

Future Outlook for Queensland Cattle and Beef Products



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Sources used in obtaining the information, based on which we performed our analysis to reach certain conclusions and points of view that are included in this guide, are outlined in references section of this report.

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Executive Summary

This report analyses the existing and forecast trends within beef commodity products, premium beef product niches and live cattle.

Demand for Beef

The demand for Australian beef and specific beef products continually evolves and expands. This can be attributed to:

- ▶ Changes in consumer preferences, wealth and demographics as well as socio-economic impacts influencing the amount and type of beef demanded
- ▶ Varying export destinations with different consumer values, tastes and preferences, changing the types of cuts sought
- ▶ Social changes increasing the value attached to health and wellness, sustainability, animal welfare and convenience with enhanced importance placed on meat quality, nutrition and food safety (including traceability and provenance).

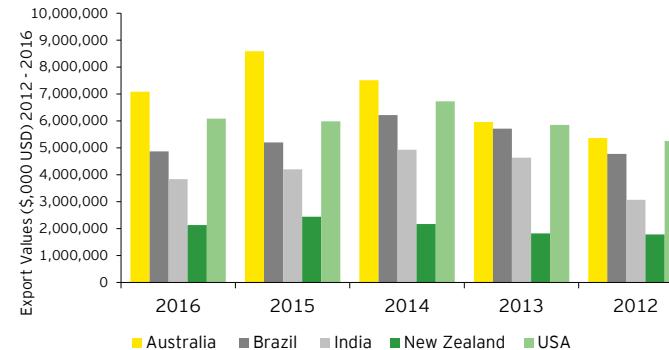
Changing consumer preferences have resulted in fluctuations in demand for Australian beef products over time. This includes the desire for different beef cuts based on new markets, market segments and changing meal types. New and different product offerings including pre-packaged meals, servings based portions and the increased importance of the food service sector has also changed the types of beef cuts demanded.



Analysis of export volumes revealed that these changes have led to growth in the export of higher grade cuts from Australia, with an expansion of grainfed beef export countries including Europe and the Middle East and increased demand for Australian grassfed beef in China, the Philippines and Malaysia (Figure 1). Australia's beef exports are underpinned by large volumes of manufacturing beef exports to the US. Domestically, demand change has been driven by premium products, a focus on provenance, changed consumption patterns and a focus on paddock-to-plate offerings.

This increase in demand is likely to be sustained in the medium-term but will be subject to greater emerging competition from other major exporters. Australia's reputation and brand development will be key to compete in the premium beef markets.

Figure 1: Value of beef exports in 2012 - 2016 (USD)



Source: UN Comtrade Database



Future of Queensland beef

Australia's current standards on biosecurity, animal welfare and product integrity, in a market of growing ethically and environmentally conscious consumers and an emphasis of provenance, position it favourably to target premium markets through niche products and brand development. Forecasts for herd rebuilding, exchange rate stability and existing strong trade relationships give a promising outlook for the future of Queensland beef production and exports.

For more information on the drivers influencing the future outlook of Queensland cattle and beef production, please refer to the separate volume of the report on *Strategic Drivers of the Queensland Beef Supply Chain*.

Niche premium beef product

To benefit from changing consumer demand and to add value to beef products, a number of niche markets have been developed in Australia. These are based on unique characteristics of the beef specific to diet and breed. Differentiated products are increasingly being used to support a brand which is the basis for the niche product offering. Niche markets cater to consumer preferences including environmental consciousness, safety concerns, connection with food, superior quality and a range of other traits. Niche markets can be accessed through product compliance, such as organic certifications or through brand development which may incorporate a range of certificates, proof of provenance and the provenance story.

Live cattle exports

Australian live cattle exports peaked in 2014, but have since declined due to tightening supply, high cattle prices and increased competition from Indian carabeef exports to Indonesia (Australia's largest live export market). Feeder and slaughter cattle make up the majority of live cattle exports (89% in 2017 (ABS)). China is the primary market for the live export of Australian breeder cattle, however Indonesia has recently increased its import of Australian breeder cattle. Live exports are expected to increase in the short-term and stabilise thereafter.

Cattle performance and trends

Cattle prices peaked in 2016 on the back of high demand and a record low herd size. While they have reduced since, prices are still significantly above long term averages. Cattle prices are expected to decrease in the short-term as the national herd rebuilds, however in the medium to long-term, prices are expected to remain at levels higher than the long-term average due to growing global demand.

Drivers of Beef Demand

Image: AMPC

Demand for beef products is driven by demographics and cultural and consumer preferences.

Changing global demographics

Global food consumption is ever changing, due to the rise and fall of economies, changes in consumer values, wealth, population and various demographic influences contributing to evolving consumer needs and expectations.

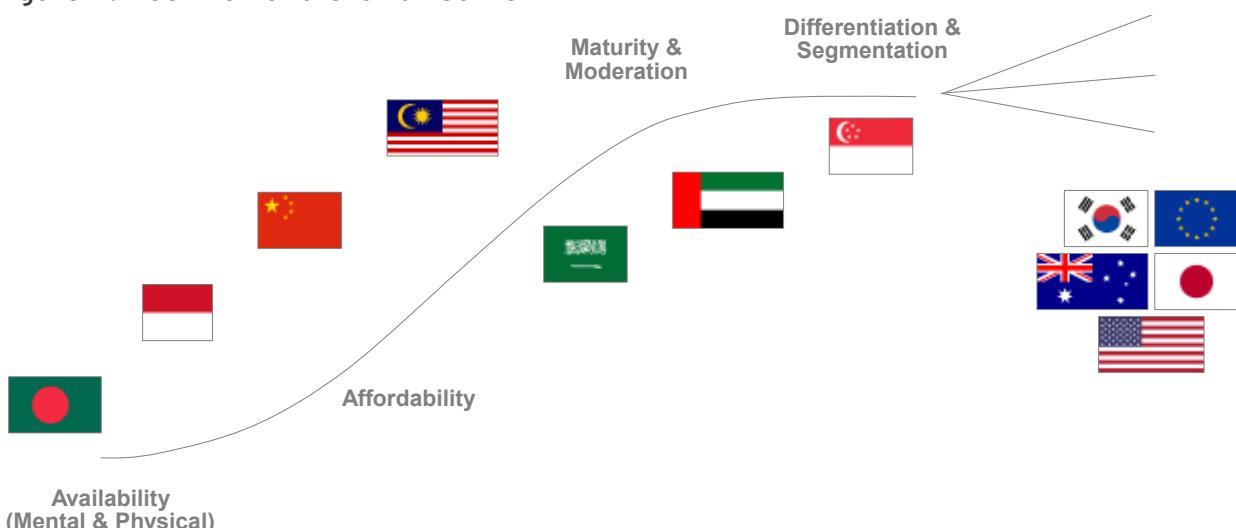
Different countries, by virtue of their unique characteristics – culture, wealth, demographics, regulation, policy settings and access to technology,

amongst others – have differing demand preferences. This is demonstrated in Figure 2 which uses a beef demand curve to categorise countries by their current beef demand and therefore the relevant strategies that should be employed. Each country requires unique and distinct strategies (MLA).

As global population growth is driven by Asia and Africa, these regions will have an increasing influence on global beef demand and consumer preferences.

Markets sit at different points on the beef growth curve & require distinct strategies

Figure 2: Beef Demand Growth Curve



Reproduced courtesy of Meat and Livestock Australia Limited – www.mla.com.au

The changing nature of economic development and the rise of developing countries, including the substantial growth of the middle class in Asia will also impact global demand, both in terms of volume and types of products purchased. For example, research indicates that between 2015-2022 meat consumption will rise by 44% in Indonesia and 23% in China (BMI research).

Consumption of meat increases with rising income. Figure 3 demonstrates that in developing markets wealthier people are eating beef more frequently.

While the global population is forecast to continue to grow in the coming years, levels of growth are country dependant. Africa and Asia populations are expected to grow at faster rates, while those in Europe, the US and Russia will generally grow at lower rates.

The changing makeup of the global population will influence preferences for beef products. Asia will have a significantly larger influence on Australian beef demand due to its high imports. The growing Africa population is expected to have less of an impact on Australian beef demand due to its ability to increase domestic production

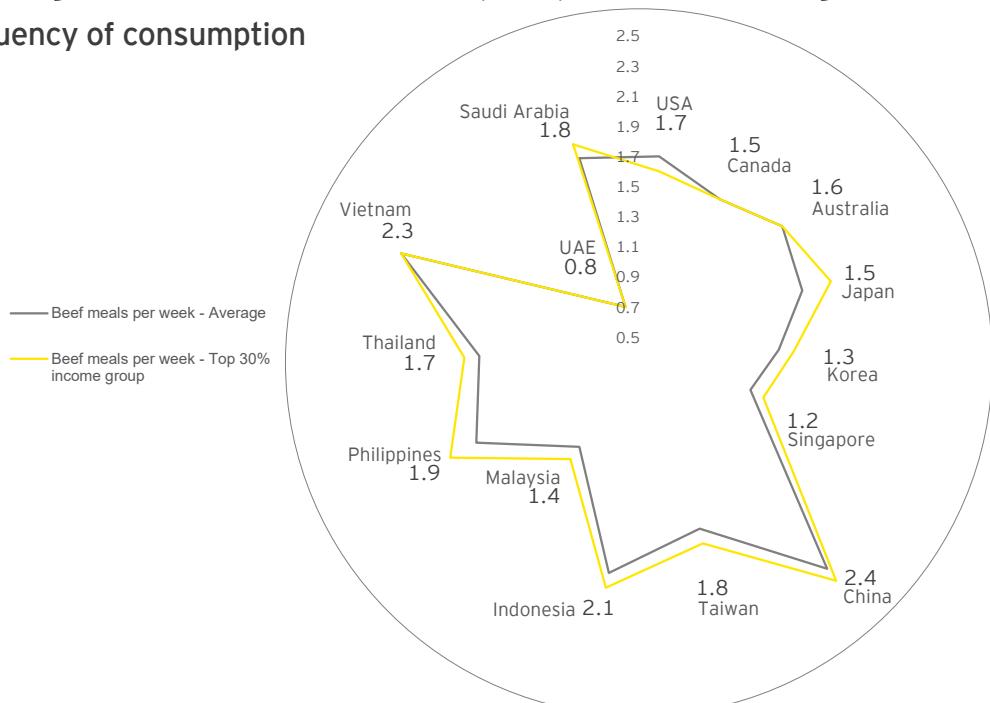
In addition to global population growth, the demand for Australian beef will be driven by:

- increasing wealth in key markets leading to:
 - an increase in protein consumption
 - consumer preference for safe, certified, high quality or/and premium protein products
- increased urbanisation leading to:
 - greater reliance on food purchases
 - the ability to more readily purchase premium products

.

In developing markets, wealthier people are eating beef more often

Figure 3: Frequency of consumption



Reproduced courtesy of Meat and Livestock Australia Limited – www.mla.com.au

Social change is driving more discerning consumers increasing demand for premium products.

Domestically and in key export markets, values, behaviour and lifestyle changes have continued to place increasing importance on health and wellness, sustainability, animal welfare and convenience. As a result, there has been a focus on lean meat, nutrition, food safety (including traceability), production practices, packaging and ethical production.

Consumers are showing a preference for food that demonstrates their values and benefits their lifestyle. Consumers want to see their consumption choices to support values such as animal welfare, environmental protection and sustainability or to demonstrate

superiority through quality or as a healthy choice.

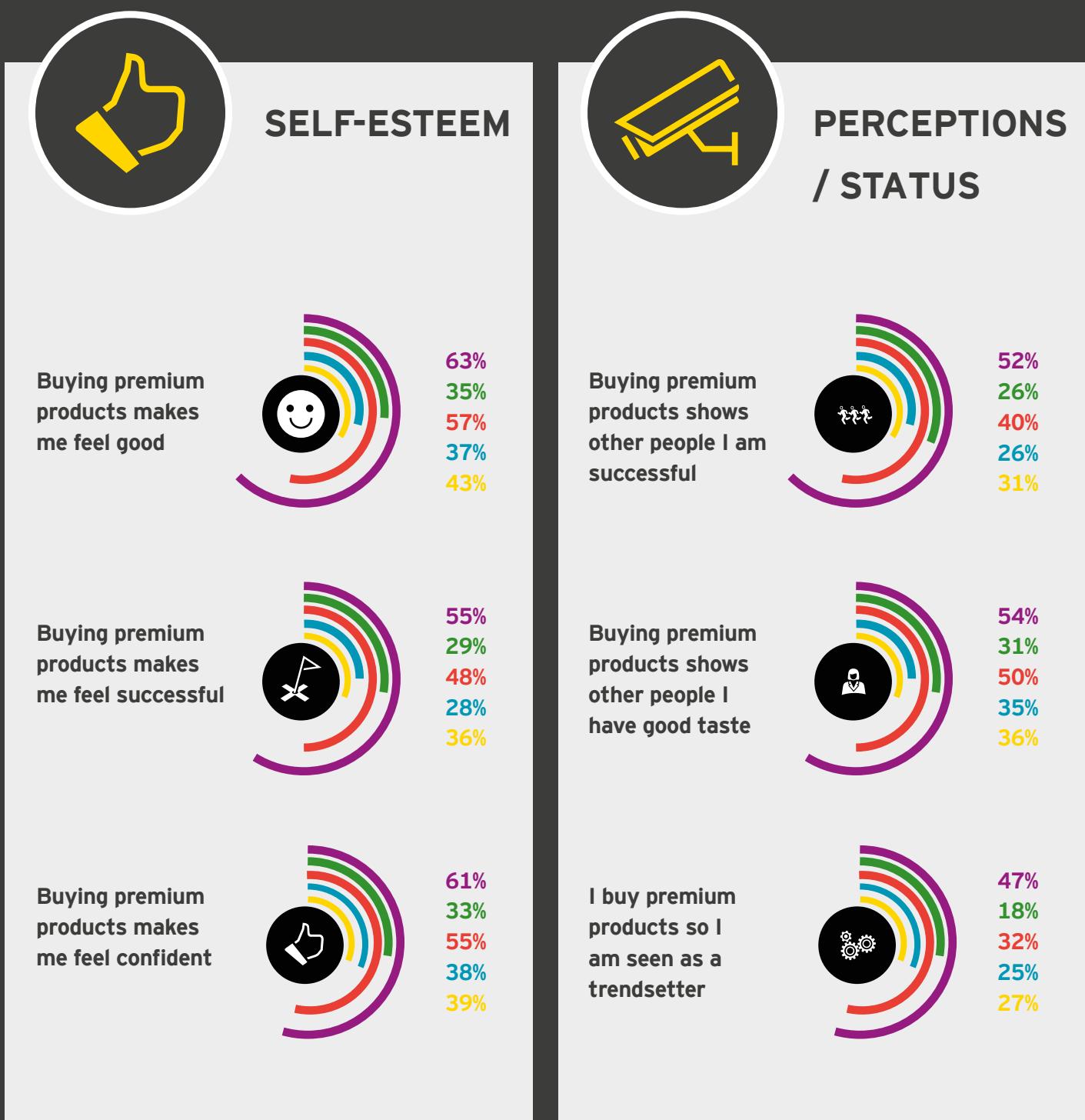
Globalisation is exposing consumers to different cuisines and cooking methods, enabling greater access to information and data, and increasing consumer choices. This is resulting in diversification of demand for specific cuts. Additionally, consumers (particularly those with higher incomes) are seeking additional outcomes from food and beef consumption, more than simply fulfilling their nutritional needs. There is an increasing focus on the eating experience, such as eating quality and meal satisfaction.

These social changes present an opportunity for the Queensland beef industry to target niche premium markets reflecting consumer preferences and consequentially demand price premiums.

Preferences and tastes manifest in different ways within market segments. For example, premium products are associated with higher self-esteem and status in the Asia-Pacific region than a variety of other countries (The Nielsen Company, 2016).

Percentage who strongly or somewhat agree with statement

- Asia-Pacific
- Africa/Middle East
- North America
- Europe
- Latin America



Meat consumption is forecast to increase in Australia's key export markets.

Table 1 summarises demographic changes in Australia's key export markets that will drive increased demand for Australian beef. These include high population and income growth, as well as

consumer demand for high quality standards, superior function or performance, inclusion of organic or all natural ingredients, environmentally friendly or sustainable materials and specific country origin.

Table 1: Demographic changes in Australia's key export markets, consumer perceptions and insights within these markets

Country	Japan	China	Korea	US
Country overview	Portion of households with disposable income >\$35,000USD to increase from 35% to 64% in 2022	Portion of households with disposable income >\$35,000USD to increase from 2% to 6% in 2022, which is 19m households	Portion of households with disposable income >\$35,000USD to increase from 63% to 86% in 2022	Portion of households with disposable income >\$35,000USD to increase from 68% to 75% in 2022
Source: BMI Research	Meat consumption forecast to increase by 8% to 1.3m tonnes in 2022	Meat consumption forecast to increase by 23% to 9m tonnes in 2022	Meat consumption forecast to increase by 8% to 0.8 tonnes	Meat consumption forecast to increase by 12% to 13m tonnes
Consumer insights	Common associations for beef: most superior meat, tastes delicious 95% of beef buyers have eaten Australian beef before and 52% had eaten it in the past month	Common associations for beef: high nutritional value, essential part of children's diet, willing to pay for the taste	Common associations for beef: Tastes delicious, willing to pay more for beef in comparison to other proteins	Common associations for beef: Family favourite, most superior, safe to eat Australian grassfed beef is seen to provide the highest quality steak amongst imported products
Source: MLA Global Consumer Tracker and MLA Industry Insights	Recognition of the "True Aussie Beef" logo and has increased from 18% to 40% among respondents	Increased demand for Australian beef will be driven by high population growth and high income growth		
Key export markets by percentage	Chilled grass: 10% Chilled grain: 30% Frozen grass: 42% Frozen grain: 18%	Chilled grass: 3% Chilled grain: 2% Frozen grass: 73% Frozen grain: 22%	Chilled grass: 6% Chilled grain: 17% Frozen grass: 58% Frozen grain: 19%	Chilled grass: 25% Chilled grain: 2% Frozen grass: 72% Frozen grain: 1%
Source: MLA Industry Insights	Increasing consumer interested in akami (leaner meat) and steaks. Wagyu beef remains a desired product for traditional dishes. Westernisation prominent	Beef offal commonly used in traditional dishes, although there is increasing exposure to western-style steaks, sausages, pasta dishes and burgers	Increasing interest in healthy and environmentally sustainable products. Westernisation prominent	Growing amount of environmentally and ethically aware consumers. This has resulted in strong recent demand for grassfed beef

Changing domestic preferences

Beef makes up almost 30% of fresh meat sales by value in Australia. This is followed by fresh chicken (20%) and fresh lamb (10%) (Figure 5).

As with global demand, domestic consumption is impacted by a wide variety of factors, including demographic shifts, income levels and growth, and changes in values, attitudes and beliefs. Consumer preferences are following similar trends to the global market, particularly other developed countries whereby consumers are:

- ▶ Demanding premium products across both retail and food service offerings. This is a result of the greater disposable incomes of households and the increasing purchasing power of millennials; and
- ▶ Placing of increasing importance and value on country of origin, nutritional requirements, environmental impact, animal welfare, health and safety and food integrity and transparency.

Source: MLA Industry Insights

For many years beef was Australia's most consumed protein (kilos per capita) (Figure 4). However, a recent drop in the consumption of beef and an increase in chicken and pork has seen beef drop to third most consumed protein. This is an effect of a combination of factors, likely including; the decreasing price of chicken, increasing health awareness leading to less red meat consumption and environmental and animal activist movements. Despite this decline in consumption, beef is still the leading meat by value of sales, demonstrating the price premium beef commands over other protein sources (Figure 5).

There are a number of unique features impacting Australian consumer preferences. Australian consumers are changing:

What they eat

- ▶ Increased migration from Asia and an ageing population are changing the consumption patterns based on culture, tradition, health, functionality and price reasons.

The way they eat and shop

- ▶ A move away from more traditional takeaway offerings has been countered by increased prevalence of convenience shopping, ready-to-cook meals and healthy snack alternatives. This has lead to an increased focus on value add activities at the retail level such as pre-cooked beef roasts, in direct competition with pre-cooked chicken roasts.

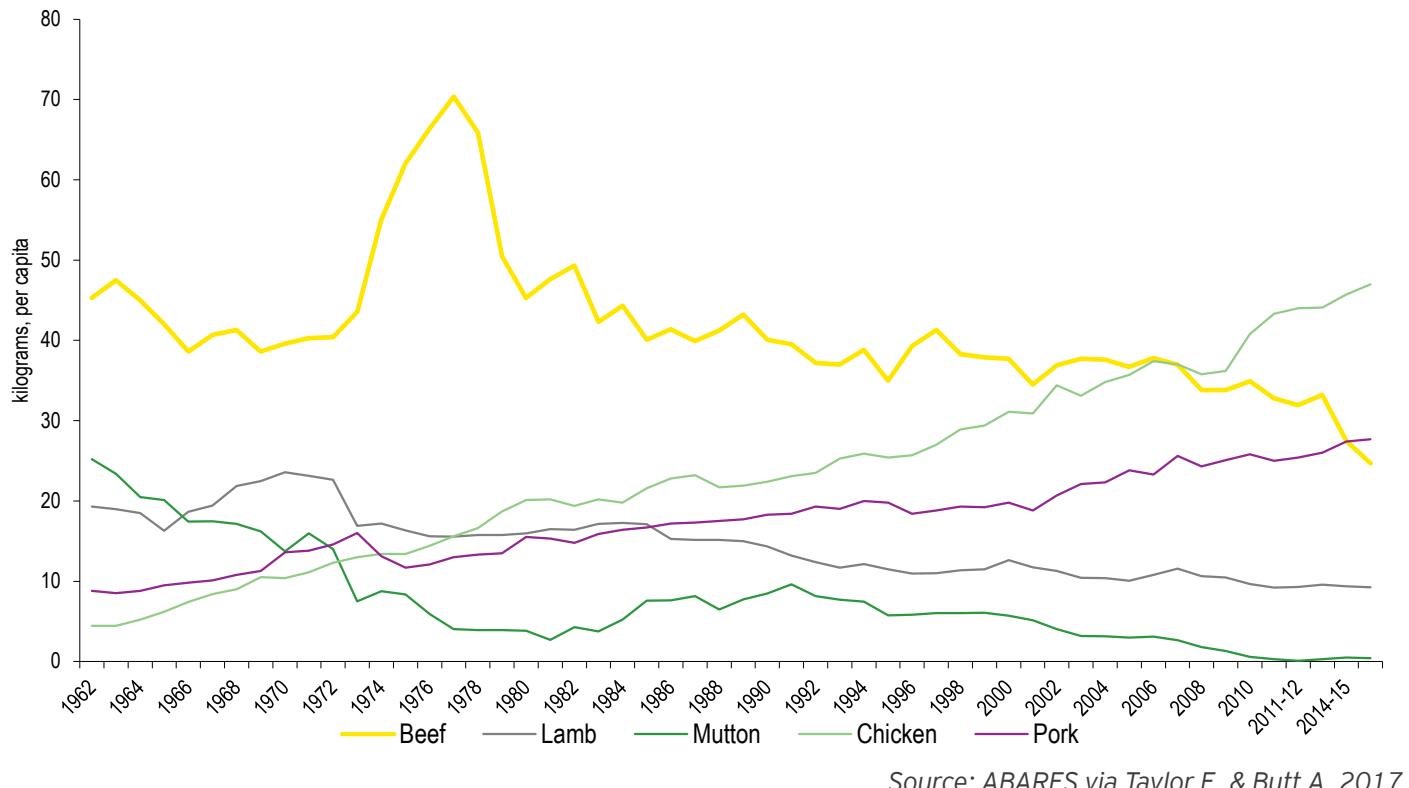
Their engagement with suppliers

- ▶ There has been increased focus on paddock-to-plate offerings, with a rise in direct procurement from farm and farmers market purchases. Increased focus on provenance and the food 'story' has seen enhanced branding, differentiation and information provision, both at the retail level and in food service. This has meant more direct interaction further down the supply chain with increasing touchpoints between consumers and producers, often facilitated by technology.

Domestic consumption of beef is expected to remain lower than white meat consumption, however the focus on premium and value add products which demand higher price premiums is expected to continue. This is a case of a typical Australian consumer eating beef less regularly, however purchasing premium cuts when they do.

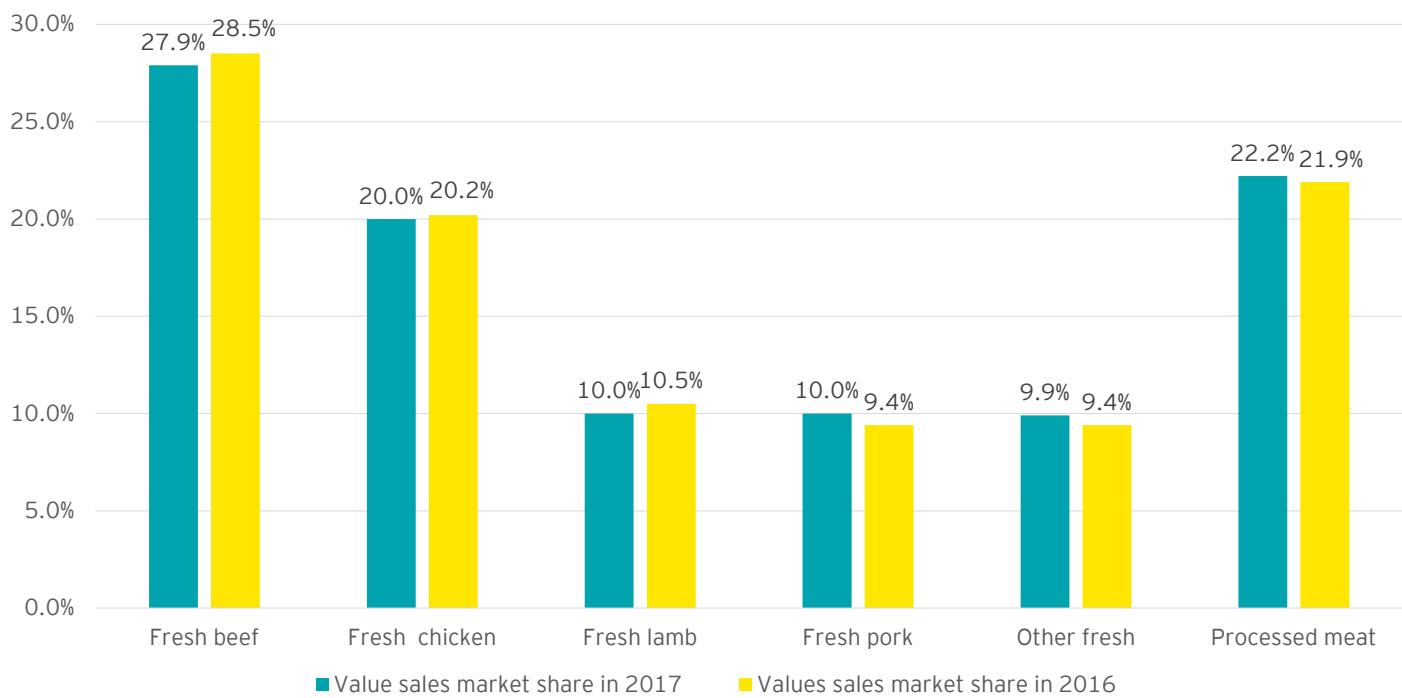


Figure 4: Meat consumption in Australia 1962 - 2016



Source: ABARES via Taylor E. & Butt A. 2017

Figure 5: Australian meat sales by value



Source: The Nielson Company (Norris, M. 2018)

Grainfed beef

Grainfed beef is produced by finishing cattle in a feedlot where they are fed grains high in sugar and fat; the resulting beef has increased fat marbling. Marbling within grainfed beef is key to determining eating quality, with increased marbling considered higher quality beef. Approximately 50% of cattle processed in Australia were grainfed in 2017, predominantly in Queensland (ABS, ALFA). It should be noted that this high percentage is not only driven by demand side preferences, but also drought conditions leaving producers with limited options to grass feed cattle.

Over the past ten years Australia's grainfed beef export markets have evolved from being dominated by Asia and North America, to include Europe and the Middle East.

There has been a trend of market diversification across many grainfed beef cuts reducing single market dependence and associated risk. A key contributing factor in this is increased market access.

- ▶ Japan accounted for 56% of Australia's top three grainfed beef cut exports in 2007 in comparison to 47% in 2017
- ▶ During 2005-07 the top three markets for grainfed cube roll/rib eye exports were Japan, South Korea and the US – which collectively accounted for more than 90% of exports. During 2015-17, the same three countries accounted for 60% of these exports, with a larger number of countries taking smaller volumes
- ▶ Similarly during 2005-07 92% of grainfed striploin exports were to Japan, South Korea and the US. During 2015-17, the top three markets have changed to Japan, South Korea, and China which accounted for 70% of exports.

The consistent reduction in the dominance of the top three markets is indicative of the increased diversification of Australia's export markets.

Source: EY Analysis of DAWR and MLA 2018

Grassfed beef

The majority of Australia's beef exports are from grassfed cattle. Grassfed beef cattle do not enter a feedlot, but rather are grown out and fattened on predominantly native pastures and may be crop fed or grain assisted in the paddock to finish to a weight specification. Australia's extensive pastures enable a large grassfed turnoff. Grassfed beef can vary greatly in quality and purpose. Grassfed cattle producing beef suitable for manufacturing has dominated in terms of export by volume, however recent changes in some consumer segments are favouring premium grassfed beef cuts over the grainfed equivalent opening up new premium markets for grassfed beef.

The past decade has seen some significant shifts in Australia's top ten grassfed export markets. Russia stopped importing Australian beef from the second quarter of 2014 in reaction to political sanctions. Imports have increased to China, the Philippines and Malaysia and a surge in demand has occurred from Saudi Arabia as a result of its ban on Brazilian beef due to disease concerns.

Similar to grainfed exports, grassfed exports have diversified over the past decade with key markets accounting for a lower total percentage of exports today than previously.

- ▶ During 2005-07 94% of grassfed shin/shank were exported to the top three markets – the US, Taiwan and South Korea. During 2015-17, our top three markets – the US, Taiwan and China – comprised 85%
- ▶ The largest markets for grassfed brisket from 2005-07 were Japan and South Korea, followed by South Africa and China. From 2015-17, larger volumes of brisket were being exported to a greater variety of markets – Japan closely followed by China, then South Korea, the US, Hong Kong, Canada and Taiwan.

Source: EY Analysis of DAWR and MLA 2018.

Figure 6: Australia's top three export markets - the composition of exports by volume

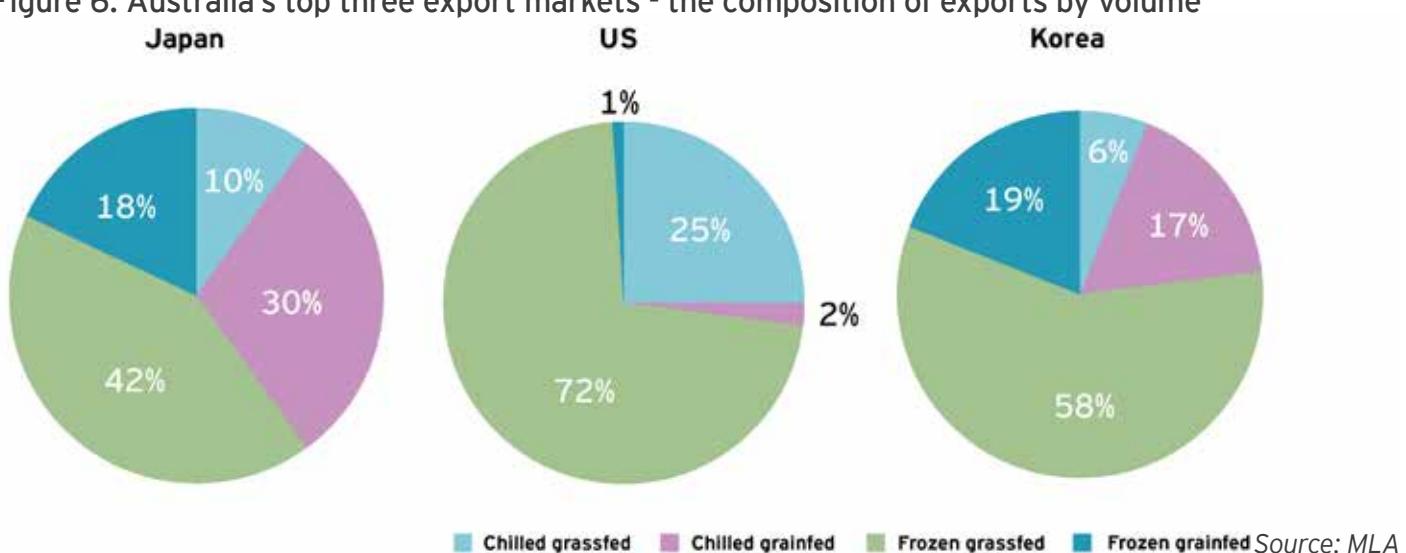
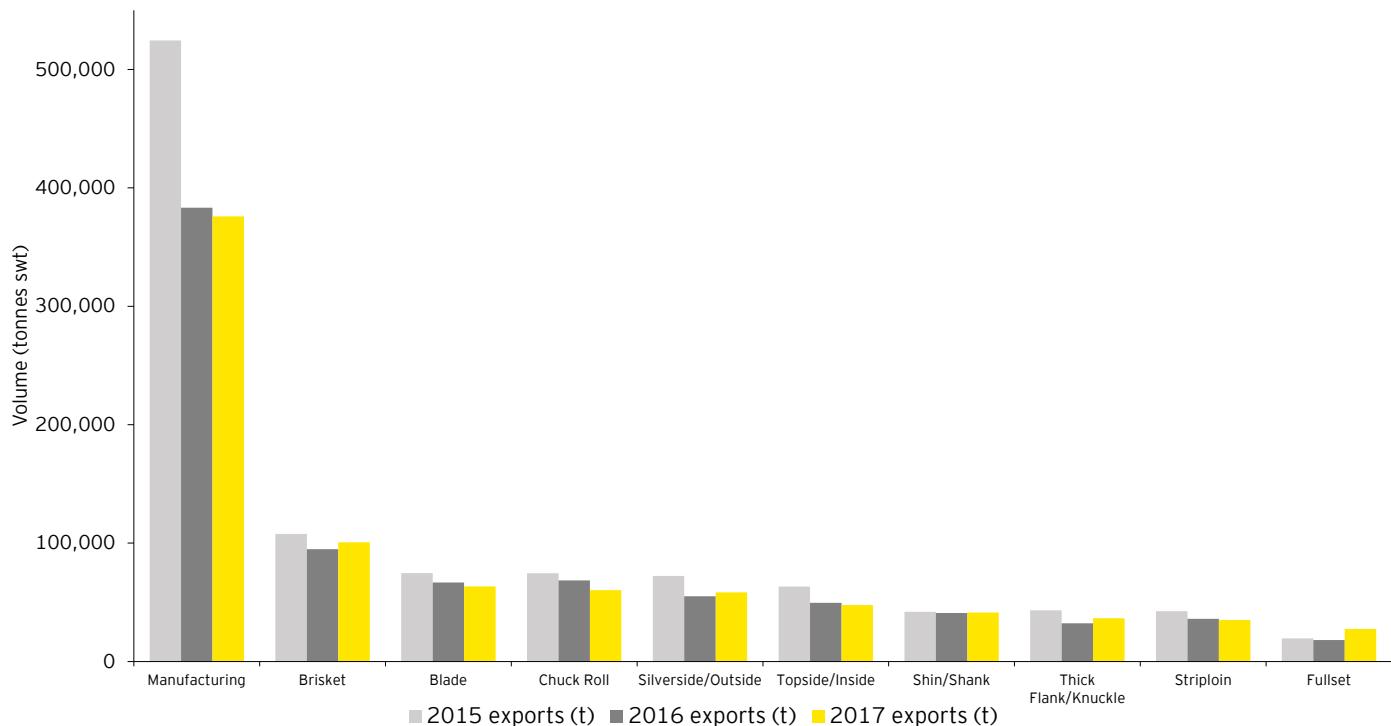


Figure 7: Export volumes of select Australian beef cuts 2015-2017



Key insights on volume changes:

- Exports to the US of manufacturing beef have decreased by 28% over the last three years, from 524,440 tonnes in 2015 to 373,926 tonnes in 2017 (DAWR). This is an effect of both the US herd re-building resulting in increased US domestic supply and the Australian herd reaching record low levels reducing market supply. Despite this decrease the US remains the largest market for Australian manufacturing beef, comprising 63% of manufacturing beef exports in 2017 (DAWR)
- The increase in fullset beef has been driven by a rise in exports to the US. Fullset is a combination of primal cuts, which are considered to be higher quality cuts. While this is relatively small volumes this trends demonstrates an increase in higher quality Australian beef entering the US market, diversifying from our dominant manufacturing exports
- There has been a significant increase in the export of manufacturing beef to China, increasing by 33% in the last year and 92% in 2017 compared to the 5 year average. This is indicative of China's preference for a western style diet, driving demand for burger meat and other manufacturing beef products. This increase may also be due to manufacturing meat offering a lower price option to access Australia's high quality beef.
- The reduction in the volume of a number of select Australian beef cuts from 2015-2017 is indicative of the impact the Australian and US droughts on the supply of beef into the US and the demand for beef from the US.

Based on EY analysis of DAWR data and MLA Global Market insights



By-products

In Australia cattle are predominately raised for their meat, however Australia has viable industry and markets for the by-products produced creating revenue from every part of the animal. By-products from beef processing include offal, hides, tallow and products derived from bovine blood as well as other rendered products. All of these are exported.

Offal

Offal encompasses a large number of beef by-products including organs and a variety of specialised offal cuts. A summary of offal cuts and pricing is present in Table 2, reproduced from the MLA co-product market report. Beef offal exports have grown steadily over the last 20 years, increasing from approximately 35,000 tonnes to 78,000 tonnes per annum in that time, an annualised growth rate of 4.1% (MLA, 2017). South Korea, Indonesia and Japan are the largest markets, accounting for 50.4% of exports in the 12 months to June 2018.

There are more than 20 different cuts of offal, with local preferences dictating market size. Market access arrangements for offal products often differ from those negotiated for beef or live cattle, meaning the sizes and values of markets differ. Tongues, lungs and livers are the generally the most in-demand products, but tendons, hearts and kidneys are the largest exports by volume to China due to market access restrictions (MLA, 2015). Muscles such as rumen pillars (2017 average price of \$16.63) and tongue SW (2017 average price of \$12.64) are generally the most valuable cuts, whilst smaller rumen pillars (less than 500g) and tongue fillets have experienced the highest annualised growth since 2010 (22.4% and 13.3% respectively) (MLA, 2018).

Although production is closely related to beef processing, offal faces other key challenges that beef doesn't. Firstly, the market for offal in Australia is very

limited. Off cuts, such as trip and liver, have fallen out of taste in the domestic market over recent decades. Secondly, policies designed to boost self-sufficiency in key export markets threaten the viability of imports. For example, offal exports to Indonesia dipped significantly between 2014 and 2016 as Indonesia sought to boost its domestic production capabilities (Beef Central, 2016). These years were big years in terms of live cattle imports and signify the Indonesian consumers preference for freshly killed offal via there 'wet markets', rather than frozen imported offal.

Bovine Hides

The hide is the skin of the animal predominantly used to produce leather goods. Bovine hides are exported in three different ways: raw, pre-tanned and fully tanned (Productivity Commission, 2005). They generated \$163.12 million revenue in FY18, 38.8% of the revenue of the Australian leather and leather substitutes industry (IBISWorld C1320). Over the last five years, their share of industry revenue has fallen because of a decrease in domestic cattle slaughter volumes. This decline has been partially offset by China's strong demand for hides.

As tanning operations have moved off shore, beef processors now prepare the hides for export where they are processed into leather and other products. In export markets, cuts and tick bite marks on Australian hides can decrease their value. This is a particular issue with hides from Queensland, where the majority of Australia's cattle are slaughtered. Accordingly, reducing cuts at abattoirs and minimising tick numbers could improve revenue figures for industry operators (IBISWorld C1320).



Table 2: Beef co-product prices (June 2018 market report)

	Average (May data)	Range	Responses	Monthly change	Annual change
Beef Lips	\$2.35		2	-48.90%	-30.80%
Beef Lips - Halal	\$4.08	\$1.40	4	1.20%	19.90%
Cheekmeat	\$5.65		2	-1.70%	-24.80%
Cheekmeat - Halal	\$6.07	\$0.70	3	-4.70%	-18.40%
Diap. Membrane	\$3.60	\$0.50	4	3.60%	-5.90%
Hc Tripe	\$6.84	\$2.25	4	5.50%	7.90%
Hc Tripe - Halal	\$7.50		2	2.70%	9.20%
Headmeat	\$4.37	\$1.10	3	6.50%	0.40%
Headmeat - Halal	\$4.30		2	0.00%	-18.10%
Heart	\$2.50	\$0.60	3	10.30%	22.00%
Heart - Halal	\$2.53	\$0.85	3	-2.60%	37.70%
Heart - Aorta	\$7.20		2	0.70%	10.10%
Heart - Aorta - Halal	\$7.35		2	1.40%	16.80%
Kidneys	\$1.03		2	-6.80%	-15.30%
Kidneys - Halal	\$0.90	\$0.15	3	-7.70%	-28.00%
Ligamentum	\$4.05	\$0.90	4	1.90%	-7.50%
Liver	\$1.20		2	-12.70%	-17.20%
Liver - Halal	\$1.28	\$0.20	4	-3.20%	-8.30%
Lungs - Halal	\$1.25	\$0.35	3	0.00%	-46.50%
Omasum	\$7.05		2	6.80%	57.50%
Omasum - Halal	\$6.55	\$2.90	4	-8.60%	28.40%
Rum. Pill - Halal < 500	\$11.70		2	21.70%	55.30%
Rum. Pill - Halal > 500 < 700	\$16.70		2	8.10%	25.30%
Rum. Pill - Halal > 700	\$19.65		2	2.90%	17.90%
Rum. Pill < 500	\$11.24	\$6.25	4	3.10%	37.90%
Rum. Pill > 500 < 700	\$15.41	\$2.35	4	-0.20%	15.00%
Rum. Pill > 700	\$19.27	\$3.40	3	3.90%	16.80%
Tail	\$10.32	\$0.85	3	2.00%	20.00%
Tail - Halal	\$10.20	\$1.20	3	-1.90%	18.80%
Tendons - Halal	\$7.00		2	4.50%	7.70%
Thickskirt	\$6.13	\$1.50	3	-2.60%	-8.20%
Thickskirt - Halal	\$6.20		2	3.30%	-6.10%
Thinskirt	\$6.07	\$0.70	3	5.80%	-16.50%
Thinskirt - Halal	\$5.65		2	3.70%	-14.40%
Tongue Root Filler	\$5.00		2	1.00%	3.10%
Tongue Root Meat	\$2.05		2	-8.90%	-17.40%
Tongue Root Meat - Halal	\$2.07	\$0.10	3	-10.10%	-17.30%
Tongue SW	\$9.63	\$0.50	3	5.30%	-41.20%
Tongue SW - Halal	\$9.30		2	2.20%	-42.50%
Tripe Pieces	\$3.37	\$0.10	3	0.50%	-11.40%
Tripe Pieces - Halal	\$3.52	\$0.25	3	3.90%	-0.60%

Source: MLA 2018



Image: AMPC

Niche Premium Beef Products

Queensland has the potential to produce a range of niche beef products to gain premium prices and access new markets.

Current niche markets

Niche markets allow producers to pursue a price premium for differentiated products.

The changing demand and preferences of consumers has resulted in a number of niche markets being developed both domestically and internationally for beef exports. Niche markets have been developed by differentiating products through focusing on particular characteristics that are valued by consumers. This has meant increased prices received by suppliers. Furthermore, there has been an increased focus on branding, often based on these differentiated product offerings. This is not a niche market, but it represents strategies used to increase profitability through differentiation across the beef supply chain.

Niche markets (and the corresponding branding and value adding strategies employed) are not mutually exclusive. Differentiated products are increasingly being used to support a brand which is in turn, the basis for value adding, and suppliers moving further along the supply chain to capture increased consumer spending.

Current established Australian niche markets developed on the unique characteristics of the products sold include pasturefed, organic beef, grainfed beef and breed specification.

Pasturefed beef

A pasturefed or grassfed beef market has been developed to meet consumer values in relation to animal welfare, sustainability, and health

and nutrition. Pasturefed certification and the development of brand value around these traits is expected to increase as Queensland graziers look to add value to their products. In many cases Queensland beef already meets the criteria of these programs. There are a range of pasturefed programs in operation across Australia with some examples described below:

Pasturefed niche examples

PCAS – The Pasturefed Cattle Assurance System is administered by the Cattle Council of Australia. It provides assurance to consumers that the products certified through PCAS come from grassfed production systems, have satisfied pre-processing handling requirements and are lifetime traceable. There are additional, optional modules to support freedom from antibiotics and hormone growth promotants. Independent audits are required annually, paid for by the producer.

JBS Farm Assurance – This program is market driven and is underpinned by a fully independent, third party-accredited audit process. JBS has developed its own pasturefed assurance program in response to market requirements. The program uses Meat Standards Australia (MSA) to ensure meat eating quality and does not allow use of antibiotics or genetically modified feed products. The JBS Farm Assurance program underpins brands such as Great Southern and King Island Beef. Independent verification audits, provided by JBS, are undertaken to confirm the integrity of the program.

Coles Graze – Based on PCAS principles, this pasturefed program is underpinned by MSA, however, Coles stipulates its own animal welfare and environmental requirements. Regular audits are carried out on suppliers along with completion of annual self-assessments.

Teys PCAS Pasturefed program – Teys utilises PCAS to underpin its pasture-certified animals that meet specifications to supply brands such as Teys Certified Premium Black Angus and Woolworths grassfed product.

Organic beef

Organic cattle have grazed on chemical-free pasture (no artificial pesticides, herbicides or fungicides). This niche market focuses on the promotion of sustainability, animal welfare and environmental consciousness.

Similar to pasturefed beef, organic beef certification and branding is expected to grow as Queensland graziers value add to their beef. Brands that echo consumers values will increasingly demand a price premium. According to Will (2015) organic meat price premiums are approximately 25% greater than that of non-organic and transition producers. Domestic and export organic demand currently far outweighs supply.

- ▶ Australian organic livestock and poultry industries have grown an average of 15% per year over the past five years.
- ▶ Organic beef cattle revenue comprised an estimated 75% of the expected \$380.9m in revenue generated from organics in FY18 (IBISWorld OD5462 2017)
- ▶ Organic beef exports accounted for approximately 20% of beef exports in 2016 (Australian Organic 2017).

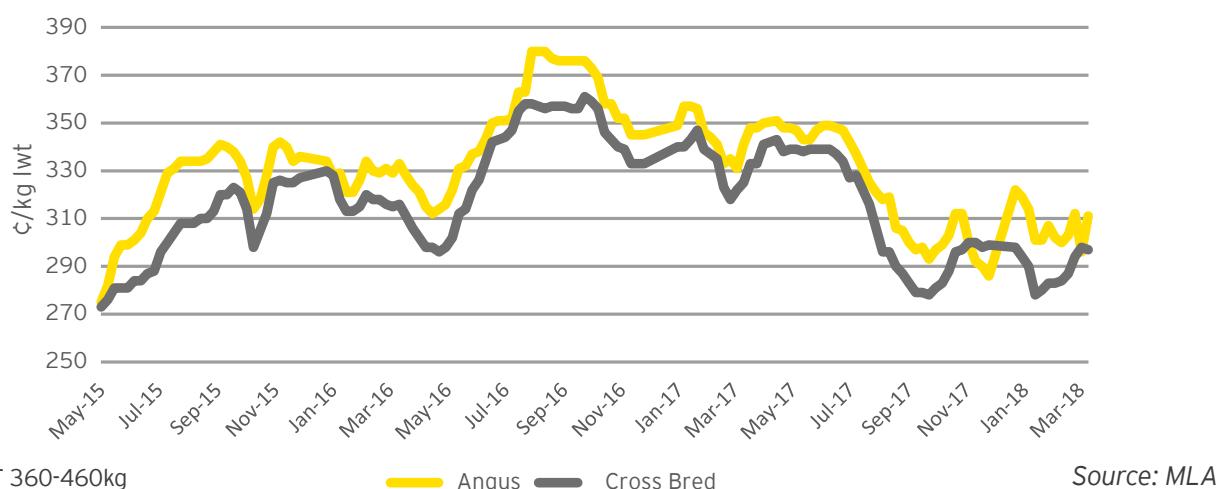
- ▶ Organic beef production represents the greatest share of organic animal production, with a third of organic systems producing beef. Queensland is the largest producer of organic beef with nearly half of Australia's organic production located in Queensland in 2016 (Australian Organic 2017)

Breed specification

Niche markets are also being developed around specific beef breeds. Of greatest prominence are the Angus and Wagyu breeds, but other established breeds have also developed breed brands such as JBS Australia's Shorthorn Beef Brand 'Thousand Guineas' and its Hereford brand 'Hereford Boss'. In addition, some specialty breeds sell direct to consumers in localised markets.

The demand for Angus and Wagyu cattle has resulted in price premiums for these cattle. Angus cattle have achieved premiums consistently over recent years (Figure 8). Wagyu cattle also attract price premiums. Analysis undertaken by Mercado suggests that in 2016 the average annual premium for Wagyu steers over the EYCI was 85%. This declined to 78% in 2017 due to an increased market supply (Mercado 2018).

Figure 8: Pricing trends of Eastern States Medium Fed Steers*



*120-220DOF 360-460kg

Angus Cross Bred

Source: MLA

Brand value & premiumisation

Branding, labelling and marketing of specific cuts, lines and products is increasingly being applied in an attempt to move from a commodity focus to higher value products. Brands can build value in a variety of ways depending of their target audience. Some examples brand positioning include; family business with traditional values, clean green healthy and sustainable, on-the-go fast healthy meals, and luxe high quality opulent products.

These strategies are being used by businesses across

the supply chain. Additionally, MLA has worked with producers to build the 'True Aussie' beef brand launched in 2014. This brand targets key export markets giving Australian beef a single recognisable brand. The brand articulates that along with the clean and safe image, Australian beef comes from a unique home. Australia's increasing biosecurity standards and quality premium beef production has continued to reinforce its brand as a favourable supplier of beef product since the implementation of the branding strategy.

The 'premiumisation' trend for beef is becoming more

prevalent on a global scale, mainly in the Asia Pacific region due to the growing middle class. The basis of this being the provenance of production. Consumer awareness of Australian beef in this area is high and perceptions held positive. This in combination with an increasing global population and middle class, give a positive outlook to the future of Australian exports.



Emerging niche markets

Consumer preferences, changing values and changes in the operating environment, particularly in relation to technology, are also providing opportunities for the development of new and emerging beef markets.

Across the industry there has been an increased focus on the environment and the sustainability of production methods, reflecting both consumer and broader community pressures.

At an industry level, MLA has suggested that the red meat industry could be carbon neutral by 2030, and has embarked on a collaborative project with CSIRO to this end. Increased emphasis on production methods aligned with these values and the resulting products and markets is an area of growth. The sale of products meeting sustainability objectives is already occurring in other industries. For example, Tahbilk, a winery

located in Central Victoria, became carbon neutral in 2012 and uses this certification as part of its value offering to customers (Tahbilk 2017).

Consumer preferences in relation to animal welfare, provenance, safety and sustainability are driving an increased appetite to know more about food, including where it has come from and how it has been produced. This demand for the 'story' behind beef production is part of the paddock-to-plate movement, and also provides information on specific producers and their practices and in some cases specific animals. This niche market is being enabled by additional access to information and data, enhanced transparency and traceability, as well as technology such as blockchain which can provide a secure public database. While this market could be as simple as the use of QR codes to provide information about production methods and product characteristics, more sophisticated consumer involvement is predicted, such as the ownership of cattle by consumers.

Case Study: Borderless Cattle

Source: Ellicott 2018

Borderless Cattle is a Chinese-based business (part of the Borderless Healthcare Group), investing in a digital project that allows a Chinese consumer to buy a cow in an Australian paddock and trace it all the way to their plate. The borderless program will begin July 2018 and will add various other technologies through to the preparation of meat by the end consumer.

The farmer will be the steward of the cow's life before it progresses to the feedlot, processed in an Australian abattoir and sent to China. Nano technology will be used to monitor the cow's growth, updated daily. This technology will provide the consumer access to the cow's life through to the feed lot.

An enticement to farmers is a pre-payment in the process and the foregoing of agents. This will enable farmers to attract a price premium and more effectively plan operations. The risks still need to be assessed.

Impact of emerging trends on Queensland beef

As the middle class grows for many of Australia's main export destinations, so does the desire for premium beef products. Many countries in the Asia Pacific region regard beef as a premium protein and as income increases in these countries, so will the demand for quality beef products. Asia's increasing trend toward a western diet provides opportunities for the beef sector as these diets are likely to result in an increase in beef consumption. Many consumers are also becoming more health conscious and increasing in ethical and environmental awareness of beef production, resulting in increasing demand for niche beef.

Australia's current regulations and framework for improvements to sustainability practices will maintain access to this market segment. The existing quality of food safety and animal welfare standards positions Australia as a origin of choice, given growing global consumer awareness and preference for ethically and sustainably sourced goods.

Queensland beef production is positioned well to take advantage of many of these changing trends in the market. Queensland with its animal welfare compliance, biosecurity standards and the quality of its production, means it is ideally placed to capitalise on these changing market trends.

Australia is well placed to produce genuine niche products and compete globally in the premium beef market. This is not only enabled by Australia's natural features, but Australia's regulation, policies and industry bodies.

Regulation and sustainability

The Global Roundtable for Sustainable Beef

The Global Roundtable for Sustainable Beef (GRSB) is a global, multi-stakeholder initiative focused on the continuous improvement in sustainability of the global beef value chain. This strategic platform involves stakeholders from within the beef industry, environmental branch, retailers and others with a close interest in the industry.

In 2016 the board engaged in strategic planning to create a framework for the next five years. The goals of this framework in order of priority are to:

- Expand global reach through new round tables, projects, and stakeholder engagement
- Demonstrate results by creating a data platform, aggregating regional roundtable and project findings, and tracking key global metrics
- Communicate continuous improvement around

the globe

- Engage on global issues through convening sectors, roundtables and geographies
- Future GRSB membership, member value and revenue

Australia's current regulatory practices

Sectors of the Australian beef industry have developed stringent quality management systems that are underpinned by comprehensive regulatory requirements. The industry's quality assurance (QA) programs require all sectors of the supply chain to be accountable for the safety of food product to build sustainability and confidence in the market place. Factors such as animal welfare, biosecurity and environment sustainability are becoming more important considerations in the development of quality assurance programs.

For all stages in Australia's supply chain, current regulations have set a standard for ethical and sustainable production. This framework has been put in place to enable the global beef value chain to manage natural resources in an ethical and responsible manner while working towards enhancing ecosystem health.

The Red Meat Advisory Council

In addition, the Red Meat Advisory Council in Australia has developed a framework that focuses on fostering longevity and prosperity for producers and consumers alike for the Australian beef sector.

The framework focuses on four key themes with priority areas for industry to tackle progress, these include:

- Environmental Stewardship
- Economic Resilience
- People & the Community
- Animal Welfare



The framework supports priorities in the Meat Industry Strategic Plan 2020, which focuses on improving transparency, aligning practices with community expectations and building trust in the red meat sector.

Suppliers are obligated to provide:

- Contaminant free food chain
- Effective biosecurity management
- Appropriate care for livestock
- Traceability and integrity

Animal welfare

Australia's livestock industry has a strong commitment to animal welfare and is recognised worldwide for the standards it sets and maintains during production.

These welfare standards are managed through a collaborative approach between the state regulators and peak industry bodies.

This increasing focus on sustainable and ethical beef production both domestically and internationally has made this emerging market more prevalent than ever. Ethical views on how beef is produced are likely to experience positive change among both producers and consumers as the drive for continuous improvement of sustainably practices involving beef production is increasingly encouraged.

Free trade agreements will continue to drive market access

Australia pursues a free trade agenda and has agreements (FTAs) in place with its key trading partners. FTAs increase export opportunities for Australia's beef industry by improving foreign market access and the ease of inbound investment by cutting tariffs and other trade barriers and aligning signatories' industry and trade regulations.

The close relationship and geographic proximity to Asia is key to future demand. Asia's growing middle class will be the largest source of food demand growth over the next 10 years with a forecast

45% increase in consumption over this time

(OECD-FAO 2016).

Queensland's geographic proximity to Asia means producers are able to benefit from relatively low freight costs and transport times. This presents a competitive advantage over other exporting nations, particularly in the expanding high end chilled beef market segment which is experiencing increased demand due to its perceived higher quality.



Image: ALFA

Live Cattle Exports

Live exports are an important and valuable element of the Queensland beef supply chain.

Size and value of the market

Australian live cattle exports peaked in 2014, but have since declined due to tightening supply, high cattle prices and increased competition from Indian buffalo meat exports to Indonesia.

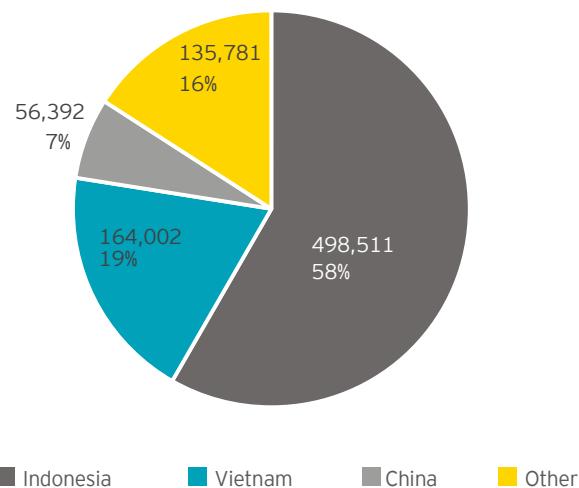
In 2017 Australia's live cattle export industry was valued at A\$ 1.2 billion free on board (FOB) (LiveCorp). A total of just over 854,000 cattle were exported, with the majority of cattle being sold to Indonesia. Since 2012, Vietnam has emerged as a new key market for live cattle, growing to represent

19% of live cattle exports in 2017 (Figure 9).

Following the live export ban in 2011, numbers of live cattle exported increased to a peak in 2014 at just under 1.3 million head. Since this peak numbers have declined by 34% due to ongoing tight supplies and historically high cattle prices (Figure 10). Exports to Indonesia declined by 16% from 2016 to 2017 (ABS, DAWR), with the import of Indian buffalo meat continuing to compete with Australian cattle exports to the country (MLA).

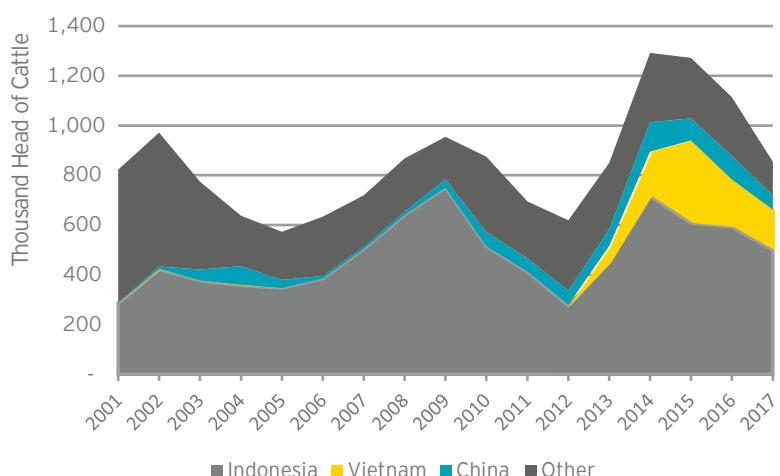
Key Australian live exports by market

Figure 9: Volume of Australian live exports in 2017 by market



Source: ABS, DAWR

Figure 10: Volume of Australian live exports in 2001 - 2017 by destination



Source: ABS, DAWR

Breakthrough northern shipment to China

In January 2018 the first live export shipment of 1,600 slaughter cattle left Townsville port destined for Zhejiang Province. The shipment marks the first export of northern cattle (within the Bluetongue Zone) since animal health protocols were finalised following the announcement of the China-Australia Free Trade Agreement (ChAFTA) in late 2016.

Source: MLA

Sector composition

Feeder and slaughter cattle make up the majority of live cattle exports, with China dominating the live export of Australian breeder cattle.

Feeder and slaughter cattle make up the vast proportion of live cattle exports, comprising 89% of exports in 2017 and averaging 88% over the last ten

years. China is the primary destination of breeder cattle, accounting for 60% of breeder cattle exports in 2017(ABS, DAWR). However the Indonesian Government has recently introduced new breeding cattle quotas for Australian live imports. This quota enforces a 1 in 5 ratio for breeder to feeder cattle. Indonesia imported 1,800 head in January 2018, a substantial increase from previous years.



Image: MLA

Figure 11: Volume of Australian live exports by type in 2001 - 2017

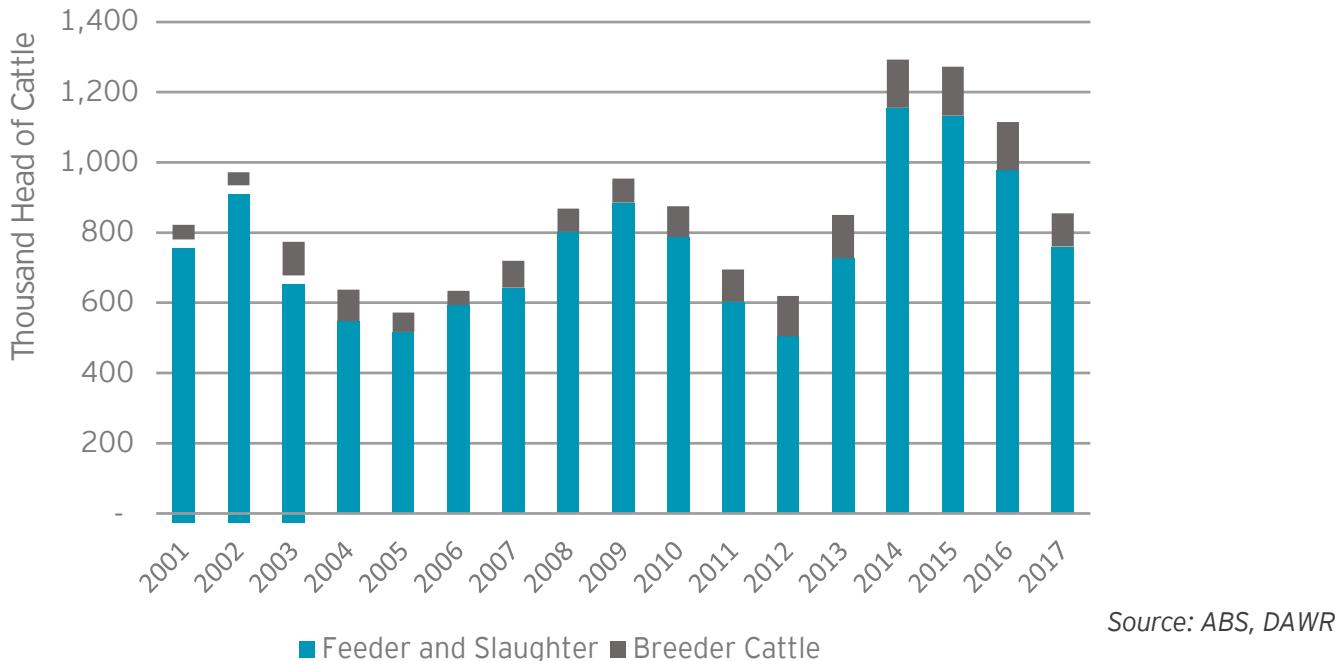
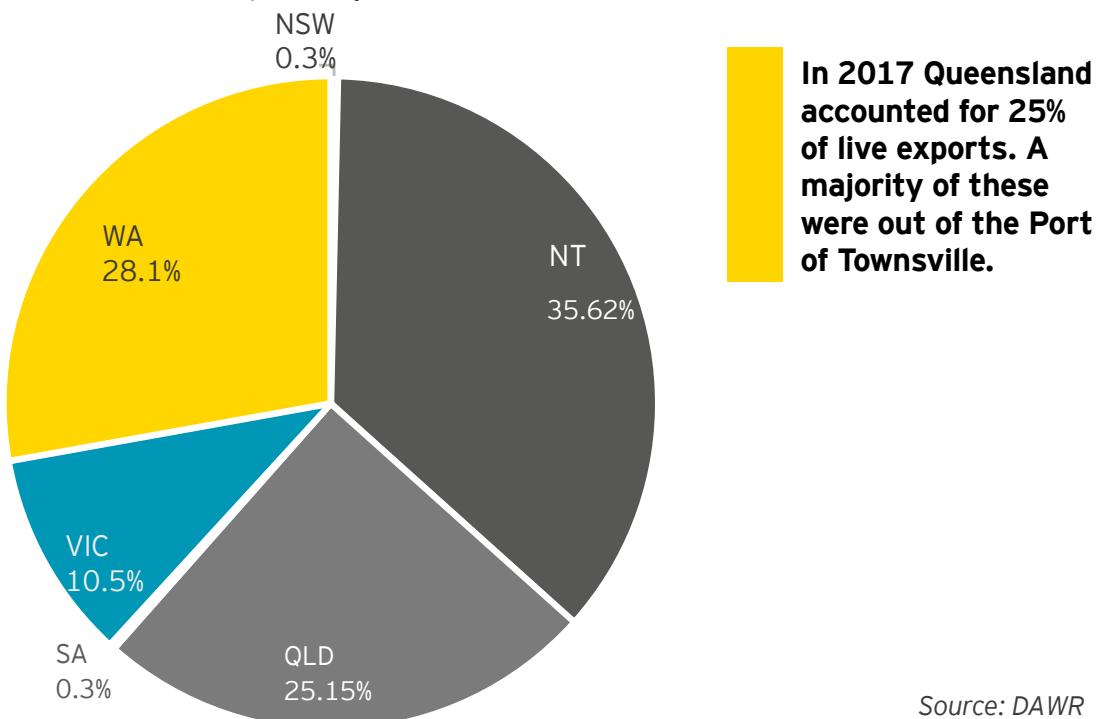


Figure 12: Proportion of 2017 live exports by states



Where to from here?

Live export volumes are to remain stable in the medium term, with increased exports to China and Vietnam expected

In 2018-19 Australian live feeder and slaughter cattle exports are forecast to increase by 4% for the previous year, predominately driven by Indonesian demand (ABARES 2018). Rising incomes, population growth, increased urbanisation and diversified diets are contributing to this demand, while constrained growth in Indonesian production resulting from high prices and high turnoff rates are impacting domestic supply (ABARES 2018).

Over the medium-term, live cattle exports are anticipated to remain stable, with increased exports expected in markets other than Indonesia, particularly Vietnam and China (ABARES 2018). This presents an opportunity for diversification and will reduce risks related to single market dependency, including exchange rate and market access.

While live animal exports continues to be a focus of the animal welfare lobby, the implementation of the Exporter Supply Chain Assurance System (ESCAS) in 2011 created unprecedented traceability throughout the supply chain and has had a positive impact on the live cattle export sector. The welfare of live export cattle and their humane treatment will need to continue to be actively and effectively managed on an on-going basis.

Cattle Performance and Trends

Image: MLA

Cattle prices in key categories

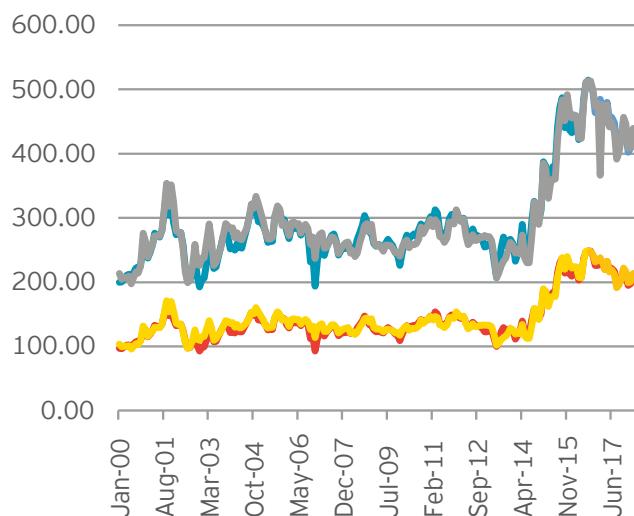
Cattle prices peaked in 2016 on the back of increasing demand and a record low herd size

Figure 13 illustrates saleyard prices paid for cattle in Australia and Queensland on a monthly basis from January 2000 - April 2018 (with the exception of feeder steer prices which are analysed from September 2003 – April 2018 given data availability) based on MLA's market information database.

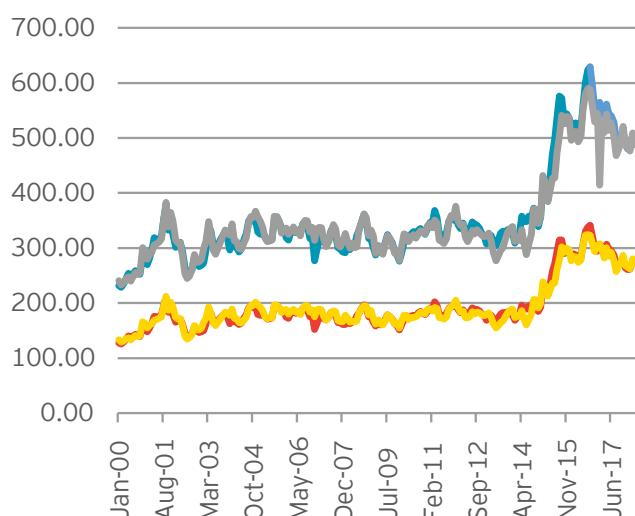
Across all categories prices peaked between August 2016 and October 2016. While they have declined since, prices are still at historically high levels. The data also shows that Queensland prices are highly correlated to Australian prices.

Figure 13: Comparison of saleyard cattle prices across key categories

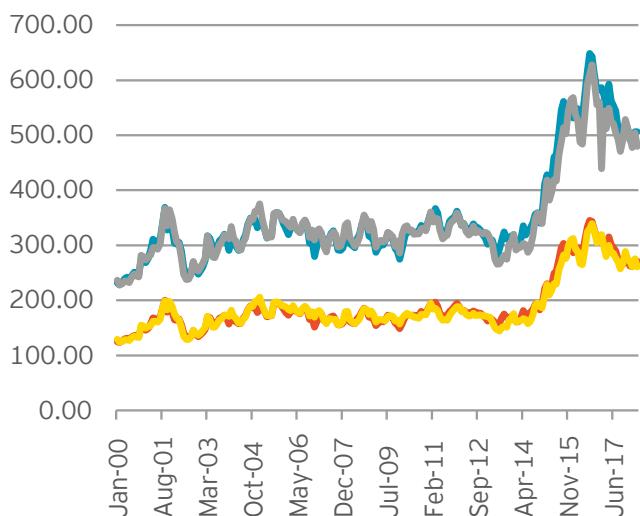
Medium Cow 400-520kg D3



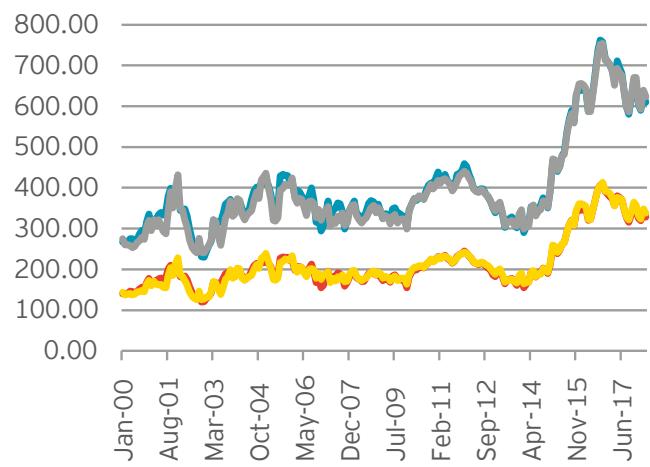
Heavy Steer 500-600kg C4



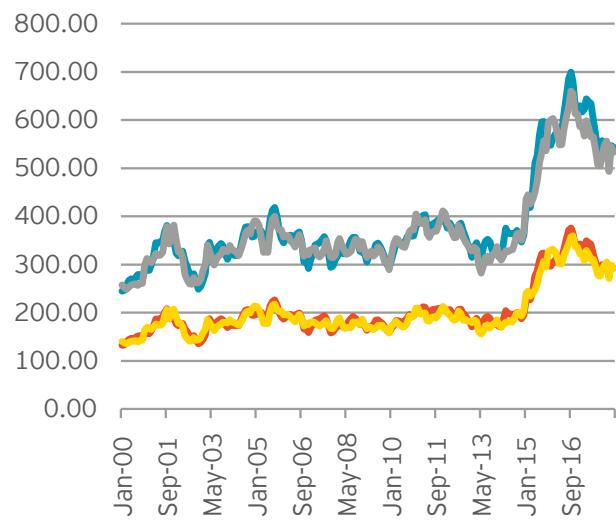
Medium steer 400-500kg C3



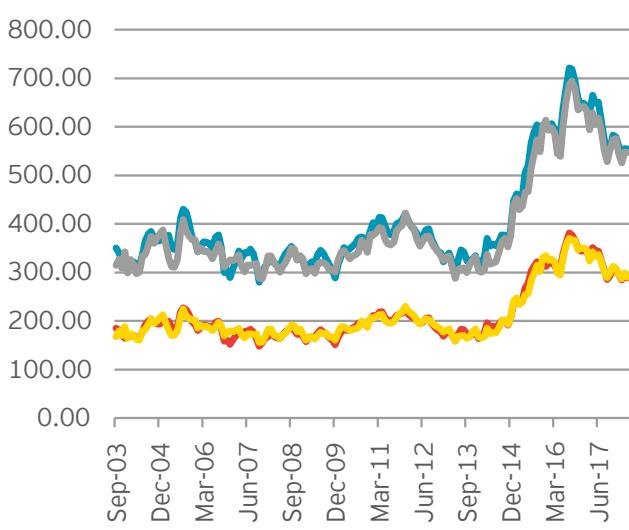
Restocker steer 200-280kg C2



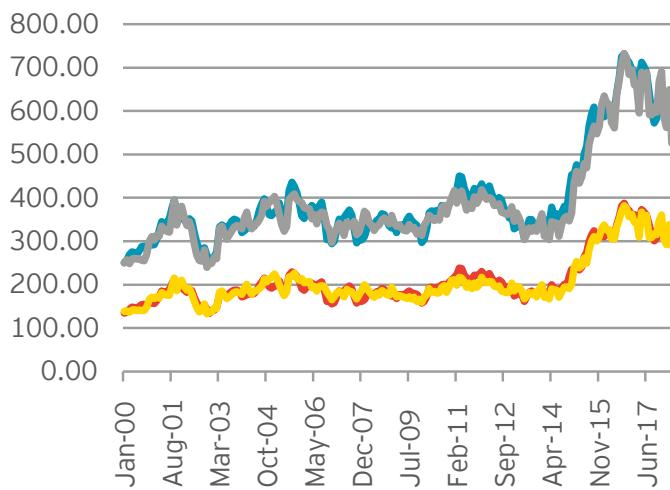
Trade steer 330-400kg C3



Feeder steer 330-400kg C2



Vealer steer 280-330kg C2-C3



- Australia ¢/kg cwt
- Queensland ¢/kg cwt
- Australia ¢/kg lwt
- Queensland ¢/kg lwt

Source: MLA

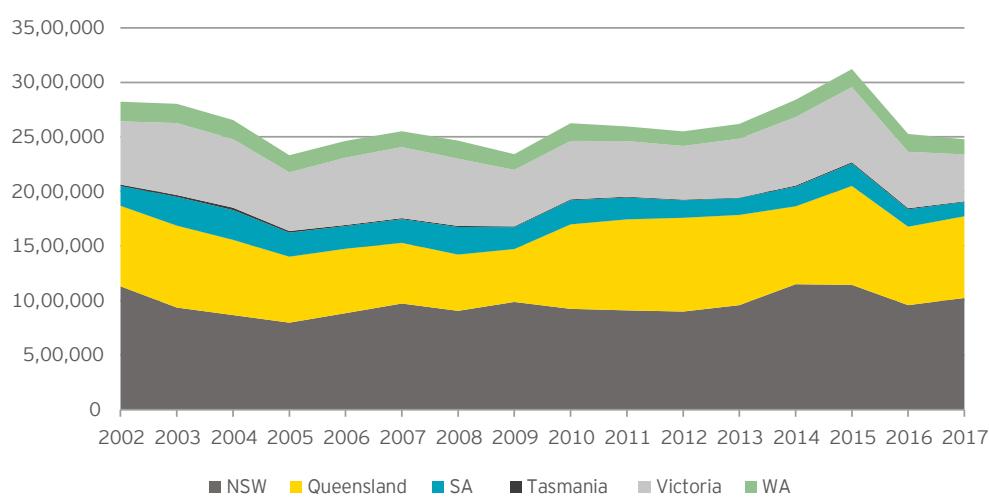
Number of cattle sold through saleyards

Drought conditions resulted in a peak in cattle sales and turnoff in 2015, with subsequent declines due to a depleted national herd and herd rebuilding through to 2017

Cattle yardings peaked in 2015 with 3.12 million head sold (MLA). Since then yardings have declined, with 2.48 million head sold across Australia in 2017 as the herd rebuild continues (Figure 14). In 2017, the greatest number of cattle (41%) were sold through saleyards in NSW, with 30% being sold in Queensland (Figure 15).

It is expected that volumes of cattle sold in Australia will increase in the medium term as beef export demand increases, herd size rebuilds and increased investment on farm increases productivity.

Figure 14: Number of cattle yardings head by state in 2002-2017



Source: MLA

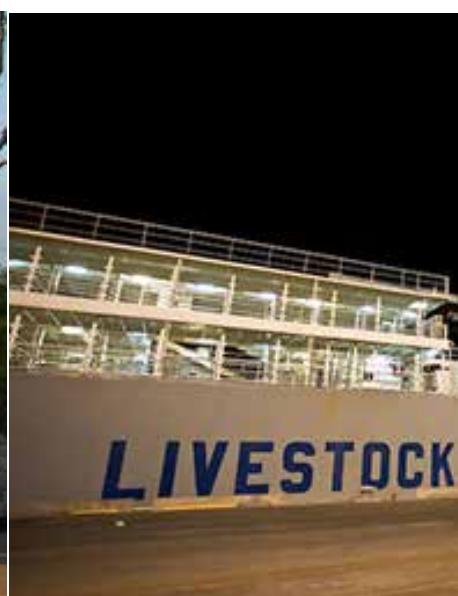
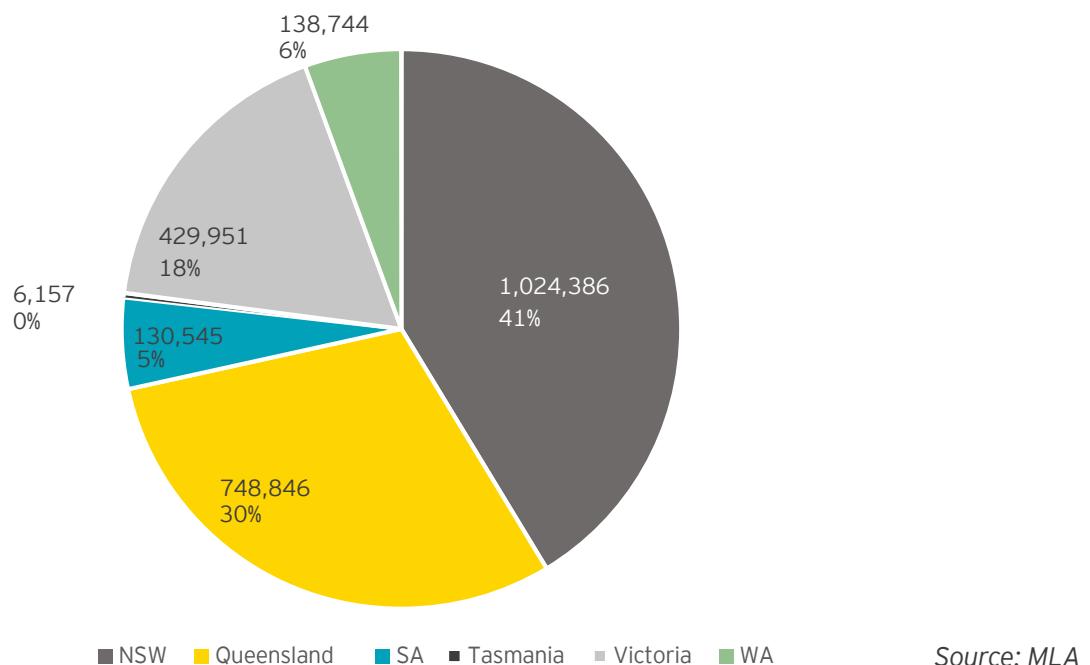


Figure 15: Proportion of cattle yardings by state in 2017



Source: MLA

Use of supply contracts

The sale of cattle in Queensland is currently dominated by opportunistic spot sales, with very few forward supply contracts in place. The lack of forward sales contracts exposes producers to offtake risk and buyers such as feedlots and processors to a level of supply risk. Supply contracts provide processors and feedlots surety of supply and reduces their exposure to supply volatility. Supply contracts are generally restricted to larger primary producers due to their scale and subsequent bargaining power.

Other agriculture commodities such as grain and cotton have sophisticated forward contract mechanisms in place to forward sell production. These producers will sell a portion of their annual production

via forward contracts with the balance being sold on the spot market. The ability to sell via contract and spot allows producers to balance the risk and return of each selling option.

Gaining increased certainty of cash flow through forward contract sales allows producers to better manage their businesses through informed decisions on capital investment and operations. Processors and feedlots will leverage the contract driven surety of supply to optimise the scheduling of their operations maximising efficiency and profitability.

Specific details on supply contracts are commercial in confidence and as such data is not available.



Image: MLA

Cattle price outlook

Cattle prices are expected to decrease in the short term, however prices are expected to stabilise at a higher average level due to growing global demand

The downward trend in cattle prices is anticipated to continue due to the ongoing herd rebuild resulting in increased market supply. Cattle prices are expected to stabilise at a high price compared to long term averages due to growing global demand for beef.

In the short-term (2017-18), saleyard prices are anticipated to fall by 15%, reflecting lower prices in export markets resulting from enhanced competition and increased cattle supply driven by recent herd rebuilding, which is currently underway across many parts of the nation and is forecast to increase in the future (ABARES 2018). The successful recent wet season in parts of Queensland has laid solid foundations for the continued rebuild of the cattle herd.

Table 3 illustrates the MeatEng's forecast for the future cattle herd for the years 2017-18 through to 2021-22. This forecast is premised on stable climatic,

exchange rate and global trading conditions. The forecast model is dependent on the assumption of input parameters of beef breeding percentages, live export, interstate transfers and slaughter numbers over the five year period.

The forecast of the Australian exchange rate against the USD shows signs of relative stability in comparison to the 1% growth rate of the herd. The exchange rate has been noticeably stable in the last few years with a slight rise against the USD.

The stable, incrementally increasing exchange rate, combined with forecasts of 1.03% herd growth gives a positive indication of successful herd rebuild, as demand slows and supply increases, resulting in downward pressures on the prices of Australia's and Queensland's beef products.

This downward pressure is expected to continue out until 2020-21 as the aforementioned pressures continue (ABARES 2018). In 2021-22, prices are expected to rise when growth in world beef supply slows, particularly in the United States (ABARES 2018).

Table 3: Forecast herd growth Queensland & AUD/US Exchange Rate

Forecast (5YR)					
	2017-18	2018-19	2019-20	2020-21	2021-22
Herd (m)	11.16	11.53	11.92	12.27	12.63
ER AUD/US	0.75	0.755	0.753	0.75	0.75

Source: Meateng, NAB

Acronyms and Abbreviations

Acronyms & Abbreviations	Definition
ABARES	Australian Bureau of Agricultural and Resource Economics
ABS	Australian Bureau of Statistics
ACC	Australian Country Choice
ALFA	Australia's Lot Feeding Association
ChAFTA	China-Australia Free Trade Agreement
CSIRO	Commonwealth Scientific and Industrial Research Organisation
c/kg dw	Cents/kilogram dressed weight
Cwt	Carcass weight – The weight of an animal's carcass
DAF	Department of Agriculture and Fisheries
DAWR	Department of Agriculture and Water Resources
DEXA	Dual-Energy X-ray Absorptiometry
DOF	Days on feed refers to the number of days cattle are grainfed
ESCAS	Exporter Supply Chain Assurance System
EYCI	Eastern Young Cattle Indicator
FOB	Price at port of shipment - seller pays for transportation of goods to the port of shipment, plus loading costs
Grainfed	Meat from animals that are fed grain-based diets during the finishing process
ha	Hectare
Intra-industry sale	The acquisition of one company involved in the beef supply chain by another similarly engaged company
IVA	Industry Value Added
JAEPA	Japan-Australia Economic Partnership Agreement
KAFTA	Korea-Australia Free Trade Agreement
Kt	Kilotonnes - 1 kilotonne = 1,000 kilograms
Lwt	Live weight of an animal
m	Million
MDC	MLA Donor Company
MLA	Meat & Livestock Australia
MSA	Meat Standard Australia – An Australian standards system developed for the red meat industry, which guarantees eating quality
Muscle & fat score	Muscle score is a method of evaluating the muscularity of an animal. Animals are judged on a scale from A-E. Fat score is a method of evaluating the fat depth of an animal. Animals are judged on a scale from 1-6.
NLIS	National Livestock Identification Scheme
OTH	Over the hooks – is an indicator derived from the pricing grids released weekly by meat processors
Swt	Shipped weight - the weight of beef aboard a shipment
Turn-off	The number or rate of livestock sold to market
USD	US Dollars
USDA	United States Department of Agriculture
Yarding	Number of cattle offered for sale at a saleyard auction

References

- ABARES, 2018, *Agricultural Commodities Outlook*, March Quarter.
- ABS, Australian Bureau of Statistics, available at: www.abs.gov.au.
- Australian Organic, 2017, *Market Report*, available at: <http://austorganic.com/ao-market-report/>.
- BMI Research, available at: www.bmiresearch.com
- DAWR – Department of Agriculture and Water Resources, available at: <http://www.agriculture.gov.au/>.
- Ellicott, J 2018, *Farm to palate, Bellata to Beijing, beef's digital future*, The Land, available at: borderless-bid-for-chinese-consumer-to-own-aussie-cow.
- IBISWorld OD5462 2017, *A picture of health: Demand has risen strongly on the back of increasing health consciousness*, Organic Livestock and poultry Farming in Australia IBISWorld Industry Report.
- IBISWorld C1320, Leather and Leather Substitute Product Manufacturing IBISWorld Industry Report.
- LiveCorp, available at: <http://www.livecorp.com.au/industry-information/industry-statistics/cattle-statistics>
- Mercado, 2018, *Is it the return of the Wagyu or did the EYCI strike back?*, available at: www.mercardo.com.au/commodities/cattle/analysis/is-it-the-return-of-the-wagyu-or-did-the-eyci-strike-back.aspx.
- MLA Industry Insights, Meat and Livestock Australia, available at: <https://www.qldc.com.au/prices-markets/overseas-markets/market-data-and-insights/>.
- MLA 2018, *Co-product market report*, Meat and Livestock Australia.
- MLA 2018, How export markets for Australia's beef cuts have evolved, Market News, Meat and Livestock Australia, available at: <https://www.qldc.com.au/prices-markets/market-news/how-export-markets-for-australias-beef-cuts-have-evolved/>.
- MLA 2017, Review of Meat Floss – Identifying opportunities for Australian Red Meat (insight2innovations) available at: <https://www.qldc.com.au/research-and-development/search-rd-reports/final-report-details/Develop-New-Products/Review-of-meat-floss-and-identifying-opportunities-for-Australian-red-meat-industry/3651>.
- MLA, Meat and Livestock Australia, available at www.qldc.com.au.
- Norris, M. 2018 Red meat challenged by shopper health trends, The Nielsen Company, available at: <http://www.nielsen.com/au/en/insights/news/2018/red-meat-challenged-by-shopper-health-trends.html>.
- Productivity Commission 2005, Australian Association of Leather Industries Submission to the Productivity Commission Inquiry into the Textile Clothing and Footwear and Leather Industries with Respect to Post 2005 Industry Assistance Measures, available at: <https://www.pc.gov.au/inquiries/completed/textile-clothing-footwear/submissions/32/sub032.pdf>
- Tahbilk, 2017, *CarbonZero*, available at: <http://www.tahbilk.com.au/our-story/carbon-balanced.html>.
- Taylor E. & Butt A. 2017 *Three Charts on: Australia's declining taste for beef and growing appetite for chicken*, The Conversation, available online: <https://theconversation.com/three-charts-on-australias-declining-taste-for-beef-and-growing-appetite-for-chicken-78100>.
- The Nielsen Company, 2016, *Global Premiumization Report*, available at: <http://www.nielsen.com/content/dam/nielsenglobal/eu/docs/pdf/Nielsen%20Global%20Premiumization%20Report%20December%202016.pdf>
- Will M. 2015 *Increasing organic beef production on Australian Farms*, Meat and Livestock Australia, available at: <https://www.qldc.com.au/research-and-development/search-rd-reports/final-report-details/Productivity-On-Farm/Increasing-organic-beef-production-on-Australian-farms/3199>.

'Future Outlook for Queensland Cattle and Beef Products' is part of the document series 'The Investment Outlook for the Queensland Beef Supply Chain' developed by EY on behalf of the Queensland Department of Agriculture and Fisheries. This document series explores the existing and growing opportunities for the Queensland beef industry. It consists of:

- ▶ Strategic Drivers of the Queensland Beef Supply Chain
- ▶ The Queensland Beef Supply Chain
- ▶ Future Outlook for Queensland Cattle and Beef Products
- ▶ Investment Analysis of the Queensland Beef Supply Chain
- ▶ Investor's Guide to the Queensland Beef Supply Chain
- ▶ Queensland Beef Producer Investment Guide



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