AMPC

A FEAST OF IDEAS

Australian Meat Processor Corporation
Sustainability Report 2016

ABOUT THIS REPORT

Welcome to our first sustainability report. We are proud of our long-standing commitment to working with our value chain – from our producers through to consumers – to deliver sustainable solutions for Australian processors and the broader red meat industry. In this report we share with you how we are addressing the matters currently most material to us and to our stakeholders.

About this report

Our sustainability report has been compiled in accordance with the Global Reporting Initiative G4 Core guidelines. If you would like to read the full GRI index, please visit feastofideas.com

Report boundary

While the scope of this report is heavily focused on the processing sector, we have also touched on broader impacts of the red meat industry in Australia.

Further sustainability information is available on our sustainability microsite feastofideas.com

Your feedback is greatly appreciated

We invite our readers to share comments, suggestions and thoughts on this report. These and any queries may be directed to:

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Report availability

We have undertaken a limited print run of our report. The paper stock used is Knight – Smooth and is FSC certified, sourcing pulp from managed plantations and responsible forests. The fibre used to produce Knight is elemental chlorine free.

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A MESSAGE FROM OUR CHAIRMAN

This sustainability report, the first we have produced, is an attempt to put these issues on the table and start a conversation with all the participants in the red meat industry's supply chain as to the best way to understand and respond to them. To launch this conversation, the AMPC Board hosted a highly successful "Feast of Ideas" in Wagga Wagga in July 2016, which brought together members, scientists, academics, producers and retailers.

"On the horizon is a complex web of strategic risks that, if not mitigated, may impact our ability to capitalise on, among other things, the international growth in demand for red meat."

The red meat industry's importance to the Australian economy cannot be questioned. With industry value-added revenues (including flow-on effects) of around $23 billion, ours is the country's second largest manufacturing industry and an employer of over 135,000 people, when flow-on effects are taken into account. Thanks to the "clean, green and safe" reputation of our product, we are the world's largest exporter, shipping 74 per cent of our domestic production.

Being a trusted supplier of high-quality red meat means Australian processors – and producers – are well positioned to capitalise on the international growth in demand for red meat, particularly in emerging Asian markets. However, on the horizon is a complex web of strategic risks that, if not mitigated, may impact our ability to capitalise on these opportunities and, indeed, threaten the long-term sustainability of our sector.

These risks include a changing climate, a challenging global competitive environment, changing consumption patterns that are leading to a decline in the domestic demand for red meat, a fragmented supply chain, an increasing consumer focus on food safety and quality, environmental protection and animal welfare, and a complex regulatory environment.

To successfully navigate the risks, processors, and the red meat industry as a whole, will need to adapt their operations to better integrate activities along the supply chain, respond to consumer concerns and increase the attractiveness of "brand Australia" in key export markets.

This sustainability report, the first we have produced, is an attempt to put these issues on the table and start a conversation with all the participants in the red meat industry's supply chain as to the best way to understand and respond to them. To launch this conversation, the AMPC Board hosted a highly successful "Feast of Ideas" in Wagga Wagga in July 2016, which brought together members, scientists, academics, producers and retailers.

Our mission is to encourage innovation via world-class research, development and extension services to the red meat industry through a strategy that will see us responding to members' needs, unlocking markets, becoming effective advocates to promote the value of the industry nationally and internationally, developing collaborative networks and relationships, and harnessing the world's best ideas and skills.

We trust you will enjoy reading this report and find its contents insightful and engaging. We look forward to your feedback and to working with you to build a stronger and more effective industry for the benefit of all Australians.

Peter Noble

OUR INDUSTRY

INDUSTRY SNAPSHOT

Contributes **$23 BILLION** to Australia's GDP per year including flow-on effects

Exports 74% of produce to **86 COUNTRIES**

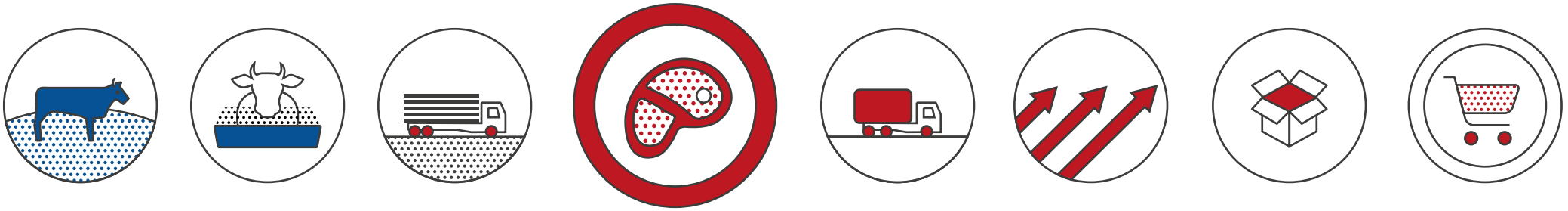
Employs **135,000 AUSTRALIANS** including flow-on effects

Exports to the value of **$10.3 BILLION** $9 billion in processed, $1.3 billion in live exports

Meat processing is Australia's **LARGEST FOOD PRODUCT MANUFACTURING INDUSTRY**

Australia is the **WORLD'S 7TH LARGEST BEEF PRODUCER**

Producing → **Processing**



PRIMARY PRODUCERS | FEED LOTTING | LIVE TRANSPORT | PROCESSORS | COLD TRANSPORT | MARKETING & DISTRIBUTION | WHOLESALE | RETAIL

GENERATE $170,000 PER FTE*
compared with an average $152,300 in other industries

EMPLOY 34,000 PEOPLE
making them the 2nd largest employer by sector

AMONG THE WORLD'S LARGEST EXPORTERS OF BEEF
making it the largest trade-exposed manufacturing industry in Australia

AMPC
AUSTRALIAN MEAT PROCESSOR CORPORATION

106 MEMBERS REPRESENTING 97% OF AUSTRALIA'S RED MEAT PROCESSORS, LOCATED AROUND THE COUNTRY

OUR PURPOSE

Enable Australia to build the most sustainable red meat industry

OUR MISSION

To lead industry level strategy, innovation and capability development for our members, stakeholders and their communities

OUR VISION

To become a highly regarded, world-class provider of RD&E playing a vital role in influencing and growing the Australian red meat industry

OUR VALUES

Collaboration, Innovation, Creativity, Challenge the status quo, Continuous improvement

WE WILL ACHIEVE OUR PURPOSE, MISSION AND VISION THROUGH A STRATEGY THAT:

1. Focuses on member needs
2. Diversifies funding sources
3. Develops collaborative networks and relationships with authoritative resources
4. Strategically invests in research, implementation of RD&E and marketing initiatives enabled by harnessing the world's best ideas and skills that deliver positive industry-wide benefits

* Full-time equivalent (FTE) employment

OUR GOVERNANCE

The Red Meat Advisory Council (RMAC) provides leadership on cross-sectoral issues and consults with the Minister for Agriculture and Water Resources on agreed whole of industry matters. RMAC is the custodian of the Red Meat Industry Memorandum of Understanding, the Meat Industry Strategic Plan (MISP) and industry reserves. It administers and deploys income from the reserves to: cover peak council participation costs, coordinate maintenance of the MISP, and review and provide support to industry relationships.

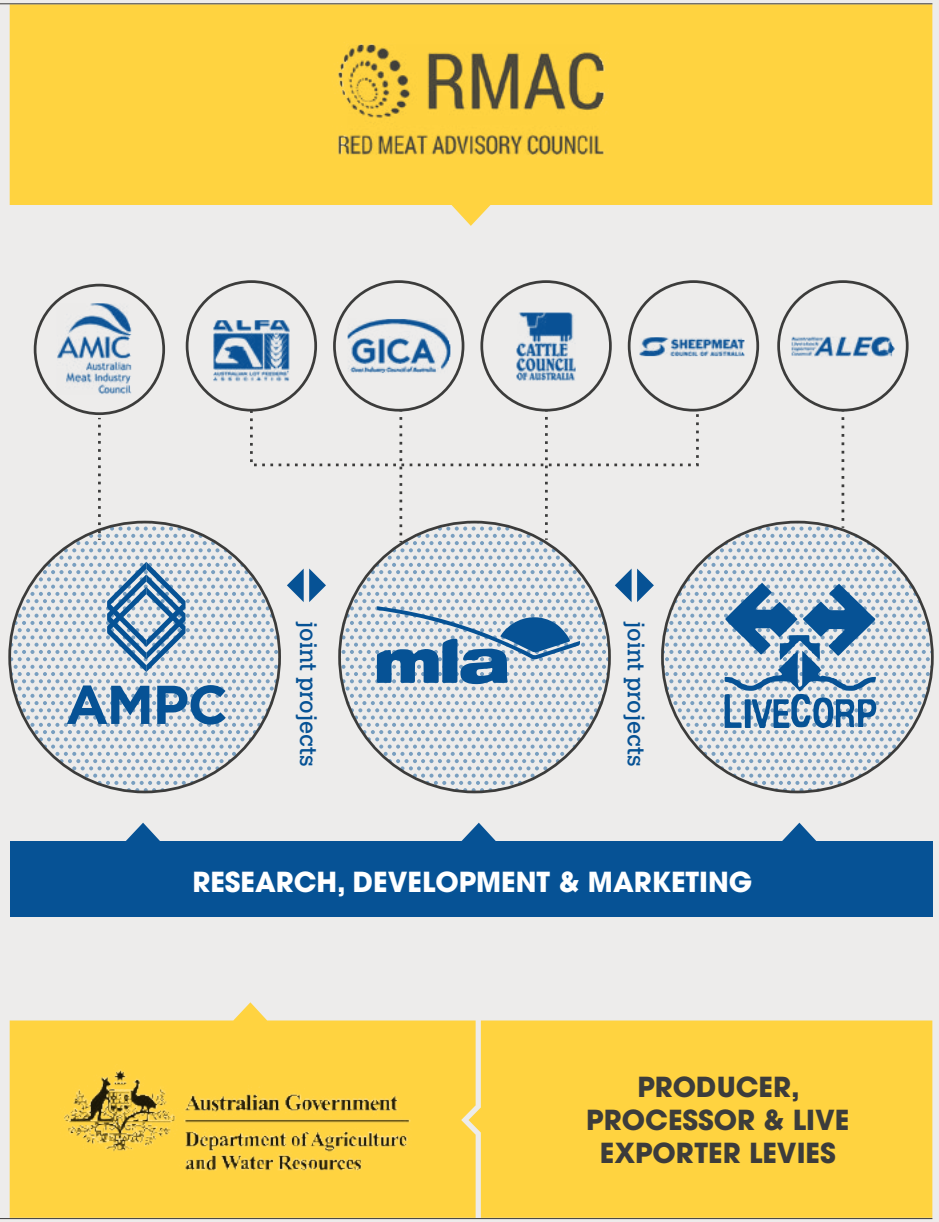
AMPC administers statutory levies on behalf of the red meat processing industry. Processors pay levies on each animal slaughtered. These are collected by the Department of Agriculture and Water Resources and forwarded onto AMPC.

All organisations in the red meat industry are signatories to the Red Meat Industry Memorandum of Understanding. This defines the roles and responsibilities of each signatory.

- The Australian Government
- Australian Meat Processor Corporation (AMPC)
- Meat & Livestock Australia Ltd (MLA)
- Australian Livestock Export Corporation Ltd (LiveCorp)
- Australian Meat Industry Council (AMIC)
- Cattle Council of Australia (CCA)
- Sheepmeat Council of Australia (SCA)
- Australian Lot Feeders' Association (ALFA)
- Australian Livestock Exporters Council (ALEC)

AMPC's primary role is to ensure the processing sector's long-term viability and sustainability by:

- Improving efficiency and competitiveness
- Helping protect and secure market access
- Building capability and innovative capacity
- Increasing overall productivity and performance



STAKEHOLDER ENGAGEMENT

GOVERNMENTS
State, federal and local governments

Issues of concern and challenges
RD&E
Red meat marketing
Compliance
Food Safety
Bio security
Diseases
Health, Safety & Environment
Market access (technical & non-tariff barriers)

How we work with them
Statutory Funding Agreement
Senate estimates/inquiries
Using independent reporting to engage
State sector for international audits (Food Safety)
Cross-sector research initiatives
Food Safety regulations

MEMBERS
Representatives for over 97% of Australia's red meat processing capacity

Issues of concern and challenges
Employees
Value for money
RD&E
Relevance
Marketing
Unlocking opportunities

How we work with them
Face-to-face site visits
Program Advisory Committee (PAC) process
Monthly newsletter
National survey
Plant Initiated Projects Program facilitation
Industry steering committee

PRODUCERS
Farmers

Issues of concern and challenges
Animal welfare
Supply availability
Reliability
Climate change
Changing consumption
Economic sustainability
Trust in processing sector
Integrity systems
Provenance

How we work with them
Training courses
Joint projects
Cross-sector research initiatives

COMMUNITIES
Places where our members operate

Issues of concern and challenges
Economic benefits
Employment opportunities
Rural sustainability
Environmental pollution

How we work with them
Promotional activities and campaigns
Training and education programs
Scholarships
Economic significance demonstration

INDUSTRY BODIES
AMIC, RMAC, CCA, SCA, ALFA, ALEC

Issues of concern and challenges
Leadership
Competition for resources
Trust between bodies
Lack of strategic alignment
Industry fragmentation

How we work with them
General correspondence
Regular meetings and Statutory funding agreement
Cross-sector collaboration for innovation
Provide research for lobbying to government

RESEARCH PARTNERS
Universities and research institutions

Issues of concern and challenges
Clear direction
Funding
Ability to invest in long-term projects
Lack of long-term strategic relationships
Lack of engagement

How we work with them
Develop research projects and programs
Day-to-day management of project deliverables
Help extend research through presentations, publishable reports
Publication in research journals
Cross-sector research initiatives
Facilitation of research provider and member interactions

SERVICE PROVIDERS
Meat Livestock Australia & LiveCorp

Issues of concern and challenges
R&D
Extension
Marketing
Unlocking opportunities
Key industry risks
Funding
Member value

How we work with them
Plant Initiated Projects (PIP) Program
Joint programs
General correspondence
Cross-sector collaboration for innovation
Development programs
Collaborative Innovation Strategies Partnership Program (CISP)

CUSTOMERS
Wholesalers, Retailers – Major chains and butchers

Issues of concern and challenges
Quality
Consistency
Negative perceptions of red meat
Food Safety

How we work with them
Packaging
Shelf-life guidelines
Integrity systems and regulations
Assurance programs and certification

CONSUMERS
Domestic and international

Issues of concern and challenges
Nutrition
Food safety
Quality
Provenance
Value for money

How we work with them
MLA joint program
Marketing

BUILDING A SUSTAINABLE INDUSTRY

OUR APPROACH TO SUSTAINABILITY

1.
THRIVING COMMUNITIES
Through engagement, collaboration and a local focus, we earn our social licence to operate by helping to develop and maintain attractive communities to live, work and invest in.

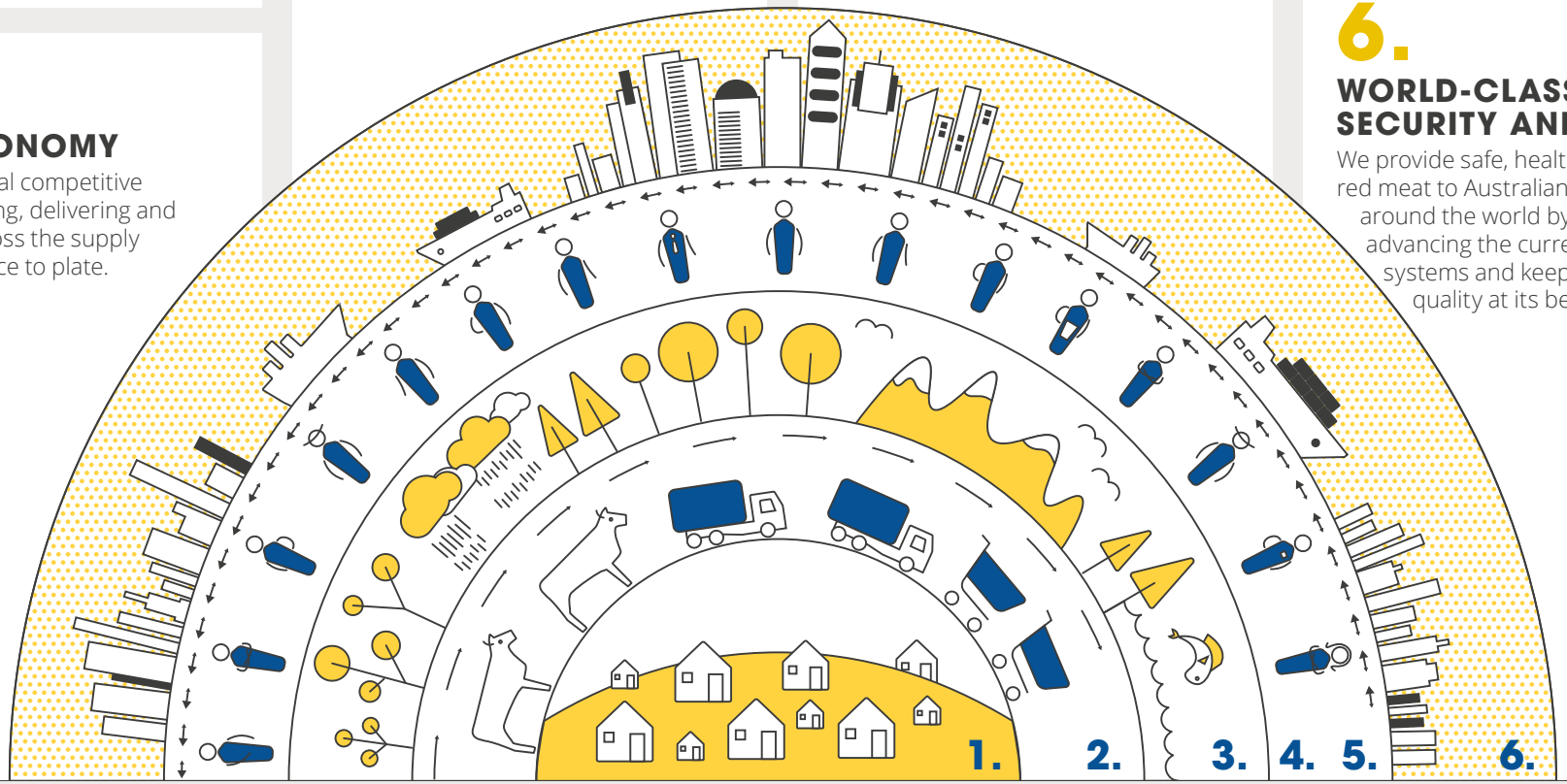
2.
VIABLE ECONOMY
We grow our global competitive position by creating, delivering and sharing value across the supply chain – from source to plate.

3.
BALANCED ENVIRONMENT
By paying special care and attention to the Australian environment, we protect it and use its resources in a careful and thoughtful manner.

4.
GOOD GOVERNANCE
We act in a responsible manner by respecting rights, being transparent and recognising our impacts.

5.
STRENGTHENED KNOWLEDGE TRANSFER
We seek to build trust and a more sustainable ecosystem by collaborating and sharing information, knowledge and skills.

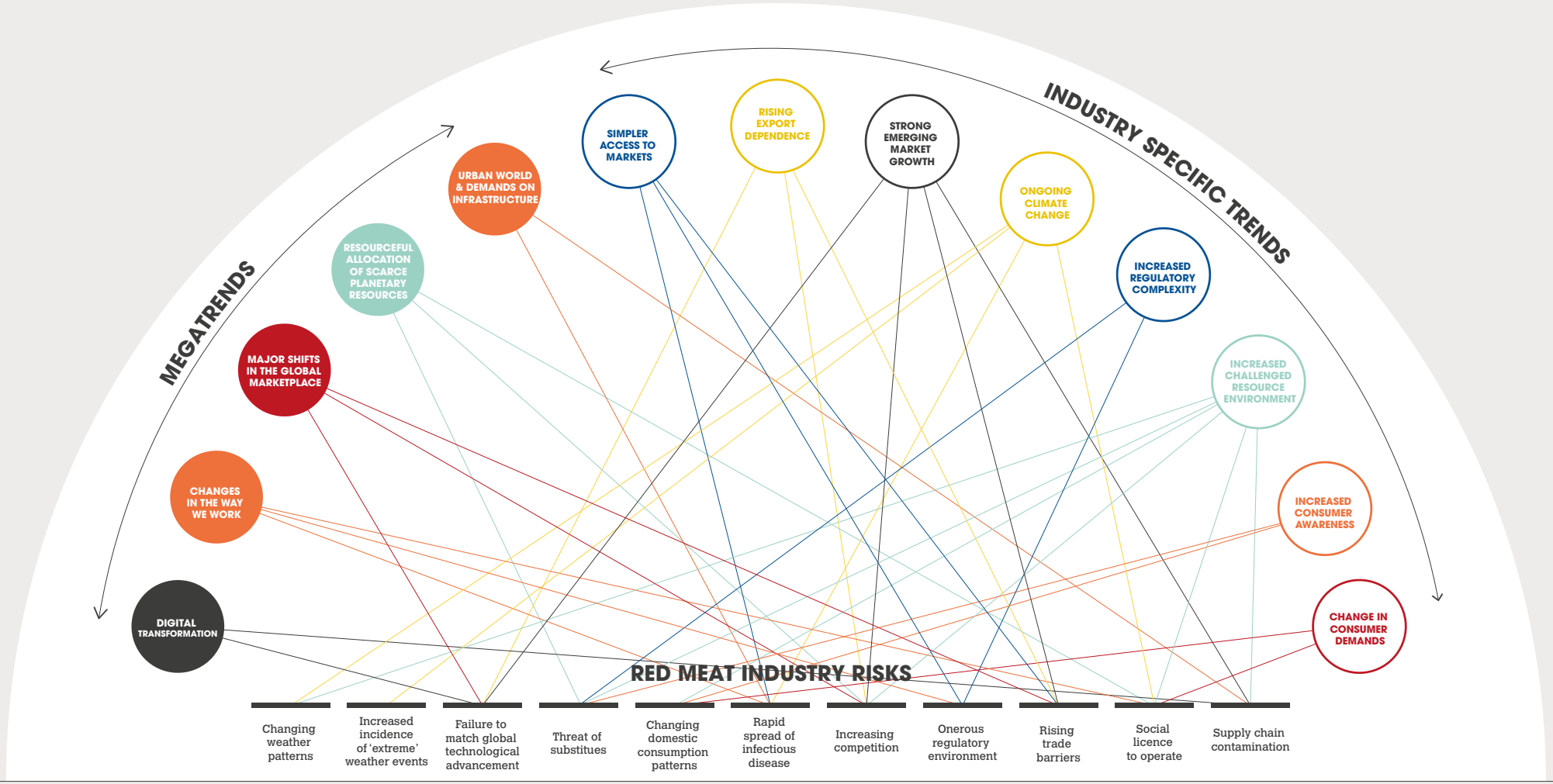
6.
WORLD-CLASS FOOD SECURITY AND HEALTH
We provide safe, healthy and nutritious red meat to Australians and people around the world by further advancing the current integrity systems and keeping meat quality at its best.



Our Industry | Building a sustainable industry | International Competition | Regulatory Environment | Consumption Patterns | Value Chain Integration | Social Licence | Climate Change | Investing in our future

OUR MATERIALITY PROCESS

For this year's materiality process, we worked with professional services organisation Ernst & Young (EY), whose desk-based research of the Australian and international red meat industries was supplemented by a comprehensive stakeholder survey. In collaboration with EY, we then developed a strategic document that clarified our purpose, examined the industry risks and how these were interconnected, as well as how they were impacted by the megatrends we had identified.



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KEY MATERIAL ISSUES

Once this work was completed, we were able to prioritise six key material issues that the processing industry needs to address. These are: international competition, the regulatory environment, changing consumption patterns, value chain integration, social licence to operate and climate change.

INTERNATIONAL COMPETITION

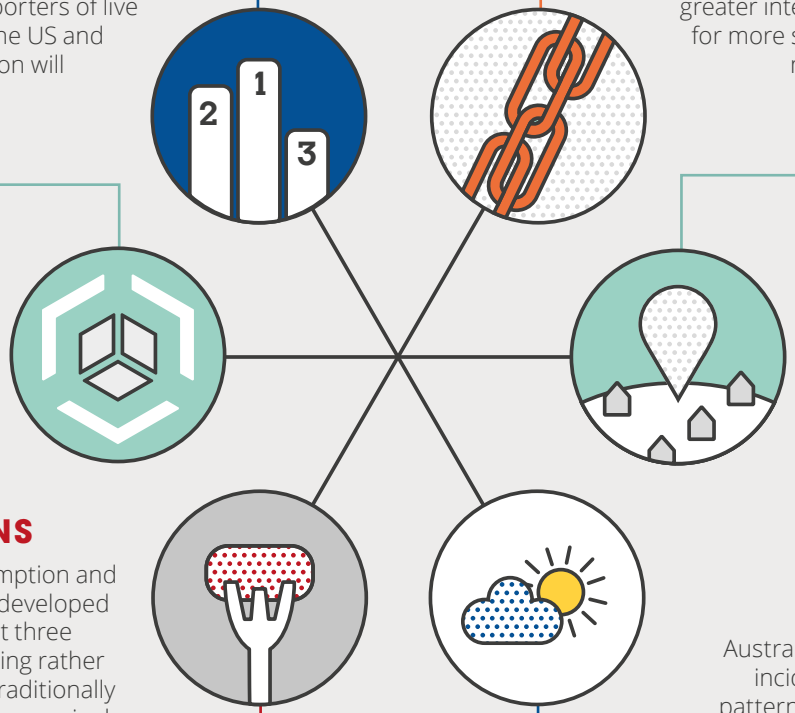
While Australia currently exports more than its peers on a relative basis, the industry faces substantial competitive pressures both domestically and internationally. Domestically, the sector competes with exporters of live animals. Internationally, it competes primarily with Brazil, the US and India for export markets. It is estimated that this competition will increase over the next five years, largely because of cost disadvantages.

REGULATORY ENVIRONMENT

The industry's value chain is highly fragmented. As a result, it is not well 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 alignment.

CHANGING CONSUMPTION PATTERNS

With an increased focus on "healthy" and "humane" consumption and greater demand for convenience foods, eating patterns in developed nations are undergoing substantial change. During the past three decades, consumers have turned away from red meat, opting rather for chicken and pork. Moreover, while red meat has been traditionally known for its quality and nutritional value, consumers are increasingly turning to substitutes that are both cheaper and easier to produce.



VALUE CHAIN INTEGRATION

Australia's red meat sector operates at a competitive disadvantage to those other red meat industries with greater levels of integration. Not only does greater integration reduce economic costs in the sector, it also allows for more sharing of information, better economies of scale, effective marketing and an ability to respond to customer demands.

SOCIAL LICENCE TO OPERATE

The Australian red meat industry's social licence to operate is derived from the regional communities in which it operates. The confluence of factors around animal welfare, environmental impact and healthy diets will likely place the industry's social licence to operate under a higher degree of uncertainty.

CLIMATE CHANGE

Australia is facing a changing natural environment with increasing incidences of "extreme" weather events and changing weather patterns that directly impact the industry. The increasing rate and severity of "extreme" climatic events may pose ongoing and regular disruptions to Australian production.

INTERNATIONAL COMPETITION

The impact of this issue on stakeholders inside and outside the industry.

Greatest impact

Stella Lee, Consumer and AMPC Industry Development Manager

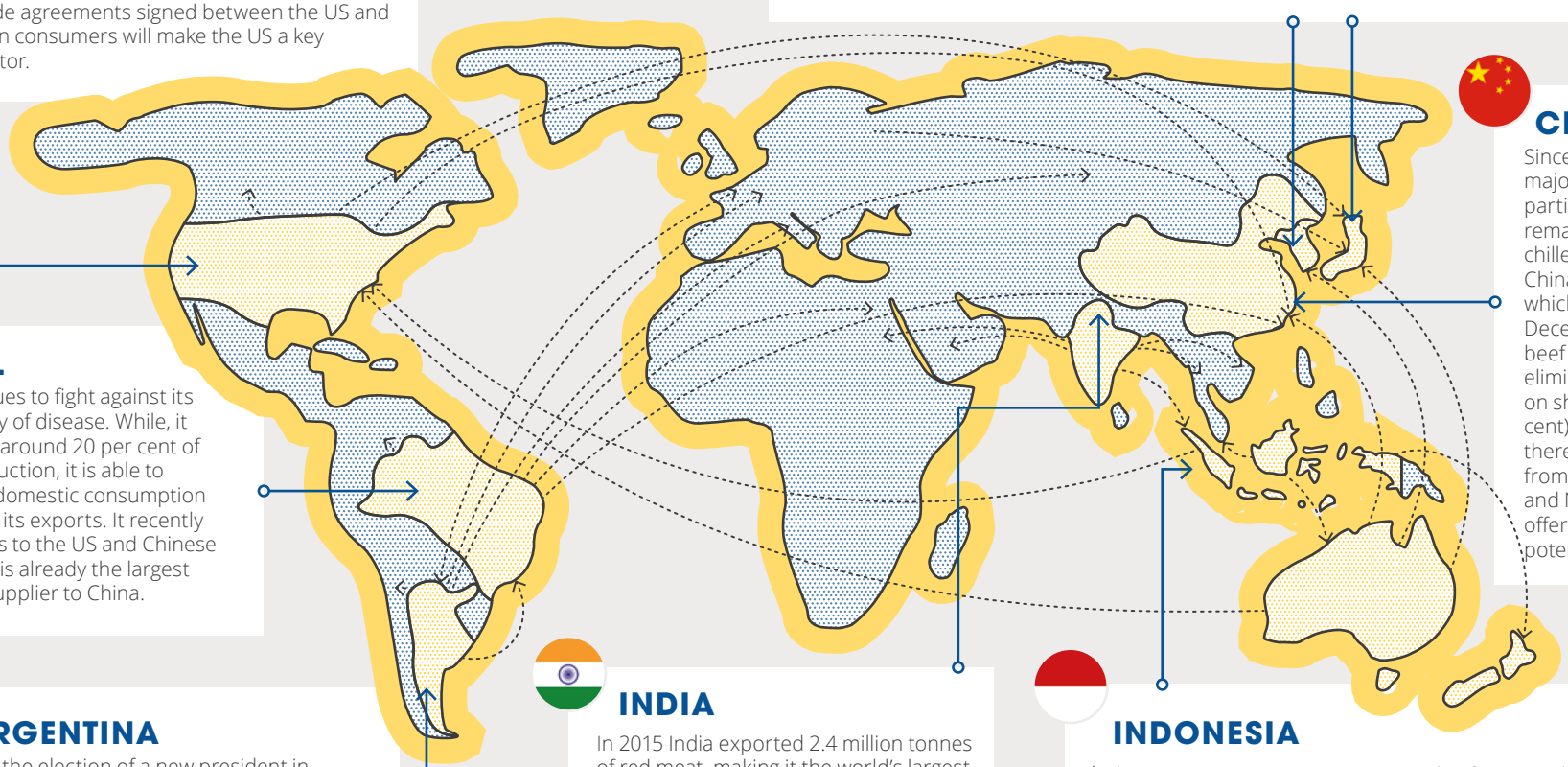
THE COMPETITIVE LANDSCAPE

USA

Despite the strong dollar, which is a significant constraint on US beef exports, the lifting of export blockades, lower processing and production cost, higher degrees of vertical integration and recent free trade agreements signed between the US and key Asian consumers will make the US a key competitor.

KOREA AND JAPAN

Since the 1990s the removal of quota controls in these two North Asian markets has seen the emergence of highly dependable demand for high quality chilled beef that has underpinned that sector of the Australian industry for two decades. They have continued as significant markets for Australian red meat products including growing demand for sheepmeats.



CHINA

Since 2013 China has become a major influence on trade flows particularly for Australia, which remains its sole supplier of chilled beef. Under the China-Australia FTA (ChAFTA), which came into effect in December 2015, tariffs levied on beef (12-25 per cent) are to be eliminated over nine years and on sheep and goat meat (23 per cent) over eight years and while there is increasing competition from South American countries and New Zealand, this market offers significant future potential.

BRAZIL

Brazil continues to fight against its recent history of disease. While, it only exports around 20 per cent of its beef production, it is able to quickly shift domestic consumption and ramp up its exports. It recently gained access to the US and Chinese markets and is already the largest single beef supplier to China.

ARGENTINA

With the election of a new president in December 2015 there is a renewed sense of optimism in the sector and Argentina is expected to once again become a major exporter of high quality grass-fed and grain-fed beef.

INDIA

In 2015 India exported 2.4 million tonnes of red meat, making it the world's largest exporter, though its product is largely low-quality and low-priced, with questionable sanitary standards.

INDONESIA

Indonesia is an important export market for Australia's red meat products. However, the Indonesian government has increasingly placed constraints on the import of beef and offal in favour of the live cattle trade and has also pursued a series of policies aimed at self-sufficiency. The newly negotiated Indonesia Australia Comprehensive Economic Partnership Agreement will hopefully provide new opportunities.

BACKGROUND

Australia exports 74 per cent of its red meat production to over 85 countries and is a recognised high-quality supplier to the world. Major markets include the United States, Japan, China, South Korea, Taiwan and the European Union. As a leading exporter, the future of our red meat industry is intrinsically linked to international markets and, in the face of rising export competition and shifting global demand, the industry will need to work hard to protect its position.

USA

While the US has experienced a steady domestic decline in red meat consumption since the 1970s, the lifting of export blockades has increased performance in markets such as Japan and Korea as those countries have accepted the international assessment of the US Bovine spongiform encephalopathy (BSE) status that now allows an open trade in red meat products. This has been complemented by recent free trade agreements signed between the US and key Asian consumers. These, coupled with substantially lower costs of processing and production and substantially higher degrees of vertical integration, will make US exports a key competitor to Australian red meat. The high value of the US dollar relative to its principal competitors such as Australia, New Zealand and Brazil continues to be a significant constraint on its beef exports.

Brazil

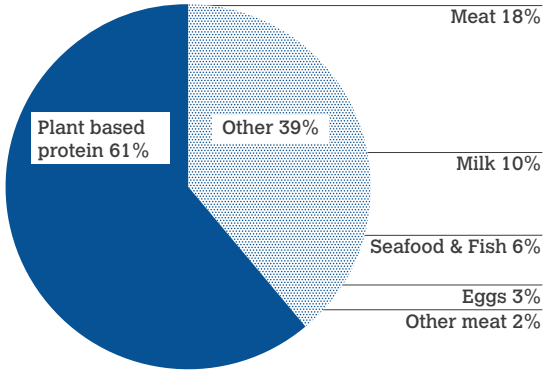
Brazil, like most South American countries, continues to fight against the recent history of foot and mouth disease, and against two more recent cases of atypical mad cow disease (BSE). It currently exports only around 20 per cent of its beef production but is able to increase exports quickly with just modest shifts in its substantial domestic consumption. It recently gained access to the US which will now provide the basis for arguing for similar access into other key export markets in Asia, especially Japan and Korea. Having only gained access to China last year, it has already become the largest single beef supplier to the market, reflecting its ability to have similar outcomes in other North Asian markets if it ultimately gains access to them.

China

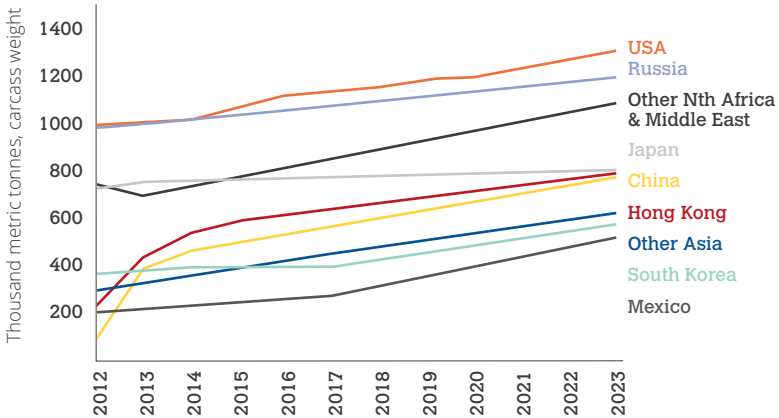
China exploded onto the international market in 2013 as a customer for imported beef and sheep meat products and quickly became a major influence on trade flows particularly for Australia. China's official beef imports rose 28 per cent by volume and 42 per cent in value in 2015. Prior to China's grey channel crackdowns of 2015, total imported beef was estimated to account for around 24 per cent of overall Chinese beef use with "official" imports accounting for only about 6 per cent of overall Chinese beef consumption. The current population of 1.4 billion is forecast to grow by 50 million people over the next 10 years, but it is the growing size of the middle class (66 per cent of the world's middle class is expected to live in China by 2030) along with urbanisation that remains a key driver of strong demand for imported red meat in the country.

The China-Australia FTA (ChAFTA) came into effect in December 2015 under which tariffs levied on beef (12-25 per cent) are to be eliminated over nine years. Tariffs on sheep meat and goat meat (now 23 per cent) are to be eliminated over eight years. While Australia remains the sole supplier of chilled beef to China, there is increasing competition from South American countries such as Brazil, Uruguay and Argentina along with New Zealand in the frozen beef sector. Despite these challenges, China offers significant potential into the future.

Breakdown of global protein consumption (Source: Riddet Institute, FAO)



Beef trade long-term projections (Source: USDA Agricultural Projections 2023)



Indonesia

Indonesia is an important export market for Australia's red meat products, taking 64,787 tonnes in 2015/16, made up of principally 54,503 tonnes of beef worth close to A$300 million. As one of the world's largest Islamic countries, it requires a dedicated halal certification program that also requires exporters with the market knowledge and capability to service its specific needs. The boxed beef trade to Indonesia has been an important market for halal certified beef and offal over the last three decades. Since 2000, Indonesian authorities have placed increasing constraints and red tape around the import of boxed beef and offal in favour of the live cattle trade which has significantly constrained overall import demand. The government has also pursued a series of self-sufficiency policies in the recent past which has acted to damage both the domestic and import beef industries. Indonesia and Australia have entered negotiations on IA-CEPA (The Indonesia Australia Comprehensive Economic Partnership Agreement) which will hopefully provide a new platform and framework for a more consistent and dependable red meat business in the future for this important growing market for Australia.

Argentina

Argentina's processing sector has had its difficulties over the last few years thanks to the policies of the previous government which sought, for political reasons, to place a tax on exports and increase domestic supply to try to lower consumer prices. With the election of a new president in December 2015 there is a renewed sense of optimism in the sector, particularly with respect to government support for expanding beef exports. Although beef production in 2016 is forecast to be 2.16 million metric tonnes carcase weight – the lowest level of production in four years due to the rebuilding of the herd – Argentina is expected to once again become a major exporter of high quality grass-fed and grain-fed beef.

India

In 2015 India exported 2.4 million tonnes of red meat, making it the world's largest exporter. However, its exports account for only 50 per cent of production and 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-red meat eaters – it's positioned to be an export competitor, though its product is largely low-quality and low-priced, with questionable sanitary standards. It is predicted that by 2020, Indian bovine slaughter will have increased to 40 million head (from 33 million in 2013).

Australia

The Australian economy remains a high cost environment in which to operate labour-intensive manufacturing facilities and the meat industry is not immune. Indeed, our processing costs are twice those of our competitors in South America and the United States.

But despite our high cost environment, the Australian red meat industry remains globally competitive because of the advantages provided by: our expansive pastoral lands; premier health and hygiene status around the world; the quality, variety and shelf-life of our product; and the ability, entrepreneurial skills and professionalism of our export sector to provide a consistent, customised product year round.

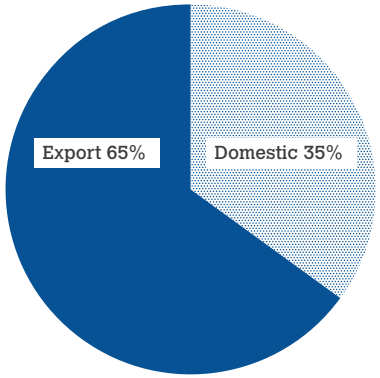
This position at the forefront of the international market has not been achieved without significant sacrifice, considerable cost and rationalisation of plant and equipment.

So what does the future hold? On the positive side, the quest to lower costs has encouraged innovation and the adoption of the latest technology in our processing facilities.

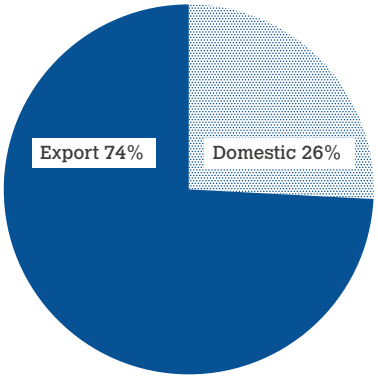
And while domestic consumption may be on the decline, in the past 40 years, per capita meat consumption in developing countries has risen by 150 per cent. Globally, animal-based protein consumption is expected to grow by a further 44 per cent by 2030. Asia, in particular, provides multiple opportunities for Australian exporters. Although we can't compete on price, our industry is recognised for producing disease-free and "clean and green" red meat. Our whole-of-life traceability and trace-back systems provide a level of confidence about the origins of our products that is important to Asian consumers and sets us apart from the competition.

Furthermore, we have entered into free trade agreements with Singapore, Thailand and Malaysia as well as with the ASEAN Group of

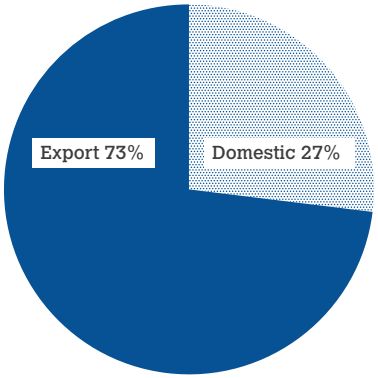
Domestic vs. import (Source: IBIS world meat processing in Australia industry report, Meat Industry Strategic Plan (MISP) 2020, Beef Central)



2014-15



2015-16



2016-17

10 South East Asian countries, all of which provide various tariff advantages. We are also one of the 12 participants in the Transpacific Partnership Agreement (TPP) – a Pacific Rim trade agreement that involves close to 40 per cent of the world gross domestic product.

On the negative side, government scrutiny into the consolidation of the red meat value chain and a backlash against foreign ownership of Australian agricultural land could pose a threat to processors' ability to compete on a capital basis. If higher levels of capital controls are placed on foreign ownership, the sector could suffer from a lack of large-scale investment in systems and processes, or potentially, investment by large Asian food processors who understand Asian markets, distribution channels, buying habits and consumer trends.

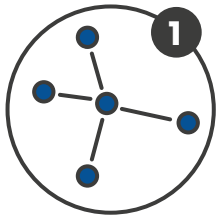
A further challenge for processors is the live export sector. Historically, processors have competed with each other to export chilled or processed products, but are now facing considerable competition from the live export sector. Moreover, the negative impacts of poor animal welfare practices in the live export sector, when they occur – and over which processors have no control – are felt by the entire red meat value chain.

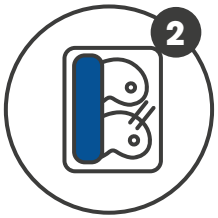
In 2015 the total value of Australian live cattle exports almost doubled from $750 million two years earlier, to close to $1.5 billion, thanks to the free trade agreements signed with Japan, South Korea and, most importantly, China.

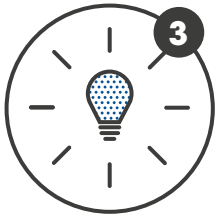
A break-down of the 2015 total live export statistics shows that the largest export region for Australia comprised Vietnam, China and Japan, followed closely by Indonesia. However, the recent free trade agreement between China and Australia will allow exports of up to one million head of live cattle to China annually, doubling the current total number of live cattle exported from Australia to all countries.

Supply constraints as a result of the competition from the live export sector, and a recent draw down of the size of the herd due to drought, are further exacerbated by the lack of loyalty between Australian beef producers and processors, which results in few substantial, long-term deals for cattle supply.

HOW WE ARE RESPONDING







To counter the challenges posed by international competition, we are making significant investments to improve the industry's cost structure and leading the way in evaluating and developing innovations and technologies that will ensure Australia remains at the forefront of red meat processing.

1. Comprehensive Internet of Things

This project aims to develop an Internet of Things (IoT) solution to improve productivity in meat processing plants. It will do so by introducing performance indicators to identify low productivity activities and to allow the better use of resources such as labour, electricity and water. It will also use IoT technology to monitor, visualise and deliver data to any device on the plant floor or beyond. This will give a real-time view of plant performance, allow for an immediate response, and provide data for longer term evidence-based process improvement. The data collected will also be used in a cost-benefit analysis for the proposed IoT solution and approach.

2. Integrated robotic picking and packing of primal cuts

Processing plants carry significant labour costs and WHS risks associated with the manual picking and packing of processed meat cuts. This project will design a prototype six-axis robot to pick individual cuts from a conveyor and place them in cartons. It will use an intelligent sensor network, developed in an earlier AMPC project, that captures and processes a 3D view of the packing environment in real-time to identify information such as primal cut type, position, and orientation. The result will be an autonomous robotic cell, capable of efficiently picking and packing primal cuts without the need for manual intervention that will match – or increase – the current packing rate, and reduce labour costs and overheads caused by lost-time incidents.

3. Provisional business cases to determine appropriate models for a world-class red meat processing Innovation Centre of Excellence

AMPC is evaluating the establishment of a world-class Innovation Centre of Excellence. The centre would develop the research and technical skills needed for the future, accelerate the introduction of incremental innovation and R&D and evaluate and develop disruptive technologies to ensure Australia remains at the forefront of red meat processing and product development. A feasibility study found significant support for the centre, strong guidance as to what focus areas would be of value to the industry, and the risks to be avoided, or at least, minimised. That study also identified a strong industry preference for a "hub and spoke" virtual model over bricks-and-mortar investment. A business case is being prepared to assess the investment merits of the various options associated with this preferred business model.

A SECTOR PERSPECTIVE

“Products that come from a safe source are attractive to international consumers, so that’s something we should be promoting.”

Stella Lee, Consumer and AMPC Industry Development Manager

“How do I think we should be promoting the Australian beef industry? Well, it’s a fantastic product. It tastes great because it’s grown in clean, green fields and processed with high-quality standards. It’s a safe product and you can trust it. Products that come from a safe source are attractive to international consumers, so that’s something we should be promoting. And I think generally that’s the way people do think about Australian products.

“Sure, ours is a high-cost market when compared with international competition. But there is a reason for that. We have strong labour laws that protect our workers. We have high standards of animal welfare. We look after our environment and have excellent sustainability programs. All this means we produce the best quality beef in the world.”

REGULATORY ENVIRONMENT

The impact of this issue on stakeholders inside and outside the industry.

Greatest impact

John Langbridge, Manager, Corporate and Industry Affairs for Teys Australia

OUR REGULATORY COMPLIANCE

All red meat processors must comply with relevant federal, state and territory government legislation and those who export their product must comply with additional regulations and importing country requirements. This is not only fundamental to securing market access, but also allows exporters to demonstrate the safety and integrity of our red meat products.

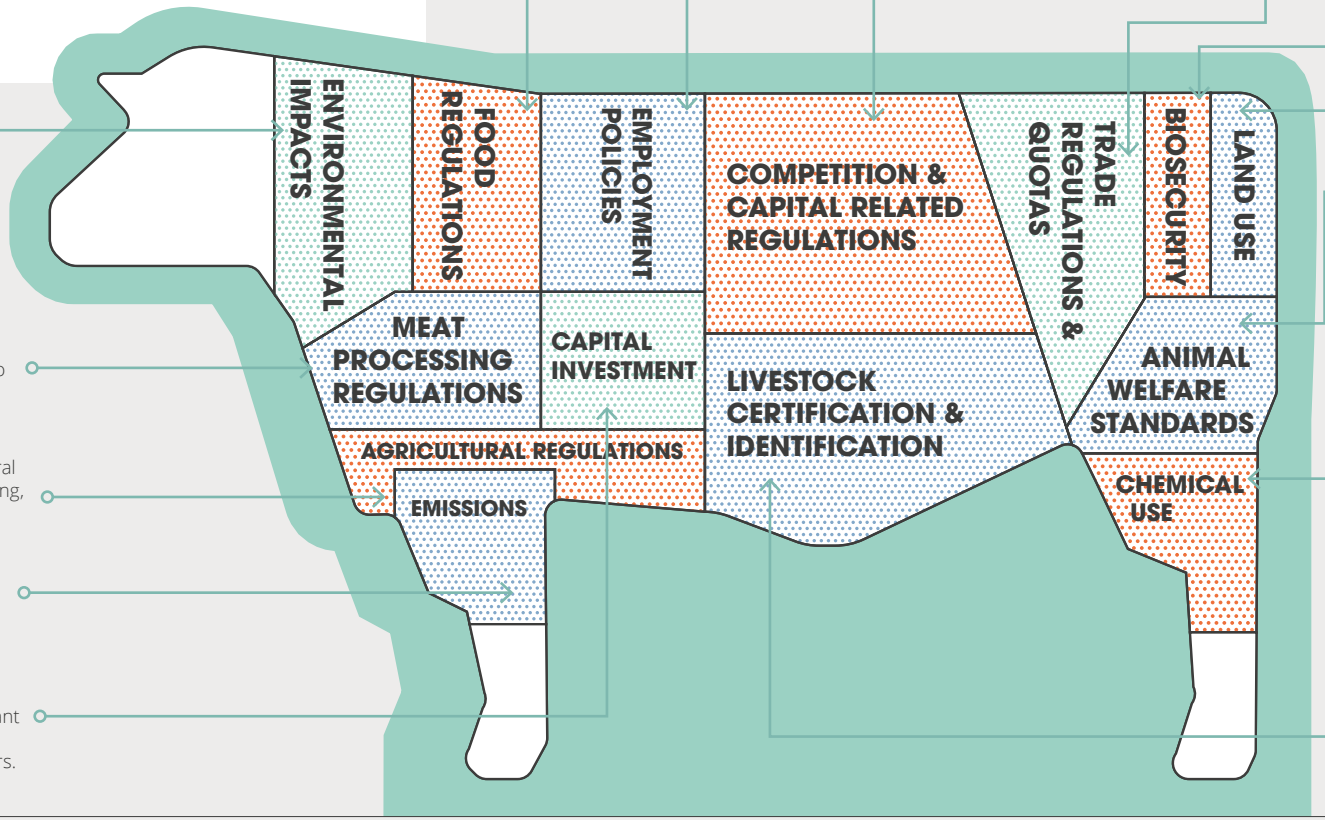
Food regulations
Rules and/or standards set by government to ensure food provided to consumers is safe and suitable.

Employment policies
Policies and complementary procedures implemented by companies to ensure they attract and retain committed, competent people.

Competition and capital related regulations
Competition regulations ensure individuals and companies compete in an open and transparent way and do not behave in a way that unfairly distorts the market. Capital regulations ensure companies retain enough capital or access to capital to mitigate against potential losses during downturns in the market.

Trade regulations and quotas
Trade regulations provide direction around how trade is conducted for both imports and exports. Quotas can be restrictions on the amount of products or particular products that may enter a marketplace.

Biosecurity
Measures designed to reduce the risk of transmission of exotic and non-exotic infectious diseases and pests, and invasive alien species of flora and fauna, in the natural environment and in crops, horticulture and livestock.



Environmental impacts
Effects on the natural environment caused by development, industrial activity, farming, building of infrastructure, or by the release of chemical contaminants into that environment.

Meat processing regulations
Regulations covering the activities involving the processing of animals into meat and value-added meat products.

Agricultural regulations
Regulations covering normal agricultural activities such as cattle breeding, grazing, cropping etc.

Emissions
In relation to agriculture, refers to the emission of chemicals into the air or water as pollutants.

Capital investment
Investments in fixed assets such as plant and equipment that are expected to produce income over subsequent years.

Land use
The management and modification of natural environment into built environment such as settlements and semi-natural habitats such as arable fields, pastures and managed woods.

Animal welfare standards
Regulated and voluntary standards describing how animals are to be treated in a humane and ethical way.

Chemical use
Agriculture and veterinary chemicals used in agriculture on the pasture that could be consumed by humans or animals, and on the animals.

Livestock certification and identification
Livestock identification is regulated by state authorities and requires that livestock are uniquely identified (cattle) or identified in groups from single farms (mob based – sheep and goats) and are traceable back to their farms of origin.

Livestock certification involves providing livestock that either meet minimum regulated standards or meet additional voluntary standards such as grass fed, organic "Angus". In most cases compliance with standards is verified by a different party to the one providing the livestock or by an independent testing process.

BACKGROUND

The red meat industry has faced increasing regulatory requirements at all levels of the value chain, from environmental impacts on primary producers through to effluent discharge for processors and rising health standards at consumer level. Anecdotal evidence suggests that the regulatory burden amounts to 19 per cent of processor costs. This increased regulatory intervention is likely to continue, with environmental legislation targeting the industry's high levels of carbon emissions and water consumption. Equally, as the Australian consumer is increasingly concerned about animal welfare and incidents of animal abuse, regulatory requirements for humane slaughtering and processing will continue to remain high.

Regulatory risks pose a particular challenge to the red meat industry because their impacts can be sudden and severe – and they are difficult to mitigate directly.

The government's 2011 ban on live cattle exports to Indonesia after a *Four Corners* program on animals being mistreated in Indonesian abattoirs, the 2012 refusal to unload 70,000 sheep in the Middle East due to infection and the 2016 ban on Murray Goulburn's milk exports to China are three recent examples of the regulatory complexity surrounding the red meat – and broader – agricultural industries. While loss of access to markets can occur for legitimate reasons, regulatory risks can be arbitrary, arising without notice, and with no clear finish date.

As demonstrated on page 20, the processing sector is subject to a wide range of regulations. The Australia New Zealand Food Standards Code is applied through state and territory regulation to processors across Australia and includes food safety requirements for programs, practices, premises and equipment.

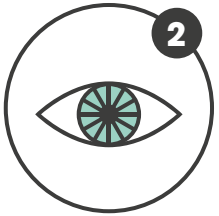
All processing establishments must also meet the *Australian Standard for the Hygienic Production and Transportation of Meat and Meat Products for Human Consumption*, which is enforced by state and territory governments, and harmonises standards for the production and transport within Australia of all meat and meat products, whether for domestic use or export. The standardised treatment of health and hygiene issues in Australia is consistent with the principles and objectives of world standards, as defined by the Codex Alimentarius.

In addition to domestic regulations, the Department of Agriculture and Water Resources uses regulation to verify that establishments processing red meat for export meet importing country requirements. For example, the *Australian Meat and Live-stock Industry Act 1997* provides the department with the power to grant export licences and administer export quota arrangements. *The Export Control Act 1982*, also administered by the department, allows goods to be exported subject to conditions specified in the legislation.

This Act provides the department with the authority to inspect goods, premises and records, sample and assess export consignments, require conformity with importing country requirements, register premises for export and issue export certification.

As a sector that is heavily regulated at a national and international level, the red meat industry has established a range of bodies to represent the interests of participants at each point in the value chain (see page 6). While this approach has been broadly successful in the past, the lack of specific industry-wide focus and advocacy means that in a heightened regulatory environment, participants face an increased risk of failure.

HOW WE ARE RESPONDING



Responding reactively to regulatory risks typically results in little real impact. Focusing on proactive engagement and advocacy with key political, legal and government stakeholders provides the sector with the ability to better influence the changing regulatory environment. To this end, we are undertaking research to investigate options to reduce regulatory duplication and improve effectiveness and working with regulators to build awareness of industry practices and systems. Major projects underway include:

1. Process control monitoring – is there a better way?

Meat testing has become an onerous and expensive task for all establishments. But it provides little or no information on process control or food safety. This project will examine process control and food safety as it applies to the Australian meat industry in 2016. It will start with a clean slate, though with the benefit of solid scientific background information on the industry, and data from studies and years of mandatory rigorous testing. The data will be analysed and then strategies identified to improve regulator awareness.

2. Identifying strategies for regulator awareness – development and delivery models

This project will develop and deliver two workshops on industry systems and practices (including food safety and meat quality) for regulators. The three-day workshops aim to build awareness of the industry's practices and systems, including in the area of food safety and meat quality, and of the operating environment. Increased awareness among regulators will provide them with the knowledge to make policy decisions that are cost efficient, viable and complement existing industry and commercial requirements, systems and practices.

3. Development of economic model for analysis of regulatory and related costs and duplication in red meat processing

This substantive project has two stages. Stage 1 comprises an economic analysis of the costs of audit and certification, and policy analysis to generate options for reducing duplication and improving effectiveness. It will use an economic impact model developed for the AMPC and based on a set of cost and revenue data provided by processors over the past 15 years. It will also develop sub-models to assess the potential benefit to the industry, and the broader economy, of regulatory and quasi-regulatory changes to industry audits and export certification. Stage 2 comprises an international cost comparison analysis. It will update the Australian processing cost data to enable real-time comparison, expand the coverage of the data to include key processing cost items, in addition to the regulatory costs previously analysed, and then extend the geographic coverage of the data to the USA, Argentina and Brazil. It will also develop an international cost comparison model which will enable key components of processing costs in four countries to be analysed, using both public and private data sources. This will help support public policy and commercial cost-reduction initiatives. Processors will have a significant incentive to provide data to the project, as those providing a full set will receive an individual report comparing their costs with Australian and international country averages. This approach has proved successful in encouraging participation in a current project being undertaken by the AMPC.

AN INDUSTRY PERSPECTIVE

“Interestingly consumers are becoming tougher regulators around things like food safety than the government could ever be.”

John Langbridge, Manager, Corporate and Industry Affairs for Teys Australia

“The regulatory system in Australia is fairly complex. That’s not necessarily a bad thing, but it needs to be simplified and a lot of the duplication removed.

Consumer demand is changing rapidly. Interestingly consumers are becoming tougher regulators around things like food safety than the government could ever be. So more government recognition of the commercial systems being developed to satisfy consumers would be a useful way that government could keep pace with the change. On our part, we need to work with the regulators, so they understand the commercial environment better.

At Teys our sustainability program covers a wide variety of issues – not simply cattle supply. It’s about our environmental footprint and how efficiently we use energy, how we recycle the materials we produce, look after workers both in terms of health and safety and their ability to sustain their lifestyles, and the way we look after animal welfare. All of these programs are independently audited by entities that specialise in these areas. For us, that puts out a good message about our practices and products.

Sustainability is an area that is rapidly evolving and most of the industry is keen to comply. Operating sustainably is the best place to be, and we need to get there before consumers start demanding more of us. If we get there first, then we tend to do it on our terms rather than having it forced upon us.

Essentially, it’s a matter of producing meat that consumers are willing to pay good money for. What this means is moving sustainability into all areas of the business and through the supply chain. One of the problems we currently face in the supply chain is that we all have different expectations around the quality of the goods being produced. So one challenge for us is to better align those expectations.

A good place to start would be to produce a thorough analysis of the value of the entire red meat chain to the Australian economy. It should include a detailed economic study of how many jobs it supports – not just directly in the processing and farming sectors but indirectly in the towns in rural and regional Australia that the industry supports. Then, we use that information to talk to politicians, consumers and suppliers so that everyone understands why it is so important that we look after this industry.”

CHANGING CONSUMPTION PATTERNS

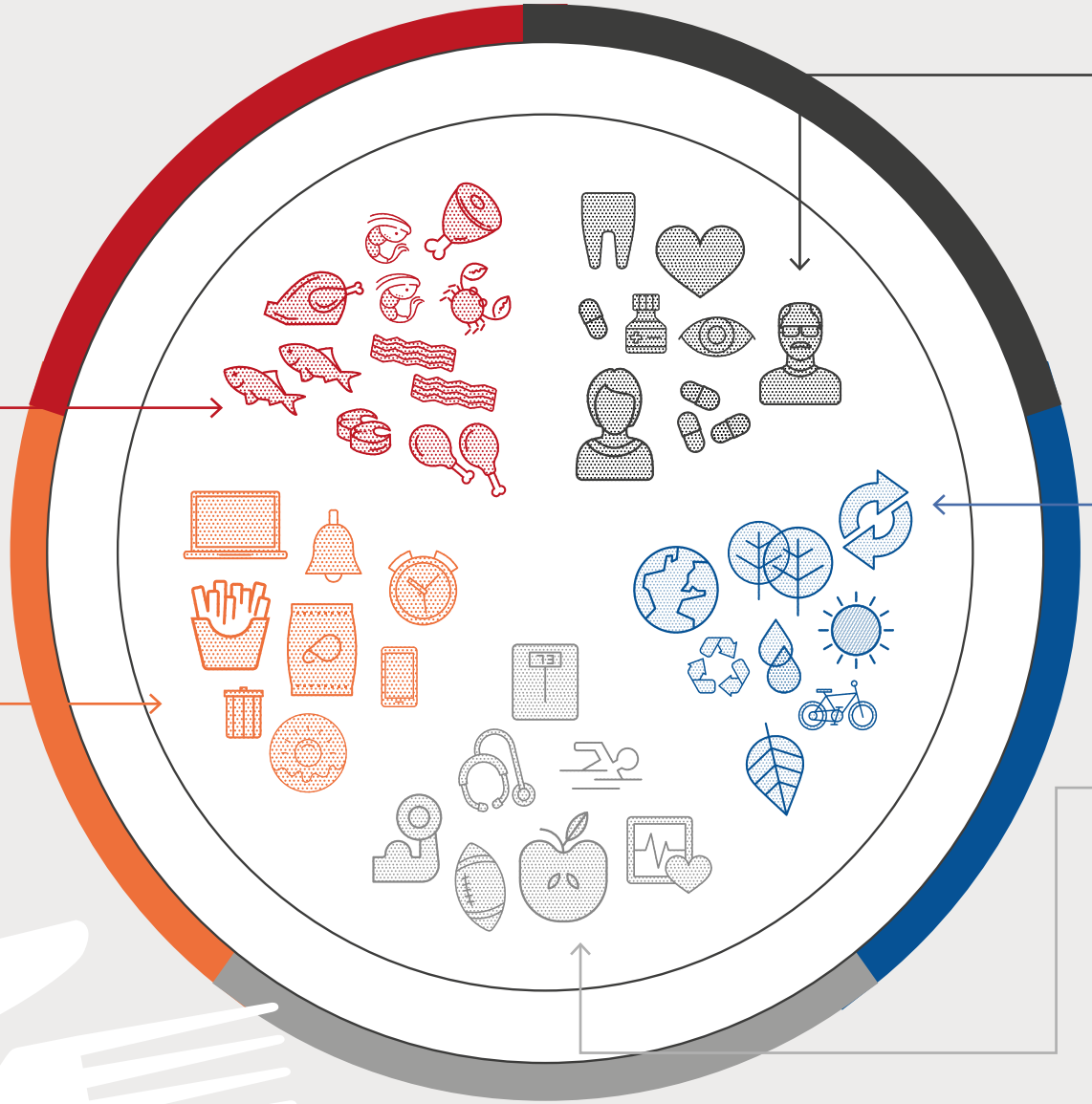
The impact of this issue on stakeholders inside and outside the industry.

Greatest impact

James McNaughton, Owner, Knights Meats & Deli, Wagga Wagga

THE CONSUMER LANDSCAPE

The consumer landscape is changing. In Australia, cheaper, more readily available substitutes, health and environmental concerns about meat, an ageing population and convenience are steering consumers away from the traditional 'beef-centric' diet of the past.



PROTEIN SUBSTITUTES

Chicken, pork and seafood have gained popularity at the cost of red meat, largely because of changes in prices and consumer preferences.

QUICK AND EASY

Ninety per cent of the Australian population is urbanised, and many people lead time-poor lifestyles. But a lack of ready-to-eat red meat products indicates a potential market of which the red meat industry has not yet taken full advantage.

AN AGEING POPULATION

In coming decades, more and more Australians will be in the elderly demographic, a category who typically consume less meat than younger adults. In 2014, people over 65 made up around 14 per cent of the Australian population. If current trends continue, by 2030 almost one fifth of the Australian population will be over the age of 65. By 2060 they will make up about one quarter.

CLEAN AND GREEN

Better access to information has seen a rise in environmental awareness among consumers. The Australian organic food industry is currently valued at $1.7 billion and has grown at an annual rate of 15 per cent since 2009.

HEALTHY ALTERNATIVES

In an increasingly connected, well-informed and health conscious society, demand for red meat will continue to fall as long as consumers associate it with health concerns.

BACKGROUND

In the past four decades, Australian domestic consumption of beef and veal has halved. Today, beef and veal jointly account for only about 30 per cent of overall meat consumption.

As well, in the past 20 years, retail beef and lamb prices have been consistently higher than those for pork and the price of chicken has remained consistently lower, thanks to a vertically integrated industry and a price war conducted by Australia's retail duopoly. Pork and chicken have a protein content similar to red meat, so they can be served readily as a substitute at a lower cost. Consumption of fish and seafood has increased, but its impact on beef sales is not as significant as chicken and pork because of its higher cost.

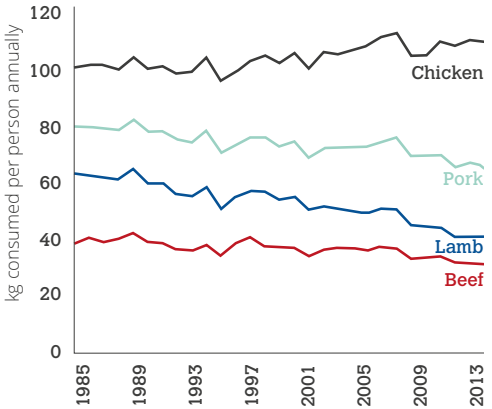
Older people typically eat less meat than younger adults. Recent research into healthy ageing revealed consumers over 65 were cutting down on red meat due to health and functional concerns, like ease of chewing and swallowing. A further motivation for elderly people to eat less red meat is the associated high cost. Again, recent research indicates that retirees on a fixed pension with lower disposable income are less willing to buy what they perceive to be luxury goods like red meat.

And it is not only older people who are eating less red meat. In an increasingly connected, well-informed and health conscious society, demand for red meat will continue to fall as long as consumers associate it with health concerns. In addition, more non-meat substitutes, such as soy, tofu and whey-based protein shakes, are now available. Many people see these products, especially when taken in tandem with supplements and vitamins, as providing similar nutritional benefits.

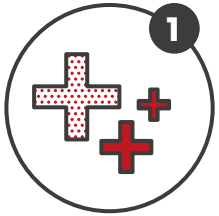
A growing interest in food provenance and environmental sustainability accounts for the increased popularity of organic food. The Australian organic food industry is currently valued at $1.7 billion and has grown at an annual rate of 15 per cent since 2009. The term "organic" in the beef industry implies that cattle are free of pesticides and genetically modified inputs, and have been grass-fed in a natural, spacious environment.

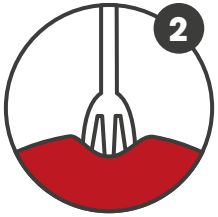
Also on the rise in our time-poor and highly urbanised society, is consumer demand for convenience foods, such as ready-to-eat meals. To date, the red meat industry has offered a relatively poor variety of products in the convenience food line and has yet to capitalise on opportunities that the poultry industry has, with its roasted take-away chickens that are found in most supermarkets across the country.

Australian meat consumption



HOW WE ARE RESPONDING





"For the red meat industry, taking no action to these changing consumption patterns is not an option."

For the red meat industry, taking no action to these changing consumption patterns 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. To this end we are undertaking research that will allow us to develop products to suit the demand requirements of the ageing population. We're participating in the "healthy" consumer discussion, investigating how we can provide consumers with clear and consistent branding that clarifies how the meat was raised and processed and exploring new and innovative ways to develop value-added products. Major projects underway include:

1. Value adding

Earlier AMPC projects uncovered a large and unmet demand for biomolecules derived from Australian bovine tissue/blood and manufactured here. Contact was made with a large number of companies that operate within the supply chain including red meat processors, raw product manufacturing (also called value adders or manufacturers) and the "end users" or those groups able to place orders for value added products, including Australian nutraceutical companies and specialty food/commodity suppliers. In this project an industry working group will review findings to date and select biomolecule(s) for further commercial development with a view to boosting the demand for Australian-derived-and-manufactured value-added products. Commercial development works have been designed to meet the requirements of potential off takers. The short list of biomolecules for which there is interest at the raw product manufacturing and/or retail level are: chondroitin sulphate, collagen, IgG protein crude extract as a food supplement and for immunity boosting, crude enzyme protein fractions and pure enzymes from pancreas tissue.

2. Accelerated tenderisation of red meat for raw meat and food services applications

From a consumer's perspective, tenderness is one of the most important qualities sought when buying meat. Due to intrinsic differences in connective tissue, protease levels and rigor shortening in different muscles, and animal factors such as genetics, HGP treatment and pre-slaughter stress, consistent delivery of tender, juicy meat products is an ongoing challenge for the meat industry. In addition, meat ageing for tenderisation purpose is a complex biological process and optimising the ageing conditions is time and labour-intensive. Beef generally requires a minimum of five days' ageing to assure tenderness, although meat from some animals can require up to 14 days to reach acceptable levels of tenderness. The ageing process also presents challenges in storage space, power and a slower turnover of vacuum-packed primals (large sections of the carcase). So accelerating the ageing process is of significant interest for the meat industry. This project will explore, in collaboration with a meat technology centre in Ireland, emerging technologies to shorten and control the ageing process. The intended outcome is new knowledge on how to combine technology to produce consistently tender meat for fresh, ready-to-eat and food service outlets.

A RETAILER'S PERSPECTIVE

"We have a generation of consumers coming through who don't understand that the way you cook or carve a product can give a negative result and make it tough or lacking in flavour."

James McNaughton, Owner, Knights Meats & Deli, Wagga Wagga

"We have a response board at the front of our shop, where customers can tell us what they want. Consumers are definitely driving the trends in the red meat industry and causing retailers and processors to respond not only with the right products, but with the information that backs them up, which I think is a great thing.

Dealing with meat on a daily basis as I do, the response I'm seeing from consumers is more emotional these days; so things like free range, animal welfare, the RSPCA scenarios. . . definitely have an influence – and more so than the organic factor. In beef, it's grass-fed and verified grass-fed programs that have been a focus of late.

There's also definitely more of a focus on convenience. I guess it's a reflection of people's lack of time and among the younger generation not having the knowledge of the various cuts of meat and how they're cooked.

Apparently, older people are eating less meat. I'm not certain if that's the case. They are certainly more spend-conscious. Having a commercial kitchen as part of our deli is helping us out there because we're actually selling them ready-to-eat meals rather than them buying small portions, which they have to pay a premium for.

We've seen a definite trend away from the traditional Sunday oven roast. Current trends of cooking meat would definitely be towards slow cooking. New products? Offal, such as beef cheeks. I know you probably wouldn't consider it as offal but it is. Do I understand why it's popular? Maybe it's because we now have more consumers from foreign backgrounds. We have a lot more Asians shopping here because they're employed by the local processor. The overseas demand for offal is high too, so local customers have had to start paying a lot more. Generally, people born overseas have a different focus on meat products. They do a lot of boiling, for example, so they look for products appropriate for that.

From a retailing point of view, the movement away from red meat is a reflection of price. And that's being forced by lack of supply and increased demand in domestic and export markets. To counter this problem, the industry needs to inform consumers about its value, get them to understand how good the Australian product is and that we're paying good prices for meat because we have competition from overseas consumers who're willing to pay for our quality product. I was a farmer previously. Historically, we've paid low prices for meat, and I'm certainly hoping for the sake of primary producers that it never returns to those low prices again.

And here's another consideration. There are no programs run by any farming bodies or processors that educate consumers about each cut and the optimum way to cook and use it. This is even more important now that we have a generation of consumers coming through who don't understand that the way you cook or carve a product can give a negative result and make it tough or lacking in flavour.

So in our business we do it ourselves. We educate our customers via our website and Facebook page on how to choose and cook meat, to not only make a better sale, but also to ensure that they have a really good experience."

VALUE CHAIN INTEGRATION

The impact of this issue on stakeholders inside and outside the industry.

Greatest impact

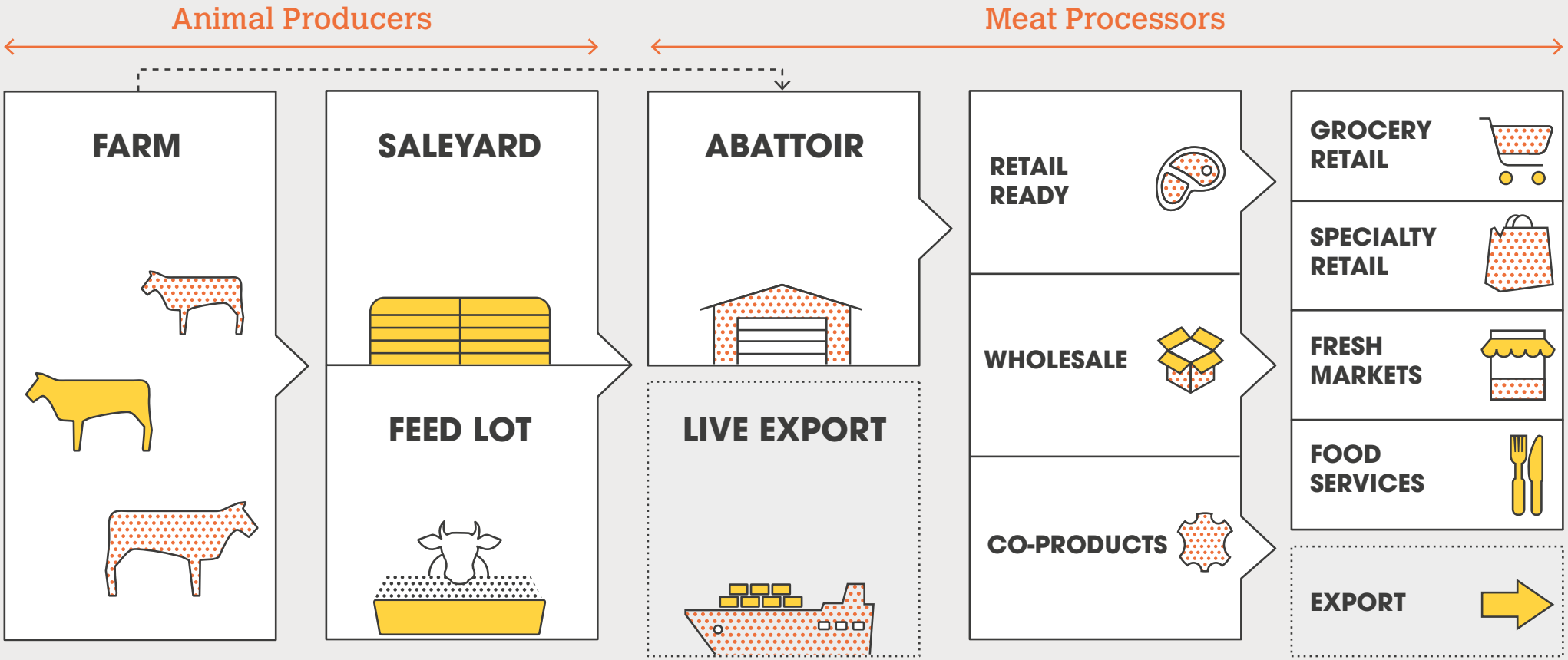
Tony Madden, Madden's Refrigerated Transport, Harden

THE RED MEAT VALUE CHAIN

Animal producers can be divided between northern and southern producers. Generally, the latter run smaller herds in more intensive family-run operations, while large cattle companies in the northern zone typically own a number of environmentally diverse properties, allowing them to move stock and minimise climatic risk.

Red meat processors trim and prepare beef, sheep and goat carcases, which are graded for colour, tenderness, fat, age, sex and bruising according to AUS-MEAT standards.

Each carcase is weighed and branded and the weight is used to calculate how much farmers are paid.



BACKGROUND

To integrate the value chain and bring down production costs, the industry's culture must change. Each component of the value chain must understand that to become more competitive both domestically and internationally, and to ensure the red meat industry's long-term sustainability, a collaborative approach is crucial.

There are many players in the red meat industry in Australia. But it's an industry that is highly fragmented and disconnected, with each player in the value chain seeking to capture a margin, thereby driving up production and delivery costs.

The key reason for this fragmentation is the chain's structure and the relationships within that structure. From producer to processor and through to the retailer, the number of companies within each component of the chain diminishes dramatically. For example, there are around 71,000 beef producers supplying product to around 100 processors, of which four dominate the market.

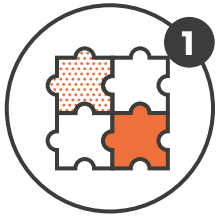
On the one hand this gives processors a competitive advantage in ease of accessing suppliers. On the other hand, few relationships are based on loyalty. As is typical in a fragmented value chain, there is a lack of information sharing (since the absence of information can be capitalised on to capture profit at the expense of participants higher or lower in the chain), as well as low levels of trust, and cooperation. The lack of trust was highlighted in the 2015 Australian Senate Rural and Regional Affairs and Transport Committee's investigation 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 beef supply chain.

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. And just as the number of producers vastly exceeds the number of processors, the retail component of the value chain is equally mismatched and dominated by Coles and Woolworths. The two supermarkets ultimately represent the dominant power in the chain and have a large say in dictating price. Both producers and processors are price takers and are co-dependent on each other.

In addition, economies of scale are rarely captured and data that might help to boost productivity gathered by one company is not necessarily shared with others. So, for example, a large number of processors will gather data in relation to genetics, but will not share it, because they fear larger companies (such as retailers) may use the information to lower the price of beef. Yet collaboration in the industry would give members of its component parts an opportunity to share costs, work together on supply contracts, improve sustainability, identify and correct areas of inefficiency and discuss mergers and acquisitions to become more vertically integrated.

Generally, industry players in Australia only operate in one sector, rather than extending their operations to multiple parts of the chain.

HOW WE ARE RESPONDING



To demonstrate the benefit of collaboration and to facilitate discussions and build trust between producers and processors we are funding research to investigate options for a coordinated supply chain information system. The project currently underway is an:

1. Investigation of options and development of models for industry supply chain information system standards and programs.

This project is following a similar method to the one currently being undertaken by the AMPC and MLA, which is scoping and developing standards for the capture and reporting of animal health data. This supply chain information project will review existing regulatory and commercial requirements, systems and practices. It will look at other industries' supply chain systems to identify efficiencies that may be available to the red meat industry, such as that of the grocery industry, and develop viable models. It will then develop an industry standard and provide a model and framework to move the industry from its current fragmented supply chain information system to one that is more coordinated. Finally, it will deliver workshops on the new standards that are developed.

A TRANSPORTER'S PERSPECTIVE

"Transport is one big issue that causes a lot of grief."

Tony Madden, Madden's Refrigerated Transport, Harden

"The relationship between producers and processors is a fairly strained one. I think that's because the producer feels he's being squeezed because of the inefficiencies of the processor. He thinks that the processor should be able to straighten and tidy these efficiencies up. And I agree. I think they should.

Transport is one big issue that causes a lot of grief.

For example, processors' sales people will commit to having product with the customer, say, tomorrow. The result is that trucks are running up the road with very light loads, nowhere near full capacity, which makes transport very expensive.

When we run with half loads or part loads, we get paid the same money because we've got to charge a load rate for that distance. We don't have an opportunity to put any other product on the truck because it has a seal on the back door and we can't open it until we get to the first drop. So, processors essentially pay big money for half the amount of product. I've seen it getting down to as little as four and six pallets on a 22-pallet truck. That's just inefficient.

Producers are being squeezed because of other people's inefficiencies, really, because they're copping the fees at the other end in the price that he's being paid for his cattle. They must be able to see that processors are doing everything possible to process as cheaply as they can to give them maximum return on their money.

The other thing I typically see is a scenario where, for instance, cattle grown in the Harden area are about to be processed at Wagga Wagga. Then all of a sudden a decision is taken to kill at Tamworth. And the grower has to cart the cattle all the way to Tamworth for no extra compensation for the freight. Yet Wagga is virtually on his doorstep. Inefficiencies like that cost producers a lot of money.

Then there's product transported off to cold stores, which just sits there. Now cold stores certainly do not add value to a product, because it's got to be frozen, and the longer it sits there, the less valuable it becomes. I've seen abattoirs cart product off to a cold store, place it in their freezer, then bring it back to the plant to be loaded into a container. The cold store is halfway to the wharf, but they've turned around and carted it back again to load it into a container. Again no efficiency there.

Changing the culture of the industry? It's got to be the processors who do that. And transport efficiencies would be a big start. And it's not just road transport. Abattoirs have rail sitting right next to their plants, yet you'll never seen a container leaving there by rail. It's a national problem. And it's crazy, absolutely crazy."

SOCIAL LICENCE TO OPERATE

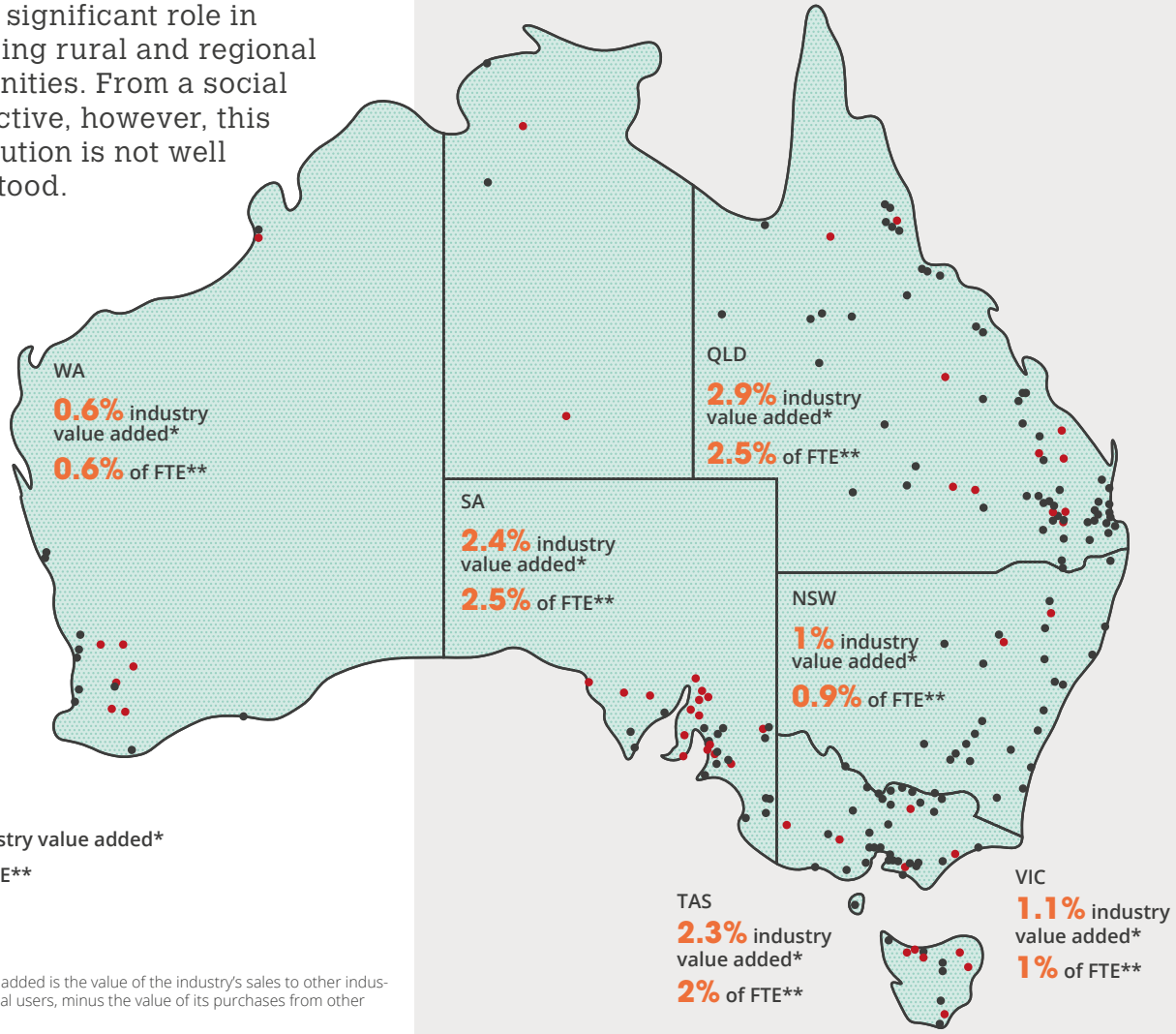
The impact of this issue on stakeholders inside and outside the industry.

Greatest impact

Pennie Scott, small-holder farmer, food activist and author of the Bush Goddess blog

OUR ROLE IN THE COMMUNITY

The meat processing industry plays a significant role in sustaining rural and regional communities. From a social perspective, however, this contribution is not well understood.



Australia
1.5% industry value added*
1.4% of FTE**

* Industry value added is the value of the industry's sales to other industries and to final users, minus the value of its purchases from other industries

**Full-time equivalent (FTE) employment

Source: Australian Bureau of Statistics Commonwealth of Australia 2016

BUTCHER

Average income
36,630
47,438

Number of employees
867
15,921

ABATTOIR PROCESS WORKER

Average income
36,359
40,954

Number of employees
5,961
17,241

MEAT PACKER

Average income
34,581
32,935

Number of employees
4,358
2,554

SLAUGHTERER

Average income
36,800
48,165

Number of employees
199
2,354

MEAT BONER & SLICER

Average income
39,347
45,663

Number of employees
1,478
6,443

MEAT INSPECTOR

Average income
49,275
68,097

Number of employees
106
575

Key

- AMPC MEMBER SITES
- NON MEMBER SITES

WOMEN
MEN

% contribution of red meat processing operations to state economy (including flow-on effects)

BACKGROUND

The processing industry's significant contribution to regional towns and their communities – and to the Australian economy as a whole – is not widely recognised. In recent times, the challenges the industry faces in attracting employees have been exacerbated by social licence issues such as food security, environmental footprint and animal welfare.

Food security

Up to one third of the world's arable land and almost 70 per cent of its current global agricultural space is dedicated to livestock or producing feed for livestock. From a food security perspective, this reflects a high percentage of land use, particularly given that calculations show halving world consumption of grain-fed meat could feed two billion more people. Although much of our meat is produced from grass-fed stock, there is no doubt that questions of global food security and scrutiny of the use of land resources is gaining the attention of certain sections of the population. Red meat is several times more feed – and therefore land and water – intensive than almost all of the other major food sources. Indeed, one hectare of land can support 78 times more food in the form of vegetables than beef.

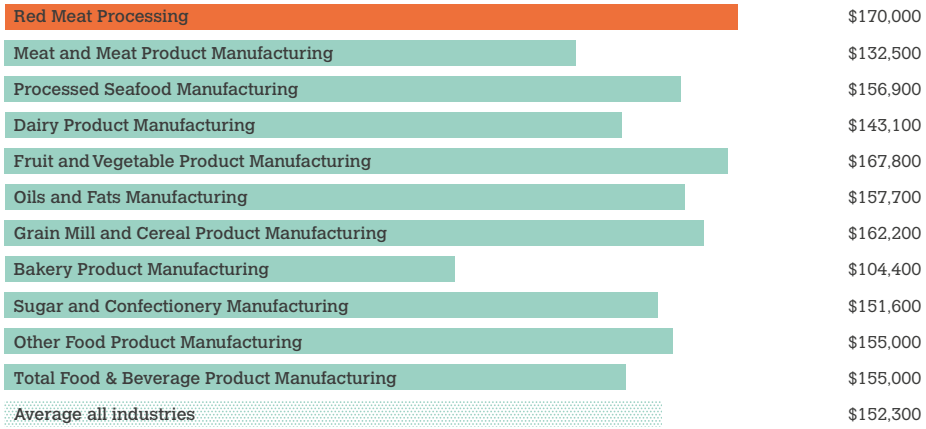
Environmental footprint

Degradation issues are affecting an ever-increasing proportion of agricultural land across Australia. Soil acidity impacts an estimated 50 million hectares, and the rising threat of soil salinity has seen several strategies implemented for prevention purposes. However, these preventative measures – trees, crops, pastures and fodder plants being planted, land fenced from grazing, levees and drains being constructed – reduce feed production and the availability of drinkable water for stock. Grazing takes up nearly 60 per cent of the Australian continent. Clearing of forests and bush land for grazing and animal industries has resulted in habitat loss throughout Australia, which is the major cause of wildlife becoming threatened, endangered or extinct. The number of animal species in Australia is declining at a higher rate than that in any other country except the US, and the biggest contributing factor is land clearing for animal pasture.

Top five industry sectors impacted by the red meat processing sector in terms of FTE employment are:

- Agriculture, forestry & fishing
- Transport, postal & warehousing
- Professional, scientific & technical services
- Retail trade
- Wholesale trade

Gross industry value added per FTE employee, including flow-on impacts, selected industry sectors, Australia, 2014-15



Animal welfare

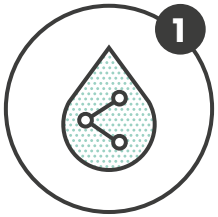
Animal welfare issues are becoming increasingly important to Australians. More and more consumers today want ethically produced food and are showing interest and/or concern about the way in which animals are treated before processing. These concerns have resulted in a drive for information and transparency about production processes, standards and certification.

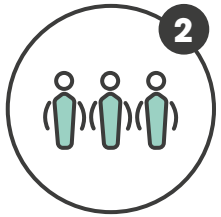
In the red meat industry, certifications, such as RSPCA or biodynamic classifications, have been introduced to guarantee meat is produced according to certain ethical standards, but there are currently no legislative requirements to do so. If the term "organic" is used by producers instead of "free range", this implies the animals are free of genetic modification and have been provided with a natural environment in which to live. In Australia, there is a standard governing the use of "organic" labelling, but this is purely voluntary.

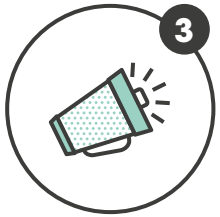
In the egg industry the term free-range was initially not subject to any legislative constraint. However, in March this year the New South Wales Food Authority introduced a national definition of free-range that requires hens to have "meaningful and regular" access to the outdoors, and stipulated that the density of chickens must be no more than one hen per square metre. Farmers of free-range eggs also have to prominently disclose their hens' outdoor stocking density.

With an increasing number of meat producers labelling their products free-range or organic, the red meat industry may well see government placing similar restrictions on their marketing efforts.

HOW WE ARE RESPONDING







Maintaining a social licence to operate can be difficult, and driven largely by perceptions rather than fact. To avoid the reputational costs associated with a loss of a social licence to operate, we are undertaking research into more sustainable practices, such as reducing water, energy usage and the release of effluent at our processing facilities and increasing advocacy and research into the industry's social impact.

This research will play a vital role in securing the industry's future, ensuring sufficient labour is available, confirming its social licence to operate, and cementing its place in the economy and the agricultural sector as a vital, healthy, attractive and sustainable industry.

Projects currently underway include:

1. Problem to profit: Developing a sustainable feed base from agricultural wastes using single cell protein

Single cell protein (SCP) technologies represent a range of novel process options to treat waste streams. They produce edible unicellular micro-organisms that can contain more than 60 per cent crude protein with a value that could be three-to-five times higher than the energy mineral/nutrient value of the waste. The majority of organic and nutrient waste produced at a slaughterhouse is transported in the wastewater stream, so initial AMPC research in this area focused on combined wastewater. This research identified purple phototrophic bacteria (PPB) as a promising and novel process for wastewater treatment, and it has been applied to domestic wastewater treatment. This project is designed to continue research into PPB and apply red meat processing applications. The aim is to establish the technology and demonstrate the value proposition of complete resource recovery from red meat processing wastewater streams. While recent SCP work has focused on combined wastewater, solid wastes also represent a major source of organic and nutrient contaminants from slaughterhouses. The characteristics of solid waste are considerably different to combined wastewater and this likely impacts technology suitability and process selection. This project expands the program to investigate whether SCP technologies are suitable for meat processing solid wastes.

2. Social impact study of red meat processing in Australia

This four-stage research project will identify, describe, measure and evaluate the industry's social impact. The first stage will include 40 interviews and document analysis (such as organisational strategic plans, CSR reports, consumer engagement plans and media coverage), to identify and investigate social impact evidence, perspectives, and benefits of the industry from the perspective of community members and processors in two regional and two metropolitan areas. Data collected will be used to refine the survey that will be sent out to community members and processors to measure the industry's social impact in Stage 2, and will also be used to build six evidence-based case studies. The third stage will identify the contributions made to contemporary Australian society by the processing industry. The fourth stage will document and report the research findings on the industry's impact at a local and regional level.

3. Meat. Your future: Promoting Australia's red meat processing industry through developing a structured approach to improving communities' perceptions

This project outlines a comprehensive strategic communications plan to improve community perceptions of the red meat processing industry as a whole, and as a career option. Most sectors in Australian agriculture are confronting similar future challenges; how to attract sufficient skilled and unskilled labour in the face of structural barriers in the industry and how to build community support and a "social licence to operate" in the long term.

A FOOD ACTIVIST'S PERSPECTIVE

"Most Australians are completely ignorant about the contribution the red meat industry makes to our overall national and domestic economies."

Pennie Scott, Small-holder farmer, food activist and author of the Bush Goddess blog

"Grazing animals and grasses have coexisted and co-evolved over thousands of years. When you look at grasslands around the world – Mongolia, North America, Africa – they've had grazing animals and herbage and communities of plants have co-evolved with them. When animals are grass-fed, the red meat industry is one of the most ecologically responsible industry sectors around. That's why I think it's such an important message to give to people that we need to be returning to these types of systems.

Most Australians are completely ignorant about the contribution the red meat industry makes to our overall national and domestic economies. The reason? Advertising and marketing by fast food chains and supermarkets tends to dominate the information about meat that is readily available. They do it well, but it's lopsided to what they want people to buy. It means people capture these snippets of information and think that's the truth. Unless you delve down and do your own research and access trustworthy sites, you're unaware of what exists. In our very fast-paced life these days, people live on snippets.

So to educate people about the industry, we need to balance easily accessible information with people's desire to know, within time constraints. I see this conundrum as a real opportunity for the red meat sector to play around with and come up with . . . perhaps a technologically based solution . . . to deliver a better information flow.

Another issue that's recently been raised with me is packaging. It's a legal requirement to package meat for retail sale in plastic, and yet some people are being turned off by that. Customers appreciate that this plastic has to go somewhere, but there are environmental concerns about it going to landfill, or into our waterways. I'm sure most people are familiar with those huge floating plastic islands out in the middle of the Pacific Ocean. So that's another challenge, yet it's also an opportunity for us to look at how we can package bulk quantities while still being environmentally responsible.

Giving red meat production more social licence to operate is a really interesting question. In the US, producers have had success with open days, where customers flock into the farm and can say: "Hey, this is where I get my meat." In Australia, we've been a little reticent about opening up our farms. But I think this is where the opportunities are to improve transparency, openness and sharing of information. Because the emotional connection that customers have with the people who provide their food is real and tangible. And in business, loyalty is the one thing every enterprise and every big brand wants."

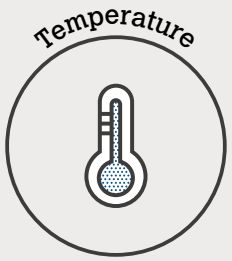
CLIMATE CHANGE

The impact of this issue on stakeholders inside and outside the industry.

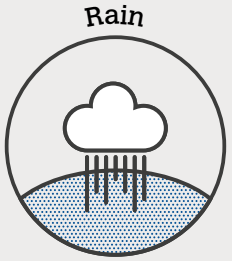
Greatest impact

Dr Rob Kinley, Research Scientist, CSIRO

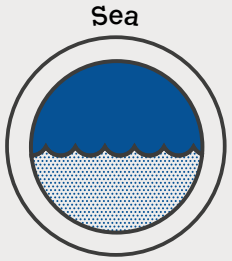
AUSTRALIA'S CHANGING CLIMATE



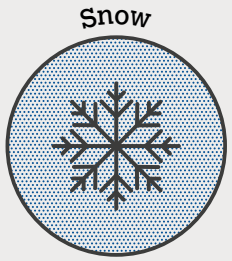
Very warm months that occurred just over 2 per cent of the time from 1951 to 1980 occurred nearly 7 per cent of the time during 1981 to 2010, and around 10 per cent of the time over the past 15 years.



Average rainfall across Australia has increased slightly since 1900, with a large increase in the north-west since 1970. Winter rainfall in south-west Australia has declined and since 1990, autumn and early winter rainfall has been below average in the south-east.



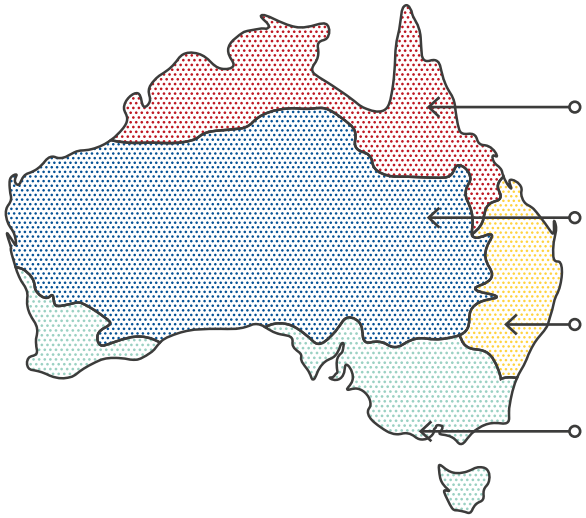
Sea-surface temperatures in the Australian region have warmed by 0.9°C since 1900. Global mean sea level increased throughout the 20th Century and in 2012 was 225 mm higher than in 1880.



Snow depths at four alpine sites declined from the 1950s to 2001. An updated analysis of snow measurements at Rocky Valley Dam in Victoria from 1954 to 2011 found a trend to lower maximum snow depths and an earlier end of the snow season.

Fire weather, calculated from daily temperature, wind speed, humidity and drought indicators, shows an increase in all 38 sites analysed from 1973 to 2010, and a significant increase at 16 of those sites, mainly in south-eastern Australia.

THE OUTLOOK



	Average temperatures	Mean sea levels	Hot days and warm spells	Harsh fire weather	Winter rainfall	Tropical cyclones	Intensity of extreme rainfall events	Frosts
NORTHERN AUSTRALIA	↑	↑	↑			↓	↑	
RANGELANDS	↑	↑	↑		↓		↑	↓
EASTERN AUSTRALIA	↑	↑	↑	↑	↓		↑	
SOUTHERN AUSTRALIA	↑	↑	↑	↑	↓		↑	↓

Climate Change in Australia, CSIRO, Australian Department of the Environment and Australian Bureau of Meteorology. For more information go to www.climatechangeaustralia.gov.au

BACKGROUND

Australia's red meat processing sector has long functioned within the continent's unique climate, geography, and incidence of extreme weather events. While such events impose significant costs, the industry has demonstrated resilience and a capacity to adapt. But the frequency and severity of extreme weather events and the underlying climate are changing.

The impact and implications of these changes will vary along the red meat industry's supply chain depending on location, timeframe, resilience and vulnerability. In some cases, climatic changes may bring opportunities. In other cases, such changes may bring risks beyond those experienced in the past, such as changes to feed distributions, increased disease and migration, impacts to transport of live animals, water scarcity and variations to energy costs.

Greenhouse gas emissions

The findings of an eight-year CSIRO investigation into the effects of the beef and dairy industries on Australia's methane emissions have suggested that outputs from cattle in Australia are 24 per cent lower than previously thought, amounting to a revised total of approximately 2.6 million tonnes of carbon dioxide a year. While this falls well behind energy and fuel sector outputs, agriculture remains the second largest greenhouse gas producer in the country.

Energy, waste and water

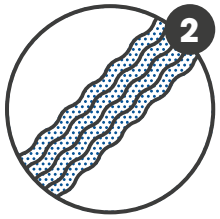
Meeting strict food safety requirements to ensure market access is maintained means that energy and water are significant inputs into the processing sector. Energy for refrigeration and sterilisation of equipment is especially important, while water is used to hydrate and wash incoming stock, and to clean livestock carcases, processing equipment and work areas.

Compared to other agricultural sectors, the red meat industry is a significant consumer of water. From farm to plate it is estimated that grain-fed beef production takes approximately 100,000 litres of water for every kilogram of food produced. Raising chickens takes 3,500 litres of water to make a kilogram of meat. In comparison, soybean production uses 2,000 litres per kilogram of food produced; rice, 1,912; wheat, 900; and potatoes, 500 litres. Competition for what is an increasingly valuable and scare resource may either limit the availability of water for production or processing purposes, increase water access costs or lead to an increasing level of consumer and public concern over the amount of water used. While certain sections of the value chain are embracing water savings and water reuse strategies, estimates suggest only approximately 2 per cent of total water usage is reclaimed.

Animal waste is another serious concern. According to a CSIRO study, 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. As a result, effluent must be discharged safely and processors face heavy fines for non-compliance with environmental laws.

While regulatory measures around resource use imposes significant compliance costs on the processing industry, they also underpin Australia's reputation for a high standard of food safety and product integrity in its exports.

HOW WE ARE RESPONDING



We are working hard to raise awareness of Australia's changing climate in our sector, investing in research that seeks to understand critical vulnerabilities in the value chain and investigating technology, infrastructure options and mitigation techniques to minimise the industry's impact on the environment. Projects underway include:

1. A quantitative risk analysis of the impact of climate variability on the Australian red meat processing industry

This project aims to assess the risks and opportunities associated with climate variability for the red meat processing industry. It will identify the risks and opportunities, place them in a geographic context and assess their severity through frequency and intensity analysis. A backward scenario analysis will be undertaken to look at how climate extremes have impacted on the meat and livestock industry and how lessons from these events can inform climate change adaptation. The overall sustainability of the supply chain will thereby be gauged, and risk mitigation and adaptation strategies identified. Finally, the project will develop an information extension program to communicate the outcomes of the study.

2. Investigating water and wastewater reuse and recycling opportunities while maintaining food safety at abattoirs

This project will take a broad, strategic look at the opportunities and constraints for improved water efficiencies at abattoirs using diverse water recovery options. It will provide a tool that will enable processors to evaluate raw water quality and end-use (river discharge, sewer discharge, irrigation or internal reuse as potable or non-potable water) applications of specific water treatment options and undertake a cost-benefit analysis. When considering the benefits of water recycling, the quality of wastewater from existing treatment systems has a significant impact on additional treatment required to enable recycling. This influences the cost of further treatment and therefore the value proposition of water recycling. The proposed work builds on previous research and investment by AMPC. Recent advances in technologies and operating strategies for water recycling have initiated the uptake of safe, economic solutions across many food and beverage industries. The meat processing industry, with its large water footprint, can potentially gain substantial economic and operational benefits while not compromising food safety from such an approach.

A SCIENTIST'S PERSPECTIVE

"We look at many projects that seek to impact the environmental footprint of agriculture...but the seaweed discovery is the one with the biggest punch."

Dr Rob Kinley, Research Scientist, CSIRO

"When I came to Australia to work for the CSIRO and the northern beef industry, I'd previously done work in Canada with seaweed products. We'd found that they can reduce emissions from ruminant animals to some extent and came here to help find out more.

We discovered that a seaweed found off the coast of Queensland that grows native in Australia and New Zealand can almost eliminate methane emissions from the digestive processes of beef cattle when it's fed to them as part of their diet. This is hugely important when you consider the beef and dairy industries account for about 20 per cent of greenhouse gas emissions.

We look at many projects that seek to impact the environmental footprint of agriculture, some working with soil, others examining issues like genetic selection of cattle that produce less methane, feeding practices and animal management. But the seaweed discovery is the one with the biggest punch.

We've now patented a product and are working on getting it commercialised under the moniker of "future feed," liaising with investors interested in bringing it to market. We're hoping it will be available to all producers in the relatively near future and will impact all ruminant animal production.

A big issue right now is getting enough of it, because cattle eat vast amounts. Even sourcing just 2 per cent of that dietary intake is massive. Tens of thousands of tonnes a year would be required just for Australia.

The seaweed we've used thus far in our research has been wild harvested. But we're looking at producers in southeast Asia who are already producing millions of tonnes of seaweed for food, pharmaceuticals and other purposes. If they can see it's economically sensible to do so, they'll switch to this variety. (Canada and India are already feeding large amounts of seaweed to cattle, just not this particular type.)

How did we make the discovery? Initially we came across a farmer in Canada who had two paddocks. He was feeding two types of seaweed to cattle in each when he noticed that the animals in one paddock were doing much better than those in the other. He dragged this particular type of seaweed across, and those cattle started doing better too.

The farmer sought government approval to bring the product to market, and that's where I came in. I was working for the Canadian government at the time and started testing seaweeds for him. We discovered along the way that it was reducing methane. That was my eureka moment.

Later, when I came to Australia, I was running seaweed gas samples from ruminant fermentations one day and thought my instruments were broken because this particular variety produced no gas. I did it again, same thing. After testing it three or four times, I became a believer.

The seaweed works by impacting the microbiology in the gut of cattle, sheep and goats. It contains a bioactive component that acts as a natural defence against bacterial infection in the ocean. When it's introduced into the feed, instead of becoming methane, carbon in the gut becomes available for producing other types of energy molecules more useful to cattle for their growth. All seaweeds will do that to some level, but now we're really getting a handle on what individual types can do."

INVESTING IN OUR FUTURE

TRAINING & EDUCATION

We have consistently supported initiatives which encourage young people to work in the industry. Examples include our funding of the Queensland Country Meat Processors Association (QCMPA) Young Guns workshops and the Intercollegiate Meat Judging Competition, Conference and Careers fair that is held every year in Wagga Wagga.

A new targeted investment strategy was required to help mitigate some of the risks identified in our work on the material issues facing the industry, most specifically around competition and our social licence to operate. The strategy also needed to deliver solutions to address the capability gaps and difficulties associated with attracting and retaining qualified people in the meat processing industry.

Furthermore, addressing these issues from a different angle was vital because past scholarships programs had delivered lower-than-average retention rates. As well, five different studies had concluded that investing in vocational, undergraduate and post-graduate education levels was key to addressing future capability requirements for the industry.

As a result, we have set up an integrated program that is designed to respond to industry requirements in the next five-to-ten years. It covers all education levels from vocational training to university level and should allow a critical mass of skilled workers to be trained – and retained – through a range of new features incorporated in the scholarships, such as specific industry related training, work experience placements with industry partners, industry mentors and graduate programs offering one-year employment after study completion.

For example, processing workers will be able to upgrade their current qualifications at a Certificate 4 level or higher through an AMPC Red Meat Processing Upskilling Scholarship scheme. Twenty-six of these scholarships will be awarded over the next five years.

For undergraduates, scholarships involving 10 universities around the country (Adelaide Univerity, Charles Sturt University, Curtin University, Melbourne University, Royal Melbourne Institute of Technology (RMIT), Murdoch, Sydney, University of New England, University of Queensland and Queensland University of Technology (QUT)) will be created. Over a five-year period, 130 scholarships will be offered to third-year students through a competitive selection process.

Finally, for the postgraduate programs, a cohort of 35 Masters/PhD students over five years will be involved in themes relevant to the industry (four students in process engineering/ automation/robotics, 11 students in meat safety, 16 students in meat science and four students in water reuse/waste management).

While the scholarship program, particularly one with strong industry links, will help build the skills required in the future, focusing on education alone is not sufficient. Equally important in promoting the industry as a good employer and thereby earning its social licence to operate is the dissemination of the results of research and development through our member engagement meetings and community engagement programs.

Indeed, according to a 2015 study, the red meat processing industry suffers from negative community perceptions. It was perceived as an industry that involves largely manual work, is male dominated and attracts mainly migrant workers. It was seen as "up and down" and therefore unstable, it couldn't offer long-term employment, paid less than other industries, and was generally in decline. 69 per cent of respondents believed that a job/career in the red meat processing industry was for someone – but not for them. On the positive side, most believed that the red meat processing industry was a great export industry, and around one third were relatively open to working in the sector. Also, nearly half claimed to not really know what kind of jobs were available, highlighting an information/knowledge gap that should be easily rectified.

To improve community perceptions, we will be focusing on three specific target audiences:

- regional and rural communities
- the Australian workforce
- school children from Years 5-10

A comprehensive set of initiatives will include: promoting regional processing plants' socio-economic contribution through an ongoing local media relations campaign, promoting young industry ambassadors, introducing a targeted communication campaign about meat industry careers, launching a social media strategy, translating career information for migrant workers, and building a dedicated online career portal.

One further initiative to be introduced is a primary and secondary schools' engagement campaign, which will develop resources for teachers and students in Years 5-10 to educate them about the role and importance of red meat processing in particular and also the meat supply chain as a whole.

TRAINING AND EDUCATION STRATEGY

OBJECTIVE:
To cover the range of education levels (vocational through to post-doctoral) to address capability gaps and difficulties associated with the attraction and retention of qualified and capable meat processing industry personnel and researchers

What's new:

10 PARTICIPATING UNIVERSITIES AROUND AUSTRALIA

Cohort of 120 undergrad students over 5 years:

6 undergrads in meat safety

12 undergrads in processing and automation

6 undergrads in environment science

12 undergrads in meat science and meat inspection

14 undergrads offered training related to needs of host industry partner

70 undergrads with graduate employment program

Cohort of 35 Masters/PhDs over 5 years:

4 in process engineering, automation & robotics

11 in meat safety

16 in meat science

4 in water reuse/waste management

EMPLOYEE UPSKILLING (VOCATIONAL)

Intercollegiate Meat Judging Program
High school students and undergraduates
more than 100 participants per year

Red Meat Processing Upskilling Scholarship Programs
Certificate IV to higher 5 participants per year for 5 years

Meat Industry Leadership Development Program
Senior personnel 9 participants in 2015/16

Supporting Migrants and Refugees Employment
Developing a model for successfully employing migrants in the industry

ARLP Scholarship
Senior management staff
1 participant per year

AgBusiness LP
Senior management staff
up to 10 participants per year

Young Guns Workshop
Small business workers in QLD
30 participants per year

Graduate Diploma in Agribusiness
12 scholarships

INTEGRATED SCHOLARSHIPS PROGRAMS

ABARES Science & Innovation award
1 per year

QUT Integrated Scholarships Program
Process engineering, automation and robotics students
1 sponsorship of Dean's scholars
2 Masters students 2 PhD students
12 2nd and 3rd year B Engineering students

RMIT Integrated Scholarships Program
Meat technology and nutrition students
1 post-doc fellow 6 PhD students
6 Honours students

+4 new programs on focused themes
Water reuse, meat science & safety, MI & QA

INNOVATION ADOPTION STRATEGY

EXTENSION AND DISSEMINATION OF OUTPUTS

Primary and secondary schools engagement

Whole of industry media campaign on the industry benefits to community

AMPC website

Networks

Innovation centre

GOVERNMENT INVESTMENT IN THE RED MEAT INDUSTRY

FEDERAL GOVERNMENT R&D MATCHED FUNDS

Up to
$85.1 MILLION
available

Based on ABARES formula for 2016/17 forecast: 0.5% of gross value product

LEVIES AND PARTNER REVENUE

+	mla	$26.1 MILLION	=	$52.2 MILLION	**MLA** core programs
+	AMPC	$14.9 MILLION	=	$29.8 MILLION	**AMPC** core programs
+	AMPC mla	$6.7 MILLION	=	$13.4 MILLION	**AMPC & MLA** joint programs
+	AMPC mla donor COMPANY	$8 MILLION	=	$16 MILLION	**AMPC & MLA** Plant Initiated Projects program
+	mla donor COMPANY	$28.9 MILLION	=	$57.8 MILLION	**MLA** PSH projects

TOTAL INVESTED MATCHED R&D REVENUE

Numbers based on estimated Commonwealth matching R&D 2016/2017 at 23 June 2016

AMPC

AUSTRALIAN MEAT PROCESSOR CORPORATION

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