AMPC

AUSTRALIAN MEAT PROCESSOR CORPORATION

STRATEGIC RISKS FACING THE AUSTRALIAN RED MEAT INDUSTRY

AUGUST 2016

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FIGURE 1: AUSTRALIAN RED MEAT INDUSTRY RISKS INTERCONNECTIONS MAP

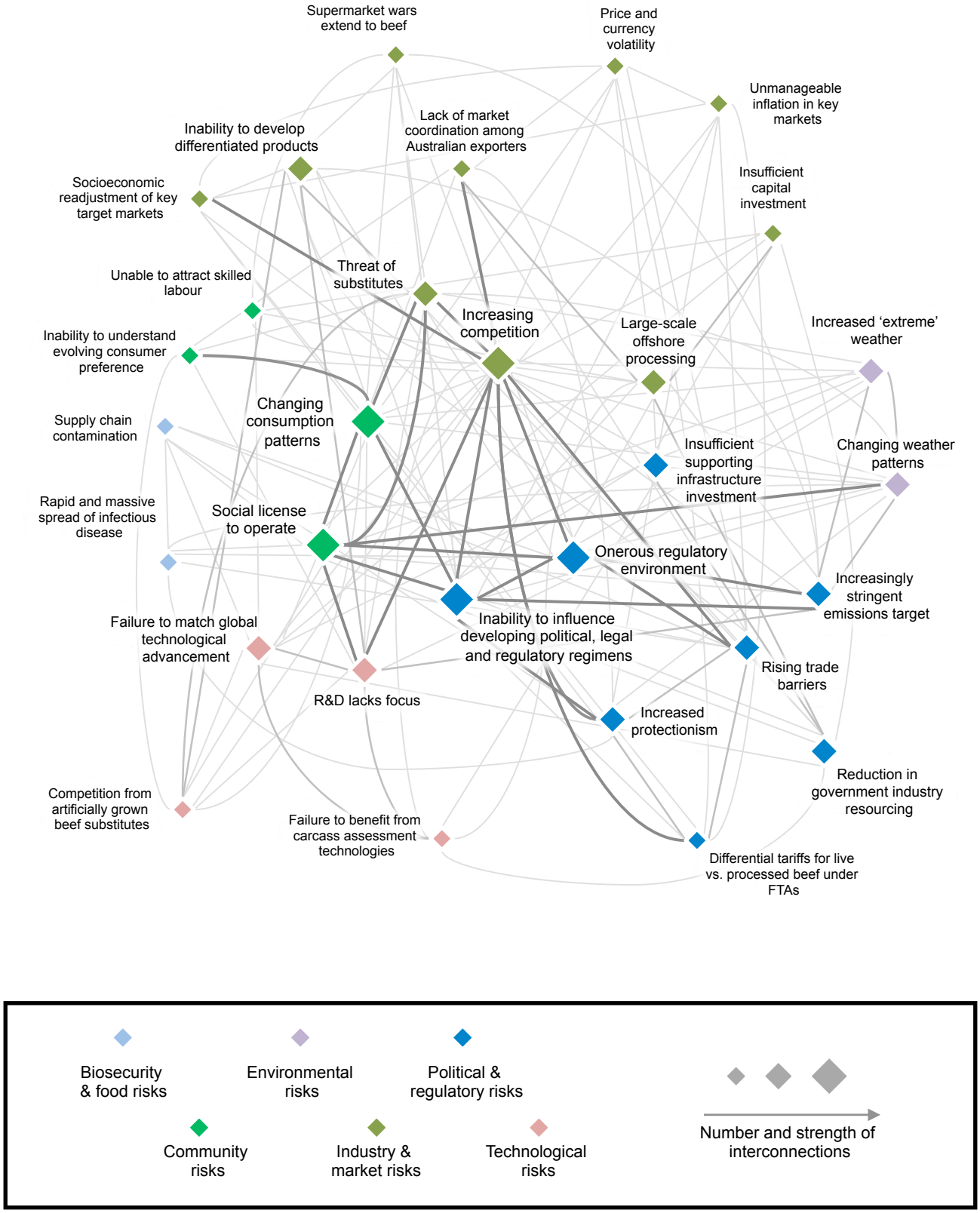
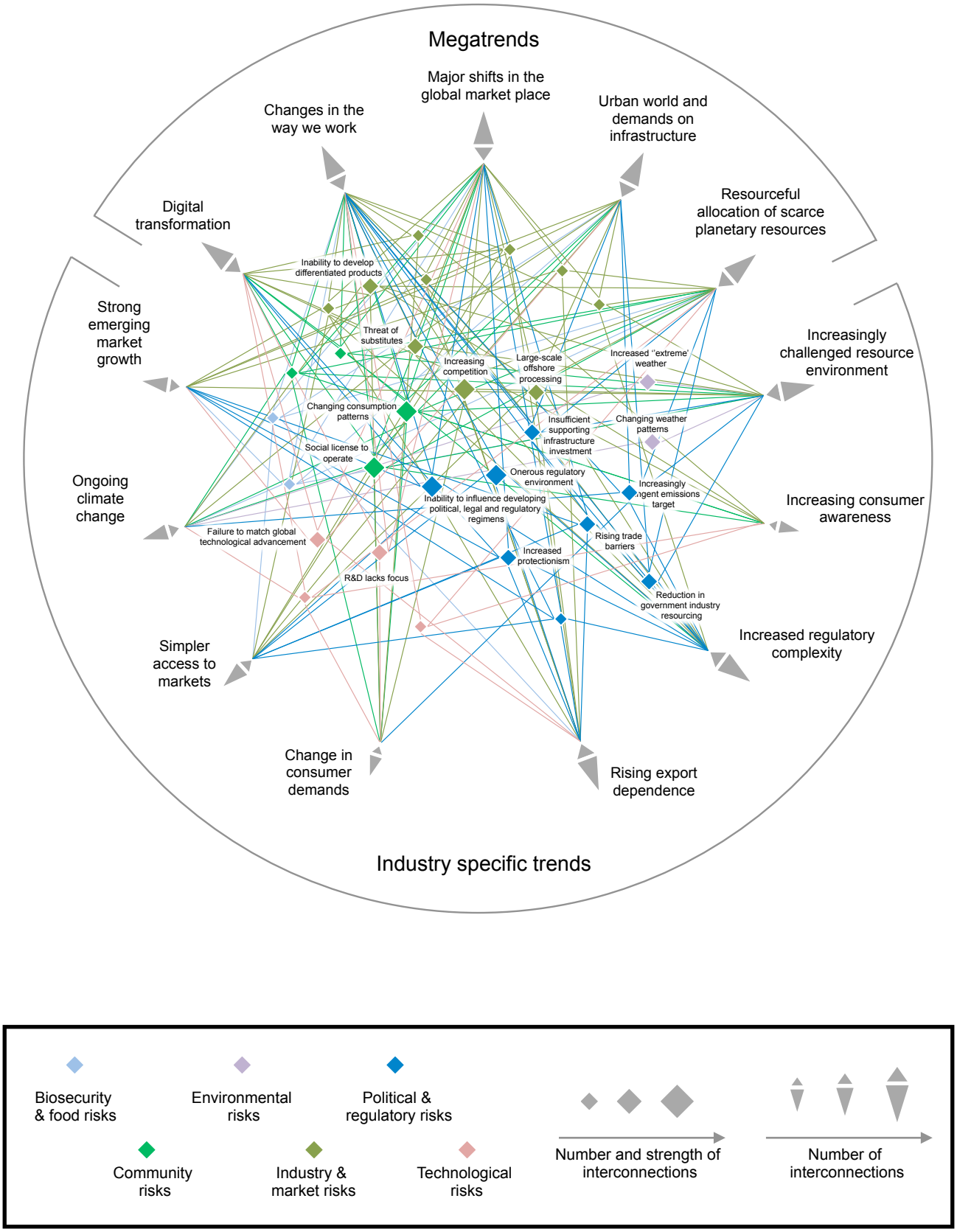


FIGURE 2: RISKS-TRENDS INTERCONNECTIONS MAP



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AMPC

DEAR MEMBERS,

We are currently finalising our 2025 Strategic Plan, and an essential part of that was a future scan. This scan provides an overview of macro, uncontrollable environment factors that have the potential to impact Australian red meat processing.

From this work, we commissioned Ernst and Young to identify the key strategic risks we face, and this report outlines these risks in more detail, and recommendations for how the meat industry can respond. Six critical strategic risks have been identified over the next five to ten years:

- Competition
- Changing consumption patterns
- Climate change
- Social licence to operate
- The regulatory environment
- Value chain integration.

There are multiple other strategic risks impacting the industry, which are also covered here. The main purpose of the report is to enable you to manage, adapt to, and overcome the risks. Understanding these risks helps our industry to respond properly to ensure our long-term survival.

At both the organisation and industry level, we need to develop the systems, processes and relationships to protect a sustainable red meat industry. This report provides the scenarios and the evidence to help with our planning.

I look forward to working with you to create a bright future for red meat processing.

Best regards,

Peter Noble
Chairman
Australian Meat Processor Corporation

1. EXECUTIVE SUMMARY

As Australia's largest manufacturing sector with processing facilities located around the country, the red meat processing industry is an important provider of skilled jobs in Australia. While Australia's manufacturing base has declined since the mid-1990s, the red meat industry is an important employer and ranges from primary producers in each state and territory, through to feed lotting, processing, live and cold transport, and marketing and distribution. Recognising the role the red meat industry plays in Australia's economy, the Australian Meat Processor Corporation has conducted this Strategic Risk Assessment to better understand and respond to the challenges the industry will face in the future.

The value of Australia's red meat industry is demonstrated by exports: in 2015, three-quarters of Australian beef and veal production were exported to 86 countries at a value of $10.3 billion ($9 billion in processed beef and $1.4 billion in live exports), which accounts for 23 % of total Australian farm exports.

The role the red meat industry plays in Australia's economy, and as an internationally significant supplier of high-quality red meat, justifies this comprehensive strategic risks assessment. This assessment will provide a knowledge base which will support the industry to better collaborate in order to more effectively respond to new trends, risks and challenges as they arise, domestically and internationally. Going forward, this assessment will be able to be completed on an annual basis and, over time, this will provide the red meat industry, and government policy makers and key stakeholders with an understanding of how risks change over time, and what trends are having a current impact on the industry.

INDUSTRY TRENDS

// Strong emerging market growth

// Rising export dependence

// Simpler access to markets

// Changing protein consumption patterns

// Consumer focus on food safety and quality

// A changing global climate

// An increasingly challenged resource environment

// Increasing global standards

Trends impacting the industry

In order to understand the strategic risks facing the industry, an assessment of key global trends was conducted. This assessment identified eight primary trends impacting the industry, including:

- The majority of the world's economic growth occurring in the emerging markets of Asia;
- Australia's red meat industry becoming increasingly reliant on exports;
- Other nations increasingly gaining export market access via free and bi-lateral trade agreements;
- Changing protein consumption patterns that in developed nations, have negatively impacted red meat consumption since the 1970s;
- Increasing consumer focus on food safety and quality, particularly in developing nations;
- A changing global climate;
- An increasingly challenging global resource environment; and,
- Increasing global standards of environmental protection, food safety and animal welfare.

The Australian red meat industry

As a trusted supplier of high-quality red meat, Australia is well positioned to benefit from international growth in red meat demand. However, the industry faces a number of strategic risks that may impact its ability to capitalise on these opportunities.

To successfully navigate the risks posed by the increasingly complex and rapidly changing global marketplace, the red meat industry will need to become a more integrated supplier that leverages 'brand Australia' in export markets. While integration is important, becoming more responsive and adaptable will better position the industry as a provider of red meat. Importantly, when industries are able to develop new services and products, which the red meat industry will likely be required to do in an increasingly competitive environment, they are most effectively able to do so when the value chain is integrated and connected in a way that it is not currently.

While the industry adapts to changes in external markets, it will need to do so with declining domestic demand for red meat. As domestic demand declines, Australia will need to export a greater amount to maintain its current size, making the industry increasingly reliant on its ability to access and compete in export markets.

The expansion of red meat consumption in developing economies is driven by rapid growth in Asian meat consumption. Since 1965, total meat consumption in developing nations has more than tripled whilst red meat consumption has doubled. Although these increases are impressive in an absolute context, poultry and pork account for the majority of increased meat consumption, with red meat making up only 15 %.

This growth in meat consumption is evident in the Australian market, where meat consumption has increased by 11 % since 1980 at 101 kg per person to 112 kg per person in 2013. However, red meat's proportion of consumption declined from 45 to 32 kg per person, while poultry and pork consumption increased by 64 and 119 % respectively. The rapid increase in poultry and pork consumption highlights the dramatic change in protein consumption since 1980 and why red meat is increasingly reliant on exports.

STRATEGIC RISKS

A **strategic risk** is one that can occur at the corporate and industry level with the potential to **materially impact the health, longevity and prosperity of the industry**.

Strategic risks **are not operational, financial or compliance risks** – these are purely the risk of doing business.

The decline in red meat consumption is mirrored in other developed nations, with the United States of America ('US') experiencing a 26 % decline since 1980. Like Australia, developed-country peers undergoing declining domestic consumption will increasingly be reliant on export opportunities.

While offshore markets represent a growing pool of red meat consumers, *The Economist* and the Asian Development Bank both expect economic and population growth in these to slow from recent high levels. As this occurs and the demographic makeup transitions from young to old, the opportunity for large scale and rapid red meat export growth will likely face headwinds.

Strategic risks

This assessment has identified the following six critical strategic risks that the Australian red meat industry will likely face over the coming five to 10 year period.

Competition and market access: while Australia currently exports more than our peers on a relative basis, the industry faces substantial competitive pressures both domestically and internationally. Domestically, the sector competes amongst itself for the export of live or processed cattle. Internationally, the sector competes primarily with Brazil, the US and India in export markets. Over the coming five year period, competitive intensity is predicted to increase, with Australian red meat competing at a cost disadvantage.

Changing consumption patterns: consumers in developed nations have reduced red meat consumption in recent decades. Increasingly, consumers focus on 'healthy' and 'humane' consumption and driving demand for convenience foods. These factors have resulted, and will continue to result, in material changes to consumption patterns. Red meat has continued to be replaced in developed nations, largely with chicken and pork consumption. While red meat has been traditionally known for quality and a high nutritional value, consumers are increasingly turning to substitutes that are both cheaper and less resource intensive.

Climate change: Australia's natural environment is changing, with increasing incidences of 'extreme' weather events and altered weather patterns directly affecting the production of cattle. The effects of droughts in the east coast, especially in Queensland, are impacting at various points along the value chain, while the increasing rate and severity of extreme climatic events may pose ongoing and regular disruptions to Australian production.

Social licence to operate: the red meat industry in Australia has so far operated within a social licence to operate derived largely from the regional communities in which it operates. Unlike the mining sector which has had to battle high-profile and visible cases of environmental and social impact, the sector has been able to operate with a lower level of required external advocacy. However, the increasingly important factors of animal welfare, environmental impact and healthy diets will place the industry's social licence to operate under a high degree of external scrutiny and uncertainty.

Regulatory environment: as an industry highly fragmented within the value chain both vertically and horizontally, the red meat sector is poorly positioned to respond to an increasingly uncertain regulatory environment where changes can occur rapidly and without industry consultation. Ensuring effective advocacy to avoid unnecessary and burdensome regulation typically requires a high-degree of industry alignment. Where this alignment is not present, industries typically fail to achieve positive legal, regulatory and market access outcomes.

Value chain integration: because Australia's red meat industry is fragmented vertically throughout it operates at a competitive disadvantage in export markets to those with greater levels of vertical integration. Vertical integration reduces economic costs in the sector, allows for greater sharing of information and promotes economies of scale which reduces unit costs and can support higher levels of innovation and capital investment. By operating with a higher degree of fragmentation than its peers, the Australian red meat sector will not be able to market as effectively, nor be as responsive to customer demands.

Other strategic risk factors faced by the industry: outside of the six primary risks identified there are multiple other strategic risks that may impact the industry. One example, the rapid and massive spread of an infectious disease through the industry, could have similar impacts to previous international outbreaks such as the Bovine spongiform encephalopathy crisis in the United Kingdom. Australia is currently recognised for its high levels of quality assurance, quarantine and

TOP SIX RISKS 2016

1. **Competition and market access** – the sleeping giants wake
2. **Changing consumption patterns** – red meat on the outer?
3. **Climate change** – impacting the industry today
4. **Social licence to operate** – higher standard for business
5. **Regulatory environment** – clouds on the horizon
6. **Value chain integration** – growth through cooperation

regulations, geographic isolation and geographic dispersion. However, should these strict quality assurance measures be overcome by an outbreak the industry would suffer significant, potentially permanent, losses.

The retail duopoly competition in Australian supermarkets may lead to a 'price war' on red meat, similar to previous battles over milk and cooked chicken, undermining the wider market and passing costs onto processors and producers by pushing margin reductions back down the supply chain. While domestic retail comprises a small proportion of the Australian market, should a price war occur the existing suppliers to Australian supermarkets and butchers may suffer substantial losses, resulting in primary producers leaving the industry and making reliable offtake for processors increasingly difficult to guarantee.

Greater economies of scale, capital investment, and lower labour costs in foreign meat processing industries enable the cost-effective use of new technologies. Certain innovation areas present opportunities to decrease processing costs and increase product quality relative to competing exporters; Australia faces the risk of failing to identify opportunities and realise benefits. Potential opportunity areas include automation, genetic modification, data capture and predictive analysis. The alignment of the red meat industry's research and development strategy is a key mitigation for Australia to remain competitive in red meat exports.

Recommendations

While Australia's red meat industry faces real strategic risks, putting in place policies, processes and measures to enable effective responses can be a difficult. When considering strategic risks, the key requirement of an industry and organisation is to be able to manage, adapt and overcome the risks. By understanding the risks, Australia's red meat industry will be well positioned to respond as and when required.

To become capable of responding to the strategic risks at an industry level, Australia's meat industry will need to:

- Establish structures that facilitate sharing and collaboration within the industry;
- Coordinate as an industry to prepare for, and respond to, risks;
- Build the capability to understand and adapt to meet domestic and international market needs;
- Expand and maintain relationships to benefit trade agreements and work with the Australian Government to reduce technical barriers to trade;
- Collaborate with government to effectively respond to strategic risks;
- Identify, understand and capitalise on leading global knowledge in all aspects of the red meat value chain;
- Where appropriate, explore value add and premium strategies targeted at key market opportunities;
- Establish a strong and effective advocacy presence at a national and international level to promote the value of the industry in Australia, to Australians, and the quality of Australian red meat in international markets;
- Improve productivity throughout the value chain while reducing the industry's environmental and social impacts;
- Identify and address priority technical barriers to trade; and
- Define and develop a competition response plan to the live export market and to other protein segments.

2. INTRODUCTION

When the First Fleet arrived in 1788 to establish a fledgling colony in Sydney Cove it brought with it six cattle, 44 sheep and 19 goats. From this beginning, the red meat industry in Australia has grown to become a major contributor to Australia's GDP, exporting over $16 billion worth of red meat products and having domestic sales approaching $8 billion. This industry is supported by approximately 200,000 people on farms, in processing facilities, and in the distribution and sales channels.

Australia's herd size has grown to 29.1 million cattle and a further 72.6 million sheep. Annually this results in 2.6 million tonnes of beef and veal production and 0.8 million tonnes of sheep and goat meat. The industry is supported by approximately 100 processing and 140 export hubs around the country.

Australia's red meat sector is dominated by beef and veal consumption and trade is dispersed across the country, with substantial herds of 'warm weather' cattle located in the north, typically over vast stations, and 'cool weather' cattle in the southern parts of the country. A mix of grain finished and grass fed cattle is produced, with a clear trend having emerged over recent years for grass fed consumption domestically, while international consumers continue to largely prefer grain finished product.

Australia's processing facilities are dominated by four key processors who control approximately 20 % of the processing market. With the majority of processing facilities located in Queensland and additional facilities in New South Wales and Victoria, processing primarily occurs in the east coast. As demand has increased over the years for live export of cattle, key export hubs have emerged in Perth, the north of Western Australia, the Northern Territory and Queensland.

International Competition

Australia's live and chilled and frozen exports are largely to the US, Japan, China, South Korea, Taiwan and Indonesia. While Australia is one of the largest global exporters of red meat, the industry faces increasing competition from Brazil, the US and India.

In 2016, Brazil's red meat industry is undergoing an export boom, with March 2016 recording USD$518 million in exports, bringing the 2016 first quarter total to almost USD$1.4 billion. Brazil's ability to increase exports quickly is based on multiple factors, including; the total size of its cattle herd; increasingly free trade with Asia and China; a diverse export base ranging from Europe, Africa, the Middle East, Asia and the US; extremely low costs of labour; good herd genetics; access to feedlots with price advantages; and, greater market access. Together, these factors combine to make Brazilian exports low cost and potentially responsive to changing consumer demands.

Like the Australian industry, the red meat industry in the US will be increasingly forced to focus on exports for growth opportunities. This is partly driven by changing consumption patterns that are mirrored across the developed nations, and partly due to US producers no longer being locked out of key export markets due to food and mouth and other biosecurity concerns. Complementing this are free trade agreements signed between the US and key Asian consumers which, like Australia's free trade agreements, will progressively decrease tariffs on US goods making them more competitive. When combined with a substantially lower cost of processing and production, and substantially greater vertical integration, US exports will be a key competitor to Australian red meat. In the circumstances where US exporters also face lower technical barriers to trade than Australian exports, the US exporters will gain a substantial benefit.

While India produces predominantly low quality 'carabeef' it was the largest exporter of red meat globally in 2015 with 2.4 million tonnes. With the world's largest stock of bovine – estimated to be in the range of 200 million cattle and 100 million buffalo – and a population largely vegetarian or non-consumers of red meat, India is well positioned to be a dominant supplier of red meat products.

With established relationships in China, Malaysia, Vietnam, Saudi Arabia and a focus on entering the Indonesian market, India is well positioned in growing markets. It is predicted that by 2020, Indian bovine slaughter will have increased from 33 million head of cattle in 2013 to 40 million head. If the Indian red meat supply chain is able to apply new technologies, techniques, processes, and capital that improve product quality and reliability, it should be expected that the industry will continue to have a substantial price advantage over other suppliers of red meat to Asian markets.

International Opportunities

As the world's fastest growing region, with close proximity to Australia, the wider Asian region provides many opportunities for the Australian export of red meat products. Although the Asian region is currently primarily a commodity segment, the rapid economic development in the region will result in it quickly moving into high-quality red meat products which Australia is capable of providing. While Australian producers are competing against lower priced competitors for the supply of red meat, the Australian red meat industry is recognised internationally for producing disease free and 'clean and green' red meat.

Following incidences of disease in key competing nations such as the US, Brazil, India, as well as high profile outbreaks in the United Kingdom, Australia's historical resilience to disease outbreaks is viewed favourably. However, should a large-scale disease event occur, Australia's competitors will likely take, at least temporarily, market share.

How strategic risks can be used to avoid cost and capture value

Strategic risks are risks having the greatest potential impact on an industry's or organisation's ability to achieve their objectives through the execution of their strategy. In the face of strategic risks, organisations and industries can maximise the chance of successful and strategy execution by recognising the importance of strategic risk assessment, systematically identifying the critical risks and implementing strategies and allocating resources to contain likelihood and impacts within acceptable levels.
The Australian Meat Processor Corporation can more effectively plan and implement strategies that enable achievement of its objectives, by acknowledging the critical strategic risks facing the sector. By making weighted decisions, the AMPC can address the most critical risks, reducing their likelihood and ensuring the industry is prepared to respond if, or when, they do occur.

Competition within the sector and among consumers both domestically and internationally are critical risks that the industry will have to address. Actions should be taken that improve the resilience of the Australian industry while making it more responsive to the needs of consumers and strategic moves made by competitors. Only by understanding the strategic risks outlined herein can these actions be identified and implemented.

3. INDUSTRY RISKS 2016

KEY TAKE OUT

Market changes in Australia's largest red meat competitors, combined with the increasing demand from Asian consumers and liberalised trade, will drive unforseen levels of competition

3.1 INCREASED COMPETITION

Australia's red meat industry faces competition at several levels. Internationally, the export of red meat faces competition from other exporting nations – specifically Brazil, the United States of America ('US'), and India. While these three are not Australia's sole competitors, they are expected to be the industry's primary competitors for the foreseeable future.

The competitive environment

Domestically, players in Australia's red meat industry compete among themselves for the export of red meat products. While chilled or processed red meat has historically proven to be the larger exporter of high quality meat, in recent years there has also been an increase in the export of live cattle for lower-priced market segments.

At a competitive level, the Australian red meat sector has traditionally held a regulatory advantage over key peers via lower tariffs, but has faced a higher cost to operate. With bi-lateral and multi-lateral trade agreements becoming more common, this regulatory advantage will progressively decrease, resulting in an increased relative cost of Australian processed red meat.

At an operational level, Australia's red meat processing costs are the highest in the world. Consequently, it is increasingly difficult to compete on a cost basis, requiring to compete based on differentiation, which is not currently the case.

While the Asian markets have experienced rapid growth in demand, Australian and foreign competitors have sought to satisfy this demand. While this has proven to be lucrative, Asian growth, in aggregate, has slowed with consumption in developed nations shifting from red meat to lower priced poultry and pork.

Over the short to medium-term these factors will combine to intensify competition in Australia's key export markets. This competition will flow on to other mature markets where red meat exporting countries will seek to win market share, but will be required to overcome the existing technical barriers to trade.

How free trade agreements and technical barriers to trade will impact competition

Free Trade Agreements (FTAs) determine country access to markets and, in relation to the trade of red meat, have traditionally been driven by a history of disease and food safety standards. As a jurisdiction that has been largely quarantined from disease, and with leading standards of food safety and traceability, the Australian red meat sector has traditionally benefited from a trade-derived competitive advantage.

Technical barriers to trade or those measures that countries use to regulate markets and protect consumers that are non-tariff

barriers are important. Technical barriers can have a large impact on trade and a distortionary effect on markets where health or technical specifications can be used to effectively block market access.

Import nations are increasingly reaching FTAs with a greater number of nations, resulting in Australia's competition also gaining access to certain markets. Commonly, this is the case through progressively decreasing tariffs. Not only does this increase the level of direct competition, but it also increases the cost advantage these nations already have over Australian producers.

Recently, the US and South Korea entered into a new FTA which resulted in exports to South Korea increasing from USD$686 million in 2011 to USD$847 million in 2014 – a 23% increase in three years. Over the coming 15 years the South Korean tariff of 40 % will be phased out for red meat imports from the US, providing additional opportunity for red meat export opportunities in competition with Australian exporters.

The complexity of halal markets

Halal slaughtering presents an opportunity to the red meat sector which already produces cattle for live expert to Indonesia, Malaysia and the Middle East. On the other hand, halal exports are not a segment of the market that Australia's processed meat is able to access on a large scale, leaving that industry segment exposed to competition from producers in Brazil, the US and India.

It is currently difficult and unlikely in the immediate future for halal slaughtering for cattle to be granted on any large scale in Australia. The inability to provide this product into high growth markets will place Australia at a competitive disadvantage – unable to provide a full range of red meat products that can be centrally purchased in Asia and distributed according to need. However, there may exist a greater role for the Australian red meat sector to halal slaughter goat for export.

High operating costs and ongoing capital cost requirements

Australian operating costs in the processing segment of the market are substantially higher than global peers. While only 1.5 times greater than in New Zealand, Australian processing costs are 2.4 times higher than the US, 3.0 times higher than Brazil, and up to 20 times higher than in Indonesia.

In addition to Australia being unable to compete on a price basis, the risk of being unable to compete on a capital basis is also faced. With current government investigations in 2016 into the consolidation of the value chain for red meat in Australia, and protectionist backlashes against foreign ownership of Australian agricultural land, a risk exists that higher levels of capital control will be placed over foreign ownership in the sector – where Foreign Investment Review Board thresholds are already lower than other sectors.

Without sufficient capital investment, Australia's red meat industry may suffer from a lack of large scale investment in systems and processes, missing opportunities to build enabling capabilities to compete internationally on a price or differentiation basis.

If further limitations are placed on foreign firms entering Australia's red meat sector, the risk also exists that Australia will miss out on investment by large Asian food processors who understand Asian markets, distribution channels, buying habits and consumer trends.

International price sensitivity

While Australia's key Asian export markets are growing strongly in comparison to Western growth, a risk exists that if Australian red meat exports do not remain competitive, price sensitive consumers will switch from buying their preferred higher quality Australian produce to red meat from Brazil, the US or India. In effect, this will make Australian producers price takers, rather than price makers.

While red meat imports to China are expected to increase by 55 % through to 2024, red meat remains a luxury product to which consumers are particularly sensitive to price movements. If Asian consumers resemble Western consumers, this could result in a permanent switching from red meat to lower priced poultry and pork – two substitute products to which Asian consumers are already inclined to consume.

During 2015, Australian exports of live cattle to Indonesia suffered a decline. With a slowing Indonesian economy after many years of strong growth and high levels of inflation, consumers have altered their consumption patterns and are being forced to adjust to higher prices for Australian cattle due to a 10 % value added tax applied to Australian cattle imports at the beginning of 2016. Other markets for live export include Thailand, Malaysia, Vietnam and China.

The need for international exports

While the US and Brazilian red meat markets have been blocked for a considerable number of years from key growth markets due to disease concerns, these blockades are being reviewed or have recently been lifted (for example, exports to China) – or are progressively going through the process of being removed - to the possible detriment of Australian exports.

Equally, the US has experienced a steady domestic decline in red meat consumption (partly driven by price sensitivity to substitute proteins) since the 1970s, while Brazil is currently undergoing a serious economic contraction, also reducing domestic demand for red meat in Brazil. Together, these factors are resulting in increased exports in the red meat industry for these sectors which is increasing competition in these markets.

In the case of red meat exports from the US, increased exports will be supported by the already strong supply chains and market knowledge gained through the export of pork meat to Asia. While the US exported approximately 1 million tonnes of beef, 2.3 million tonnes of pork were exported in comparison to Australian pork exports which were negligible and not competitive.

The US red meat sector is also expected to undergo the first resurgence in herd numbers since 2010 which is expected to drive exports six % higher. This increase in herd size is expected to occur due to improved pasture conditions and lower feed costs. Conversely, the Australian red meat sector expects a period of restocking to compensate for unsustainably high levels of exports in recent years, proving an opportunity for export competitors to gain further market share and entrench existing positions.

The sleeping giants stir

In Brazil, consumers are shifting from red meat to pork and poultry, driven by high red meat prices and slowing economies, forcing the red meat industry to find demand offshore. In Argentina, domestic consumption accounts for 90 % of red meat production. Should the Argentine red meat industry follow the example of its wine industry which transitioned from one of 90 % domestic consumption to South America's largest exporter of wine, another prospective high-quality competitor would be entering the international market.

While India is already the world's largest exporter of red meat, it exports merely 50 % of production. With a clear focus on targeting export markets in Asia, the Middle East and North Africa, India is not only in close proximity, but is also an extremely low cost producer.

Domestic competition

The threat of Australia's red meat producers opting to sell their cattle to live export suppliers is an increasing risk to Australian red meat processors. The primary drivers behind this risk include:

// A growing live feeder export market due to an increased demand for live cattle in Indonesia, the Middle East, Vietnam, Thailand and Malaysia; and,

// Minimal loyalty between Australian red meat producers and processors.

Australian cattle prices have increased due to high kill levels in 2014/15 slowing supply in recent years, placing pressure on onshore processors who pass costs on to end consumers. In the context of being forced to compete in international markets and declining domestic consumption, this high-priced situation does not enhance the competitive position of the industry. This has been compounded in recent years due to the high Australian currency decreasing costs for imported foods.

Growing live export market

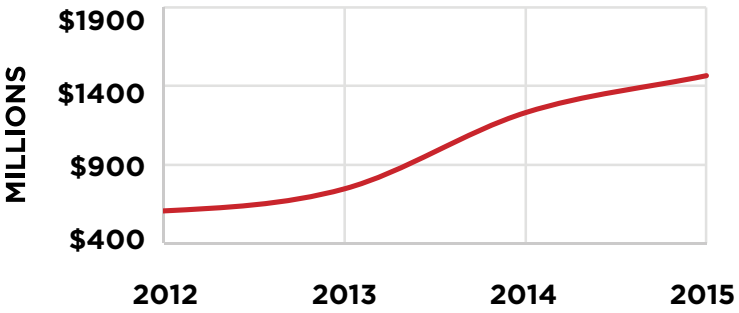
In just two years, the total value of Australian live cattle exports have almost doubled from $750 million to close to $1.5 billion in 2015, benefiting from recent FTAs which were signed with: Japan; South Korea; and most importantly, China. The challenge to the processing industry is that the live export industry is the domestic competitor for the sale of cattle from red meat producers.

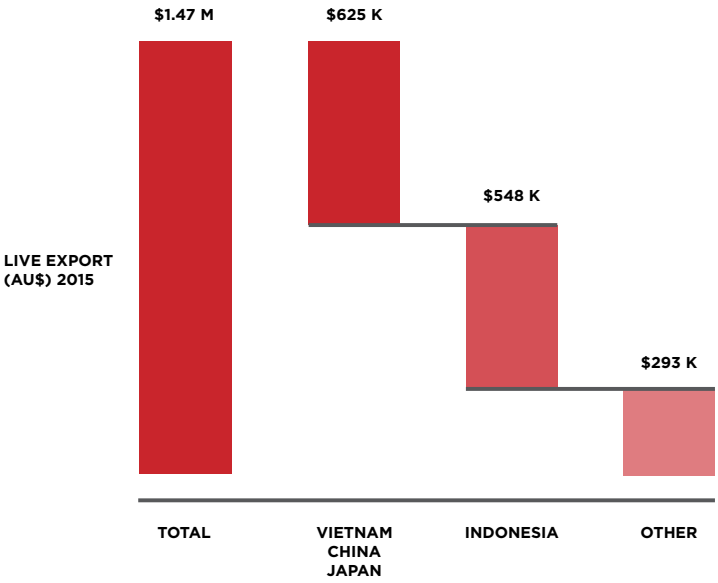
A break-down of the 2015 total live export statistics shows that the largest export region for Australia was comprised of the nations of Vietnam, China and Japan, followed closely by Indonesia. Exports to countries like China are comprised entirely of dairy cattle.

The 2015 FTA between China and Australia will allow Australia to export up to one million head of live cattle to China annually, doubling the total number of live cattle exported from Australia to all jurisdictions currently.

Live exports, which comprised of 9 % of total cattle turn-off in 2014, increased to 12 % in 2015 and is set to increase due to Chinese live export opportunities and existing

AUSTRALIAN BEEF EXPORTS





live export relationships. This increased percentage of turn-off again implies a higher proportion of cattle will now be selling to live exporters as opposed to value chain members of the processing industry.

Live exports could also increase due to investment into global meat processors; large processing facilities in low-cost jurisdictions that are geographically close to Australia, enabling the value-adding process to occur off-shore. With Western Australia already exploring this idea, more Australian cattle may become supplied to live exporters to these locations offshore, processed and then exported to key export markets. The concern with this practice is that this red meat could still be sold as Australian red meat, but at suppressed cost due to lower processing costs. Domestically processed Australian red meat would face increased international competition and a decrease in cattle supply.

Should this increase in the live export trade eventuate, this will increase domestic competition for the supply of red meat from red meat producers, as both the meat processing industry and live export industry will be forced to seek offtake.

Producers and processors: It's just business

Despite having a relationship that goes back decades, very little prevents red meat producers from selling to live exporters apart from the price that processors can offer. Interviews conducted with stakeholders within the Australian red meat processing industry indicate that there is very little loyalty between Australian red meat producers and Australian red meat processors.

Competition summary

Increasing competition is a major risk that will progressively impact the Australian red meat industry both at home and abroad. In order to respond effectively to the dual challenge of offshore competition for red meat exports to key Asian markets and onshore competition for cattle, the industry will be required to identify ways in which it can reduce costs or improve productivity and product quality. On a supply-demand basis there is currently over-capacity in the processing industry.

In the face of competition from markets that can provide a product at a lower cost and potentially better suited to consumer requirements, the Australian red meat industry will need to identify a clear and consistent competitive advantage and differentiate accordingly – recognising that the market for red meat is not homogenous.

How to approach this risk effectively

In recognising the risk posed to the industry by competition, some of the actions that will help the industry to respond may include:

- // Determine a differentiation and market strategy for Australian red meat in key export markets;
- // Identify and match consumer requirements in new markets, providing both value added processed red meat and specific cuts that meet their particular cultural and cuisine requirements;
- // Identify and establish key logistics and distribution chains that are not already dominated by competitors;
- // Improve scale to lower the industry cost structure;
- // Sell excess capacity where possible; and,
- // Enter into offtake agreements with key offshore distribution partners.

KEY TAKE OUT

Decreasing red meat consumption in the Western world will continue to be spurred on by a search for humane and healthier foods and a growing desire for quicker meals

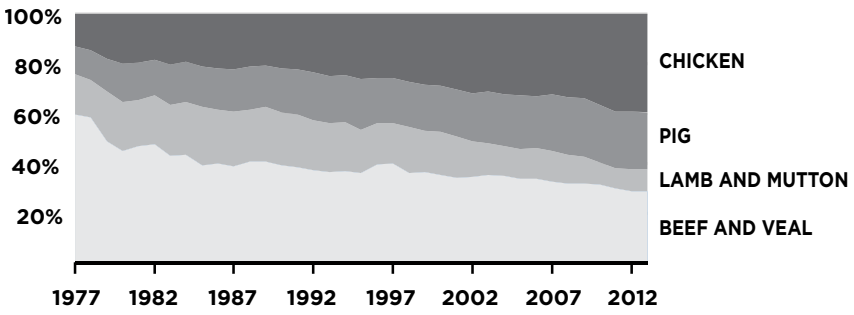
3.2 CHANGING CONSUMPTION PATTERNS

The consumer landscape is changing; cheaper, more readily available red meat substitutes and healthier alternatives have steered Australian consumers away from the traditional, 'red meat-centric' diet of the past. Equally, the Australian consumer has changed, with a greater focus on Mediterranean, Asian and Persian or Middle Eastern diets. In export markets, the largest growth segments are driven by Asian consumers who use red meat differently to traditional Anglo-derived cuisines.

During the previous four decades, Australian domestic consumption of beef and veal has steadily declined, now representing half the proportion of meat consumption as it used to in the 1970s. Today, beef and veal consumption is approximately 30 % of overall meat consumption today.

The trend of reduction is set to continue, driven by evolving consumer demographics and preferences. Without an understanding of the driving factors and a unified response, the industry faces the risk of continuing to lose consumers; unable to meet their requirements for red meat products.

PERCENTAGE SPLIT OF TOTAL AUSTRALIAN MEAT CONSUMPTION

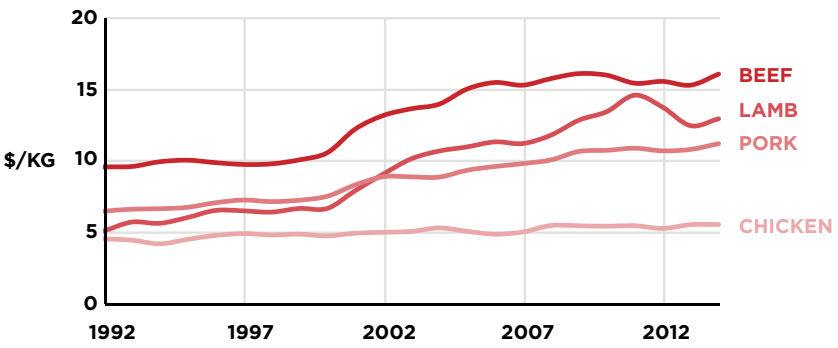


Protein substitutes

Chicken, pork and seafood have gained popularity at the cost of red meat. The primary factors behind this include changes in relative meat prices and consumer preferences.

In the last 20 years, the retail prices of red meat have consistently been higher than pork and lamb, while the price of chicken has remained constant at a much lower price. Pork, lamb and chicken have comparable protein content by mass to red meat, which enables those products to substitute red meat at a lower cost. A similar increase in fish and seafood consumption may impact red meat consumption, however at a lesser degree than chicken and pork due to the higher cost for seafood.

AUSTRALIAN MEAT PROCESSING PER KG



An aging population

During coming decades, an increasing proportion of Australians will fall under the elderly demographic; a demographic that consumes less meat than the adult demographic.

Specifically, in 2014, Australia's population over the age of 65 was approximately 14 %. At the current growth trends, by the year 2030, almost one fifth of the Australian population will be over the age of 65, reaching one quarter of the population by 2060.

One cause of the reduction in red meat with age is apparent in recent research into healthy aging, revealing consumers over 65 are cutting down on red meat due to health concerns and functional argument, such as ease of chewing and swallowing.

A further motivation for elderly persons to eat less red meat is the associated high cost. In Australia, research shows red meat to be a luxury good, a type of good where demand is particularly sensitive to price. Retirees on a fixed pension with lower disposable income are less willing to purchase luxury goods, especially while health insurance premiums have been increasing in recent years.

Though there are clear motivations for elderly persons to consume less meat, and the proportion of that population is increasing, their desire for red meat is not likely to fade entirely. The necessary mitigation is to align products with the needs of this customer segment. One aspect of the ageing population is the need to segment the market by different price points and capacity to pay.

Diets, fads and healthy alternatives

In recent years there have been multiple diet trends, fads and an increase in the options available to consumers. Western consumers are becoming increasingly health conscious and are looking for alternatives to red meat, avoiding the associated negative aspects such as high fat content. Although not the precipitating factor, the proliferation of information distribution via the internet and smartphones are a primary cause of heightened awareness of healthy consumer choices.

The internet has an abundance of sources for dietary information, including: informative websites; government public health campaigns; celebrities advocating new diets; and, social media platforms such as Instagram and Facebook. The public awareness of the World Health Organisation (WHO) report on the carcinogenic properties of (processed) red meat is an example of how well connected the world is through the internet. Consumers are also becoming better informed about new lifestyle choices and diets.

There are also a higher number of non-meat substitutes available on the market, such as soy, tofu and whey based protein shakes. These substitutes can provide similar nutritional benefits as red meat, particularly when combined with the greater choice and increased affordability of vitamins and other nutritional supplements.

Alongside the rise of organic foods, the meat production industry is becoming more transparent. The term 'organic' in the red meat industry implies that the cattle are free of pesticides and genetically modified inputs, as well being provided with a natural, spacious environment. The Australian organic food industry is currently valued at $1.7 billion and has grown at an annual rate of 15 % since 2009. This is an indication that consumers are increasingly considering organic foods to be healthier and therefore more desirable. With the higher cost of providing organic meat in Australia, consumers may look to overseas imports for cheaper organic produce, despite generally having a strong patriotism for Australian produced goods. Furthermore, consumers who value organic foods may prefer to allocate a portion of their spending to cheaper red meat substitutes that are organic, unable to afford the luxury price tag for organic red meat.

The increased consumption of organic food and red meat alternatives coincides with the trend of diets and fads in an increasingly connected society. Demand for red meat will continue to fall as long as consumers associate red meat with health concerns.

Environmental considerations
The increased accessibility to information has also seen a rise in environmentally conscientious consumers. Consumer concern for the environmental cost of red meat production has led to their reducing of red meat consumption or complete avoidance altogether.

A recent study shows that red meat production impacts the environment more heavily than other livestock categories; the same number of calories of beef requires 28 times the land, 11 times the irrigation water and produces five times the greenhouse gas emissions than pork or chicken. The impact of such research is that consumers actively reduce or cut out their intake of red meat. Consumers are voicing their views through recent campaigns, such as "Meat Free Monday"; an initiative to avoid eating meat on each Monday for the benefit of the environment and one's health.

The environmental consequences and sustainability of the red meat industry may require an integrated approach that facilitates a change in the public perception of red meat and the adaption of the industry to meet consumer wishes where possible.

A humane approach

Increasing numbers of consumers are showing concern for the manner in which cattle are treated prior to processing. The conversation is facilitated by the availability of information and the transparency of industry processes. The result is a shift away from red meat towards more humane foods. This 'rise of the humane consumer' is driving the need for humane production processes and certifications.

For red meat, industrial certifications exist to guarantee meat is produced according to certain ethical standards, such as RSPCA or biodynamic classification, however there are currently no legislative certifications. For cattle, the term 'organic' is used instead of 'free-range', which implies the cattle is free of genetic modification and have been provided with a natural environment to live.

In Australia, there is a standard governing the use of 'organic' labelling, but this is purely voluntary. In the egg industry, the industry has reacted to humane consumers by more than doubling the production of 'free-range' eggs over the past five years, fulfilling consumer desire for more humanely produced eggs.

The risk to the red meat industry is that any legislative restrictions on using 'organic' labelling may decrease consumption of Australian red meat or increase production costs to meet new legislation, unless the red meat industry can be proactive. In the egg industry, the term 'free-range' did not have any legislation restricting its use initially, allowing egg producers to use the product label 'free-range' freely.

Recently, the Australian government passed legislation governing the use of the term 'free-range' for eggs in Australia. To be classified as 'free-range' under the new legislation, there can be no more than 10,000 chickens per hectare, equivalent to one chicken per square metre; approximately 16 times the area for battery hens. Adapting to new legislation to keep a 'free-range' label can incur significant costs for non-compliant producers. This also required considerable levels of producer integrity, standards and compliance.

The use of the term 'organic' in the red meat industry is likely to undergo a similar transition as regulation of the term 'free-range' in the egg industry. Currently there is no legislation defining the term, which enables red meat producers to apply the label to products as they see fit. If the Government were to place the same restrictions on the term 'organic' in regards to red meat without consultation of major red meat entities, the risk exists that certain red meat producers do not meet the new requirements and lose consumers or increase already substantial production costs as a result.

Domestic desire for ethically produced food will continue to place pressure on the red meat industry. The red meat industry is recommended to take the front foot on these matters – proactively approaching the general public as well as Government to position the red meat industry in a positive light, whilst adapting to consumer needs.

Quick and easy

Consumer needs are also changing with regards to convenience foods, which may be purchased ready to eat at the supermarket. Demand for these foods is rising whilst such red meat products are rare, as there are relatively low varieties of meat products in the convenient food industry. With 90 % of the Australian population urbanised, to which

demand for convenience food is positively correlated due to time-poor lifestyles, this is a significant risk to the red meat industry.

The last decade has seen an increasing number of dual-income households due to a rise in gender equality in the work force, increased day to day costs and an increase in the cost of large purchases such as homes. Due to busier lifestyles, the time available to spend in the kitchen is further reducing as people look towards ready to eat meals. This fact is supported by Woolworths reporting a 30 % increase in ready to eat products in 2013 over the previous year.

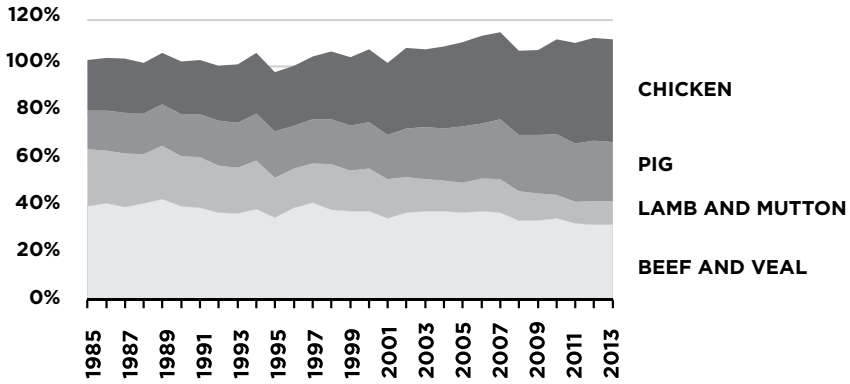
Increasing consumption for ready to eat meals may lead consumers away from Australian produce towards importing cheaper, processed food or other meats more accessible in the ready to eat category. The latest meat consumption trends in Australia show that overall meat consumption has remained steady, with the consumption of chicken and pork increasing and yet the consumption of red meat decreasing. A cause for to this may be the accessibility of chicken to the convenience food industry. Chicken-based meals have been the dominant category of meat-based convenience foods due to major prepared food companies using chicken as their basis for a healthier meal.

The lack of ready to eat red meat indicates a potential market for the red meat industry. The growing trend towards convenience food will only become more relevant as people become busier and more reliant on time efficient meals.

Diet and disease

With the increased consumption of processed foods, Australia could be faced with an endemic of diet-related diseases, resulting in a large number of Australian red meat consumers reducing their red meat consumption for health reasons. In 2007-08, half of persons aged 65-74 suffered at least five chronic diseases. Among people over the age of 85, 70 % suffered at least five chronic diseases. With the aging population, the prevalence of chronic disease is increasing. As stated earlier, the WHO identified that processed meats such as bacon and sausages are classified as carcinogenic, while unprocessed red meat is "probably" carcinogenic. Studies also show that processed foods, takeaways and microwave meals could be the reason for an increase in autoimmune diseases in recent years.

AUSTRALIAN MEAT CONSUMPTION (KG/PERSON/YEAR)



How to approach this risk effectively

For the red meat industry, taking no action is not an option. A pre-emptive and unified approach that addresses the specific causes of the decline in red meat consumption is required at a minimum to slow the decline in red meat consumption.

Specifically, the red meat industry will have to:

- Identify specifically how aged population red meat demand changes and develop fitting products to the growing consumer segment;
- Respond to dietary fads and trends and participate in the 'healthy' consumer discussion;
- Capitalise on the international recognition to be a reputable supplier of red meat with traceable provenance, for example by providing consumers with clear and consistent product branding clarifying how the red meat product was raised and processed;
- Work with leading industry, consumer and government stakeholder groups to inform how the processing of red meat is humane and demonstrate that animal welfare is regulated and adhered to at all times;
- Develop new and innovative products for home and commercial consumption, supporting increasing demand for 'convenience' foods; and,
- Conduct research into the increasing prevalence of chronic disease as well as the positive benefits of red meat.

KEY TAKE OUT

Climate change and the associated consequences will continue to make life more difficult for the red meat industry unless climate change awareness and mitigation is widely publicised

3.3 CLIMATE CHANGE

The impacts of climate change have one of the widest ranging set of impacts to the red meat industry, with various issues and their potential impacts affecting each member of the value chain.

Australia just experienced the hottest March on record, and if temperatures continue to increase on a yearly basis, the impact on the red meat industry will likely continue to grow. Changing weather patterns and more frequent extreme weather events are also having a major influence on red meat production rates in Australia. Climate change poses both an immediate and long-term risk to the Australia red meat industry, with the potential for its impact on the industry to continue to grow.

Extreme weather events

Droughts have severely impacted the Queensland cattle sector, significantly reducing cattle production in Australia and consequently cattle supply to the processing sector. An immediate threat exists if continual drought conditions persist in Queensland and extent to other red meat producing parts of Australia.

According to a stakeholder within the Australian red meat industry, an estimation of at least 10 % of the Queensland herd have perished recently, with 86 % of the state declared to be in drought. Queensland supplies nearly 50 % of Australia's cattle, with any impact to the cattle sector in the state potentially having large ramifications on the wider red meat industry.

Current high slaughter rates of female bovine (cows) may result in Australia losing Asian market share to the US in coming years. To prevent losses due to cattle starvation during drought, farmers are currently slaughtering at excessive rates. As a result of unsustainable slaughter rates of female bovine, Australia will have trouble rebuilding herd size.

Drought and flood conditions likewise have impacts on the availability and cost of supplementary and grain feed consumables, a potentially compounding problem considering when stock grazing areas are at their worst, the stock feed price is often at its highest.

Much of the northern states logistics networks are vulnerable to flood resulting from periods of extensive heavy rainfall. While the federal Government has recently committed $100 million to address this issue in the three northernmost states, the figure is not anticipated to go far when split across the 22,000 km of dirt and unsealed road in the Northern Territory alone. This has flow-on impacts on the timing of stock delivery from producers, as well as the issue of stock condition if transit times become prolonged.

Changing weather patterns

Increasing average temperatures around Australia can have a significant impact on cattle production, reducing the supply and overall condition of cattle to the processing sector.

Impacts from heat stress on cattle include: reduced grazing time as cattle look for shade; reduced feed intake; increases in body temperature, panting and sweating; reduced health; reduction in growth; and, weight loss.

Global temperatures recently reached record highs for six consecutive months. Higher temperatures are expected to become the norm which may precipitate a decline in production in effected areas if climate mitigation, or industry adaptation, do not succeed.

ABARES modelling in 2007 approximated a 19 % decline in beef production for Queensland in 2030 compared to a world without human-induced climate change, and a 33 % decline in 2050. The Northern Territory is also facing similar declines, with a 19 % decline by 2030 and 33 % decline by 2050 due to climate change.

Should temperature change continue, a proportion of current grazing land may become unsuitable for the same type or density of production currently employed which may necessitate a reduction in stock numbers or the use of more heat and drought tolerant breeds. Movement of stock to more temperate locations may take it away from the current supporting and processing infrastructure, resulting in increased transport time and cost, and this may negatively impact cattle conditions.

Soil erosion/degradation

Increasing soil acidity and associated land degradation issues are affecting an increasing proportion of agricultural land across Australia. Nationally, surface acidity is a risk for an estimated 50 million hectares (up to 50 % of agricultural land) and is already affecting agriculture production, environmental health and economic welfare across almost one third of the country.

In Australia, almost 20,000 farms reported showing signs of salinity, accounting for almost 2 million hectares of agricultural land. Strategies to manage and prevent salinity have resulted in just over 3 million hectares of crops, pastures and fodder plants being planted across Australia; 466,000 hectares of land being fenced from grazing; 776,000 hectares of trees being planted; and 208,000 kilometres of earthworks (levees, banks and drains) being constructed by farmers to combat the salinity problem. A risk is that these measures must be increased in the future, resulting in reduced production capacity or cost increases to maintain production levels on less ideal or more dispersed pastures.

The effects of potentially reduced feed production and a reduction in available drinkable water for stock are obvious, however additional impacts may be felt as government or industry initiatives are implemented to combat the increasing salinity problem.

Water use – inputs and effluent charged outputs

Water input required to produce one kilogram of red meat may be up to 540 litres. More efficient use of water over the past decades has been the topic of several studies, one of which noted a 65 % reduction in consumptive water use for beef production, from 1,465 litres/kg-live-weight to 515 litres/kg-live-weight (over the last 30 years, from 1981-2010).

The increasing dependence on dam bore and town water over the traditional rainfalls is demonstrated in the values below:

- 55 % of farmers have installed additional watering points to replace water for stock from natural watercourses
- 61 % of Queensland producers had installed water points
- 86 % of farmers monitored the level of water tables on their properties

Hence while a reduction in water usage has been achieved in some areas of the value chain the industry is increasing reliant of forms of “blue” water, and are vulnerable to the potential cost increases and water restriction that may be introduced should increase stresses be felt by water and infrastructure providers.

Feedlots expect animal water consumption to require up to 60 litres per head per day, indicating that even modest changes in cost or allocation of water resources could have significant effects on output.

Greenhouse gas emissions

Agriculture remains the second highest producer of greenhouse gas emissions in Australia. Beef cattle in particular are receiving much of the blame for this from mainstream media outlets. Recent studies suggest that the rate of emission may be up for 25 % less than had been predicted in earlier studies, however in raw numbers the output of greenhouse gasses are still considerable.

Considered a prime driver for many of the climate change challenges, greenhouse gas emissions can be considered as both an output and a risk to the industry.

How to approach this risk effectively

As the industry faces a changed or changing environment, farmers and producers will likely be required to adapt their business models and practices to adjust to these changes. Where this transition cannot be successfully accomplished, a risk exists that these producers will be forced to reduce supply or exit the industry.

In approaching this risk, the industry must both acknowledge the changing climate that Australia is facing, and increase industry awareness of how to effectively respond. From this, plans and mitigants can be implemented to better ensure a sustainable future for the industry.

// Increase education of the effects of global warming on cattle and cattle production;

// Work with leading industry research and development stakeholders to develop potential mitigation techniques to minimise the industries impact on climate change;

// Develop innovative techniques and products for producers to use to maximise feed and water during drought periods;

// Invest in research and development to increase carcass-weight efficiency to mitigate potential decreases in supply;

// Investigate the effects of increasing temperatures on cattle, and research potential mitigants for heat stress;

// Identify new areas which offer opportunities for efficient cattle grazing and shift to these regions over the long term; and,

// Improve marketing to change the image of the farming industry to attract skilled labours and students into agricultural studies.

KEY TAKE OUT

Increasing scrutiny based on the environmental consequences and animal welfare issues of the red meat industry will not only decrease red meat consumption, but may also lead to heightened regulatory restrictions

3.4 SOCIAL LICENCE TO OPERATE

With the population gaining a greater understanding of social responsibility, in particular climate change, animal welfare and global food security, the public's increasing attention and scrutiny is likely to be directed at the meat industry both domestically and overseas. The Australian red meat industry is facing increased internal and external demand for environmentally sustainable production methods and increasing levels of socially responsible in management.

Use of land to produce grain feed & effectiveness of food production

Up to one third of the planet's arable land and almost 70 % of its current global agricultural space is dedicated to livestock or feed production for livestock. From a global food security perspective, this reflects a high percentage of land use producing a significantly reduced food volume when used in this manner.

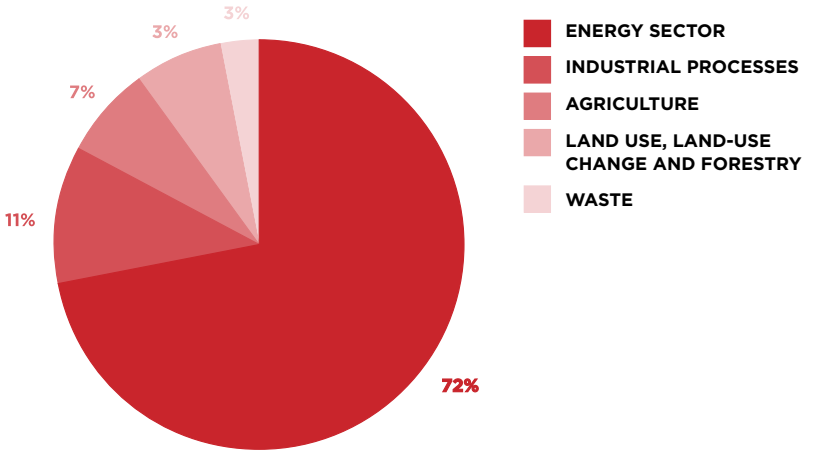
While much of Australian meat production comes from grass fed stock, the question of global food security and scrutiny of the use of land resources may become of increasing concern to certain sections of the population.

A single hectare of land could produce 29 times more food in the form of vegetables than in the form of chicken meat, 73 times more than pork and 78 times more than grain-fed beef. Red meat is several times more feed intensive (and hence land and water intensive) than other mainstream food sources. While the bulk of Australian production is grass fed, environmental and food security activists may see this as fertile ground for action. Potentially compounding this view is that because a majority of domestic production is exported to overseas markets activists may claim that Australia is incurring the environmental impact of production while offshore markets receive the benefit of consumption

Climate Change

Climate change has been a source on ongoing debate and concern for the past two decades and will continue to be an emotive subject for the foreseeable future (impacts beyond the social licence to operate are discussed in other sections). Meat production and, in particular cattle, have been labelled as a major contributor to greenhouse gas emissions by mass media and while there are several inaccuracies in main stream media reporting, Australia's livestock will produce substantially more warming gasses over the next 20 years than all of our coal fired power stations combined. However, the finding of an eight-year CSIRO investigation into the effects of the red meat and dairy industries on Australia's methane emissions suggests that outputs from cattle in Australia are 24 % lower than previously thought. While this falls well behind energy and fuel sector outputs, the industry remains a substantial greenhouse gas emitter.

NSW GREENHOUSE GAS EMISSIONS PER SECTOR (% OF TOTAL 162.7 Mt CO2e)



The cattle and livestock industries are expected to continue receiving public attention for their greenhouse gas contributions, with a particular focus on the local environmental impacts of the industry likely.

Animal waste is another potential area of risk for the industry, with increasing focus on the fact that because "only a third of the nutrients fed to animals are absorbed, animal waste is a leading factor in the pollution of land and water resources". Total phosphorous excretions are estimated to be seven to nine times greater than that of humans, with detrimental effects on the environment.

Water usage

The Australian red meat processing industry is a significant consumer of water. Water is primarily used to ensure food safety and hygiene during operations.

From farm to plate it is estimated that grain-fed beef production takes approximately 100,000 litres of water for every kilogram of food. Raising chickens takes 3,500 litres of water to make a kilogram of meat. In comparison, soybean production uses 2,000 litres for kilogram of food produced; rice, 1,912; wheat, 900; and potatoes, 500 litres. This continues the environmental concerns from the grain and land use discussion point above. Competition for what is an increasingly valuable and scarce resources may cause: a limitation in availability of water for production or processing; increasing cost to access water; or an increasing level of consumer and public concern over water usage. While certain sections of the value chain are embracing water-saving and water-reuse strategies, estimates suggest approximately 2 % of total water usage is reclaimed.

Animal Welfare

Animal welfare issues are becoming increasingly important to consumers, having received high profile media attention overseas. For example, the TV campaign in 2008 by Hugh Fearnley-Whittingstall and Jamie Oliver to expose the welfare conditions of factory-farmed chicken led to an increase in purchases of free-range chicken at the time.

While these trends may only be transitory in nature, research into food purchasing behaviour published in 2011 found that almost half of shoppers reported buying free range eggs and 27 % free range or freedom food chicken. A survey conducted by a food and grocery industry research body before the campaign found that over half of the UK population say they make at least one or two purchase decisions because of animal welfare standards. In the same survey, more than a quarter states they would be willing to pay an extra 10 % for higher welfare food.

A YouGov survey for Eating Better found animal welfare concerns was the primary reason identified for persons reducing their meat consumption, outpacing all of the other social licence topics discussed thus far.

Employment & Economic Contribution

The red meat sector is a significant contributor to the Australian economy and makes a substantial contribution to the nation's export markets. When flow-on effects are taken into account, the industry contributes approximately $16.2 billion in gross domestic product, equivalent to 1.3 % of GDP. It also underpins more than 200,000 full-time equivalent (FTE) jobs across all sectors of the economy. Despite this significant contribution, the red meat industry is not widely recognised as a major contributor to the economy, nor is it viewed as an attractive employment avenue.

Overall, the profile of the industry as whole is, perhaps, under-recognised for its contributions

and the industry is likely too fragmented and isolated in its constituents to gain the maximum advantage from its consolidated size and economic importance.

General

A study in the UK provides evidence that consumers are reassessing the social licence issues. Specifically, consumers identified the issues aforementioned as factors leading to a decrease in their consumption of red meat: concern for animal welfare; reduction in carbon footprint; global food and security; and other environmental concerns. This would suggest that while cost and health drivers have been the primary consideration in the change of consumption patterns, social licence to operate may soon become the primary concern.

Of note is that the social licence to operate concerns of the public may have impacts beyond local consumption patterns; activism in any of the key areas may lead to increased regulatory restrictions or other interventions in attempts to appease increased public concerns in these areas.

How to approach this risk effectively

Maintaining a social licence to operate can be difficult, and can be largely driven by perceptions rather than fact. The red meat industry, in seeking to avoid the costs associated with a loss of its social licence to operate, should consider:

- Increased advocacy and research into offsetting carbon emissions of animals, and reducing the environment impact of grazing;
- Establishing research and development initiatives specifically targeted at reducing the resource use – water and power – of processing facilities, and minimising the effluent released; and,
- Working with local communities to ensure that processing and other facilities such as feedlots and logistic centres do not create perceptions of inhumane practices.

KEY TAKE OUT

Changes in the regulatory environment may lead to closures in international markets or heightened red meat processing costs, while an amplified impact on the industry can be experienced in conjunction with non-regulatory risks

3.5 REGULATORY RISKS

As a sector already heavily regulated at a national and international level, the red meat industry has developed a range of bodies to represent the interests of industry participants at each point in the value chain.

Market access and technical barriers to trade

At an international level, the Australian red meat industry may be subject to heightened levels of uncertainty relating to market access, like that of Murray Goulburn in 2016 who was unable to export milk to China.

Likewise, from the perspective of a biosecurity event occurring in Australia, while nations are limited in their range of actions to block trade, they can do so for biosecurity reasons. For example, in 2012 approximately 70,000 sheep were blocked form unloading in the Middle East due to scabby mouth infections. This loss of access can occur due to legitimate reasons, or can be used as a foil to pursue alternative concerns.

These international regulatory risks are complex in their formation and for their rationale, and can arise without notice or with a short lead-time and no clear finish date. While the red meat industry is not in a position to directly influence these, they do require careful consideration on how best to position a response, if or when they occur.

Raising the hurdle

Domestically, the red meat industry has faced increasing regulatory requirements at all levels of the value chain, from environmental impacts for primary producers through to effluent discharge for processors and rising health standards at the consumer level. Additionally, some government regulatory programs push the full program cost recovery onto the industry.

This heightened level of domestic regulatory intervention is likely to continue, with environmental legislation targeting the red meat industry's high level of carbon emissions and water consumptions also a key area of concern. Equally, as the Australian consumer continues to be increasingly concerned by animal welfare standards and incidents of animal abuse, regulatory requirements for the humane slaughtering and processing will continue to remain high.

Regulatory risks pose a particular challenge to industries due to their high potential impact, high likelihood, interdependencies and difficulties in direct mitigation. These regulatory risks can occur both at an international or domestic level, and can pose either direct or indirect impacts.

The primary regulatory risks can be broken down into the following categorisations:

- Agricultural regulation, including: biosecurity; land use and environmental impact; chemical use; animal welfare standards; and livestock certification and identification

- Food and meat processing regulations
- Trade regulations and quotas
- Emissions regulations
- Capital investment
- Employment policies and minimum wakes
- Competition and capital related regulations that impact the ability of merger and acquisition activity in the industry or capital investment

The regulatory burden created by these forms of regulation can impact discrete parts of the industry value chain – such as regulations governing the use of chemicals in process – or impact the entire value chain – such as emissions limits. At a domestic level the regulatory environment can be influenced through active advocacy by key industry stakeholders, while at an international level advocacy is typically best when combined with clear government support.

The burden of regulatory change will increase the pressure on red meat to be price competitive with its domestic substitutes, and also internationally with both substitutes and peer nations who will not be impacted by Australian-derived legislation.

Risk interdependence

Regulatory risk is often interrelated and interdependent with non-regulatory risk factors. Domestic regulations exist to protect the public and environment from adverse impacts. If such events occur, these regulations may be revised, and if deemed necessary adapted, with the risk of impeding the meat industry. There is an interdependence between domestic regulatory and non-regulatory risks. For example, if a case of animal cruelty is identified, this may result in reduced demand from the public in addition to a review and changes to regulations with secondary impacts.

Similarly, an interdependency exists between non-domestic regulatory risk and other risks. A key interdependency exists in the case of biosecurity risks. If a biosecurity incident were to occur in Australia such as foot and mouth disease, bans could be set in place that would close down international trade to all Australian red meat exports, such as the ban placed on US red meat in 2003.

The above examples indicate that regulatory risks typically follow on from other risks. Similarly, regulatory risk may increase the likelihood for non-regulatory risks. For example, a new carbon emissions tax may pressure producers to cut costs elsewhere in the business or value chain that subsequently increases the likelihood of non-regulatory risks.

How to approach this risk effectively

Responding reactively to regulatory risks typically results in little real impact. By focusing on proactive engagement and advocacy with key political, legal and government stakeholders the red meat industry will be best positioned to influence the changing regulatory environment.

Specifically, the red meat industry will have to:

- Identify and understand key stakeholders for each aspect of the red meat value chain and determine their core motivations and objectives for the industry;
- Establish a communications plan to ensure that all stakeholders understand the significance of the red meat industry to the Australian economy and can themselves convey this to others; and,
- Put in place research programs that proactively lead to animal welfare improvements, decreases in resource use and a reduction in the industry's carbon footprint.

KEY TAKE OUT

Changes in the regulatory environment may lead to closures in international markets or heightened red meat processing costs, while an amplified impact on the industry can be experienced in conjunction with non-regulatory risks

3.6 LACK OF VALUE CHAIN INTEGRATION

The red meat industry in Australia comprises many different industry participants at different levels of the value chain. This fragmentation has existed for many years and can result in disconnection and value loss at key points in the value chain, leading to incremental costs that progressively increase the expense of delivering red meat in Australia.

When compared to Australia's international red meat peers, the Australian industry is far more fragmented at each point of the value chain, lacking the vertical integration that enables our peers to drive innovation throughout the value chain. This will be partly caused by the historical development of the industry, and partly by the impact of bodies like the Australian Competition and Consumer Commission and the Competition and Consumer Act.

Fragmented profit pools

With high degrees of fragmentation prevalent, multiple layers of the value chain seek to capture a profit margin that can drive an overall higher total cost of production. This type of structure is traditionally typified by a lack of information sharing, as information asymmetries can be capitalised on to capture additional profit at the expense of participants higher or lower in the chain – often resulting in low levels of trust, cooperation and loyalty.

This fragmentation is perhaps best highlighted by the approximately 77,000 cattle properties in Australia supplying product to around 100 processors, of which four companies dominate the market. This disparity between input providers and processors potentially places processors at a competitive advantage in terms of seeking out suppliers due to their large number.

In this context, scale economies are rarely captured, placing Australian industry participants at a competitive disadvantage to offshore competitors who are able to achieve higher degrees of formal or informal integration. Equally, because fragmentation causes a higher final product price, Australian red meat is less price competitive at a domestic level than key substitute products.

A loss of trust

Anecdotally, the red meat industry lacks a substantial degree of trust throughout the value chain. This has been highlighted during interviews, and is reflected in the 2015 Australian Senate Rural and Regional Affairs and Transport Committee investigating into the effect of market consolidation on the red meat processing sector, and the Australian Competition and Consumer Commission's 2016 market study of the red meat supply chain.

If the red meat industry continues to remain fragmented, the risk is that costs cost will continue to remain at higher levels to international competitors who are better positioned to reduce costs.

Increased costs due to higher number of individual companies adding cost to the value chain

One of the costs with a fragmented value chain is that each separate entity within the value chain needs to make a profit. The industry value chain has various components, including: breeding; processing; and marketing. In Australia, businesses within the industry commonly sit in just one of these value chain segments.

One of the stakeholders interviewed estimated the additional costs per head of cattle due to these incremental costs to add up to $100 – which processors are often required to bear a large component; a large portion of the overall cost per head of cattle. Due to the lack of collaboration and relationships between components of the value chain, these costs are further increased as some companies try to maximise their profits in a one-time deal.

Insufficient information sharing

As each component of the value chain works independently, data gathered by one business is not necessarily shared along the value chain to improve the overall productivity and effectiveness of the value chain.

The principle barrier to productivity increases through information sharing is the lack of communication and trust. In the red meat industry, a large number of processors will collect valuable data on genetics, however will refrain from sharing within the value chain. The mistrust between players in the value chain is partly due to concern of larger players (such as the retailers) leveraging the resulting insights to push down price of red meat.

Very little collaboration along value chain

The Australian red meat industry has very little collaboration, which increases the overall production costs. Collaboration enables an industry to become more transparent along the value chain, allowing fresh insight between components of the value chain. There are also opportunities for members within a particular stage or along multiple stages of the value chain to identify further collaboration opportunities, ranging from supply contracts to cost sharing to mergers and acquisitions – Increasing vertical integration. In terms of efficiencies, although one component of the value chain may be as efficient as possible, this may mean that the collective industry underperforms. Collaboration allows companies to find the optimal industry balance as opposed to each business seeking to improve its own sustainability.

International comparators

In the US, vertical integration has taken place in the past. Corporations such as JBS US, Cargill Meat Solutions and Tyson Foods, Inc. are vertically integrated companies that produce, process, package and distribute red meat throughout the US. This enables increased productivity through economies of scale, while the size makes focus on product innovation and improved sustainability as a whole possible, as opposed to focussing on one section of the value chain. Hence, these large organisations can focus on the future of the industry, to create long-term plans for maintaining growth of the company and the US red meat industry. Combined with this is the lower level of retail consolidation in the US.

Although other factors contribute to low US meat processing costs – roughly a third of Australia's costs - the vertically integrated structure significantly contributes. Australia should seek to narrow this gap if at all possible.

Australian industry fragmentation

Causes for the fragmentation of the Australian red meat value chain are the industry structure and the nature of relationships. Along the value chain, from producer to processor down to retailer, the number of companies within each grouping greatly diminishes.

For example, in Australia there are approximately 56,700 beef producers in Australia, over half of which are valued at under $100k. This narrows down to predominantly three large retailers: Coles, Woolworths and the export market.

Processors can be broken up into three main categories: domestic processors that supply retailers; export processors that supply export customers; and specialty processors that supply small retailers. The number of producers vastly outweighs the number of processors, which in turn supply the limited number of retailers. At a retail level Coles and Woolworths are two of the largest buyers of red meat in Australia, providing them with strong bargaining power which has been used extensively in the dairy industry. This mismatch between the numbers of companies in each level of the value chain enables a misbalance of pricing control, creating distrust and increased competition between sectors.

In the Australian red meat industry, because there is a high level of fragmentation, processors and products lack a high degree of alignment. To more effectively integrate the value chain of the industry, and subsequently reduce costs, greater degrees of information sharing and collaboration between participants will be required.

4. THE ECONOMIC AND INDUSTRY OUTLOOK TO 2025

The international economic order is undergoing extreme change and disruption which is challenging old notions of economic, social and political growth and advancement. While the Western world has struggled to overcome the impact of the Global Financial Crisis of 2008 – with much of the developing world's economies stuck at 'emergency' monetary policy settings – the developing world in Asia has managed to continue its strong level of growth, albeit this is now slowing dramatically.

This growth divergence is not only changing the conventional notion of economic, social and political growth being driven by the West, but it is also driving a realignment of economic thinking in countries like Australia which are increasingly viewing Asia – and China, in particular – as the source of future trade riches.

These transformative shifts have been driven by an increasingly liberal trade environment, greater levels of technological innovation, and huge demographic shifts that have burdened Western countries and provided a boon to many in Asia.

While these forces should favour Australian red meat exports, the economic outlook to 2025 should be tempered by strategic foresight that recognises and identifies alternative scenarios that will place pressure on the industry. Scenarios provide insights that allow stakeholders to better understand the uncertainties that the future holds and therefore make more robust decisions.

The two scenarios presented here describe how Australia's red meat industry could be negatively impacted both domestically and externally. While not predictions, scenarios illustrate alternative futures that act as a challenge to common thinking and highlight the need for the development of systems, policies and processes that will make the red meat industry better able to respond and adapt in an uncertain future.

Future 1: A Shrinking World

The promise of ongoing and consistent economic growth from the 2000s has proven itself to be a chimera. While it looked like the world would recover from the Global Financial Crisis of 2008, ongoing growth challenges in Europe, an America that was unable to sustainably improve growth for the middle class, and a Chinese economy that spluttered and came to a stall, all combined to create a 'new normal' of stagnant growth and limited export opportunities.

This international economic malaise shrunk many aspects of domestic demand as well. Red meat as a luxury good found itself unable to compete against cheaper substitutes like pork, chicken and eggs, and when Australia's retail sector launched into a price war focusing on red meat the industry was already battered by accelerating rates of demand reduction and also lower prices.

This scenario recognises that in an economic environment

of declining demand for red meat domestically, the industry is increasingly reliant on international exports.

Domestically, the Australian consumer trends towards healthier food and increases in variety pick up pace. Red meat is increasingly pushed out of diets, and younger and immigrant consumers increasingly eschew red meat in favour of substitute products. This trend is compounded by consumers increasingly concerned by animal welfare standards and the impact red meat production has on the environment, further decreasing demand.

With the arrival of foreign supermarket retails on Australian shores, the dominant retailers enter into an aggressive war for market share. Having exhausted opportunities in bread and dairy to attract shoppers, red meat is savagely discounted. At first, the supermarkets absorb the cost, but quickly it is pushed on to the red meat value chain which is unable to respond effectively by cutting costs or increasing productivity.

Domestically, demand for red meat slumps by 40 % by 2025 and the profit pool dramatically shrinks as the supermarket price wars force down prices.

In Asia the Chinese growth miracle abates, with the government unable to engineer a 'soft' landing as it transitions its economic growth away from capital expenditure to consumption. The flow-on effects of this results in stagnant growth across Asia and exporters to the region ferociously competing for market share.

While Australian farmers are initially able to continue to sell their red meat product into Asia, it does not take long for Brazilian and US competition to aggressively out-position Australian produce. With high levels of vertical integration throughout the supply chain in both the US and Brazil, key market participants are able to effectively, and dramatically, improve animal and processing productivity through the effective use of data and animal genetics.

With a more integrated supply chain, Australia's international competitors are also able to better meet changing consumer preferences. By working directly with consumers and in-country distributors, the competitors are far more responsive in planning and ensuring supply consistently meets expectations. This responsiveness increases the competitive pressures on a fragmented Australian red meat industry that is unable to respond and progressively loses market share.

Future 2: Conflict and Regulation

The hope and opportunity for red meat exports characterised by the mid-2010s is shattered when an open conflict occurs in the South China Sea. What began as a minor maritime dispute over fishing rights ignites a multi-country conflict. By the time the conflict abates, a level of inherent distrust and mutually reinforcing paranoia has established itself in the region, with all countries responding by increasing levels of military investment and preparedness, lower levels of bilateral trade and communication, and rising levels of mistrust.

With freedom to navigate the South China Sea curtailed, international trade and shipping through what was once one of the world's busiest trade routes dramatically declines.

During the period of the crisis Australian exports to the Asia region effectively grind to a halt. Following the cessation of hostilities the live export of cattle to Indonesia quickly resumes, but all other Asian exports continue to suffer, increasing to only 20 % of what they were pre-conflict.

The export of chilled and frozen red meat to Asia by Australia's largest exporters also undergoes a dramatic slump. In response, these jurisdictions increase tariffs on Australian red meat in an effort to provide whatever support to their domestic red meat sectors possible.

While the export of red meat is dramatically altered by the conflict, domestically the industry faces serious challenges that increase the cost of both raising and processing red meat. In response to concerns over animal welfare and the ongoing impact of climate change on Australia's fragile rural environment, the Australian government passes a suite of legislation to improve animal welfare standards and make Australia a world leader on carbon reduction and water conservation.

The environmental legislation dramatically increases the ongoing costs of carbon abatement for manufacturers, and pushes up the price of electricity. The incidental environmental legislation places enhanced water conservation requirements on all industry, requiring less overall water use and higher water quality standards in effluent discharge. Together, these impact the industry's ability to compete on price, due to the regulatory impact in increasing costs.

Coupled with the conflicts in the South China Sea and the rising distrust between Australia's remaining export partners, these new legislative constraints increase the cost of Australian agricultural production beyond what exports markets can accept. Australian exports slowly diminish as the price of Australian red meat inflates to levels beyond what is competitive with the US or Brazil.

With little forward knowledge of Australia's declining export competitiveness and the South China Sea conflict, Australian farmers are left with a glut of cattle, requiring a substantially increased slaughter rate which leads to a plunge in the domestic price of red meat. s Unable to sustain profits in this economic environment, Australian value chain participants exit the red meat industry.

Summary

While these two future state scenarios highlight various risks occurring concurrently, they serve as an example of what factors could occur and result in a series of extremely low probability events occurring concurrently that permanently reduce the size and capability of Australia's red meat sector.

By recognising that extreme scenarios, however unlikely, may occur, the red meat industry will be able to respond by developing systems, processes, and relationships that are responsive to extreme events, are agile to change, and are resilient to future risks. Together, these three characteristics will support a sustainable red meat industry in Australia.

APPENDIX A

STRATEGIC RISKS

A strategic risk is defined as an uncertain event or condition that can cause significant negative impact to the Australian meat processing industry and is particularly damaging the industry's long-term health.

TABLE A.1. DESCRIPTION OF STRATEGIC RISKS

	STRATEGIC RISK	DESCRIPTION
Biosecurity & Food	**Rapid and massive spread of infectious disease**	**A single case of an uncommon yet extremely high impact disease including BSE and FMD is a major strategic risk to the meat processing industry**
	Supply chain contamination	**Disease or contamination occurring at a known/unknown point along the supply chain, affecting product quality and entire value chain, consumer confidence lowered**
	Animal activism	Tampering occurs with red meat product, lower quality product, consumer confidence lowered
	Sabotage of Australian cattle supply	A cyber or physical-biological attack occurs on Australian cattle resulting in a contamination requiring temporary shut-down of the industry
	Restrictive provenance barriers	*A disease outbreak occurs, providing justification for export markets to close their borders to Australian meat*
	Disease limits cattle transport to processors	A disease outbreak temporarily limits the movement of cattle from rangelands in the North to feedlots and processors in QLD or NSW
	Supply chain fraud	A fraud or mislabelling event occurs in the supply chain, resulting in value added food products containing non-Australian red meat or non-beef protein such as horse
	Single instance of CJD or equivalent	Single human case of CJD or equivalent is identified, resulting in placement of large-scale quarantine systems and new import controls in major export jurisdictions
	False-positive bio-incident	*Test for virus returns positive and receives media attention, later turning out to be an error*
	Technology-driven biosecurity incident	Genetically Modified crop-fed cattle affecting regular cattle.
	New disease introduced across Northern 'bridge'	Humid, denser northern Australia due to climate change allows for easier access of disease/virus/pests into Australia which then migrate south
	Rise of 'superbugs' impervious to antibiotics	Long term overuse of antibiotics results in the spread of superbugs that cannot be controlled, potentially impacting local and export markets

Community	**Changing domestic consumption patterns**	**Consumption is trending towards traditional non-meat substitutes (e.g., tofu, soy), reducing red meat sales in Australia and the US. Though growth continues in Japan, Korea and China, a risk exists of the non-meat substitutes trend carrying over to these markets**
	Attracting skilled labour increasingly difficult	Skilled labour shortage in the red meat processing industry leads to lower productivity or higher production costs (e.g., overtime, etc.)
	Inability to understand evolving consumer preferences	*Changing customer preference due to accessibility of information, health concerns and lifestyle changes*
	Social licence to operate	**The risk of reputational and economic loss due increased consumer awareness or adverse operational events (e.g., environmental, animal welfare). Community backlash and regulatory intervention increases operating and capital costs and reduces demand**
	Backlash to red meat industry over animal welfare	*Consumers become increasingly concerned by (perceived) animal rights violations, calling on boycotts of red meat*
	Environmental impact of cattle sparks consumer backlash	Consumers change red meat consumption habits, driven by environmental impact (global warming) of cattle farming
	Succession planning	Inadequate succession planning amongst primary producers drives down the quality of beef inputs or decreases cattle numbers available for slaughter
Environmental	**Increased incidence of 'extreme' weather events**	**Climate-change increases the frequency and severity of extreme weather events - including wildfires, flooding, droughts and cyclones - impacts key cattle producing regions**
	Changing weather patterns	**Changing weather patterns result in warmer northern regions of Australia, cooler southern regions, and shifting rainfall zones**
	Failure of climate change mitigation	Climate change mitigation schemes do not have the desired effect and primary producers are unable to effectively respond to changing environmental needs for their herds, decreasing cattle numbers and quality
	Global temperature change	Overall increase in average temperatures impacts herd numbers and requires redistribution of cattle breeds for each new temperatures in each region
	Soil acidification or salinization	Soil in cattle grazing areas undergo increased acidification or salinization, resulting in reduced pasture areas and more fragile ecosystems, jeopardising large parcels of cattle grazing land
	Major biodiversity loss and ecosystem collapse	*Large scale reduction of grazing ground for cattle or growing cattle feed, reputation risk in case biodiversity loss is connected with meat industry*
	Man-made environmental catastrophe	A man-made environmental disaster impacts segments of the red meat value chain, inhibiting processing and exports and possibly damaging industry reputation

Industry & Market	**Increasing competition**	**Lower cost international competitors - South American and US producers, Eastern European producers - increasingly target Australia's key (high-growth) Asian markets. A combination of low-cost low-quality and high-quality grass and grain fed beef is exported in direct competition to Australian product**
	Threat of substitutes	**The consumer trend towards increased pork and poultry consumption continues and is supplemented with non-meat protein substitutes such as textured soy**
	Price and currency volatility	The Australian currency remains strong, or appreciates against Asian currencies or the USD, making Australian red meat relatively more expensive
	Insufficient capital investment	Australian agriculture does not receive the capital and productivity investment required to maintain pace with competitors in all areas of the value chain
	Large-scale offshore processing increases live cattle export competition	*Global meat processors invest in a globally significant processing facility in a low-cost jurisdiction geographically close to Australia - Malaysia or Indonesia - and replace Australian processing with the export of live cattle and value addition occurring outside of Australia*
	Lack of market coordination among Australian exporters	A lack of coordination between Australian players in export markets results in suboptimal overall outcomes for Australian producers and processors
	Extreme operational risk impacting the entire value chain	While operational risks typically do not result in strategic risks, an extreme event – such as a serious biohazard or safety incidence – could result in penalties and regulations that place a substantially higher burden on costs within the industry
	Halal accreditation	Australian processors are unable to export halal processed meat, locking producers out of this fast growing market
	Inability to develop differentiated products to compete	In competing in international markets, if the red meat industry is unable to provide foreign consumers with the animal size and cut desired, packaged and value added in accordance with their taste, the industry could lose substantial ground to competitor nations
	Socioeconomic readjustment of key target markets	*Key export market growth slows due to changing socioeconomic factors, resulting in varying demand profiles to which the red meat industry is not responsive*
	Supermarket wars extend to red meat	Coles, Woolworths, Aldi enter into a red meat 'price war' cutting the price of key red meat products, undermining the wider market and passing burden to suppliers
	Lack of value chain integration	*The red meat industry does not respond to market preferences, both domestically and internationally, and does not develop matching new products*
	Severe energy price shock	A substantial oil and diesel price shock occurs, increasing prices throughout the industry to levels consumers refuse to accept; demand declines as a result
	Loss of trust across the supply chain	Value chain members do not collaborate, failing to share information, improve overall product quality and traceability, or enhance productivity; as a result are unable to compete effectively internationally
	Incomplete information flow through the value chain	*Australian meat processors and other supply chain players suffer losses from poor collaboration. Competing nations' industries are better integrated, through which they achieve economies of scale benefits and reduced waste such as lost time. Australia already has high operating costs and should focus to improve integration*

Political & Regulatory	**Onerous regulatory environment**	**Increasing regulatory standards around noise, effluent and water consumption increasing processing costs**
	Rising trade barriers	**The liberalisation in trade relations reverses and nations revert back to multi-lateral trade agreements which are slower to be agreed and result in Australian red meat facing restricted access and high tariffs to key international markets**
	Inability to influence developing political, legal and regulatory regimens	*The sector is unable to influence key market political regimes during trade negotiations, resulting in uncompetitive tariffs remaining in place*
	Insufficient supporting infrastructure investment	*The Australian government does not support the wider industry by investing in easier access to agricultural areas and in logistics hubs*
	Increased international protectionist barriers	Heightened protectionism occurs and tariffs are placed on Australian red meat
	Differential tariffs for live vs. processed red meat under FTAs	Live cattle benefits from lower tariffs over processed meat, resulting in a greater export of live cattle at the expense of the larger value chain supporting processed meat production
	Reduction in government industry resourcing	Reduction in disease and veterinary specialists due to ongoing government budgetary pressure, resulting in production slowdowns and costs increases
	Increasingly stringent emissions targets	*Australia's manufacturers and primary producers face higher costs due to emissions pricing that cannot be recouped in sales*
	Access to capital	Protectionist backlash against foreign sources of capital will and able to invest in required capital and process improvement to make Australia's processing industry internationally competitive
	Government support for integrated offshore supply chain	Australian state governments support the development of offshore processing facilities in order to promote the live cattle trade, directly increasing competition for processing in Australia
	Conflict in the South-China Sea	A conflict in the South-China Sea occurs which results in a cessation of a large proportion of Australia's exports
Technological	**Failure to match global technological advancement through unfocussed R&D**	**Australia fails to keep up with foreign meat processing industries using new technologies, resulting in a reduction of competitive advantage and loss of international markets. Automation, data capture and predictive analysis across the supply chain are examples**
	R&D lacks focus (and therefore impact) and is not targeted to the right area	Wasted R&D expenditure into areas that don't produce rewards; the impacts (in addition to capital loss) are failure to identify and capture improvement opportunities required for Australia to continue differentiating meat products at high quality yet at acceptable cost
	Competition from artificially grown red meat substitutes	*Australia's red meat industry fails to invest in technologies to capture a share of projected lab grown meat trend, which, based on global population prognoses of over 9 billion by 2050 should see ample demand while requiring significantly less land and energy, having lower carbon emissions, and no animal welfare issues*
	Failure to benefit from carcass assessment technologies	Australian processors fail to capture the benefits of enhanced carcass assessment technologies due to regulations, limits in technological capabilities or weak relationships with technological innovators. Opportunity to reduce operating costs by leveraging existing assets are lost, as are opportunities to create new revenue streams at live export destinations
	Inability to improve packaging	Poor ability to enhance packaging to improve shelf life and enhance product quality to meet changing consumer expectations result in missed differentiation opportunities

TRENDS

TABLE A.2. DESCRIPTION OF GENERAL TRENDS

TREND	PRIMARY SUB-TRENDS
Climate change	**Changing weather patterns**
	Increased incidence and severity of extreme events
	Salinization and acidification of soil
Challenged resource environment	**Agricultural resource depletion**
	Decrease in biodiversity
	Increasing water constraints
Emerging market growth	**Increasing size of middle class**
	Higher disposable incomes
	Greater demand for western and luxury goods
Rising export dependence	**Decreasing demand for red meat in western nations**
	Increased volatility in commodity prices
	Majority of market opportunities offshore
Simpler access to markets	Increasing number of FTAs
	Simpler and more direct distribution channels
	Greater demand for Australian produce
Increasing global standards	**Enhanced regulatory standards**
	Increasing levels of self-regulation
	Increasing requirement for economic stewardship
Food safety and quality	**Focus on provenance and supply-chain traceability**
	Organic and 'disease-free'
	High-quality and healthy consumption
Changing consumption patterns	**Changing demographics**
	Rise of the 'healthy' or 'humane' consumer
	Increasing demand for convenience foods

APPENDIX B

STRATEGIC RISK: COMPETITION

While Australia currently performs substantially above its weight in terms of export competitiveness, the red meat industry faces substantial competitive pressures both domestically and internationally The domestic supply of cattle will attract competition from live exports while the international demand for Australian beef may be threatened by increasing international competition.

WHY

- // Australian exports valued at three quarters of total beef and veal production
- // Growing Australian live export market requiring Australian cattle supply, cutting into beef processing supply
- // Limited information exchange and cooperation between value chain members
- // New FT As, international trade agreements and increasing capacity from export competition
- // The complexity of the international halal market
- // High operating and capital costs in comparison to international competitors

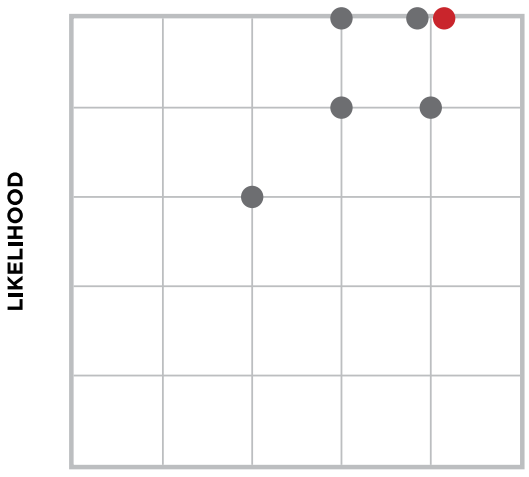
TRENDS AND SUB-RISKS

- // Brazil's meat industry experiencing soaring exports off the back of a slowing economy driving down domestic consumption and improving prices to international markets, new FT As and a large cattle herds
- // American red meat industry rebuilding to reclaim much of the domestic US market and focusing on similar export destinationS
- // India's low quality 'carabeef' export market poised to grow if India continues its development due to their large capacity and proximity to key markets

KEY RESPONSES

- // Determine a differentiation strategy for Australian red meat
- // Seek to understand and match consumer requirements in new markets
- // Establish logistic and distribution chains that are not already dominated by competitors
- // Enter into offtake agreements with key onshore distribution partners
- // Consolidate industry lobby both domestically and internationally

RISK MATRIX



STRATEGIC RISK: CHANGING CONSUMPTION

Consumption patterns in the developed world has shown consumers expressly turned away from red meat since the 1970s. The decline in Western world consumption of red meat is under the threat of accelerating as consumers have greater access to information regarding health implications and as pricing increases compared to other meat types.

WHY

// An aging Western population that is eating less red meat due to dietary and price concerns

// The increasing prevalence of diets, fads and dietary options is leading to a more health-conscious consumer; consumers are looking for alternatives to red meat which have associated with adverse health impacts

// The environmental burden of cattle production is increasing the environmental-related concern of consumers, leading to an avoidance of beef

// The modern consumer is living a time-poor lifestyle. People want quick and easy food that is reasonably healthy; a food product line that is not yet capitalised by the red meat industry

TRENDS AND RISK INTER-RELATIONSHIPS

// An endemic of diet-related disease due to an aging population and increased processed food consumption could be on the horizon

// Generally more health conscious consumers with a greater range of available options and potential a Iterative products

// Further development into beef substitutes such as 'in vitro' beef and vegetarian beef may further decrease the consumption of beef

// Increasing relative price differential between Red Meat and other meat types

KEY RESPONSES

// Develop products to suit growing consumer groups

// Drive dietary fads and trends

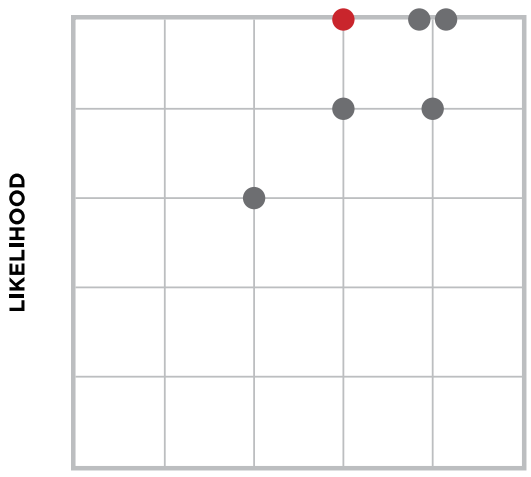
// Captialise on Australia's reputation of providing 'clean and green' red meat

// Educate stakeholder groups about the current ethical process used on Australian cattle

// Innovate new products to suit the convenience food trend

// Conduct research into the prevalence and effect of chronic diseases

RISK MATRIX



STRATEGIC RISK: CLIMATE CHANGE

The effects of climate change manifest in several ways each presenting different yet interrelated risk to the red meat industry and the various players in the value chain.

WHY

// Livestock, facilities and transport infrastructure all vulnerable to extreme weather events

// Changing temperature and rainfall characteristics making the location of farmlands, feedlots and processing infrastructure less productive

// Unpredictability of rain influencing feed accessibility and grain feed costs

// Increased temperatures and reduced rainfall have a compounding effect on cost and animal condition

// Increasing public awareness and concern or environmental matters leading to greater consumer advocacy and potential for regulatory reform

TRENDS AND SUB-RISKS

// Scientific evidence suggests more frequent extreme weather events: Extreme rainfall, flooding, drought etc

// Demonstrated changing of weather patterns, in particular shifts in rainfall zones

// Increasing temperature change/ instability

// Land degradation, acidification and salinity becoming a concern across larger sections of agricultural land

// Greenhouse gas emissions from beef production lower than first expected, but still a significant contributor

KEY RESPONSES

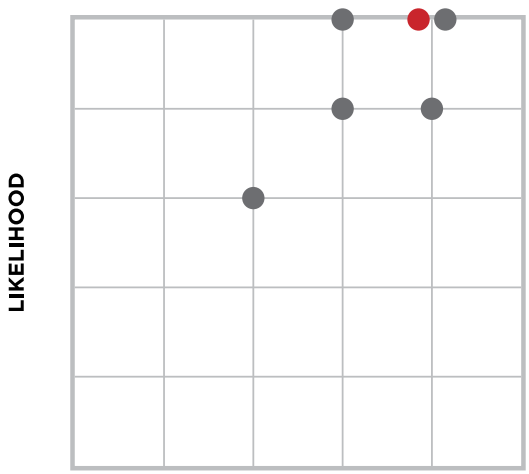
// Seek to understand the critical vulnerabilities in the value chain

// Seek ways to build greater resilience into the value chain and its individual members

// Investigate technology or infrastructure options to address impacts of change

// Research into more environmentally responsible/ low impact techniques across the value chain

RISK MATRIX



STRATEGIC RISK: SOCIAL LICENCE TO OPERATE

The red meat industry in Australia has operated effectively within the confines of a social licence to operate derived from the regional communities in which it dominates. However, the industry's social licence to operate is coming into question; can the red meat industry adapt to a new social expectations?

WHY

- // Greater consumer awareness of key social licence factors including:
  - / Animal welfare
  - / Water consumption and scarcity of clean water
  - / Greenhouse gas emission from particularly beef
  - / Erosion production and biodiversity impacts of expanded cattle territories
  - / Increasing concerns over global food security and efficiency of production
- // Limited ability of the industry to leverage the positive messaging including its role as a key national export and as large scale employer

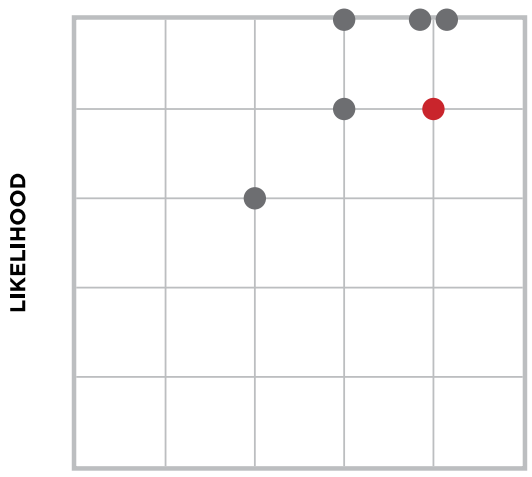
TRENDS AND SUB-RISKS

- // Greater public awareness of social licence topic
- // Potential for greater or more restrictive regulatory measures in relation to social licence topics due to public pressure
- // Environmental and animal welfare having a significantly increased influence in purchasing decisions
- // Increased potential for advocacy or lobby groups protesting social / environmental impacts of the industry

KEY RESPONSES

- // Industry cooperation to increase awareness of the "good" messaging
- // Increased research into moresustainable and "green" practices
- // Increased industry awareness / promotion of animal welfare matters and potential to leverage as a marketing differentiator
- // Research into more efficient or alternate feed types

RISK MATRIX



STRATEGIC RISK: REGULATORY ENVIRONMENT

A fragmented value chain and multiple advocacy bodies at a national and international level leave the Australian red meat industry exposed to the risks associated with ineffective responses to an increasingly uncertain regulatory environment. Increasing pressure from social licence matters may also create a push for tighter regulation.

WHY

// Market access on an international level is exposed to changing regulatory environment. leading to risks in closure of certain foreign markets

// Heightened levels of domestic regulatory intervention such as environmental regulations can increase the already high cost of Australian beef

TRENDS AND RISK INTER-RELATIONSHIPS

// A combination of a domestic regulatory and non-regulatory risks can result in a negative impact on the industry (eg. Animal cruelty cases can reduce demand and incur stronger regulatory costs in the industry)

// International and non-regulatory risks can also occur. such as a case of foot and mouth disease in Australia could lead to bans that would close down international trade

KEY RESPONSES

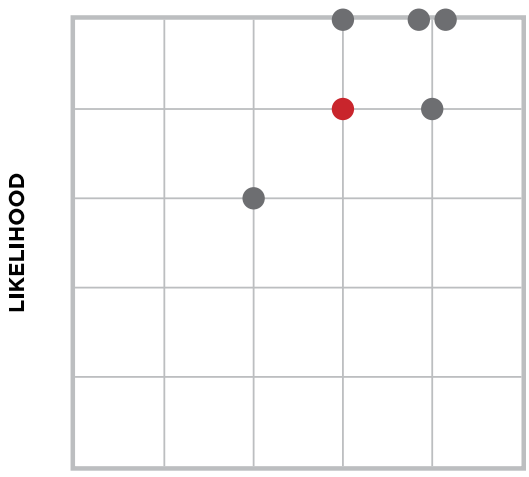
// Identify and understand key stakeholders for each aspect of the red meat value chain and determine their core motivations and objectives for the industry

// Establish a communications plan to ensure that all stakeholders understand and themselves can communicate the role played by the red meat industry in the Australian economy

// Put in place research programs that proactively lead to improvements in animal welfare and reductions in resource use and the industry's carbon footprint

// Work with government to develop a priority list of technical barriers to trade in key export markets and seek to have them removed or their impact minimised

RISK MATRIX



STRATEGIC RISK: VALUE CHAIN INTEGRATION

As an industry that is fragmented vertically throughout the value chain, Australia's red meat sector operates at a competitive disadvantage compared to international competitors with greater levels of vertical integration. With higher degrees of fragmentation, the Australian red meat sector will fall behind in international markets.

WHY

// Economies of scale are rarely captured due to the horizontal fragmentation at different levels of the value chain

// Fragmented layers of the value chain seek to capture marginal profits that drive the overall cost of production for the industry higher

// Very little trust between producers and processors means that producers may look at alternatives to the processor industry if the price is right

// Little to no collaboration is seen along the value chain to share information that could improve productivity and reduce costs

TRENDS AND SUB-RISKS

// International competitors such as USA and Brazil already have vertically integrated beef industries. The processing costs of these countries are dramatically smaller than Australia's processing cost. with integrated value chains a factor to this cost reduction

// Poultry market domestically is another vertically integrated model and efficiencies here contribute to the real pricing differential

// Other non integrated markets have seen overseas interests take large holdings at multiple points in the value chain driving integration outside of domestic control

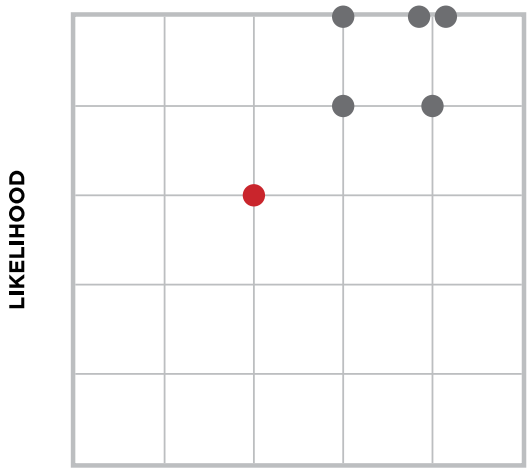
KEY RESPONSES

// Demonstrate the benefits of collaboration and facilitate discussions between producers and processors to develop trust

// Encourage collaboration horizontally and vertically along the value chain and share information to improve productivity

// Research focus on the effects of vertical integration within the Australian beef industry

RISK MATRIX



APPENDIX C

Date: 5/4/16

Interviewee sector(s):
Feedlot, supply chain services

KEY INSIGHTS:

Value chain analysis and integration is required

// Supply chain has relied on a production cycle that hasn't changed in the last five years

// Cow-calf sector culling only occurs during one quarter in the year where processors want cows evenly throughout the year

// Lack of integration from producer to processor leads to additional costs (estimate to be $100 a head)

// Lack of business retention / confidence in supply

// Data analytics could be performed along all process sector and suppliers but isn't

// Processor fear of other members of value chain abusing data if it is shared

Domestic competition for the sale of red meat to live export is a concern for the processing industry

// Little loyalty between producers and processors, meaning producers just sell for best price (which could come from live exporters)

// There is a lot of tension between the live export and processing sector

Date: 21/4/16

Interviewee sector(s):
Production

KEY INSIGHTS:

Climate change is having an impact now on red meat production and the ecosystem

- // Drought and rainfall impact has been massive in northern Australia/QLD, resulting in a major loss of production (estimated to be at least 10 % reduction of herd in QLD)
- // Pasture resources are becoming depleted in QLD
- // Loss of plants in ecosystem due to pasture depletion – becoming an environmental concern as well as a social license issue
- // Believes producers have the capacity to respond to changing climate but are losing that capacity. Most producers haven't faced these issues before and don't have a plan B
- // Unable to run as much cattle and losing productivity

Risk of impacts of climate change affecting the industry's social license to operate

- // Anti-red meat lobbies are becoming more strident
- // Animal nutrition is a sleeping giant – animal weights fluctuating dramatically from rainy seasons to dry seasons hasn't yet been picked up by animal welfare groups
- // Hotter temperatures are impacting animal welfare during transportation

Risk of further increasing supply chain issues

- // Fragmentation of the industry is clearly evident but is seeing more cohesion, especially at an R&D level. Still believes that integration is a long way off in the industry, but a necessary change to improve productivity and become more sustainable as an industry
- // Production running at half shifts in QLD due to a lack of constant supply

Poor leadership, leading to poor advocacy for political agendas

- // Trend of people being promoted to leadership positions in the industry that do not have the support and are therefore ill-equipped or not qualified for the role
- // Ineffective advocacy for the industry

General expectation for Asian and China to save Australia's red meat industry

- // Believes people have a simplistic expectation about Asia and China; Asia is a growing market and will be for years to come, and international competition won't knock Australia out of the race for their demand

Date: 26/4/16

Interviewee sector(s):
Production

KEY INSIGHTS:

Differentiation in Chinese market is important

// Brazilian market cannot supply high-end value market

Live export market prices are volatile due to dry conditions which increases supply

Key competitor in the domestic market is poultry and pork, due to production gains

Japanese market demand larger cattle as they desire better marbling which is found in older animals – lengthening production time

Finding labour is not an issue due to accessibility of immigrant labour force

// Due to the isolation of processing facilities though, labour costs could increase

Large processing costs due to a lack of improvement in processing sector

Frozen and chilled red meat

// Australia has competitive advantage due to Australia's focus on chilled/ frozen methods which increase shelf life compared to the USA

Small size of Australian cattle herd and the domestic competition for cattle supply due to live export

// Limits gaining of economies of scale

// Seasonal peaks and lows not ideal for processors

Climate change

// Most people try to manage climate change themselves and not degrade soil

Animal welfare not a big issue as most people are actively managing it, while protocols are in place to reduce stress already as it affects meat quality

Date: 6/5/16

Interviewee sector(s):
Government

KEY INSIGHTS:

Current ACCC and Senate inquires seem to be perpetuating a perspective of market concentration and aggregation in pricing

Current Government policy seems focused on farm and value for farmers

- // Seem to ignore rest of value chain
- // Weather / flood / hardship subsidies are focused at farm levels and have limited cross capacity to other value chain sectors

Regulatory intervention likely to increase if industry is not seen to be appropriately regulating itself

Lack of the industry's ability to provide clear and concise information or list ttof desires / requirement from Government

Limited oversight from the Government apart from areas that it has a particular need or mandate to assess / review them on

Biosecurity – rare but catastrophic

- // Given the percentage of domestic production that is exported, effect would be many times worse than other cases like the US BSE incident
- // Incidences like foot and mouth would also have a significant impact both on export potential and domestic transport and movements

Ability to gain and maintain export markets a concern

- // Must trade on quality and not price, but not sure if quality is the driving factor in developing markets

FTA agreements becoming less effective as industry has some illusion that these benefits remain substantial

Biosecurity – limited capacity to exploit overseas competitors experiencing biosecurity incident

- // Australian market has tarnished image in the way it has responded to overseas supply issues, leaving poor impression on some importing countries and their trade delegations

Market conditions – potential for new markets to pick up the bad habits of some other

APPENDIX D

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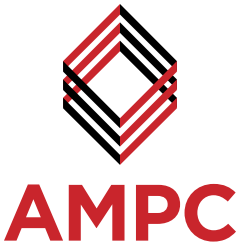

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