sub-sector

- In 2015-16, production (being beef cattle, sheep and mixed farming and feedlots) accounted for 93.8% of all businesses within the red meat and livestock industry, followed by processing (1.1%) and sales (5.1%)

By state

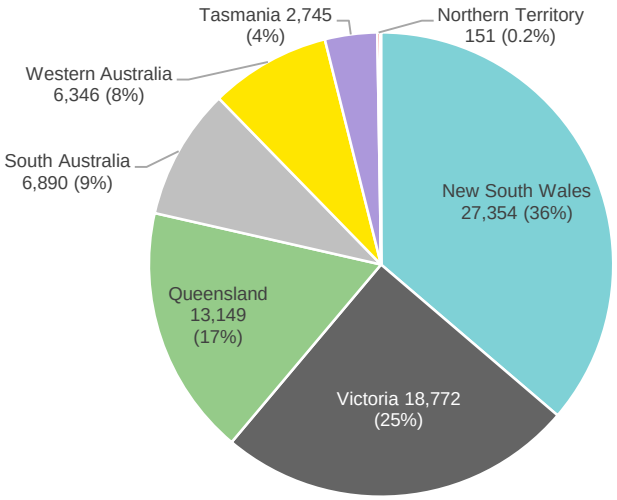
- In 2015-16, New South Wales had 27,354 red meat and livestock businesses, accounting for 36.3% of all red meat and livestock businesses in Australia.
- Victoria had 18,772 (24.9%) and Queensland 13,149 (17.4%) businesses respectively.

Red meat and livestock business numbers across supply chain (2011-12 to 2015-16)[1]



Source: IBISWorld

Red meat and livestock business numbers by state (2015-16)



Sources: ABS and IBISWorld

[1] *Businesses undertaking live exports are represented in beef, sheep and mixed farming.*

Number of businesses

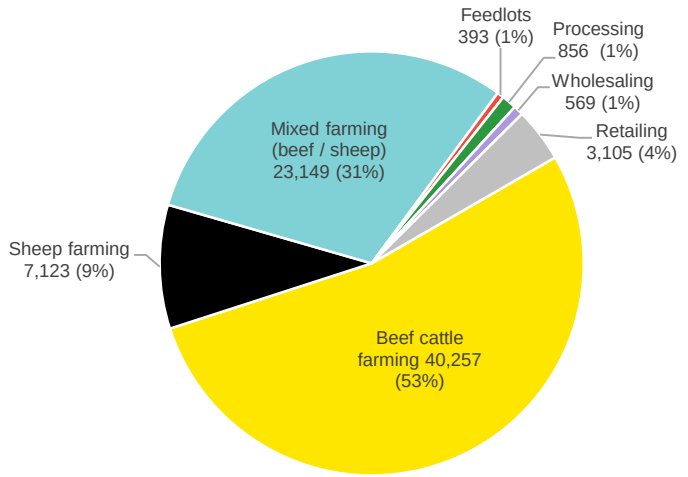
In 2015-16, **beef cattle farming** had the most businesses of sub-sectors, accounting for **53%.**

Business numbers by sub-sector (2011-12 to 2015-16)

Sub-sector	2011-12	2012-13	2013-14	2014-15	2015-16
Beef cattle farming	40,933	39,550	40,120	39,507	40,257
Sheep farming	8,257	7,997	6,842	7,480	7,123
Mixed farming (beef / sheep)	19,528	18,983	19,120	20,042	23,149
Feedlots	435	412	403	398	393
Processing	667	714	815	758	856
Wholesaling	723	689	699	558	569
Retailing	2,326	2,256	2,233	3,126	3,105
Total	**72,869**	**70,602**	**70,232**	**71,870**	**75,451**

Source: IBISWorld

Business numbers by sub-sector (%, 2015-16)



Source: IBISWorld

Composition by sub-sector

- In 2015-16, beef cattle farming had the largest number of businesses with 40,257 or 53.4% of overall industry business figures. Mixed farming and sheep farming were the next largest, accounting for 30.7% and 9.4% of business numbers respectively.

Image source: Meat & Livestock Australia Ltd www.mla.com.au

Exports

Red meat and livestock exports totalled approximately **$14b** in 2015-16, decreasing by **2%** year on year.

Trend over time

- Red meat and livestock exports increased from $7.8b in 2011-12 to $13.7b in 2015-16, with the largest annual increase (29.3%) occurring between 2013-14 and 2014-15.
- Despite a decline of 1.5% between 2014-15 and 2015-16, the value of industry exports increased by 75.5% from 2011-12 and 2015-16.

Composition by sub-sector

- Australian red meat and livestock exports occur at two primary stages of the supply chain: 1) live export and 2) processing.
- In 2015-16, 86.5% of Australian red meat and livestock exports were from the processing stage, whilst beef and sheep production (live exports) accounted for the remaining 13.5% of exports.

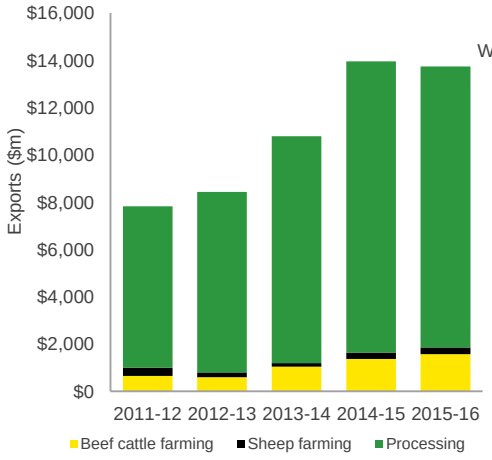
By state

- In 2015-16, Queensland had the highest level of red meat and livestock exports, accounting for approximately 40.3% of export volumes.
- Victoria (23.0%) and New South Wales (18.7%) rounded out the nation's top three exporting states.

Comparison to other industries

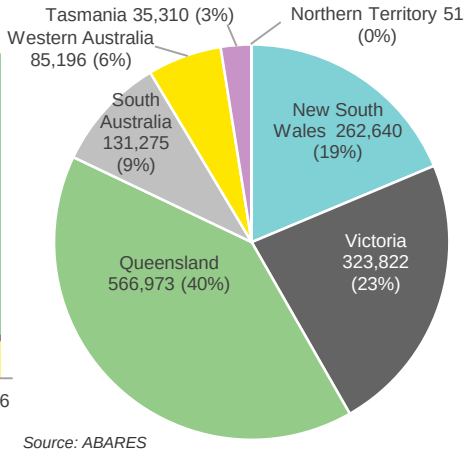
- Red meat and livestock exports accounted for approximately 5.6% of Australia's key industry exports in 2015-16.
- In 2015-16, red meat and livestock exports were valued $13.7b. This was in line with those recorded in machinery and equipment manufacturing ($13.9b) and slightly smaller than agriculture production ($14.6b).

Exports by sub-sector ($m, 2011-12 to 2015-16)[1]



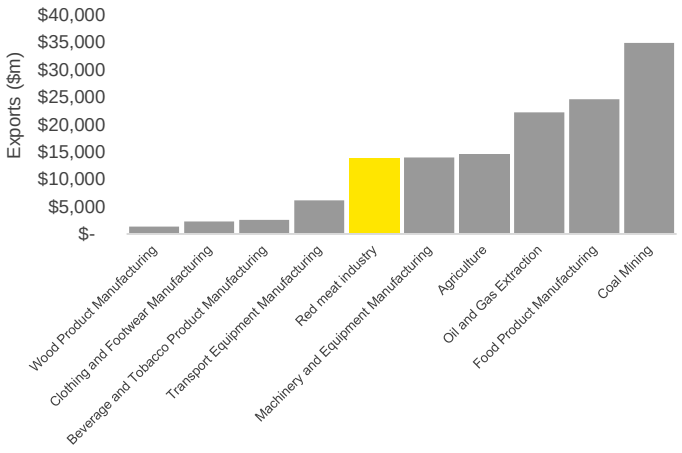
Source: IBISWorld

Exports by state (tonnes swt, 2015-16)



Source: ABARES
Note 1: Total refers to the sum of beef, lamb and mutton.

Exports compared to other industries ($m, 2015-16)



Sources: ABS and IBISWorld

[1]Beef cattle farming and sheep farming exports are recognised as 'live exports', with the livestock exported directly from producers.

Exports

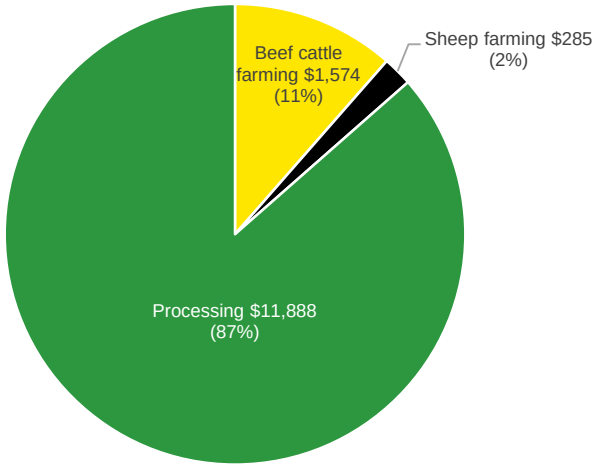
In 2015-16, **processing** was the largest contributor to red meat and livestock industry exports, accounting for **86%.**

Exports by sub-sector ($m, 2011-12 to 2015-16)

Sub-sector	2011-12	2012-13	2013-14	2014-15	2015-16
Beef cattle farming	$661	$600	$1,052	$1,369	$1,574
Sheep farming	$341	$200	$144	$277	$285
Processing	$6,833	$7,642	$9,598	$12,312	$11,888
Total	**$7,835**	**$8,442**	**$10,794**	**$13,958**	**$13,747**

Source: IBISWorld

Exports by sub-sector ($m, (%), 2015-16)



Source: IBISWorld

Composition by sub-sector

- In 2015-16, processing was the largest contributor to red meat and livestock industry exports, contributing $11.9b to overall industry export figures. Sheep farming and beef cattle farming contributed approximately $285m and $1.6b to Australian industry exports respectively.


Image source: Meat & Livestock Australia Ltd www.mla.com.au

Case study: Australia – Indonesian strategic trade and partnership alignment

- ***Australia's red meat and livestock exports continue to generate strong annual export revenues.***
- ***Australia's live trade generates a broad range of employment opportunities across regional and metropolitan areas.***
- ***Indonesia continues to be live trade's most important market.***
- ***More than 595,000 feeder and slaughter cattle were exported to Indonesia in 2016.***

Australia's red meat and livestock market is heavily export orientated, with Indonesia continuing to be Australia's most important live cattle market.

In 2016, more than 595,000 live feeder and slaughter cattle were exported to Indonesia from Australia, representing a significant proportion of total live exports.

Indonesia has the fourth largest population in the world (261m people) and the country is undergoing rapid economic growth, creating a large number of urban and middle-class consumers.

Australian industry and Government agencies are working with Indonesia in its goal to increase its domestic beef production via a number of initiatives. This includes the Indonesia-Australia Comprehensive Economic Partnership Agreement which seeks to enhance economic cooperation in specific sectors such as beef cattle.

Alignment at a business level is also strengthening the Australia-Indonesia cattle trade, with a number of Australian-based companies boasting significant investments in Indonesian supply chain facilities, including feedlots and abattoirs.

For example, the 28,000-head Juang Jaya Abdi Alam (JJAA) feedlot in Lampung incorporates cattle importing, feeding and finishing, plus breeding and plantation projects. The Brisbane-based Consolidated Pastoral Company holds an 80% interest in JJAA which helps to generate flow-on employment to 12,000 Indonesians.

The record prices for Australian cattle over the 2016-17 period, though a welcome reward for producers, have tested the competitiveness of Australian beef in markets like Indonesia. In response to high retail beef prices, Indonesia legalised the importation of frozen Indian buffalo meat, which has provided further competition for Australian beef.

As a result, Indonesian lotfeeders are experiencing a slowdown in demand from butchers who have difficulty selling fresh beef from Australian cattle, since it is more expensive than frozen/defrosted Indian meat.

Nonetheless, the natural trade alignment between Australia and Indonesia and ongoing collaboration at Government and industry levels means there is long-term confidence in the future of live cattle exports to our northern neighbour.

Case Study Source: Australian Livestock Exporters' Council

Image source: Australian Livestock Exporters' Council www.auslivestockexport.com

C

Part C: Species statistics and performance

This section of the report explores the key statistics and performance of the specific species comprising the red meat and livestock industry: 1) beef cattle, 2) sheep and 3) goat.

Beef cattle industry	28
Sheep industry	42
Goat industry	51

1. Beef cattle industry

Image source: Meat & Livestock Australia Ltd www.mla.com.au

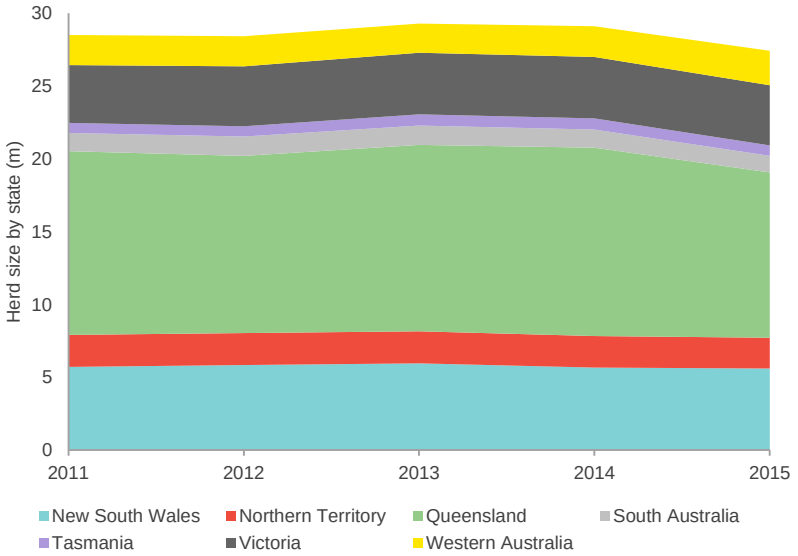
Beef cattle

In 2015, Australia's beef cattle herd declined by 6% year on year to **24.6m head.**

Herd size

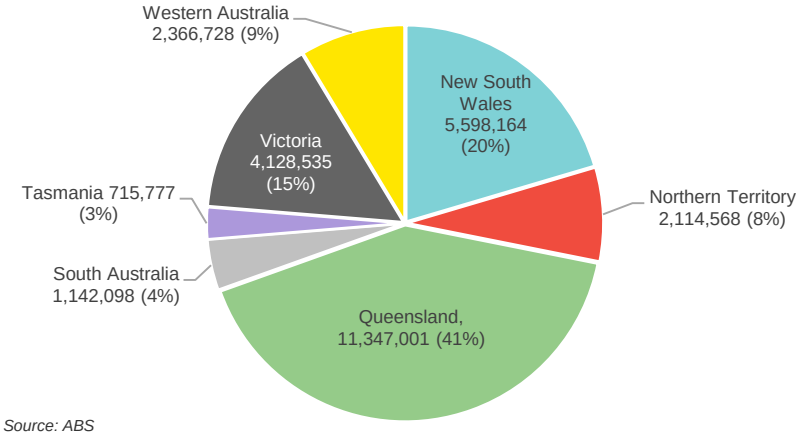
- Australia's cattle herd (beef and dairy) was 27.4m head in 2015, a decline of 3.8% since 2011 and a decline of 5.8% from the previous year.
- In 2015, 89.7% of Australia's cattle herd consisted of beef cattle (24.6 m head), whilst the remaining 10.3% were dairy cattle (2.8m head).
- Between 2011-15 Queensland had the largest cattle herd in Australia, with an estimated 11.3m head as at 2015 (41.4% of national herd). However, it is noted that this was a 12.3% reduction in cattle from the previous year.
- Western Australia's cattle herd expanded by the largest amount (14.5%) of any state between 2011 and 2015.

Australian cattle herd size by state over time (head, 2011 to 2015)



Source: ABS

Australian cattle herd by state (head, 2015)

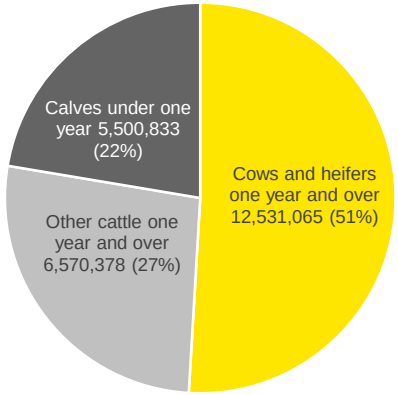


Source: ABS

Note 1: Domestic cattle herd represents both beef and dairy cattle numbers

Australian beef herd make-up (head, 2015)

- In 2015, 50.9% of the total Australian beef cattle herd was made up of cows (defined as heifers that are one year and over).



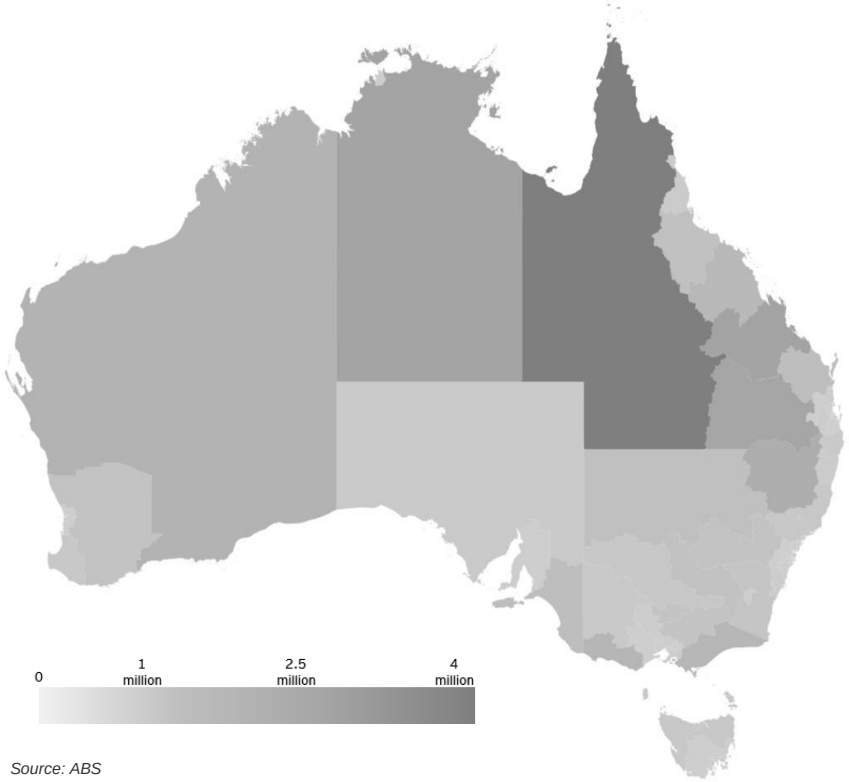
Source: ABS

Beef cattle

With **11m head**, Queensland had the greatest number of cattle in 2014-15.

Key production areas

- As of 2014-15, 'Outback Queensland'[1] had the greatest number of cattle (by Statistical Area 4 (SA4)[2] across Australia (4.0m head), representing 14.6% of the domestic beef herd.



Source: ABS

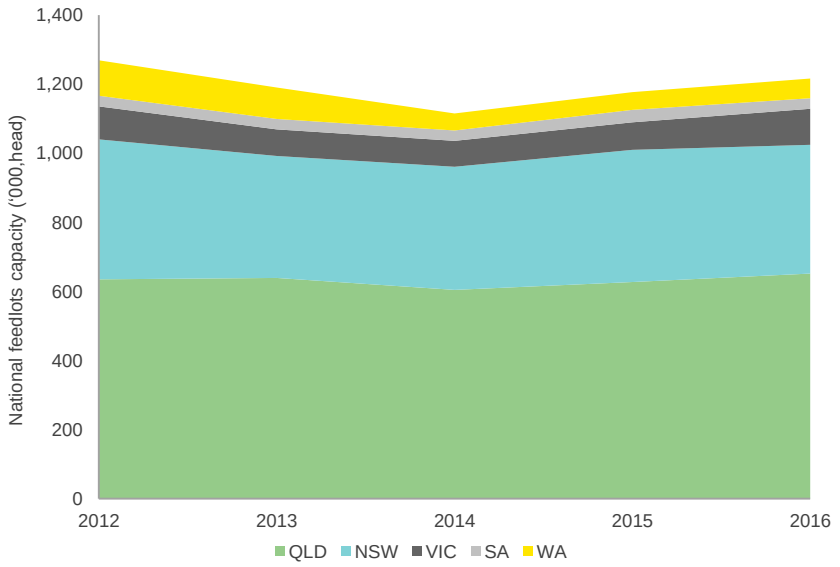
1. Outback Queensland is the SA4 region as defined by the ABS.
2. It is noted that SA4 level was the most localised data available at the time of publication.

In 2016, Australian feedlot capacity increased by **3%** year on year.

Feedlots

- In 2016, total feedlot capacity in Australian was 1.2m head, increasing by 3.3% from the previous year.
- Feedlot capacity declined by 4.2% between 2012 and 2016, with all states except Queensland and Victoria encountering a decrease in capacity.
- Between 2012 and 2016, Queensland possessed the largest feedlot capacity (651,713 head in 2016), which represented 53.6% of national capacity. New South Wales possessed the second highest feedlot capacity, accounting for 30.6%.

Australian national feedlot capacity (head, 2012 to 2016)



Source: ALFA/MLA feedlot survey

Beef cattle

In 2016, Australia had **887,600 cattle on feed** representing a **73% utilisation** of national feedlot capacity.

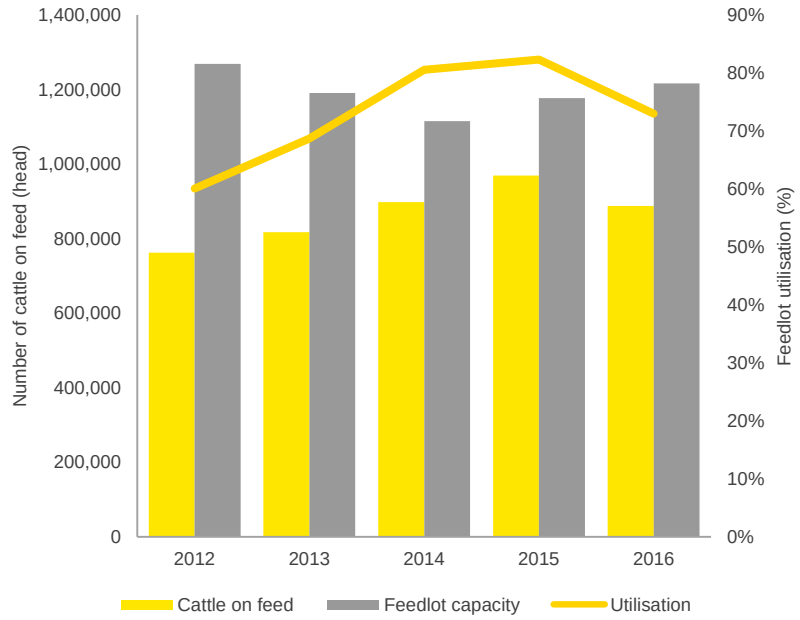
Feedlot utilisation

- In 2016, the total cattle on feed was 887,632 head, decreasing by 8.4% year on year.
- Between 2012 and 2015, Australia's average feedlot utilisation was 72.9%, with a minimum of 60.1% during 2012 and maximum of 82.3% during 2015.
- Between 2012 and 2016, the number of cattle on feed across Australia increased by 16.4%.

Over the Hook (OTH) cattle indicators[1]

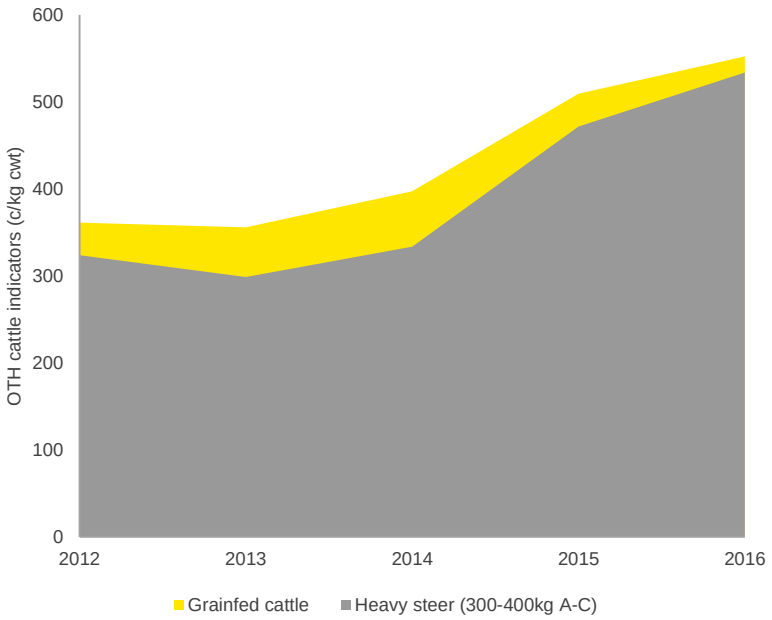
- In 2016, average OTH cattle prices for grainfed cattle were 552c/kg (cwt) and 534c/kg (cwt) for heavy steers.
- Between 2012 and 2016, average OTH grainfed cattle prices increased by 52.9% to 552c/kg (cwt). During the same time period, average OTH heavy steer prices increased by 64.9% to 534c/kg (cwt).
- The largest single year on year price increase was recorded by OTH heavy steers, rising by 41.4% in 2015.

Australian feedlot utilisation (%, 2012 to 2016)



Source: ALFA/MLA feedlot survey

Queensland OTH cattle indicators (c/kg, 2012 to 2016)



Source: ALFA/MLA feedlot survey / MLA

1. Queensland OTH cattle indicators have been used for consistency purposes.

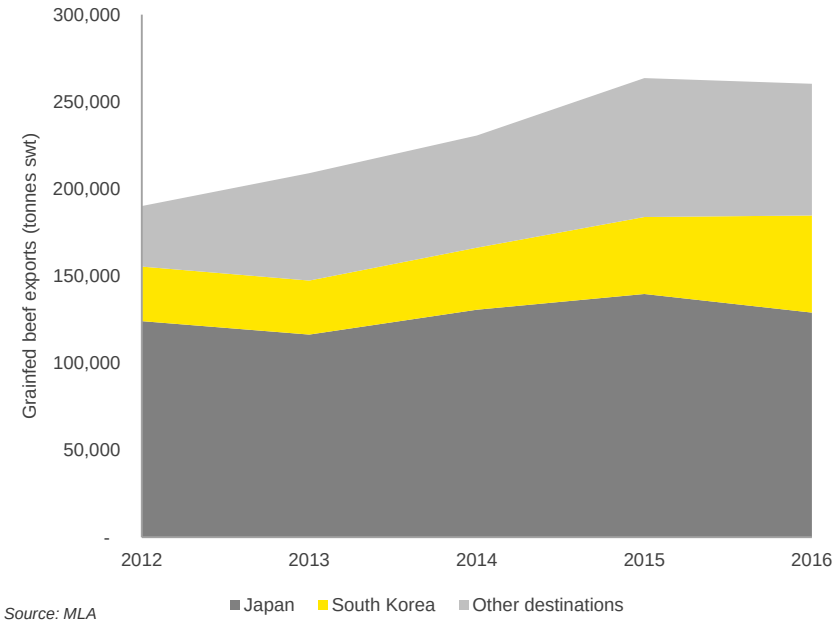
Beef cattle

In 2016, Australia exported a total of **260,000 tonnes (swt) of grainfed beef**, decreasing 1% year on year.

Grainfed beef exports

- Australia exported a total of 260,386 tonnes (swt) of grainfed beef in 2016, increasing by 36.9% (70,207 tonnes swt) from 2012.
- In 2016, Japan was Australia's largest grainfed beef export market (49.5%), followed by South Korea (21.4%), and other destinations (29.0%).
- Between 2012 and 2016, other grainfed beef export destinations experienced the largest increase (117.6%), followed by South Korea (78.0%) and Japan (4.0%).

Australian grainfed beef exports (tonnes, 2012 to 2016)

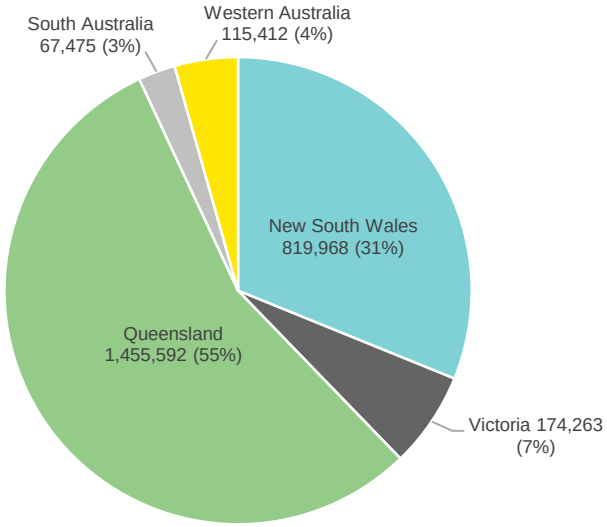


Source: MLA

Grainfed beef turn-off

- In 2016, Australian grainfed beef turn-off was recorded at 2.6m head, decreasing by 9.2% year on year.
- Queensland was the largest contributor of grainfed beef turn-off, accounting for 55.3% of the national total. New South Wales and Victoria were the next largest contributors, accounting for 31.1% and 6.6% respectively.
- In 2016, Western Australia was the only state to experience an increase in grainfed beef turn-off, increasing by 45.3% from the previous year.

Australian grainfed beef turn-off (head, 2012 to 2016)



Source: MLA

Case study: Free trade negotiations deliver improved competitiveness of Australian beef

- ***Japan and South Korea are the key markets for Australian grain fed beef.***
- ***Recent Free Trade Agreements (FTAs) are set to improve international competitiveness for grain fed beef.***
- ***There has been a growth in market diversification for grain fed beef exports.***

Tariffs applied by importing countries represent a significant cost to the Australian beef supply chain. Removing (or reducing) these impediments provides the opportunity to improve the competitiveness of Australian product and maximise sector returns.

South Korea and Japan are significant customers of Australian grain fed beef – with, for example, 70.5% of Australian grainfed beef exports in 2016 destined for these two markets, and the majority (49.5%) going to Japan alone.

Under the Korea-Australia FTA which entered into effect in December 2014, the previous 40.0% beef import tariff will be eliminated by 2028. Not only is this tariff elimination a mechanism for further improving the trading environment, but it is also a means to address the competitive disadvantage Australian beef faced in Korea versus other suppliers which had already secured preferential trade agreements.

Via the 2015 Japan-Australia Economic Partnership Agreement (JAEPA), the import tariff on chilled Australian beef entering Japan has fallen from 38.5% to 29.9% in 2017, with further annual reductions to 23.5% by 2028. Similarly, the previous 38.5% import tariff on frozen beef will fall to 19.5% by 2031. These tariff reductions have provided Australian beef with a clear preferential advantage over other beef suppliers to Japan which are yet to secure an FTA.

Grainfed beef exports by market (tonnes swt, 2016)

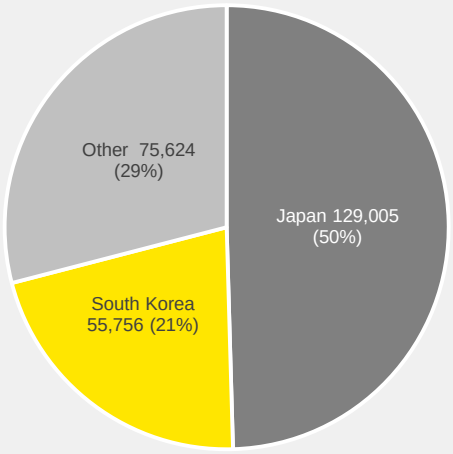



Image source: Meat & Livestock Australia Ltd www.mla.com.au

Case Study Source: Australian Lot Feeders' Association

Beef cattle

Between 2015 and 2016, Australian beef and veal production declined by **16%** and **26%** respectively.

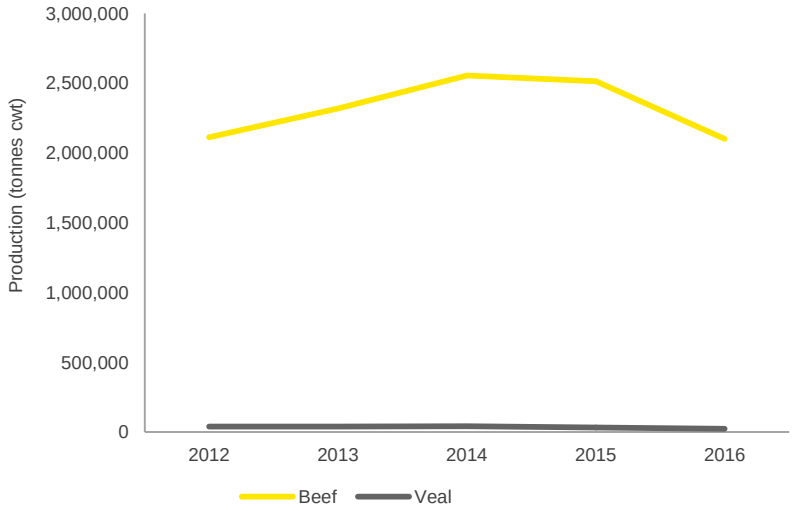
Production

- In 2016, Australian cattle production was recorded at 2.1m tonnes (cwt).
- Between 2012 and 2016, beef and veal production declined by 0.6% and 37.8% respectively. Noting that in 2013 and 2014, production increased before declining.
- In 2016, 98.9% of Australian cattle production was beef, with veal accounting for the remaining 1.1%.

Slaughter

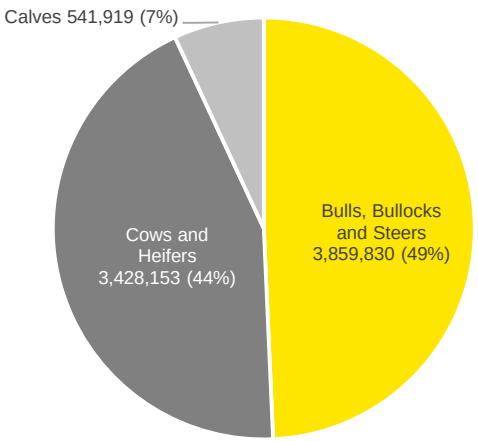
- In 2016, Australian cattle slaughter numbers decreased by 19.1% to 7.8m head.
- Cows and heifers accounted for 45.0% of Australian cattle slaughter numbers in 2016.
- Between 2012 and 2016:
  - Cow and heifer slaughter increased by 6.9%;
  - Calf slaughter numbers decreased by 13.3%; and
  - Bull, bullocks and steer slaughter decreased by 6.9%.

Australian cattle production (tonnes cwt, 2012 to 2016)



Source: ABS

Australian cattle slaughter (head, 2016



Source: ABS

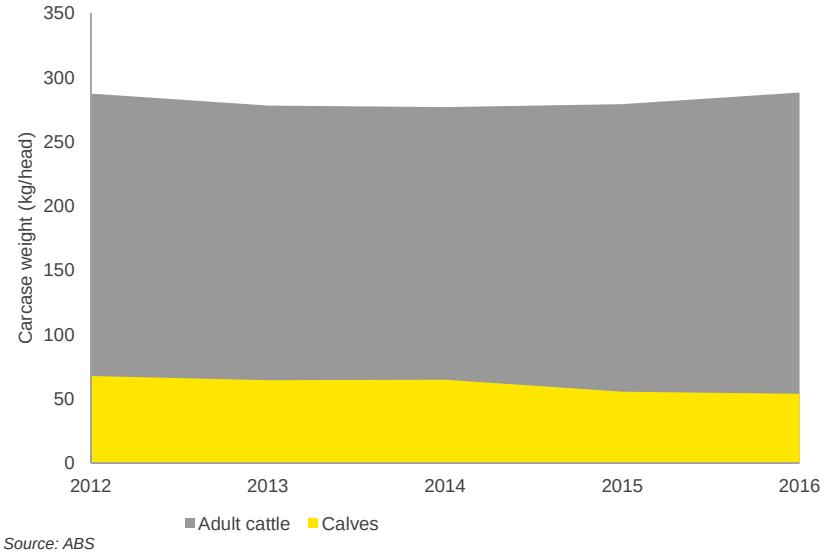
Beef cattle

Between 2012 and 2016, adult cattle carcase weights remained constant, whilst calf weights **declined by 20%.**

Carcase weight

- In 2016, the average adult cattle carcase weight was 288 kg/head, increasing by 3.2% from the previous year (279 kg/head).
- In 2016, the average calf carcase weight was 54 kg/head, decreasing by 3.0% from the previous year (56 kg/head).
- Between 2012 and 2016, adult cattle carcase weight remained constant (0.3% decrease), whilst calf carcase weight declined by 20.4%.

Australian cattle carcase weight (kg/head, 2012 to 2016)



Source: ABS

Image source: Meat & Livestock Australia Ltd www.mla.com.au

Beef cattle

Australia exported just **over 1Mt** (swt) of beef and veal in 2016, decreasing 21% on the previous year.

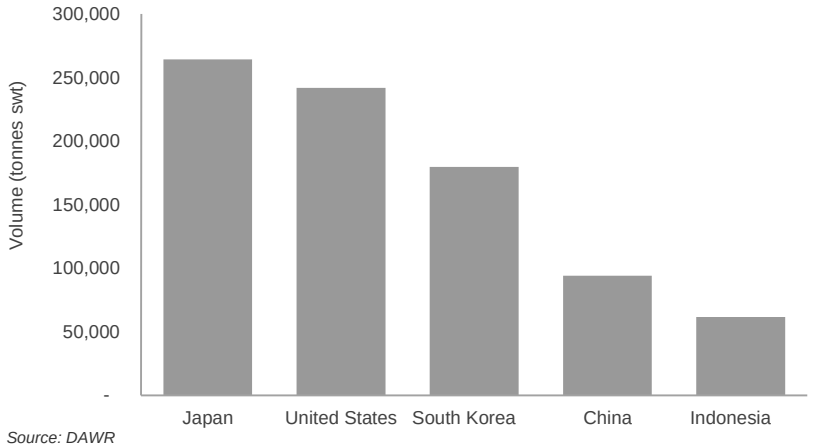
Top export markets

- Australia exported a total of 1.1Mt (swt) of beef and veal in 2016, increasing by 5.6% (54,323 tonnes swt) from 2012.
- In 2016, Japan was Australia's largest beef and veal export market (26.0%), followed by United States (23.8%), South Korea (17.7%), China (9.2%) and Indonesia (6.1%).
- In 2016, Australia's top five international markets accounted for 82.7% of all exports.

Live exports

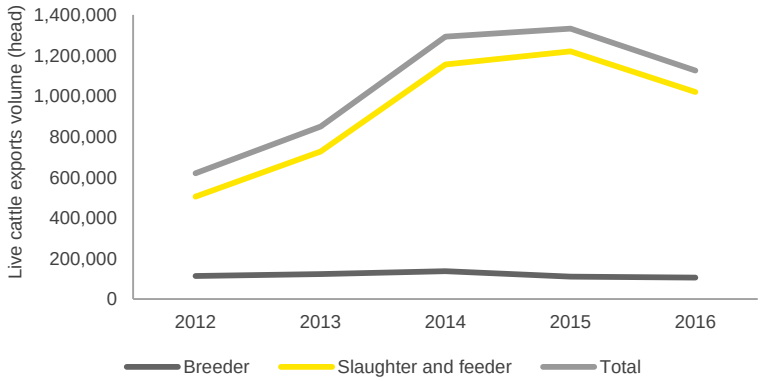
- In 2016, 87.0% of Australian total live cattle exports value was slaughter and feeder, with a value of $1.25b.
- The volume of slaughter and feeder live exports increased by 102.0% between 2012 and 2016, whilst breeder live exports decreased by 7.0% over the same period.

Australia's top five beef export markets (tonnes swt, 2016)



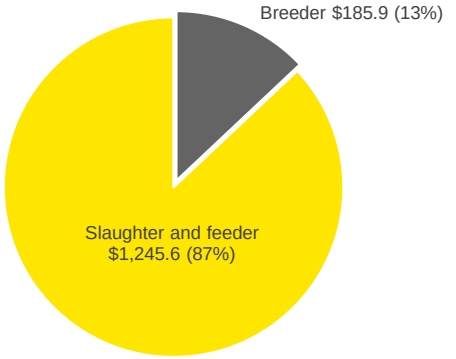
Source: DAWR

Australian live exports volume (head, 2012 to 2016)



Sources: ABS, DAWR

Australian live exports value ($m FOB, 2016)



Sources: ABS, DAWR

Beef cattle

Between 2014 and 2015, beef saleyard prices increased by **48%**, whilst beef retail prices rose by **9%.**

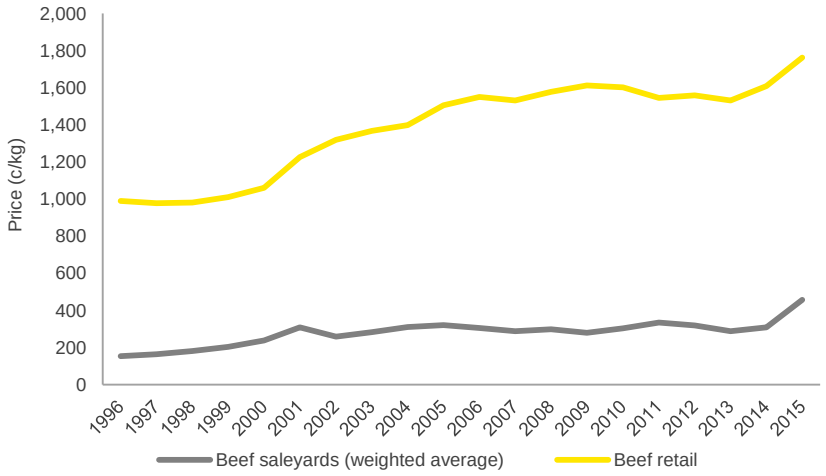
Retail and saleyard prices

- From 1996 to 2015, Australian beef saleyard prices increased by 197.2%, whilst retail prices rose by 77.9%.
- In 2015, beef saleyard prices (weighted average) and beef retail prices were 457 c/kg and 1,762 c/kg respectively.
- Between 2011 and 2015, beef saleyard and retail prices increased by 36.6% and 14.0% respectively, compared to a 10 year growth of 50.1% and 13.6% respectively.
- The long-term average of beef saleyard and retail prices from 1996 to 2015 was 280 c/kg and 1,386 c/kg respectively.

Producer share of retail dollar

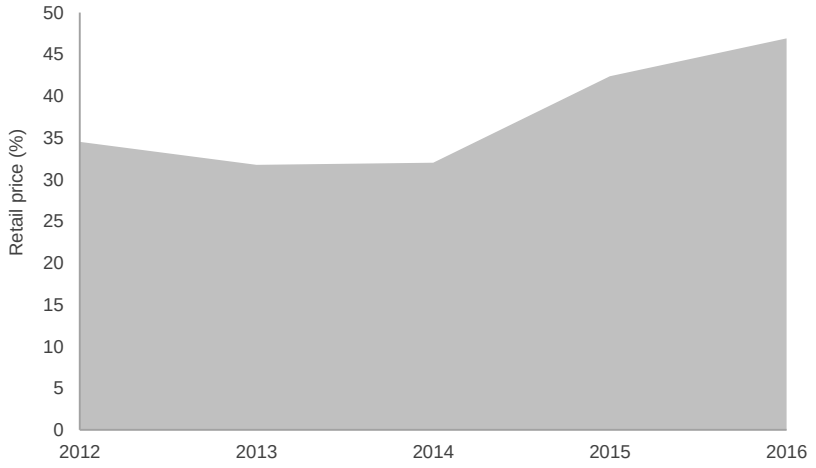
- In 2016, the producer's share of retail dollar for cattle was 46.9% up from 42.4% in the previous year.
- The five-year average for the period ending 2016 was 37.5%, slightly down from the most recent two-year average of 44.6%.
- Between 2014 and 2015, beef producers' share of retail dollars increased by 32.4%. However, this growth slowed in 2016 to 10.7%.

Australian beef retail and saleyard prices (c/kg, 1996 to 2015)



Source: ABARES
Note 1: ABARES uses weighted average beef saleyard price for yearling, ox and cow.

Producer share of retail dollar (%, 2012 to 2016)



Source: MLA

Beef cattle

In 2016-17, Australia's northern farming region's rate of return increased by **64%** from the previous year.

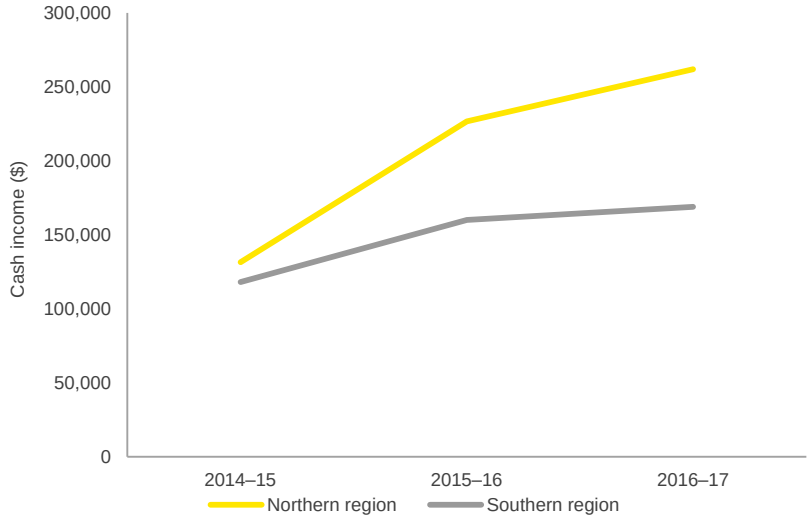
Farm performance: cash income[1]

- Cash income for both northern and southern farming regions[2] increased between 2014-15 and 2016-17, with the northern region increasing by 99.2%, whilst the southern region increased by 43.0%.
- The average beef farm cash income over the three year period between 2014-15 and 2016-17 was $206,717 for beef farms in the northern region and $149,070 for those producers located in the southern region.

Farm performance: rate of return[1]

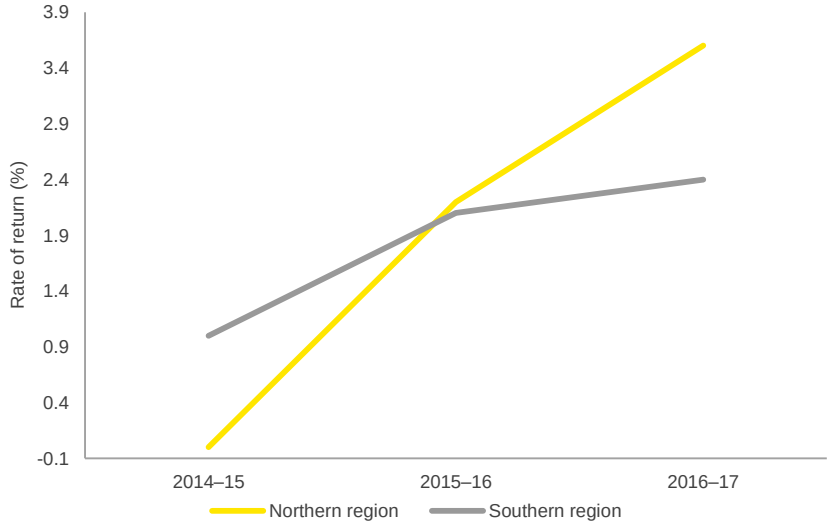
- In 2016-17, Australia's northern and southern beef farming regions are estimated to have a 3.6% and 2.4% rate of return respectively, increasing by 63.6% and 14.3% from the previous year.
- The average beef farm rate of return over the three year period between 2014-15 and 2016-17 was 1.9% for beef farms in the northern region and 1.8% for those producers located in the southern region.

Australian beef farm cash income, by region ($, 2014-15 to 2016-17)



Source: ABARES

Australian beef farm rate of return, by region (%, 2014-15 to 2016-17)



Source: ABARES

[1] 2015–16 figures represent preliminary estimates, whilst 2016-17 figures represent provisional estimates.
[2] Beef farm performance is segmented into northern and southern farming regions as data by state was not available at the time of report publication.

Beef exports by volume

In 2016, Australia's top three beef export destinations (on a volume basis) were **Japan (264,324 tonnes), United States (242,012 tonnes) and South Korea (179,854 tonnes).**

Australian beef exports[2], (%, 2016)

***Middle East[1]**
Bahrain (0.04%)
Dubai (0.7%)
Jordan (0.2%)
Kuwait (0.3%)
Oman (0.01%)
Other Middle East (0.3%)
Qatar (0.3%)
Saudi Arabia (1.1%)
UAE (0.2%)

[1] The definition of the 'Middle East' is based off the individual export destinations noted by DAWR and only includes those markets which were export destinations.
[2] Only those export destinations with greater than 0.05% market share have been highlighted. All remaining exports have been captured through 'other'.

Source: DAWR

Live cattle exports by head

In 2016, Australia's top three live cattle export destinations (on a volume basis) were **Indonesia (595,637 head), United Vietnam (193,352 head) and China (94,683 head).**

Australian live cattle exports[2], (%, 2016)

***Middle East[1]**
Israel (6.1%)
Kuwait (0.1%)
Qatar (0.1%)
Turkey (5.2%)
UAE (0.05%)

[1] The definition of the 'Middle East' is based off the individual export destinations noted by DAWR and only includes those markets which were export destinations.
[2] Only those export destinations with greater than 0.05% market share have been highlighted. All remaining exports have been captured through 'other'.

Source: DAWR

Case study: Animal welfare in the live trade

- ***The Australian livestock export trade is recognised as a world leader in animal welfare, with ongoing supply chain investment ensuring welfare outcomes continue to improve.***
- ***Australian exporters are committed to a 'no fear, no pain' objective.***
- ***Exporter Supply Chain Assurance System (ESCAS) upholds the world's best welfare and traceability standards.***
- ***On-board mortalities are currently at record lows.***

Australia's livestock export industry is collaborating with Australian and overseas partners to continually improve animal welfare practices and outcomes. The red meat and livestock industry is committed to learning from previous supply chain issues and using data, systems and tools to anticipate and avoid future welfare incidents.

Australia is the only country out of 130 livestock exporting nations which provides any after sale, in-market support to ensure the welfare of livestock is upheld.

Under the Australian Standards for the Export of Livestock (ASEL) and ESCAS, Australian exporters and regulators are required to oversee the entire supply chain, from farms in Australia, to transport and on to the final point of slaughter in international markets.

Exporters are required to address any welfare, control or traceability issues detected in their supply chains by correcting existing processes or by ceasing supply to non-compliant facilities. While these regulations add considerable costs, the industry is continually finding ways to reduce these, without reducing the system's integrity. For example, ongoing savings are being achieved through the continual modernisation of the Australian livestock export fleet – incorporating improved ship design and on-board management. This has reduced shipping mortality rates to all-time low levels and are now recognised as being below typical on-farm losses.

Since 1995, the annual cattle mortality rate has varied between 0.1% - 0.4%, with 'zero mortality' shipments now achieved more often. This progress is in keeping with Australian exporters' commitment to a "no fear, no pain" objective in relation to livestock in Australian supply chains.

In the case of Indonesia, pre-slaughter stunning of cattle has risen from under 10% to more than 95% in a little over five years. The industry remains committed to further improvements via ongoing regulatory reviews, regular engagement with welfare stakeholders (including industry veterinarians) and investing in programs which equip supply chain partners with the knowledge and skills to protect the welfare of animals and prevent cruelty.

Much of this investment is driven by the Livestock Export Program (LEP) – a joint initiative between the Australian Livestock Export Corporation and MLA. The LEP invests producer and exporter levies into a range of livestock export activities along the supply chain. These include in-market training programs with a focus on animal handling and slaughter to support exporters and importers to improve welfare outcomes. These training programs promote ESCAS requirements, World Organisation for Animal Health (OIE) guidelines and the adoption of Standard Operating Procedures.

Image source: Australian Livestock Exporters' Council www.auslivestockexport.com

Case Study Source: Australian Livestock Exporters' Council

2. Sheep industry

Image source: Meat & Livestock Australia Ltd www.mla.com.au

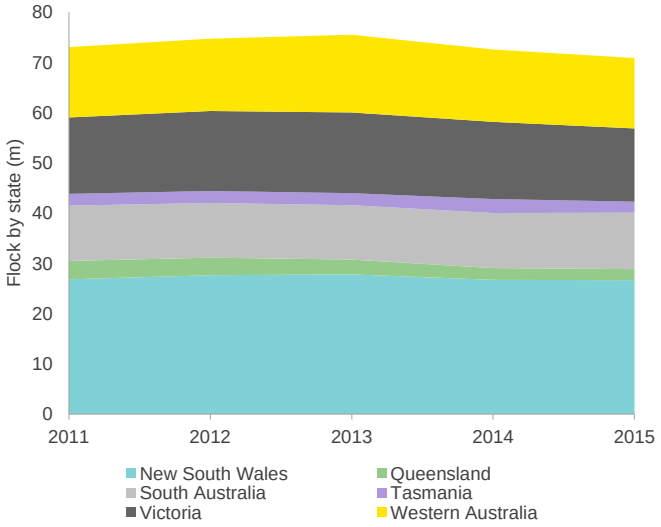
Sheep

Australia's sheep flock[1] decreased by 2% to **71m** in 2015.

Flock size and make-up

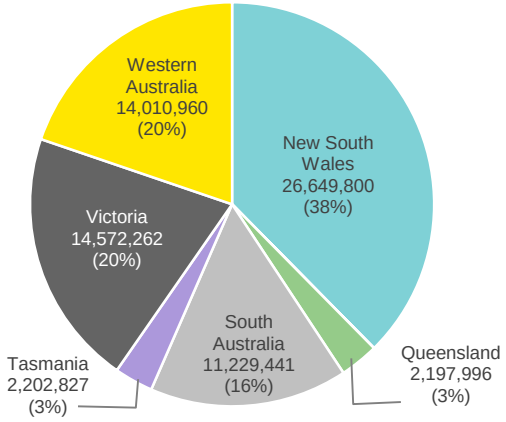
- Australia's sheep flock declined by 3.0% between 2011 and 2015, with flock sizes in all states (except Western Australia) decreasing.
- Queensland's flock size decreased the most between 2011 and 2015, with a decline of 1.5m head (39.8%).
- The majority of Australia's sheep flock (77.9%) is located in New South Wales (37.6%), Victoria (20.6%) and Western Australia (19.8%).
- More than half of Australia's sheep flock consists of breeding ewes that are one year and over (55.5%), whilst lambs account for 30.5%.

Australian sheep flock size by (head, 2011 to 2015)



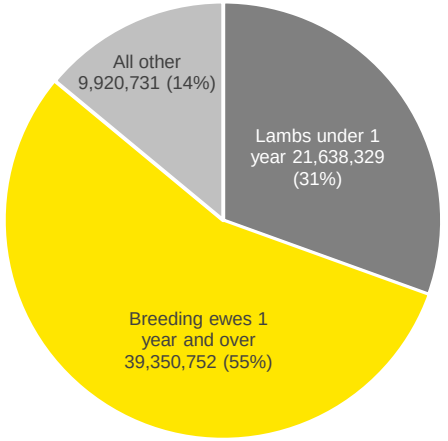
Source: ABS

Australian sheep flock size by state (head, 2015)



Source: ABS

Australian sheep flock make-up (head, 2015)



Source: ABS

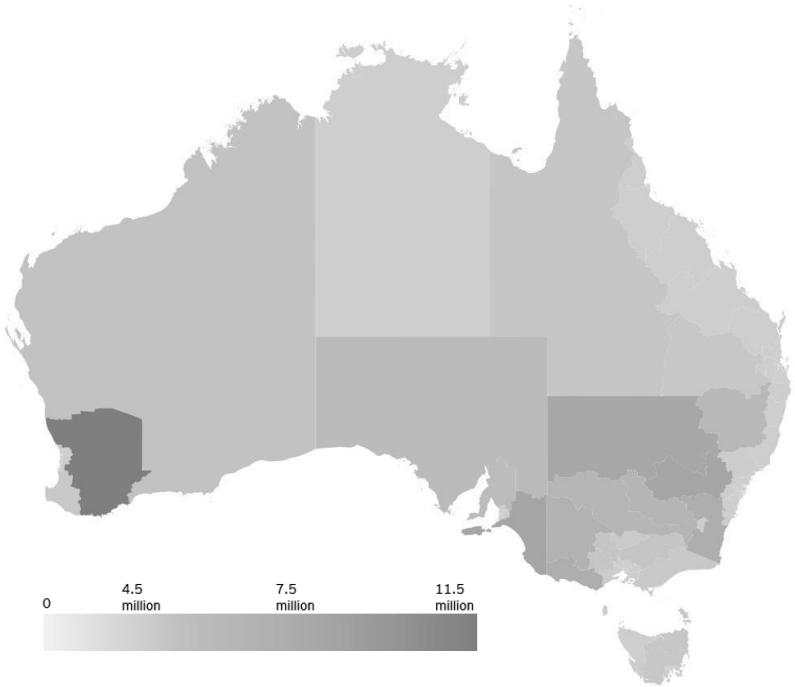
[1] *Sheep flock includes lambs under 1 year, breeding ewes 1 year and over, all other sheep and lambs.*

Sheep

With **27m head**, New South Wales had the greatest number of sheep in 2014-15.

Key production areas

- In 2014-15, Western Australia's 'Wheat Belt' had the greatest number of sheep by SA4[1] across Australia (11.4m head), representing 16.1% of the domestic sheep herd.



Source: ABS

Image source: Meat & Livestock Australia Ltd www.mla.com.au

[1] It is noted that SA4 level was the most localised data available at the time of publication.

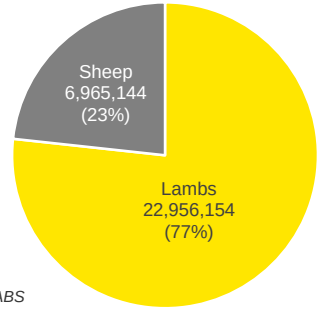
Sheep

In 2015-16, Australia's lamb production **increased by 1%,** while mutton production **declined by 16%.**

Production

- Between 2012 and 2016, production of lamb and mutton increased by an average of 16.3% and 22.0% respectively.
- Mutton production declined by 27.4% between 2014 and 2016, following strong growth of 68.1% between 2012 and 2014.
- Between 2012 and 2016, carcase weight of lamb and mutton grew by 1.2% and 6.7% respectively.

Australian sheep slaughter (head, 2016)

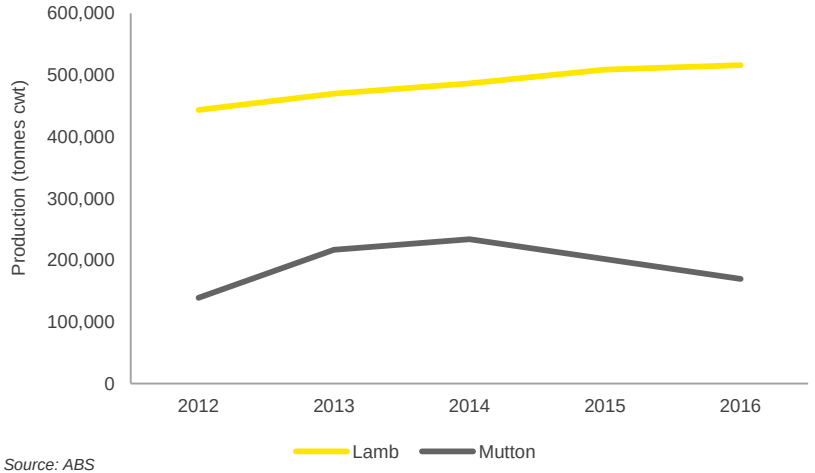


Source: ABS

Slaughter

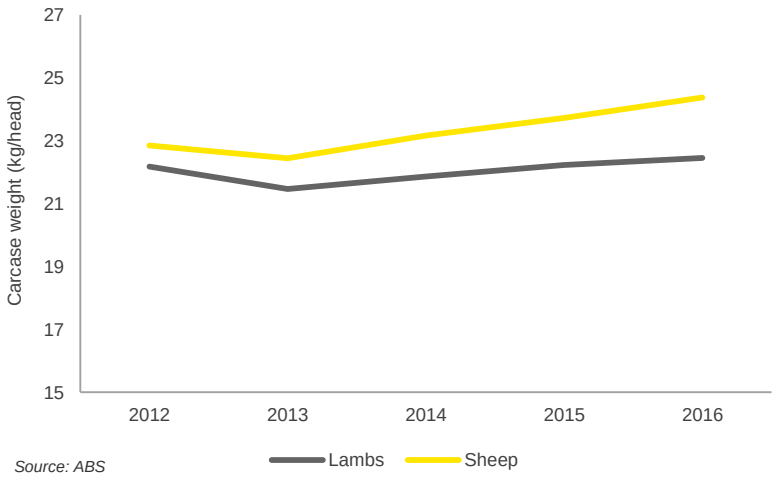
- Australia slaughtered 29.9m head in 2016, with lamb and sheep accounting for 76.7% and 23.3% respectively.
- Between 2012 and 2016, lamb and sheep slaughter numbers increased by 14.7% and 14.9% respectively.

Australian sheepmeat production (tonnes cwt, 2012 to 2016)



Source: ABS

Australian sheep carcase weight (kg/head, 2012 to 2016)



Source: ABS

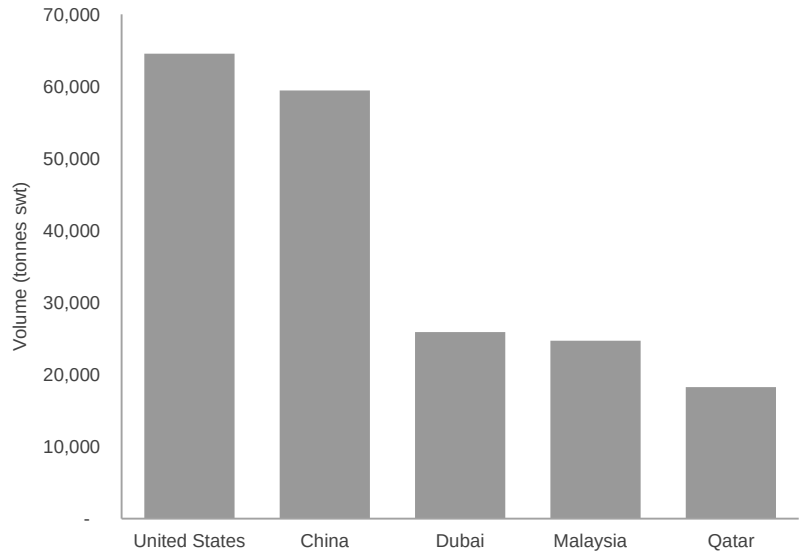
Sheep

In 2016, Australia exported **374,484 tonnes (swt)** of sheepmeat.

Key export markets

- Australia exported 374,484 tonnes (swt) of sheepmeat in 2016, increasing by 26.8% from 2012.
- In 2016, the United States was the largest export market (17.2%), followed by China (15.9%), Dubai (6.9%), Malaysia (6.6%) and Qatar (4.9%).
- In 2016, Australia's top five international markets accounted for 51.5% of sheepmeat exports.

Australian top five sheepmeat export markets (tonnes swt, 2016)



Source: DAWR
Note 1: Volume inclusive of lamb and mutton.

Image source: Meat & Livestock Australia Ltd www.mla.com.au

Sheep

Between 2014 and 2015, Australia lamb and mutton saleyard prices increased by **6%** and **9%** respectively.

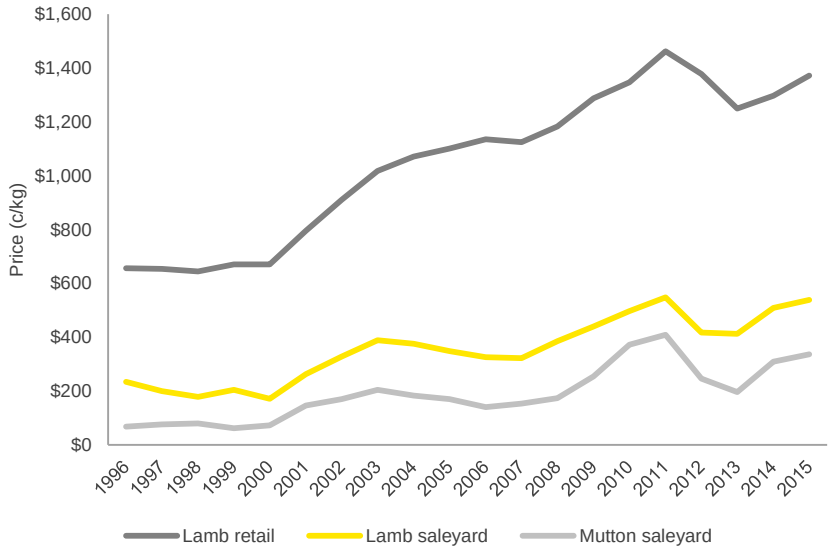
Retail and saleyard prices

- Between 1996 and 2015, lamb and mutton saleyard prices increased by 129.9% and 395.6% respectively, whilst lamb retail prices experienced growth of 109.0% during the same period[1].
- In 2015, lamb and mutton saleyard prices were 538 c/kg and 336 c/kg respectively, whilst lamb retail prices were 1,371 c/kg.
- Both saleyard and retail prices peaked in 2011, before a decline in prices occurred over the following two years, with a gradual recovery commencing in 2014.

Producer share of retail dollar

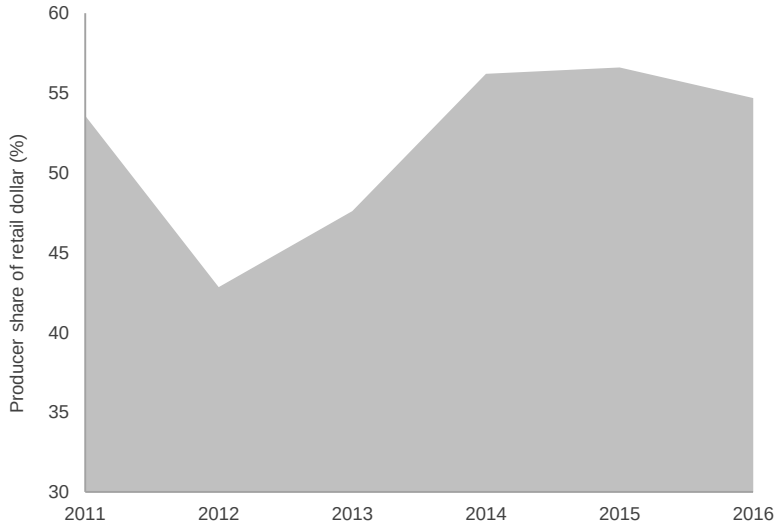
- In 2016, the producer's share of retail dollar for lamb was 54.7%, decreasing from 56.6% the previous year.
- The five year average for the period ending 2016 was recorded at 51.6%, slightly down from the most recent two year average of 55.6%.
- Between 2012 and 2014, lamb producers' share of retail dollar increased by 31.2% before stabilising in 2015.

Australian lamb and mutton retail and saleyard prices (c/kg, 1996 to 2015)



Source: ABARES

Producer share of retail dollar, (%, 2011 to 2016)



Source: MLA

[1] *It is noted that only lamb retail prices were available at the time of report publication for comparative purposes.*

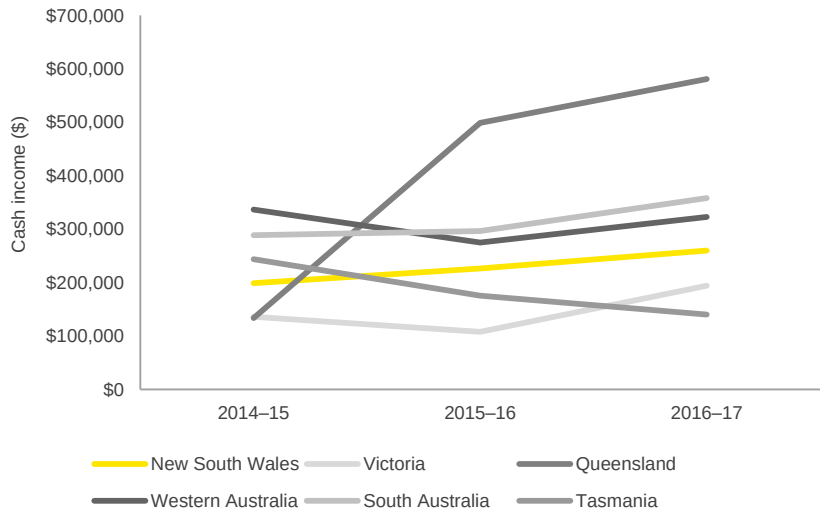
Sheep

Between 2014-15 and 2016-17, Australian lamb farm cash income increased by **23%** to **$265,000.**

Farm performance: lamb farm cash income[1]

- Between 2014-15 and 2016-17, Australian lamb farm cash income increased by 23.0% from $215,450 to $265,000.
- The average Australian lamb farm cash income over the three-year period between 2014-15 and 2016-17 was $230,817.
- During this period, Queensland experienced the strongest growth in farm income (334.7%), followed by Victoria (42.5%) and New South Wales (30.9%). However, not all states experienced growth, with Tasmania and Western Australia experiencing a 42.6% and 4.0% decline respectively.

Australian lamb farm cash income, by state ($, 2014-15 to 2016-17)

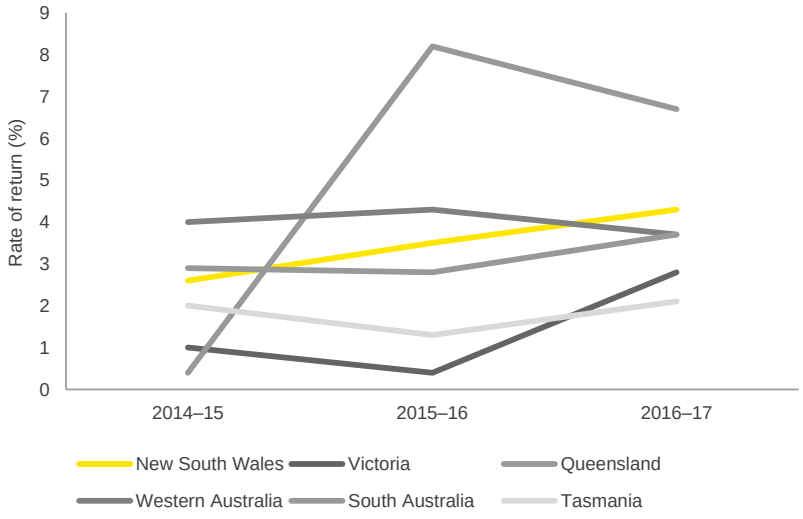


Source: ABARES

Farm performance: lamb farm rate of return[1]

- Between 2014-15 and 2016-17, average Australian lamb farms rate of return increased from 2.5% to 3.7%, with Queensland experiencing the highest growth from 0.4% in 2014-15 to 6.7% in 2016-17.
- The average Australian lamb farm rate of return over the three-year period of 2014-15 and 2016-17 was 3.0%.
- Notably, the rate of return in Queensland is expected to outperform the national average in 2015-16.

Australian lamb farm rate of return, by state (%, 2014-15 to 2016-17)



Source: ABARES

[1] 2015-16 figures represent preliminary estimates, whilst 2016-17 figures represent provisional estimates.

Sheepmeat exports by volume

In 2016, Australia's top three sheepmeat export destinations (on a volume basis) were **United States (64,561 tonnes), China (59,449 tonnes) and Dubai (25,891 tonnes).**

Australian sheepmeat exports[2], (%, 2016)

***Middle East[1]**
Bahrain (2.3%)
Dubai (6.9%)
Iran (0.05%)
Jordan (3.5%)
Kuwait (2.2%)
Oman (2.3%)
Other Middle East (1%)
Qatar (4.9%)
Saudi Arabia (4.8%)
UAE (1.2%)

[1] The definition of the 'Middle East' is based off the individual export destinations noted by DAWR and only includes those markets which were export destinations.
[2] All export destinations listed by DAWR have been highlighted.

Source: DAWR

Live sheep exports by head

In 2016, Australia's top three live sheep export destinations (on a volume basis) were **Kuwait (651,781 head), Qatar (557,265 head) and United Arab Emirates (162,896 head).**

Australian live sheep exports[2], (%, 2016)

***Middle East[1]**
Israel (6.5%)
Jordan (8.4%)
Kuwait (35.6%)
Lebanon (0.7%)
Oman (5.6%)
Qatar (30.4%)
UAE (8.9%)

[1] The definition of the 'Middle East' is based off the individual export destinations noted by DAWR and only includes those markets which were export destinations.
[2] All export destinations listed by DAWR have been highlighted.

Source: DAWR

3. Goat industry

Image source: Meat & Livestock Australia Ltd www.mla.com.au

Goat

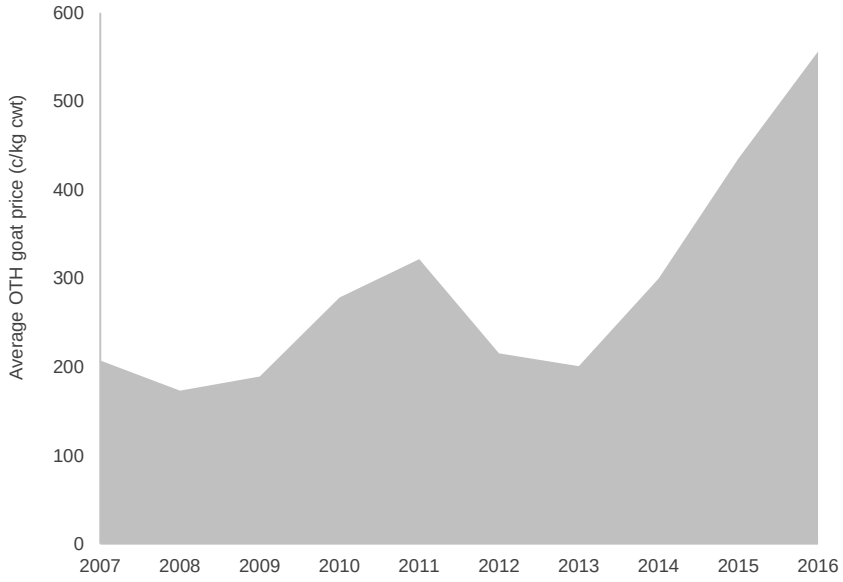
Average goat prices have **increased by 177%** between 2013 and 2016.

Victoria and **Queensland** accounted for the largest proportion of Australian goatmeat production.

Prices[1]

- Between 2007 and 2016, OTH goat prices have increased by 169% to 556c/kg (cwt) in 2016.
- Between 2013 and 2016, OTH goat prices increased significantly, experiencing a growth of 177.2%.

Australian Eastern States OTH goat prices (c/kg cwt, 2007 to 2016)

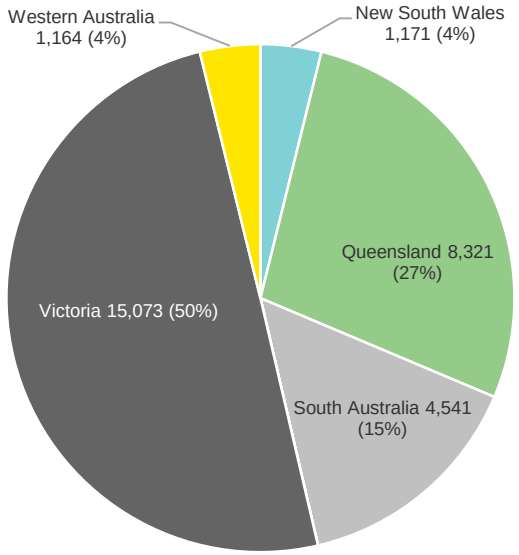


Source: MLA

Production

- In 2016, 49.8% of Australian goat production occurred within Victoria with 15,073 tonnes (cwt) produced. Queensland was the second largest state of production with 8,321 tonnes (cwt) (27.5)%.
- Compared to 2012, Victoria's 2016 market share of Australian production increased by 12.9 percentage points, whilst Queensland decreased by 9.4 percentage points.

Australian goatmeat production (tonnes cwt, 2016)



Source: MLA

[1] OTH goat prices represent the average price of goatmeat ranging from 8.1kg to 20.1kg or above, excluding 0 - 8kg and capretto categories.

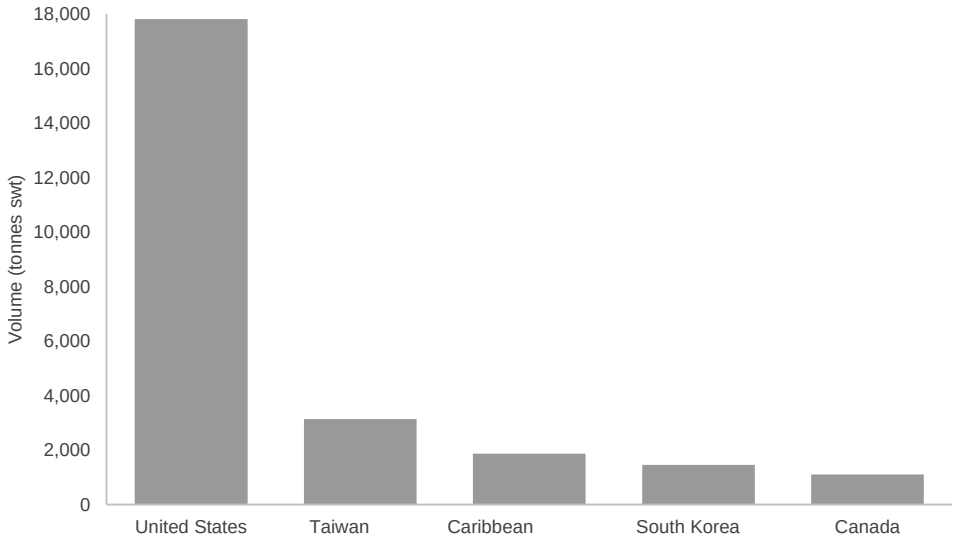
Goat

In 2016, Australia exported **26,792 tonnes (swt)** of goatmeat.

Key export markets

- Australian exported 26,792 tonnes (swt) of goatmeat in 2016, decreasing by 7.9% from 2012.
- In 2016, the United States was Australia's biggest goat export market (66.5%), followed by Taiwan (11.7%), the Caribbean (7.0%), South Korea (5.5%) and Canada (4.1%).
- In 2015 ,goat exports decreased by 10.6%, with both Asian and Canadian exports decreasing year on year.
- United States goat exports increased by 10.8% to 17,7807 tonnes (swt) from 2012 and 2016.

Australian top five goatmeat export markets (tonnes swt, 2016)



Source: DAWR

Australian goatmeat export volumes (tonnes swt, 2012 to 2016)

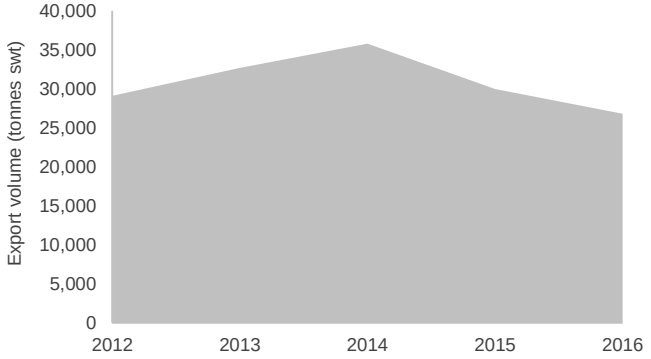


Image source: Meat & Livestock Australia Ltd www.mla.com.au

Case study: Strong demand for goatmeat and growing investment in the industry continues to strengthen the goat market both overseas and in Australia

- ***Goatmeat is consumed around the world, but the rate of consumption varies across countries.***
- ***Key markets for Australian goatmeat are the United States, Taiwan, Trinidad and Tobago, South Korea and Canada.***
- ***The largest and most valuable export market for Australian goatmeat is the United States.***

The United States, Taiwan, Canada and Malaysia are all key markets for Australian goatment:

- The United States is Australia's largest export destination for goatmeat, accounting for 66% of exports in 2016, with the majority going to America's East Coast. The increase in consumption in the United States is primarily related to a growing population from traditional goat consuming countries. Ethnicities driving demand includes Hispanic, Muslim, Caribbean and Chinese consumers.
- Taiwan has been Australia's second largest goat export market after the United States since 1996. Goatmeat comprises quite a small proportion of the total dietary protein that Taiwanese consume. Goatmeat is considered a 'warming' food and hence understood to be beneficial for strengthening and warming the body. Taiwan consumers have a preference for skin-on goat, which is used in slow wet cooking recipes such as stews and hot-pots, together with traditional herbs.
- Demand for goatmeat in Canada outstrips domestic supply, attributed to a growing ethnic population driving growth. The majority of the immigrant population is based in Ontario, Quebec and British Columbia.
- Malaysia is a long-term buyer of Australian live goats. The Malaysian live goat industry is well-established; Australian rangeland goats are fed in custom-built feedlots and/or goat sheds where they are held until slaughter. Goats are important for special celebrations for local consumers.

The increase in Australian rangeland goat prices in the past two years has put pressure on live goat importers in Malaysia, resulting in a decline in shipments during 2016. Importers have started purchasing cheaper goats from Myanmar and Thailand. Australian live goat exports to Malaysia are anticipated to remain subdued in 2017, due to reduced availability and high prices from Australia.

In Australia, goatmeat consumption levels are low compared to other proteins. However, one third of Australians indicate that they would currently consider eating goat. These considerations are particularly prevalent in engaged home cooks, who are seeking a challenge, and young singles, couples and families with a household income above $60,000.

Case Study Source: Meat & Livestock Australia

Image source: Meat & Livestock Australia Ltd www.mla.com.au

Image source: Meat & Livestock Australia Ltd www.mla.com.au

Goat

Between 2011 and 2015, goatmeat production increased by **15%** to **32,700 tonnes** (cwt).

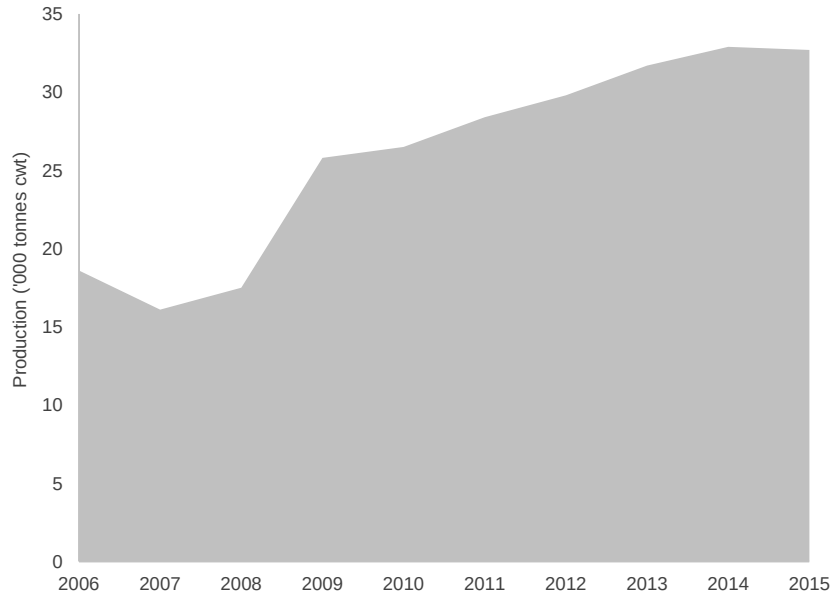
Production

- Production of goatmeat has increased by 75.8% from 18,600 tonnes (cwt) in 2006 to 32,700 tonnes (cwt) in 2015.
- Production of goatmeat has expanded continuously since 2007, with an overall growth rate of 103.1% between 2007 and 2015.

Exports

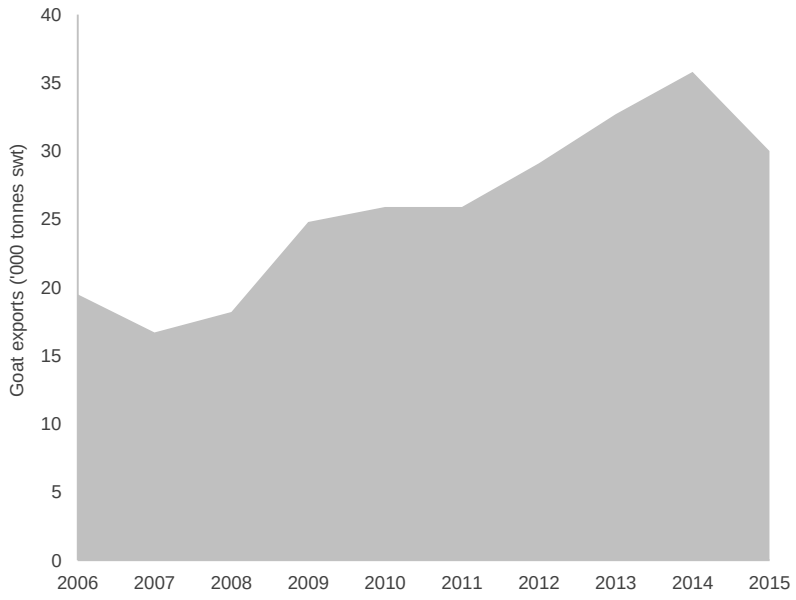
- Goatmeat exports have increased 53.8% from 2006 (19,500 tonnes swt) to 2015 (30,000 tonnes swt).
- Between 2014 and 2015, goatmeat exports declined by 16.2%, still above the ten-year average of 25,900 tonnes (swt).

Australian goatmeat production, ('000 tonnes cwt, 2006 to 2015)



Source: MLA Australian Goat Industry Summary 2016

Australian goatmeat exports ('000 tonnes swt, 2006 to 2015)



Source: MLA Australian Goat Industry Summary 2016

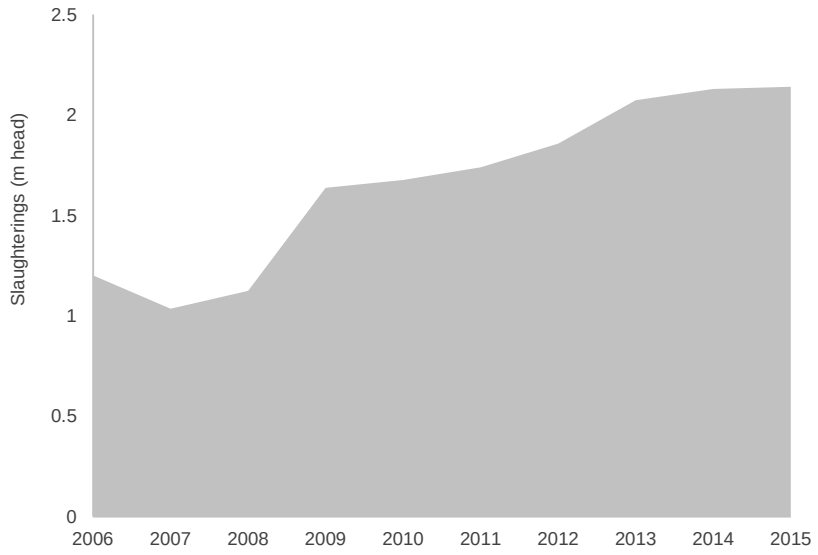
Goat

Between 2006 and 2015, goat slaughter volumes **increased by 78%** to 2m head.

Slaughter

- Between 2006 and 2015, Australian goat slaughter volumes increased by 78.2% from 1.2m head to 2.1m head.
- Between 2008 and 2009, slaughter volumes increased by 45.6%, which is the largest annual rise over the recorded time period.

Australian goat slaughter, (m head, 2006 to 2015)

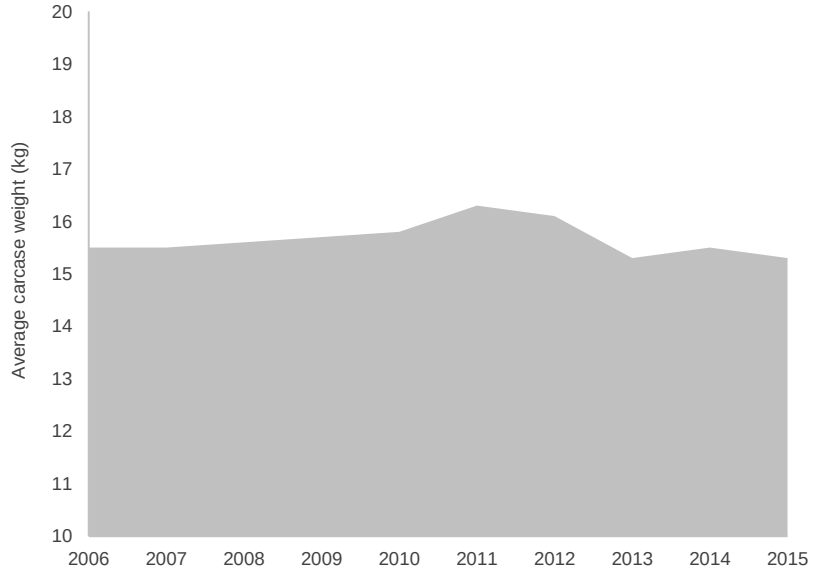


Source: ABS

Carcase weight

- Average long-term goat carcase weight decreased by 1.3% from 15.5kg in 2006 to 15.3kg in 2015.
- Average goat carcase weight increased from 15.5kg in 2006 to 16.3kg in 2011, before decreasing by 6.1% to 15.3kg in 2015.

Australian goat carcase weight, (kg, 2006 to 2015)



Source: ABS

Case study: Improving goat production and supply data and information

- ***There is a lack of accurate and reliable data in relation to the supply of goats across Australia.***
- ***To address the need for better data, Meat & Livestock Australia and the Goat Industry Council have funded a population modelling project which is being undertaken by the New South Wales Department of Primary Industries.***
- ***The project will develop population and supply models to support industry forecasts.***

Context

Available data in relation to goat production, herd size and supply is limited. The goat sector requires accurate reporting of production and supply data to continue to grow and prosper. This is particularly important given the increasing demand from export markets for Australian goatmeat. It will enable better improved industry strategic planning, tracking and benchmarking of the industry's growth, and increasing capacity to foresee any supply issues. In response to this issue, the New South Wales Department of Primary Industries has received funding from MLA and the Goat Industry Council to collate and track goat industry data from July 2016 to February 2020.

Existing data from sources such as National Livestock Identification System (NLIS), aerial surveys (conducted by the Office of Environment and Heritage), and FARMS (New South Wales stock and land return information) are being drawn together to develop population and supply models to support industry forecasts. The models will enable industry to estimate the number of goats managed, unmanaged and marketed annually. It will allow for modelling of population changes and the sustainability of supply under different harvesting rates.

Progress

- Initially, the project has focused on establishing a method for population and supply forecasting within New South Wales. Once the methodology has been tested, it will be rolled out nationally to other significant goat production areas.
- Results from the New South Wales analysis to date have revealed goat population estimates by region (see below). In 2016, there were 5.8m goats in the Central and Western New South Wales aerial survey monitoring zone (approximately 450,000 km²). The aerial survey counts do not distinguish between managed and unmanaged

New South Wales goat estimates *(Source: Office of Environment & Heritage)*

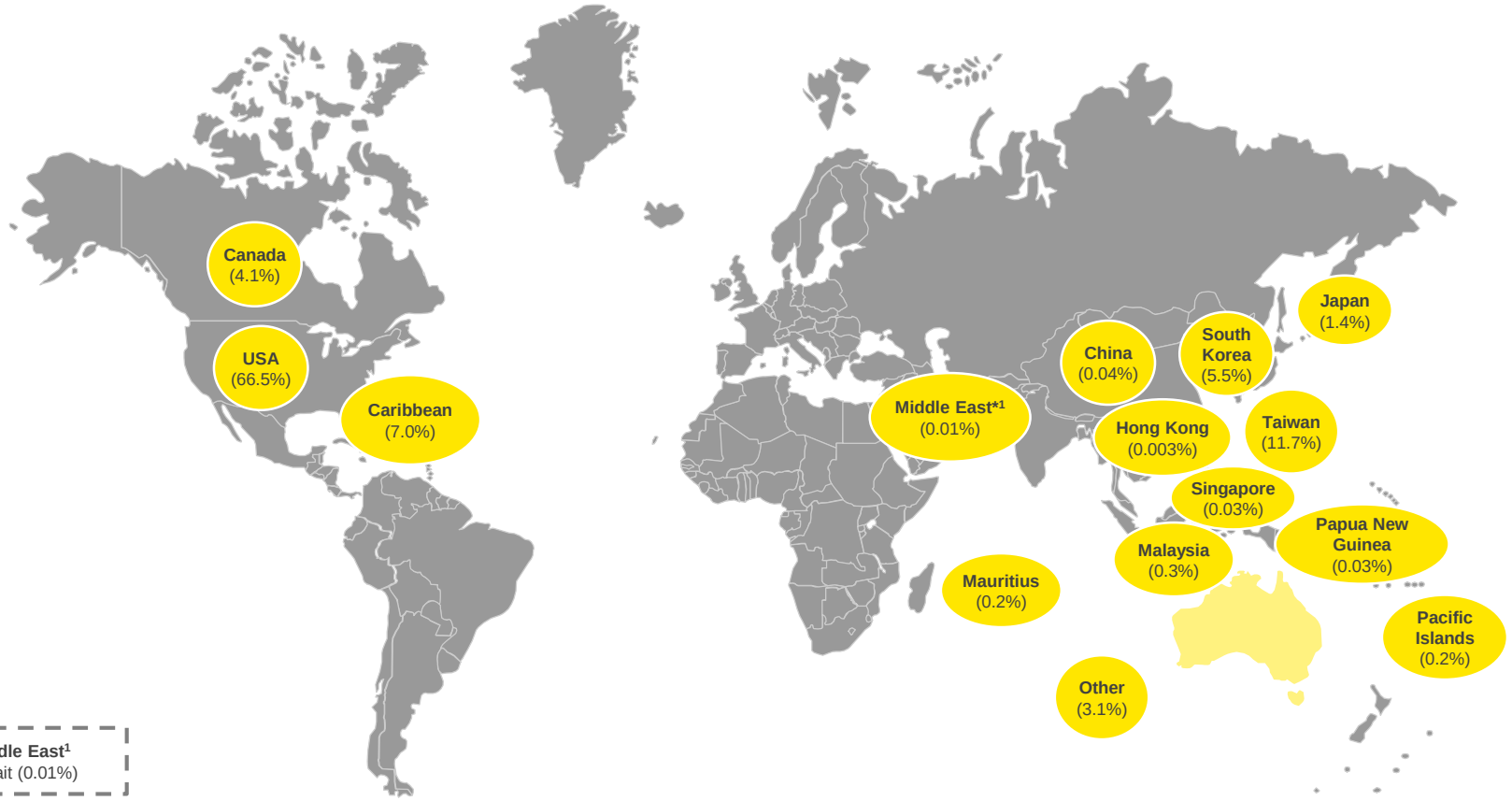
Zone (kangaroo management)	Area (km²)	Density (goats/km²)	Estimate (number of goats)
Bourke	55,392	11.012	609,986
Broken Hill	91,588	13.455	1,232,277
Cobar	40,662	22.964	933,745
Coonabarabran	62,090	16.816	1,044,087
Griffith	105,916	5.566	589,527
Lower Darling	56,888	11.586	659,127
Tibooburra	55,223	13.194	728,631
Narrabri	66,205	NA	NA
Total	**467,759**	**13.513**	**5,797,380**

Case Study Source: New South Wales Department of Primary Industries

Goatmeat exports by volume

In 2016, Australia's top three goatmeat export destinations (on a volume basis) were **United States (17,807 tonnes), Taiwan (3,140 tonnes) and the Caribbean (1,867 tonnes).**

Australian goatmeat exports[2], (%, 2016)



***Middle East[1]**
Kuwait (0.01%)

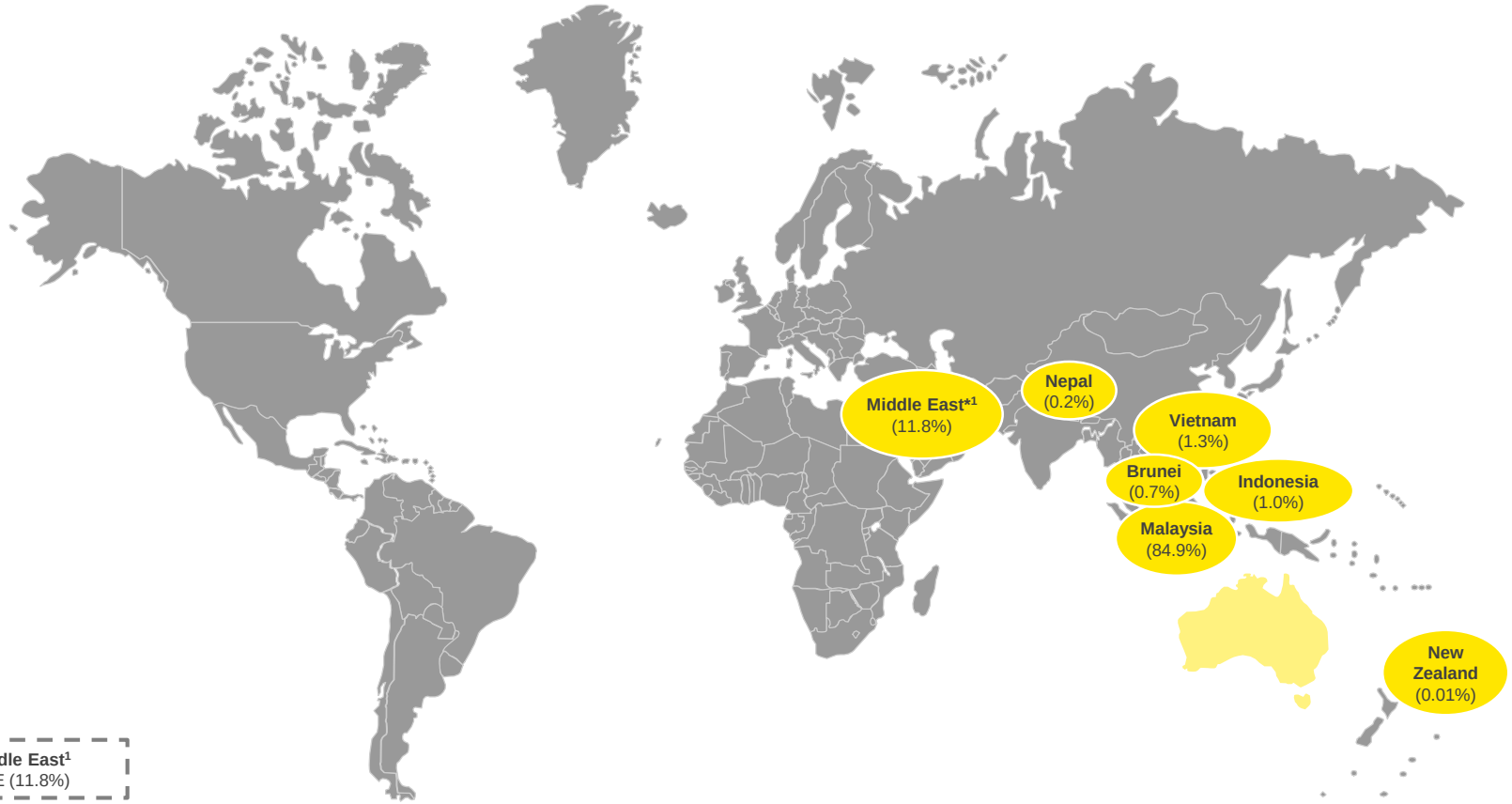
[1] *The definition of the 'Middle East' is based off the individual export destinations noted by DAWR and only includes those markets which were export destinations.*
[2] *All export destinations listed by DAWR have been highlighted.*

Source: DAWR

Live goat exports by head

In 2016, Australia's top three live goat export destinations (on a volume basis) were **Malaysia (44,911 head), United Arab Emirates (6,242 head) and Vietnam (679 head).**

Australian live goat exports[2], (%, 2016)



***Middle East[1]**
UAE (11.8%)

[1] The definition of the 'Middle East' is based off the individual export destinations noted by DAWR and only includes those markets which were export destinations.
[2] All export destinations listed by DAWR have been highlighted.

Source: DAWR

Image source: Meat & Livestock Australia Ltd www.mla.com.au

D

Part D: Importance within the supply chain

This section of the report explores the importance of the red meat and livestock industry within the supply chain. It does this by exploring the relative contribution of each element of the supply chain to employment and industry value add.

Production	61
Manufacturing (processing)	62
Sales	64

Red meat production

The red meat and livestock industry is the **second largest** sub-sector within agricultural production in terms of IVA.

Purpose

- This section examines the importance of Australia's red meat and livestock industry within specific elements of the supply chain. Specifically, IVA and employment within the industry has been examined as a proportion of total Australian production, manufacturing (processing) and sales.

Industry value add

- The red meat and livestock industry ($12.0b) is the second largest sub-sector within agricultural production in terms of IVA (37.3% of IVA in 2015-16).

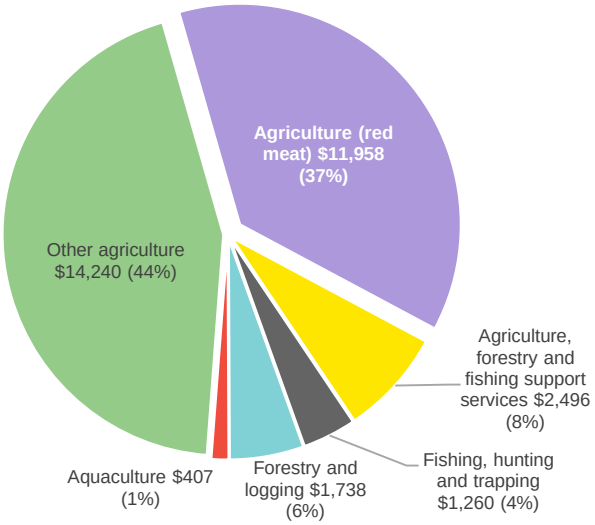
Employment

- The red meat and livestock industry accounted for approximately one quarter of employment in agricultural production (24.0%).

Comparing IVA and employment

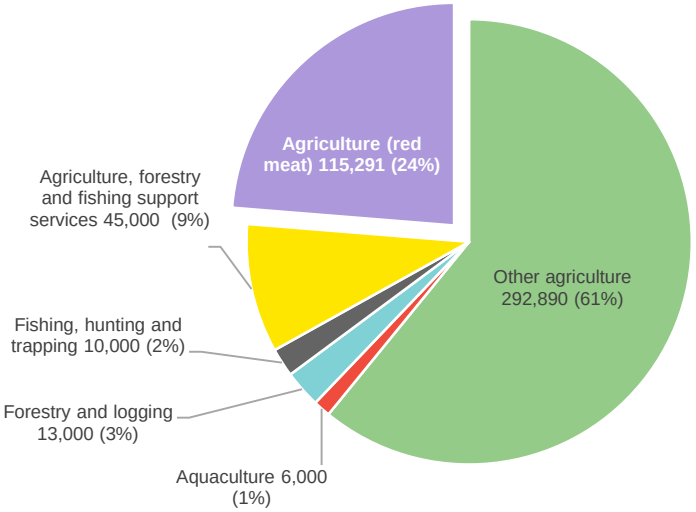
- The red meat and livestock industry accounts for 24.0% of agricultural employment, while the industry contributes 37.3% of IVA.
- This demonstrates that the red meat and livestock industry has a greater level of IVA per employee than other subsectors of agricultural production.

Agriculture production IVA ($m, 2015-16)



Sources: ABS and IBISWorld

Agriculture production employment (persons, 2015-16)



Sources: ABS and IBISWorld

Note 1: 'Other agriculture' consists of the following industries: nursery and floriculture production, mushroom and vegetable growing, fruit and tree nut growing, other crop growing, dairy cattle farming, poultry farming, deer farming, other livestock farming.

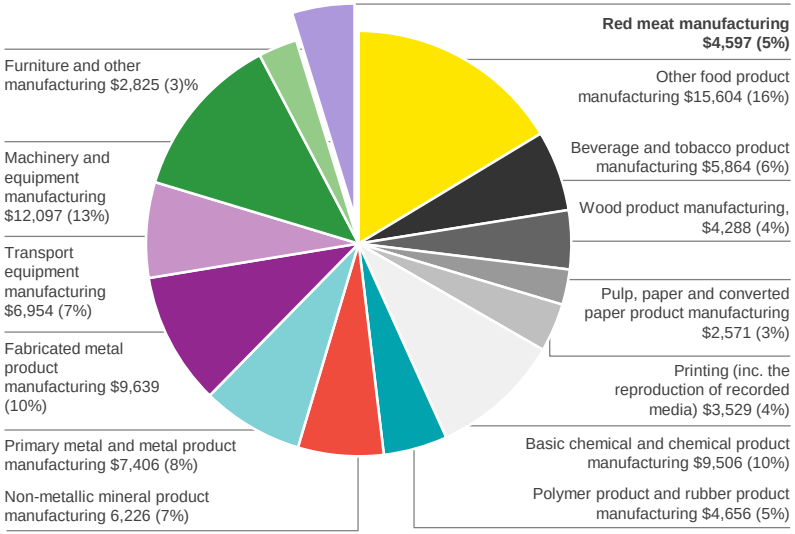
Red meat processing

The red meat and livestock IVA for processing (manufacturing) **contributed 4.6%** to Australia's overall manufacturing IVA.

Industry value add

- In 2015-16 the red meat and livestock IVA for processing (manufacturing) was $4.6b, contributing 4.6% to Australia's overall manufacturing IVA.
- This is comparable to that of wood product manufacturing ($4.3b) and polymer product and rubber product manufacturing ($4.7b).

Manufacturing IVA ($m, 2015-16)

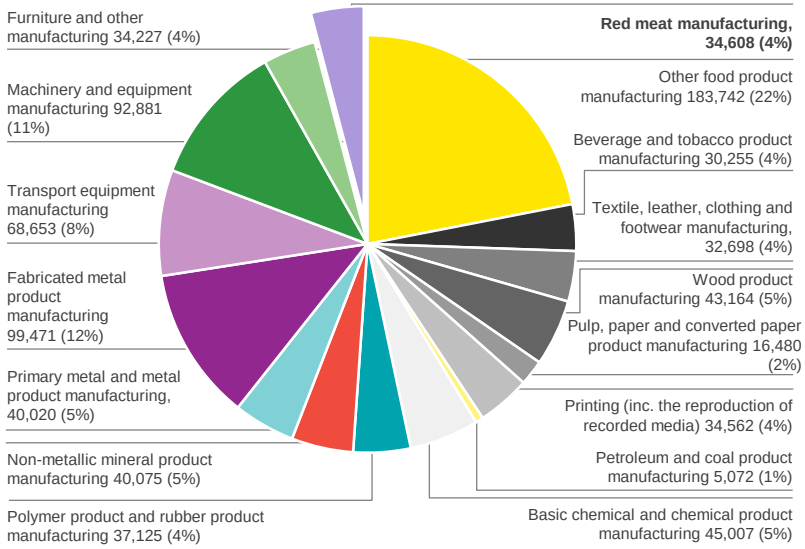


Sources: ABS and IBISWorld

Employment

- In 2015-16, the red meat and livestock industry employed 34,608 individuals within the processing (manufacturing) segment of the supply chain, contributing 4.1% to Australia's overall manufacturing employment.
- This is comparable to that of the furniture and other manufacturing (34,227) and printing (34,562) industries.

Manufacturing employment (persons, 2015-16)



Sources: ABS and IBISWorld

Case study: How the processing industry generates value

- ***Red meat processing is not just about meat. As a high cost industry, it is in the interest of processors to generate the most revenue possible from the whole carcase, from edible co-products to hides and skins, and rendered products for further manufacturing.***
- ***On a broader level, the red meat processing industry is a significant contributor to Australian wealth. Through direct and indirect employment opportunities and as the major outlet for Australian livestock producers, processors generate significant economic activity.***

While meat is the most obvious income stream for a red meat processor, there are a myriad of other products derived from the carcases of sheep, cattle and goats. Other products may include:

- Edible offal (livers, kidneys, hearts, brains, tripe, tongue, etc.);
- Hides and skins;
- Meat and bone meal;
- Blood products for pharmaceuticals; and
- Tallow.

Improvements to overseas market access creates greater returns for exporting companies. This in turn assists non-export processors, who face less competition for the same product in the domestic market.

Australia exports meat and co-products to over 100 countries, with a wide variety of consumer preferences for certain products.

The wide range of outlets, both in Australia and overseas, for non-meat products from carcases allows the processor to offer a higher price for livestock to the producer, than if the only source of revenue was meat.

In many towns in regional Australia, red meat processors are the largest employers, supporting local economies.

Besides directly employing people from a broad range of communities around Australia, the red meat processing sector indirectly contributes to the national employment through supporting industries, including finance and insurance, packaging, transport and logistics, equipment maintenance, research and development.

With over 90% of all Australian livestock processed domestically, the red meat processing sector is the major outlet for Australian livestock producers.

Case Study Source: Australian Meat Industry Council

Image source: Meat & Livestock Australia Ltd www.mla.com.au

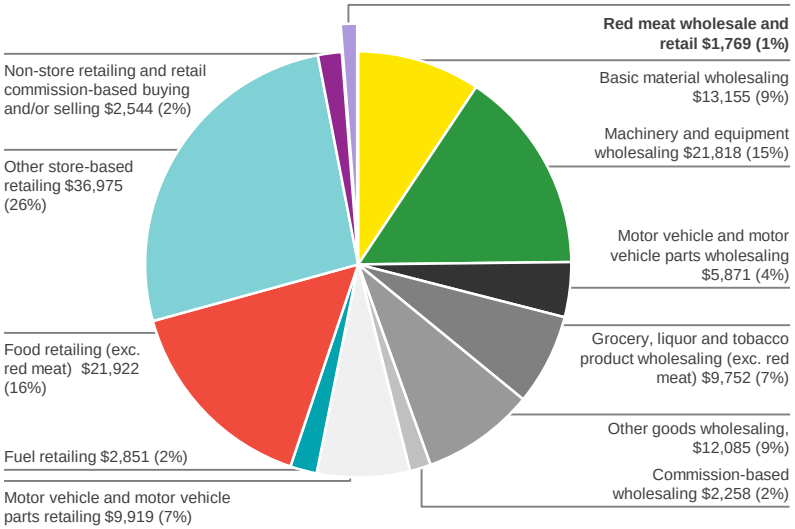
Red meat sales

The red meat and livestock industry **contributed 2.2%** to Australia's overall wholesale and retail employment.

Industry value add

- Red meat wholesale and retail products delivered $1.8b of IVA to the Australian economy in 2015-16, representing 1.3% of total Australian sales IVA.
- This was comparable to that of commission based wholesaling ($2.2b) and fuel retailing ($2.8b).

Sales industry value add ($m, 2015-16)

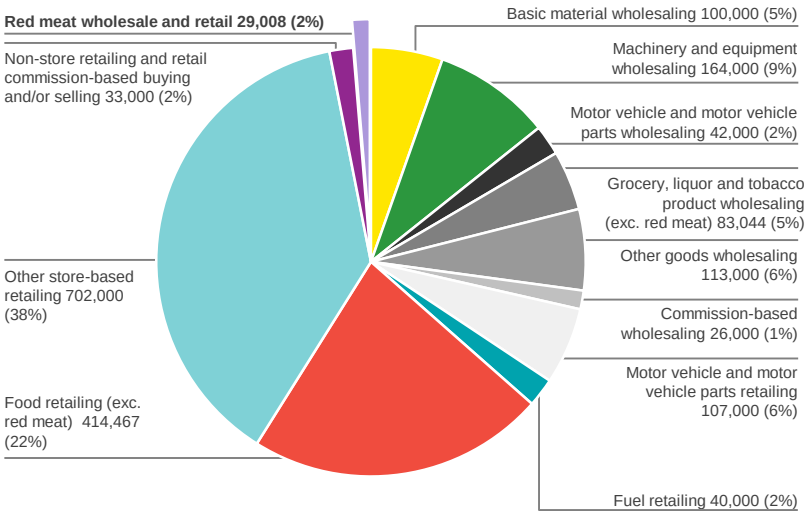


Source: ABS and IBISWorld

Employment

- In 2015-16, the red meat and livestock industry employed 29,008 individuals within the wholesale and retail segments (i.e. sales) of the supply chain contributing 2.2% to Australia's overall wholesale and retail employment.
- This was comparable to that of commission based wholesaling (26,000 persons).

Sales employment (persons, 2015-16)

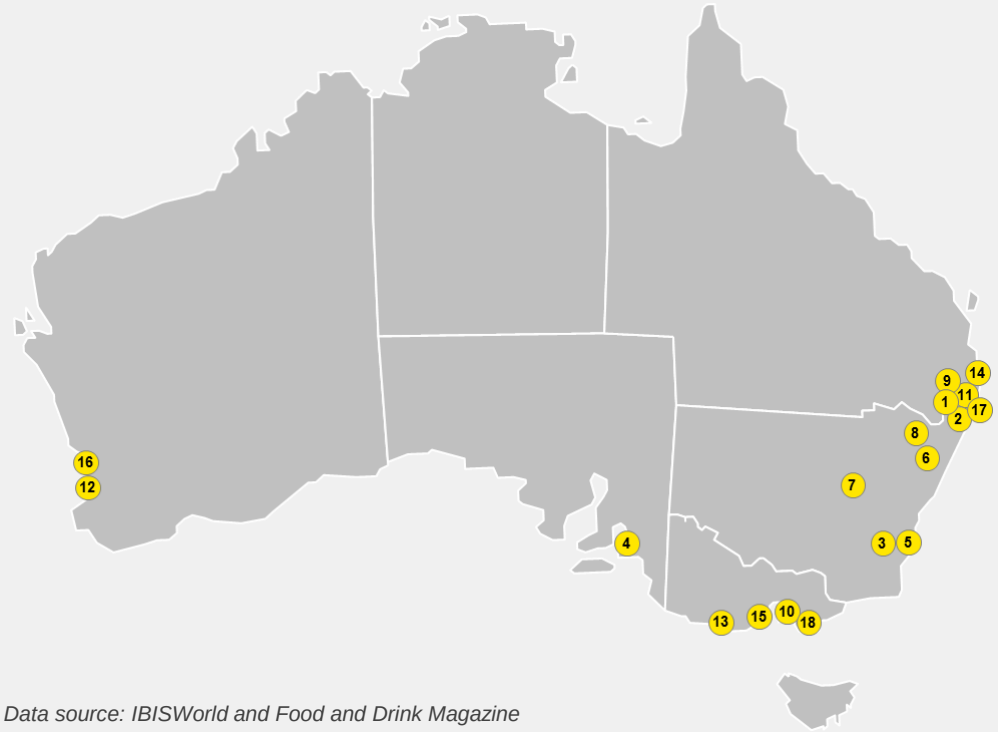


Source: ABS and IBISWorld

Case study: Major players in Australia's red meat and livestock processing sector

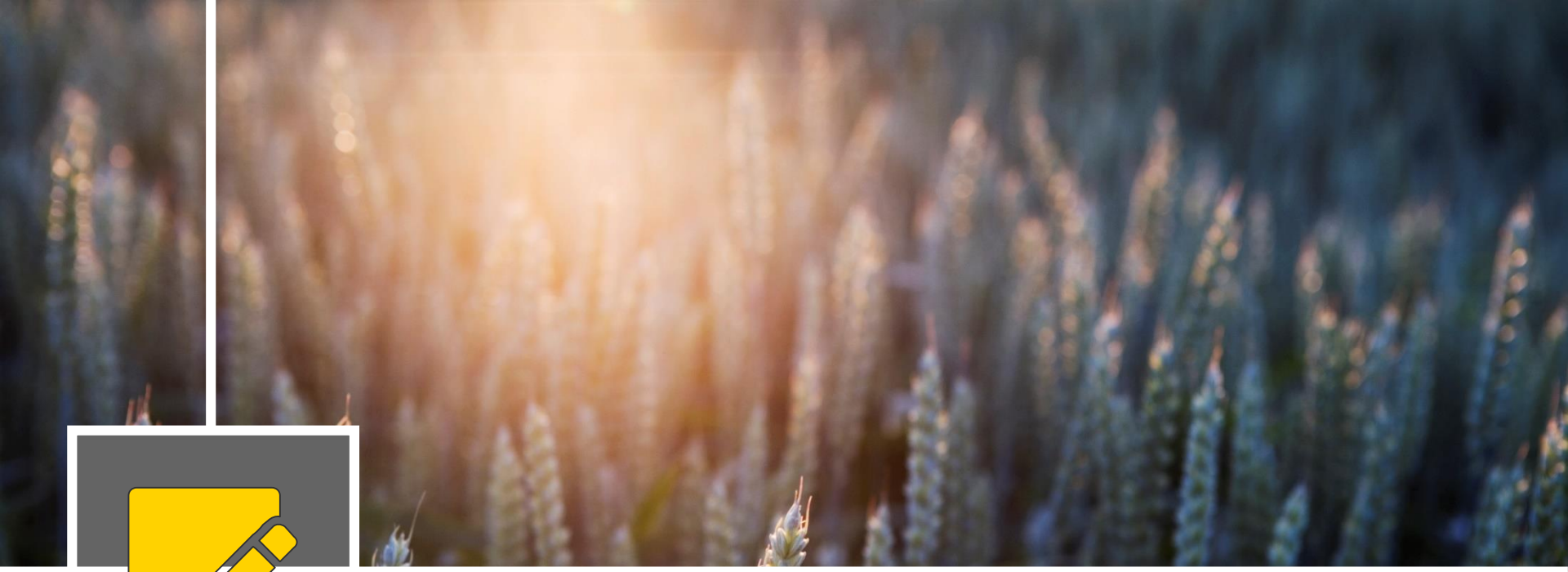
Australia's red meat and livestock processing sector is estimated to employ 129,930 people through direct and indirect employment, meaning that it is the second largest employer in the red meat and livestock supply chain behind production. Processing facilities provide employment opportunities to a broad number of regions around Australia, with the economic importance even greater for those located in regional communities.

Australia's top 100 food and drink companies (2016) list published by IBISWorld in conjunction with Food and Drink magazine, provides an in-depth look at Australia's largest companies within the food and drink industry based on their most recently reported revenue. Eighteen red meat and livestock processing companies were included within the 2016 list, with the map below illustrating the broad geographical location of processing facilities. As can be seen, a number of these are located in regional areas, with an even larger percentage of smaller processing facilities located in regional communities that are not shown on the map.



Data source: IBISWorld and Food and Drink Magazine

	Company	No. of employees
1.	JBS Australia	8,700
2.	Teys Australia	4,770
3.	Australian Consolidated Food Investments	4,000
4.	Thomas Foods International	1,840
5.	NH Foods Australia	1,700
6.	Northern Co-operative Meat Company (NCMC)	1,070
7.	Fletcher International Exports	880
8.	Bindaree Beef	780
9.	Kilcoy Pastoral	750
10.	Top Cut Foods	620
11.	Australian Agricultural Company Limited (AACo)	590
12.	Craig Mostyn Group	470
13.	Midfield Meat International	390
14.	Nolan Meats	390
15.	M C Herd	335
16.	Western Australia Meat Marketing International Co-operative (WAMMCO)	325
17.	OSI International Foods	200
18.	G & K O'Connor	190



Appendices

This section of the report details the methodology, a glossary of key terms and outlines key industry participants involved in the development of this report.

Appendix A: Report Methodology	67
Appendix B: Glossary	76
Appendix C: Industry Participants	78

Appendix A: Report methodology

This Appendix details the approach and methodology used throughout the report.

Image source: Meat & Livestock Australia Ltd www.mla.com.au

Introduction: Approach and methodology

Overarching approach

- Given the nature of the defined industry, it was necessary to select a data source that allows for segmentation of data across multiple species and elements of the supply chain for the key economic statistics. For the purpose of this report, IBISWorld was used as the main data source and the following annual IBISWorld reports from 2012 to 2016 ("IBISWorld reports") were used as inputs:
  - Report A0142 Beef Cattle Farming in Australia
  - Report A0141 Sheep Farming in Australia
  - Report A0143 Beef Cattle Feedlots in Australia
  - Report A0144 Sheep-Beef Cattle Farming in Australia
  - Report A0145 Grain-Sheep or Grain-Beef Cattle Farming in Australia
  - Report C1111 Meat Processing in Australia
  - Report F3601 General Line Grocery Wholesaling
  - Report F3602 Meat, Poultry and Smallgoods Wholesaling in Australia
  - Report G4111 Supermarkets and Grocery Stores in Australia
  - Report G4121 Fresh Meat, Fish and Poultry Retailing in Australia.
- Where information was not available from IBISWorld reports, alternative sources were utilised, as outlined in the sections below.
- It is noted that IBISWorld does produce information or data relating to goat production and therefore this approach provides a conservative estimate of the value of the red meat and livestock.
- IBISWorld uses real (adjusted) prices in relation to industry metrics.

Introduction: Approach and methodology

Defining the red meat and livestock industry

- For the purpose of this report, the definition of the red meat and livestock industry includes the variety of activities undertaken across the supply chain, being those associated with the production, feedlotting, processing, live export, wholesale and retail sale for three key species – beef, sheepmeat and goatmeat.
- In order to gain an understanding of the key facts and figures relating to the defined industry, statistics had to be adjusted to ensure only the red meat and livestock industry figures were extracted. This was such, as certain proportions of data reported by IBISWorld were not relevant to the red meat and livestock industry. These proportions were therefore excluded in deriving the composition by sub-sector and trends specific to the red meat and livestock industry. This was done by using products and services segmentation proportions.
- From the IBISWorld data it was necessary to exclude the following categories:
  - Report A0141, A0144: Wool
  - Report A0145: Canola, wool, other grains, and wheat
  - Report C1111: Pig meat and other meats
  - Report F3602: Poultry, pork, game and other meats, and processed meats and small goods
  - Report G4121: Fresh seafood, fresh pork, fresh poultry, and other fresh meats.
- For reports F3601 (General Line Grocery Wholesaling) and G4111 (Supermarkets and Grocery Stores in Australia), because red meat is classified under the same category as seafood and other types of meat, an estimate of red meat was calculated by taking into account red meat consumption as a proportion of meat consumption of beef, chicken, pork and sheep, using data source from ABARES catalogue number 126.
  - It is noted that this approach may slightly overestimate the value of the red meat and livestock industry as it does not exclude seafood or any other types of meat (as information was not available to do so).

Data gaps and limitations

Data gaps and limitations

- For the purposes of this report the industry has been defined as *comprising of a variety of activities across the supply chain, being those associated with the production, feedlotting, processing, live export, wholesale and retail sale for three key species - beef, sheepmeat and goatmeat:*
  - Given the nature of the defined industry, it was necessary to select a data source that allows for segmentation of data across multiple species and elements of the supply chain. IBISWorld data is the most appropriate source of data to undertake this analysis
  - The other potential source of data for this type of information is the ABS. However, in this instance, in order to report on the industry as defined, which encompasses elements across the supply chain, the data reported by the ABS is not adequate
  - It is noted that IBISWorld does produce information or data relating to goat production and therefore this approach provides a conservative estimate of the value of the red meat and livestock.
- The most current data available for each element of the study has been used at the time of analysis. As multiple data sources were used to produce the necessary data breakdown presented in this report, there may be inconsistency in the year start and end dates reported:
  - This may have implications for direct comparison of data across different metrics where the reported time period is different. As a result, figures and charts include differing years as well as a mixture of calendar year and financial year reporting timeframes. The approach used within each figure has been documented.
- IBISWorld does not produce information or data relating to goat production and therefore this approach provides a conservative estimate of the value of the red meat and livestock.
- There are instances where red meat is grouped in IBISWorld reports with other categories that are irrelevant for the purpose of this report (i.e. reports F3601 and G4111).
- The data gathering for this report concluded on 30 June 2017. As a result more recent data may be available but has not been reported in this version of the report.

Approach and methodology

Part A

Part A reports key statistics in relation to production, consumption and global trade in the red meat and livestock industry. A variety of sources were used to derive key trends and facts, as outlined below. Notably, the data and information used in this section is reported directly from the sources (i.e. the data was not derived specifically for this report, nor has it been the subject of calculations or assumptions). As a result, there are differences in some instances in the years reported.

- Production:
  - Domestic herd size: ABS catalogue number 7121.0
  - Global herd size: ABARES catalogue numbers 130, 134 and 148
  - Production in tonnes: ABARES catalogue number 130.
- Consumption:
  - International consumption: OECD-FAO Agricultural Outlook (Edition 2016)
  - Domestic consumption: ABARES catalogue number 126
  - The proportion of protein consumption is calculated by dividing consumption of each meat type by the total consumption of beef, chicken, sheep and pork within the same year.
- Key exports and imports players:
  - Beef exports and imports: ABARES catalogue number 140
  - Sheep exports and imports: ABARES catalogue number 154
  - Goat exports and imports: FAO dataset – crops and livestock products / live animals.

Approach and methodology

Part B

Part B outlines the key economic indicators (IVA, industry turnover, employment, exports and number of businesses). It analyses these through a comparison to other industries, their composition by sub-sector, trend over time and by state/territory contribution. A variety of sources were used to derive key trends and facts, as outlined below. It is noted that IBISWorld does not produce information or data relating to goat production and therefore this approach provides a conservative estimate of the value of the red meat and livestock.

The following approach was undertaken for each piece of analysis and/or comparison:

- Composition by sub-sector and trends over time:
  - Data source: IBISWorld reports and ABS catalogue number 7215.0 (livestock products)
  - Calculation methodology
    - IBISWorld reports provide data by element of the supply chain over time
    - For each report, proportions not specific to the red meat and livestock industry were excluded from the analysis, as outlined on page 69.

  Note 1: The 'mixed farming' classification is made up of producers in the industry who are engaged in farming both sheep and beef cattle. While the contribution of sheep and cattle to these enterprises changes annually, as an indication, in 2015-16 30% of industry turnover of 'mixed farms' as classified in this report was related to sheep (meat) farming, with the remaining 70% related to beef farming.

  Note 2: Due to the high value of wool exports within sheep farming export data, it was not appropriate to use products and services segmentation proportions to determine sheep farming exports (given the focus is on sheepmeat). Therefore, in calculating sheep farming exports, this revised report has applied the proportion of live sheep exports to total exports to determine the value of sheep farming exports.

- Breakdown by state: IBISWorld does not provide disaggregated data by state, and therefore state data from various sources was used to calculate the proportion of each of the key indicators by state.
  - Data source:
    - Red meat and livestock industry: IBISWorld reports
    - State proportions:
      - for IVA/turnover/employment: ABS catalogue number 8155.0
      - for exports: ABARES farm survey
      - for number of business: ABS catalogue number 7121.0.
  - Calculation methodology: The proportion by state in each data source was applied to data from IBISWorld reports for that element of the supply chain as per the following formula:
  - $$State\ economic\ indicator\ value = \frac{Production\ value\ per\ state}{Total\ production\ value} x\ red\ meat\ and\ livestock\ production\ value + \frac{Manufacturing\ value\ per\ state}{Total\ manufacturing\ value} x\ red\ meat\ and\ livestock\ manufactuirng\ value + \frac{Sales\ value\ per\ state}{Total\ sales\ value} x\ red\ meat\ and\ livestock\ sales\ value$$

  Sales and service income was used as a proxy for total income due to data limitations.

- Comparison to other industries:
  - Data sources:
    - IVA/turnover/employment/number of businesses: IBISWorld reports (red meat and livestock industry) and ABS catalogue number 8155.0 (other indicators)
    - Exports/imports: IBISWorld reports (red meat and livestock industry) and ABS catalogue number 5368.0 (exports/imports).
  - Calculation methodology:
    - Data for the red meat and livestock industry was drawn from the IBISWorld reports and then compared to industry data from the ABS. As outlined above, the rationale for drawing data from IBISWorld is that it is the best source for data disaggregated across supply chain as the ABS data reports manufacturing, retail, wholesale and production but not specifically for the red meat and livestock industry.

Approach and methodology

Part C

Part C reports key information and data in relation to species statistics and performance within the red meat and livestock industry. A variety of sources were used to derive key trends and facts, as outlined below. Notably, the data and information used in this section is reported directly from the sources (i.e. the data was not derived specifically for this report). It is noted that the reporting periods are for the most recent years available which result in different reporting periods (as per part A). The following sources were used:

- Areas farmed: ABS catalogue number 7121.0
- Herd and flock by state and category: ABS catalogue number 7121.0
- Grainfed and feedlot data: MLA Australia national feedlots capacity calendar year (turnoff), export MLA export statistics, based on information provided from DAWR, turnoff by State MLA, ALFA and ABS
- Production: ABS catalogue number 7215.0
- Exports key markets: DAWR red meat export statistics
- Live exports value and volume: MLA Australia Live cattle exports — volume and value calendar year
- Key exports and imports markets: ABARES catalogue number 140 and 154
- Retail and saleyard prices: ABARES catalogue numbers 127 and 128. Note that for beef, the weighted average saleyard price for yearling, ox and cow was used
- Share of retail dollar: MLA Australia producer share of the retail dollar quarterly March 2017
- Farm performance: ABARES farm survey.

Approach and methodology

Part D

Part D examines the importance of the red meat and livestock industry within each relevant element of the supply chain (i.e. it compares the particular element of the red meat and livestock supply chain with other industries within that element of the supply chain).

- As per Part B, data from the relevant IBISWorld Reports was used to calculate the IVA and employment for the red meat and livestock industry across each element of the supply chain.
- Data from ABS catalogue number 8155.0 was used identify subsectors within each element of the supply chain.
- The following ABS industries were used to compare to the different parts of the red meat and livestock industry's supply chain:
  - Agriculture, forestry and fishing was used to represent production in Australia
  - Manufacturing was used to represent manufacturing in Australia
  - Wholesale trade and retail trade were combined to represent total sales in Australia.
- Calculation methodology: Data across the red meat and livestock supply chain was categorised into the following elements:
  - Beef, sheep and mixed farming, and feedlots were combined into red meat production to compare to agriculture production
  - Processing was used to compare to manufacturing
  - Wholesale and retail sales were combined to represent red meat sales to compare to sales.
- IVA and employment numbers, calculated from IBISWorld were included to represent the red meat and livestock industry.
- These were then removed from the relevant ABS subsector categories to avoid double counting and reported as red meat and livestock. These were removed as follows:
  - Within production the red meat and livestock industry was removed from the 'agriculture' subsector
  - Within manufacturing the red meat and livestock industry was removed from the 'food product manufacturing' subsector
  - Within sales the red meat and livestock industry was removed from the 'food retailing and grocery, liquor and tobacco product wholesaling' subsector.
- To derive the proportion of IVA for each subsector, the proportion of sales and service income for the subsector was used as a proxy, as IVA for each subsector is not reported.

Case studies: Approach and methodology

Case studies

The red meat and livestock industry — supporting employment across the economy

Indirect employment in the red meat and livestock industry was estimated through the use of REMPLAN. REMPLAN is an economic analysis software package designed for use by economic development practitioners. REMPLAN provides detailed economic data for single or combinations of local government areas and also incorporates a dynamic economic modelling capability to allow the analysis of 'what if' scenarios. REMPLAN's core data set is based on Australian Bureau of Statistics (ABS) national accounts figures of the Australian economy, coupled with the latest Census data.

REMPLAN is essentially an input-output model of the Australian economy and regional economies. Input-output models trace the revenue and expenditure flows that link industries and workers within and outside economic regions. For instance, an increase in output in one industry (the "direct impact") would give rise to demand for inputs from other industries (industrial effect) as well as labour (consumption effect). In turn, these support industries would demand further inputs and labour and so on. This is the so-called multiplier or indirect effect.

Case studies provided by industry

- Trade reform – a priority for ongoing competitiveness of the Australian red meat industry (MLA)
- Australia – Indonesia strategic trade and partnership alignment (ALEC)
- Free trade agreement negotiations deliver improved competitiveness of Australian beef (ALFA)
- Animal welfare in the live trade (ALEC)
- Strong demand for goatmeat and growing investment in the industry continues to strengthen the goat market both overseas and in Australia (MLA)
- Improving goat production and supply data and information (EY and NSW DPI)
- How the processing industry generate value (AMIC)
- Major players of Australia's red meat and livestock processing sector (IBISWorld and Food and Drink Magazine)

Appendix B: Glossary

This Appendix outlines the list of terms and acronyms used within this report

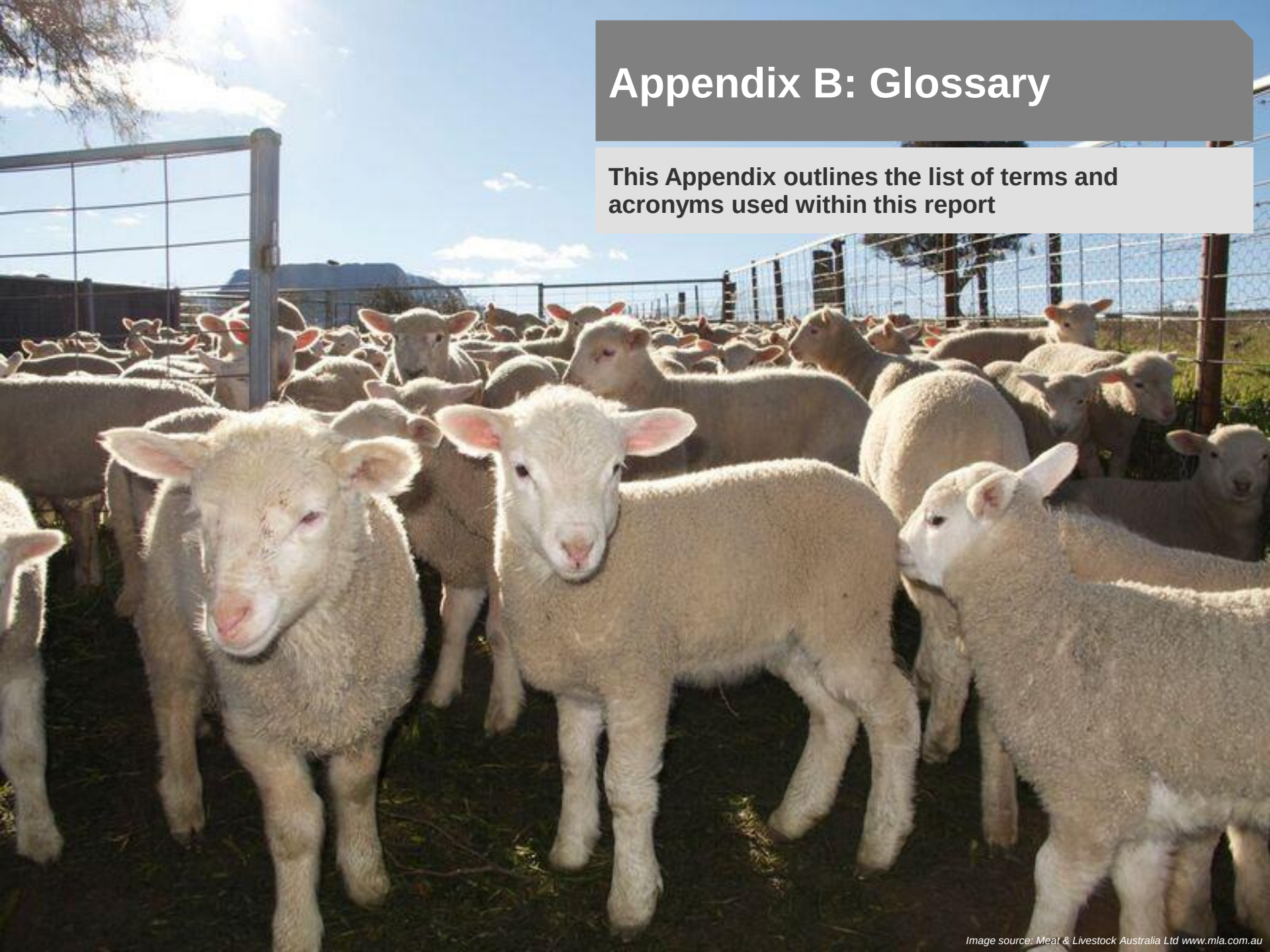


Image source: Meat & Livestock Australia Ltd www.mla.com.au

Glossary and key terms

Term	Definition
ABS	Australian Bureau of Statistics
ABARES	Australian Bureau of Agricultural and Resource Economics and Sciences
ALEC	Australian Livestock Exporters' Council
ALFA	Australian Lot Feeders' Association
AMIC	Australian Meat Industry Council
AMPC	Australian Meat Processor Corporation
B	Billion
CCA	Cattle Council of Australia
Cwt	carcase weight
DAWR	Department of Agriculture and Water Resources
EY	Ernst & Young
FOB	Free on Board (export price loaded on ship before departure)
FTA	Free Trade Agreement
GICA	Goat Industry Council of Australia
Industry turnover	Industry turnover is defined as income generated by business within the industry from the sales of goods and services. It includes the income generated from rent, leasing and hiring income
IVA	Industry value add
Industry value add	Industry value add (also known as contribution to gross domestic product (GDP)) is the measure of contribution of businesses within each sector to overall gross domestic product
LiveCorp	Australian Livestock Export Corporation Ltd
M	Million
Mixed Farming classification	This classification is made up of producers in the industry who are engaged in farming both sheep and beef cattle. The statistics are derived from IBIS Reports A0141 Sheep-Beef Cattle Farming in Australia and A0145 Grain-Sheep or Grain-Beef Cattle Farming in Australia with proportions relating to canola, wool, other grains, and wheat removed
MLA	Meat & Livestock Australia
Mt	Million tonnes
NTB	Non-tariff barrier
OTH	Over-the-hooks
RMAC	Red Meat Advisory Council
SCA	Sheepmeat Council of Australia
swt	shipped weight

Appendix C: Industry Participants

This Appendix outlines the industry participants involved in the development of this Report

Red meat and livestock industry participants

The report has been complied on behalf of the Australian red meat and livestock industry, at the request of peak industry councils, and funded by Meat & Livestock Australia. Throughout the development of the report EY consulted with Meat & Livestock Australia, Red Meat Advisory Council, Peak Industry Councils – Cattle Council of Australia (CCA), Sheepmeat Council of Australia (SCA), Goat Industry Council of Australia (GICA), Australian Lot Feeders' Association (ALFA), Australian Livestock Exporters' Council (ALEC) and Australian Meat industry Council (AMIC) and Red Meat Service Providers – Australian Meat Processor Corporation (AMPC) and the Australian Livestock Export Corporation Ltd (Livecorp).

Member Organisations

Policy, Advocacy and Industry Oversight

Partner Organisations

Research, Industry Development and Marketing

EY | Assurance | Tax | Transactions | Advisory

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