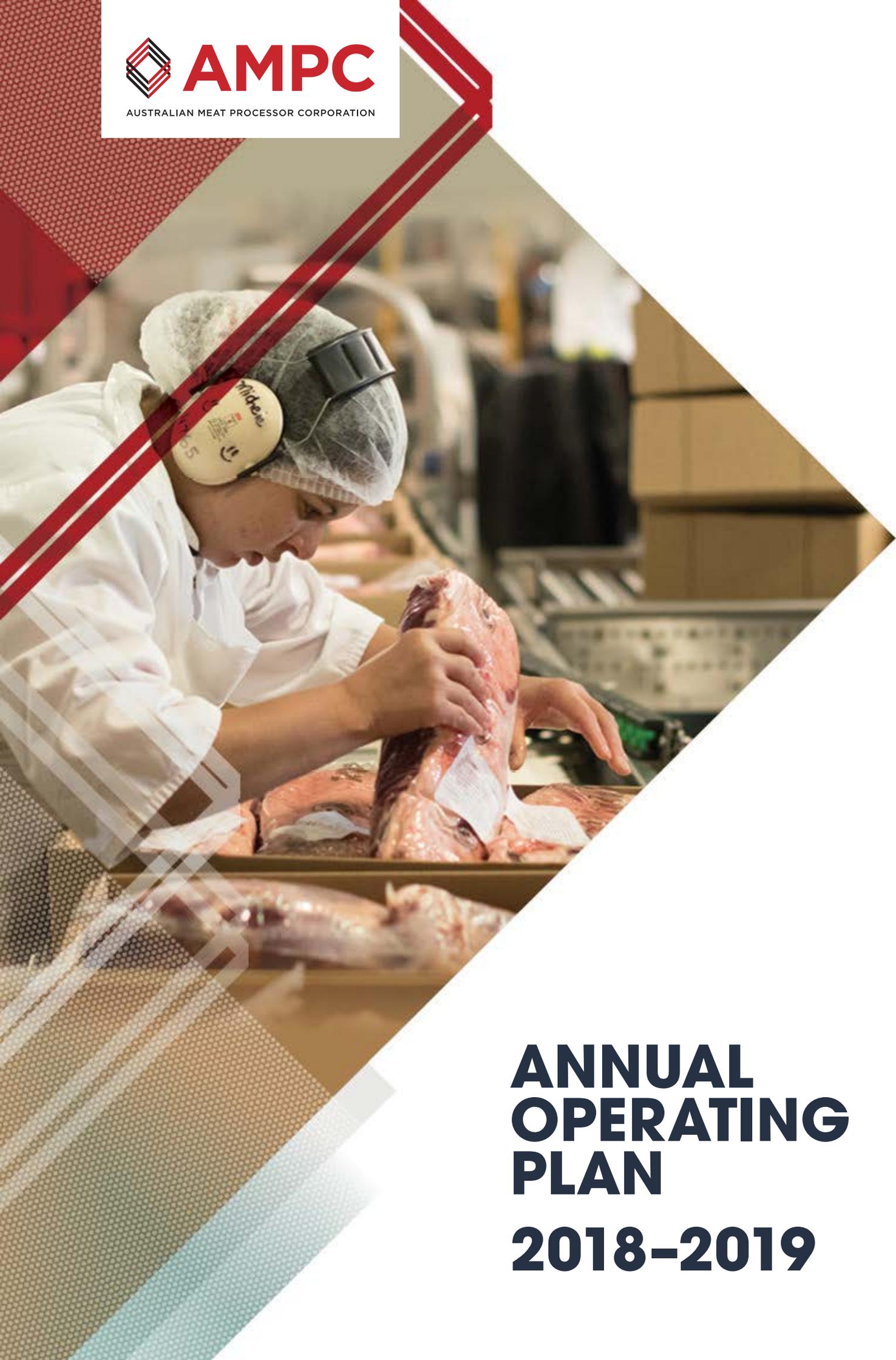




AMPC

AUSTRALIAN MEAT PROCESSOR CORPORATION



ANNUAL OPERATING PLAN

2018-2019

Contents

From our CEO	2
Our operating environment	4
Our stakeholders	6
Whole-of-industry consultation	7
Our priorities	8
Our member priorities	10
Our industry and government priorities	12
Our portfolio	14
Our R&D portfolio	16
Portfolio alignment to industry and government priorities	18
Program 1 – Processing Technologies	20
Program 2 – Environment & Sustainability	26
Program 3 – Processing Hygiene, Quality & Meat Science	32
Program 4 – Capability, Extension & Education	38
Program 5 – Industry Improvement & Economic Analysis	46
Program 6 – Marketing & Market Access	50
Budget FY19	52
FY19 investment portfolio – by stream	54
FY19 budget financials	55
Evaluation, communication, extension and adoption	56

AMPC acknowledges the significant contribution of the Commonwealth in remitting levy funds for the advancement of the Australian red meat processing sector through RD&E and marketing activities.



A person wearing a blue hairnet and a white shirt is working in a meat processing plant. They are handling large pieces of meat on a metal tray. The background is a blurred industrial setting. The text is overlaid on the right side of the image.

Our mandate is to strategically invest in industry-driven research that provides innovative solutions aligned to our members' needs.

From our CEO

“This year’s Annual Operating Plan 2018-19 details our new approach, built around close consultation and collaboration with our members. It will guide the delivery of our activities, putting our members’ needs directly at the heart of what we do.”



The long-term sustainability of Australia’s red meat processing sector faces enormous challenges and it is our role at AMPC to address these challenges that our members face.

In simple terms, as an industry we have a very high cost to operate compared to our competitors, coupled with challenges in market access into key markets for our products.

This year's AOP provides a direct context to the current business environment in which our members operate, looking closely at the economic drivers that affect our business both domestically and internationally, now and within our strategic horizon to 2025.

As I mentioned in our *Annual Report 2016-17*, we have initiated a new approach to formulating research initiatives. This approach is built around close consultation and collaboration with our members. The *Annual Operating Plan 2018-19* will guide the delivery of our activities, putting our members' needs directly at the heart of what we do.



In preparation for this year's AOP, we asked our members about the top issues they face in their business and they responded with a clear list of their top 10 priorities. These priorities create opportunities for us to focus our efforts into research and development initiatives that address our members' priorities directly. We have several R&D project types to achieve this:

- Our Core projects, focusing our research efforts directly on our processor members' needs
- Plant Initiated Projects at an individual plant level
- Joint investments where whole-of-industry benefit is supported.

Our initial focus will concentrate on the top five issues: labour issues; skyrocketing energy costs; market access issues, including Free Trade Agreements and Non-Tariff and Technical barriers to trade; water availability and cost, and waste issues; and the application of automation and technology to aid in productivity and ensure our industry doesn't fall behind.

Our members' clear message to us is that we should direct our investments and build our project portfolio around their top 10 issues, in order of priority, and with a whole-of-industry / collaborative approach. The call for the red meat industry to pull together to resolve these issues was loud and clear.

This new approach replaces the previous annual call for proposals. Instead, we will be collaboratively identifying opportunities with leading research providers throughout the year, and will call on our members directly to assist us in assessing

each new project proposal on its relevance to their top 10 issues. As we commission new projects, they will be allocated from the high-level budget that has been allotted to each program.

In planning our activities for 2018-19, we have also considered the Meat Industry Strategic Plan (MISP) 2020, the Australian Government's National Science and Research Priorities and the Rural Research, Development and Extension Priorities, and we have detailed the alignment of these frameworks to our portfolio in the AOP.

This year's AOP is intended to provide an overview of each program investment stream demonstrating the alignment to our members' issues, including budget information and the objectives and outcomes for each program stream.

The key objectives and outputs of previous years and ongoing research projects are also detailed, including anticipated completion dates.

I am pleased to deliver you our AOP for 2018-19, and I am very excited about the ongoing engagement with our membership in delivering on our renewed investment strategy.

Yours sincerely,

Peter Rizzo
Chief Executive Officer
AMPC

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 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

Our strategy

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 R&D and marketing initiatives by harnessing the world's best ideas and skills that deliver industry-wide benefits

Our operating environment

The Australian red meat industry is a significant contributor to the Australian economy, employing 126,000 full-time employees and adding over \$21 billion to the national GDP. We continue to enjoy unprecedented biosecurity advantages and an enviable reputation for some of the highest food safety and quality standards in the world, but this comes at a cost.

Australian red meat processors are heavily burdened by ever-rising operating and regulatory costs. This greatly reduces our ability to remain competitive in the international marketplace, with our key competitors benefiting from significantly lower costs for labour, energy and government export accreditation and certification.

The global trade environment for food – particularly red meat – is subject to unpredictable political and economic influences and in this climate it continues to be a challenge to secure the reliable market access our industry needs.

Australian red meat processors face competition from cheap imported or domestically produced white meat proteins such as chicken and pork, along with imported low-cost red meat. Processors must also cater to the ever-changing consumer expectations: in addition to the traditional drivers of value and quality, provenance attributes such as animal welfare, traceability and sustainability are becoming increasingly important influencers relating directly to purchasing decisions. Our industry must continue to meet and exceed these expectations if we wish to maintain and grow our markets.

There is also a trend toward declining per capita consumption and growing vegetarianism, exacerbated by negative messaging and misinformation in the public domain about the nutritional and health value of red meat products.

In addition, the red meat industry is in a herd rebuilding phase, recovering after long-term drought in many key areas of production and casting doubt on Australia's security of supply of animals.

These are the issues raised by Australian red meat processors as their top research priorities for FY2018/19, which will be reflected in our future research portfolio as we strive to meet our members' needs.

**Contribute
\$21 billion**

to Australia's GDP per year
(including flow-on effects)



Primary Producers



Feed Lotting

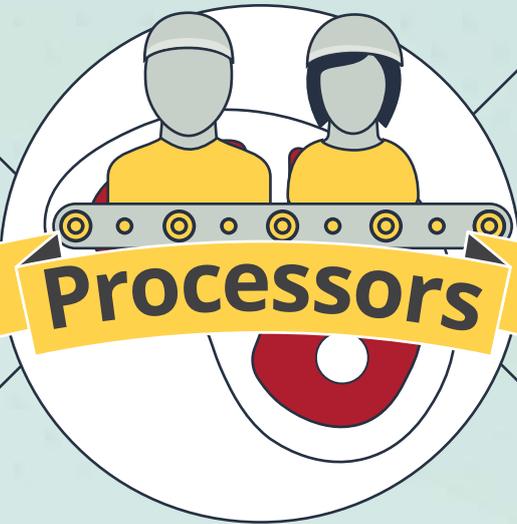


Live Transport

**Generate
\$170,000 per FTE***

compared with an average
\$152,300 in other industries

* Full Time Equivalent (FTE) employment



Processors

Employ 34,000 people

Comprising the second-largest employer in the Australian red meat industry by sector



Cold Transport



Marketing & Distribution



Wholesale



Retail

The world's second-largest exporter of red meat

68% of Australian produce is exported

\$10 billion

in exports processed per year

Our stakeholders

Although AMPC exists as the red meat processor R&D and marketing body, its stakeholder group is large and diverse. It is vital that we engage all stakeholder groups regularly and effectively.



Governments

State, federal and local governments

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



Industry bodies

AMIC, RMAC, CCA, SPA, ALFA, ALEC

How we work with them

- General correspondence
- Regular meetings and Statutory Funding Agreement
- Cross-sector collaboration for innovation
- Provide research for lobbying to government



Producers

Farmers

How we work with them

- Training courses
- Joint projects
- Cross-sector research initiatives



Communities

Places where our members operate

How we work with them

- Promotional activities and campaigns
- Training and education programs
- Scholarships
- Economic significance demonstration



Members

Representatives for over 90% of Australia's red meat processing capacity

How we work with them

- Face-to-face site visits
- National survey
- Plant Initiated Projects Program facilitation
- Industry steering committee
- Member consultation on levy funding investment and portfolio development



Research partners

Universities and research institutions

How we work with them

- Facilitation of research provider and member interactions
- 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



Service providers

Meat Livestock Australia & LiveCorp

How we work with them

- Plant Initiated Projects Program (PIP)
- Joint programs
- Cross-sector collaboration for innovation
- Development programs
- Collaborative Innovation Strategies
- Partnership Program (CISP)



Customers

Wholesalers, retailers – major chains and butchers

How we work with them

- Packaging
- Shelf-life guidelines
- Integrity systems and regulations
- Assurance programs and certification



Consumers

Domestic and international

How we work with them

- MLA joint program
- Marketing

Whole-of-industry consultation

The engagement of our stakeholders in meaningful dialogue on their priorities is a primary focus of our activities, and our *Annual Operating Plan 2018-19* has been prepared based on those priorities.

AMPC members play a significant role in the red meat industry, and AMPC's function as the processing industry Research and Development Corporation (RDC) means that our extended stakeholders are numerous and have discrete priorities. AMPC has adopted a key relationship management approach to engaging with our important stakeholders, allowing us to distil and explore those priorities to best design R&D and marketing programs for industry benefit.

In establishing our plan for the 2018-19 financial year, we have:

- engaged with state and federal government bodies including the Department of Agriculture and Water Resources (DAWR) on research and marketing programs,
- actively engaged with the Australian Meat Industry Council (AMIC), our Peak Industry Council, who are responsible for industry policy and advocacy work with all levels of government
- conferred with the Red Meat Advisory Council (RMAC) – who are a vital link to over-arching whole-of-industry matters at a policy and advocacy level, and provide guidance on strategic industry priorities with the Meat Industry Strategic Plan (MISP)
- engaged with Meat & Livestock Australia (MLA), where we work together with the MLA Donor Company (MDC) and jointly commit investments for whole-of-industry benefit
- consulted where appropriate with other Peak Industry Councils on a range of whole-of-industry research and marketing efforts,
- worked closely with the National Meat Industry Training Advisory Council (MINTRAC) on industry extension and training, and
- supported AUS-MEAT in their work on the Australian Meat Industry Language and Standards Committee (AMILSC), the national accreditation standards, and other industry issues related to quality, health and safety.

Key stakeholder collaboration

Our primary focus is on communicating with and understanding the needs of our processor members and the broader red meat processing sector.

We also maintain relationships with our research and development providers, including institutions of higher learning, the Australian and state governments, Commonwealth Science and Industrial Research Organisation (CSIRO), industry consultancies, and commercial providers, among others.

We also manage and liaise with our contacts in the key stakeholder group of wider industry including our Peak Industry Council (AMIC), other important RDC's like MLA and other organisations in the red meat industry.

We do this to ensure that our members' levy funds are appropriately and effectively invested to deliver maximum value.



Australian Meat Industry Council (AMIC)

AMPC works closely with the Australian Meat Industry Council (AMIC), the red meat industry Peak Industry Council and advisory body for the red meat processing industry. AMIC also provides a vital role in supporting the domestic smallgoods industry and the domestic meat retail sector.

This close relationship ensures that the needs of processing members of both AMPC and AMIC are clearly understood and considered in RD&E activities. AMPC will continue to support AMIC with empirical research to aid formulation of focused policy and advocacy initiatives for our sector.



Meat & Livestock Australia (MLA)

AMPC is committed to working with its stakeholders to use levy funds as efficiently as possible and to avoid duplication. One component of AMPC's expenditure involves leveraging our financial contributions by co-investment with Meat & Livestock Australia (MLA) in

joint activities. This partnership provides services to the industry and the entire supply chain. AMPC also collaborates with other RDCs through Rural R&D for Profit Program submissions and other projects.



Red Meat Advisory Council (RMAC)

AMPC proactively maintains a close and communicative relationship with the Red Meat Advisory Council (RMAC). AMPC also provides contextual R&D, particularly regarding supply chain collaboration, to inform and support RMAC in their management of issues facing the red meat processing sector and in industry representation at ministerial level on whole-of-industry matters such as ACCC inquiries and trade issues.



National Meat Industry Training Advisory Council (MINTRAC)

AMPC continues to support and work closely with the Meat Industry Training Advisory Council (MINTRAC) on various activities, including the extension of AMPC project outputs. Extension activities are critical to the effective uptake of RD&E investments in the industry, contributing to AMPC's strong track record of facilitating processor adoption of RD&E and other AMPC-funded outputs.



AUS-MEAT

AMPC proudly supports the work of AUS-MEAT in setting, maintaining and auditing our national red meat accreditation standards. AMPC, along with co-funding body and corporate member, MLA, will continue to collaborate with AUS-MEAT to support the red meat processing sector on critical industry issues, such as the management of red meat trade descriptions for export products, and the management of the Q-fever Register to ensure smooth staff onboarding and the safety of our workforce.

Further information on relationships between AMPC and other organisations can be found at www.ampc.com.au.

Our priorities

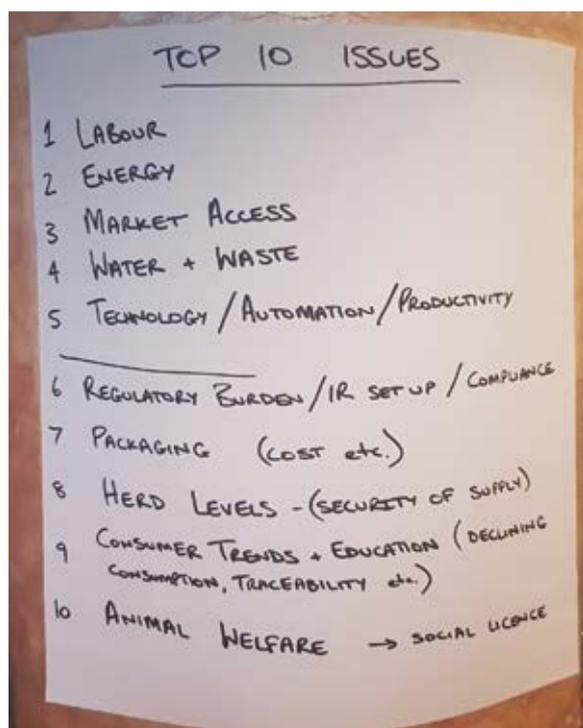




Our member priorities

In February 2018, we consulted with our members to find out what they were most concerned about in order to refocus our R&D priorities directly on our members' needs.

Out of this consultation rose a defined list of the top ten issues currently facing the Australian red meat processing sector, and these issues were ranked in order of importance.



These issues will be used as an important tool to guide our forthcoming portfolio development, with new research project proposals assessed against the industry's top 10 priorities to see how relevant they are to our members. We will continue to invest our efforts and our members' levy funding into research to support a strong, sustainable future for Australian red meat processors.

01 Labour

02 Energy

03 Market Access

04 Water and Waste

05 Technology, Automation, Productivity

06 Regulatory Burden

07 Packaging

08 Security of Supply

09 Consumer Trends and Education

10 Animal Welfare

Availability of staff, particularly skilled staff for specialised work • High cost and lack of flexibility of employment • Absenteeism • Poor perceptions of industry within and beyond the sector • Industry inability to attract, develop and retain staff • Uncertainty around visa conditions • Migrant language and cultural issues.

Soaring utilities costs, particularly in regional areas • Lack of energy alternatives and cost-effective ways to improve energy efficiency and reduce environmental impact • Uncertainty around future energy policy decisions.

High export certification costs • Non-tariff barriers to trade worth an estimated \$3.4bn to the Australian red meat industry • Reduced leverage as a premium provider due to our competitors' ability to offer lower prices • Lack of industry unity on strategic market access issues.

High costs of water consumption and of waste management, treatment and removal • Climate variability and continuity of water supply • Lack of options to recycle or reuse/convert waste and wastewater into revenue streams • Lack of education/community acceptance of recycled water for other uses.

Industry advancement being prevented by the increasing gap in current and future R&D and industry implementation • Lack of understanding about existing technology and its application in other markets.

High cost of regulatory compliance: export certification, hygiene, quality and food safety inspection, workplace health and safety, industrial relations, environmental, and building compliance costs • Duplication in regulatory compliance.

Certification costs including food safety and labelling requirements • Community expectations of environmentally sustainable, biodegradable and recyclable materials • High cost of adhering to differing requirements for export markets • Lack of understanding of consumer needs and preferences at the processing level.

Declining Australian cattle herd levels • Volatility of livestock markets • Rising infrastructure, grain, pest management and transportation costs • Unpredictable weather patterns and lack of drought-proofing contingency plans.

Increased competition from cheaper alternative proteins and meat-free agenda • Increased consumer expectation of provenance attributes such as traceability, sustainability and animal welfare • Negative messaging regarding detrimental effect of red meat on health.

Threat to social licence to operate and reputational risk to the whole-of-industry • Lack of a clear, industry-wide approach to risk management and better livestock welfare outcomes • Lack of community education programs to combat poor perceptions of industry.

Our industry and government priorities

In addition to our members' priorities, we have other frameworks to guide the selection and delivery of our RD&E portfolio. The Meat Industry Strategic Plan (MISP) provides the overarching strategic priorities of the red meat industry, and the Australian Government has provided both a set of Rural R&D priorities and a set of National Science and Research Priorities.

The Meat Industry Strategic Plan 2020

The Meat Industry Strategic Plan (MISP) is comprised of four pillars: Consumer and Community Support, Market Growth and Diversification, Supply Chain Efficiency and Integrity, and Productivity and Profitability.

These four pillars are reflected in AMPC's Core and Joint projects. These projects seek to cultivate and reinforce community support by demonstrating industry's investment in environmental and corporate responsibility, and our commitment to best practice in animal welfare. They provide data to inform policy efforts to unlock new markets and increase market access in existing ones, promoting the value and quality of Australian red meat.

They facilitate supply chain collaboration, optimising product quality and integrity, and investigate ways that new

technologies and productivity measures can increase processing efficiencies, helping to ensure that Australia's red meat processing sector has a strong, sustainable future.

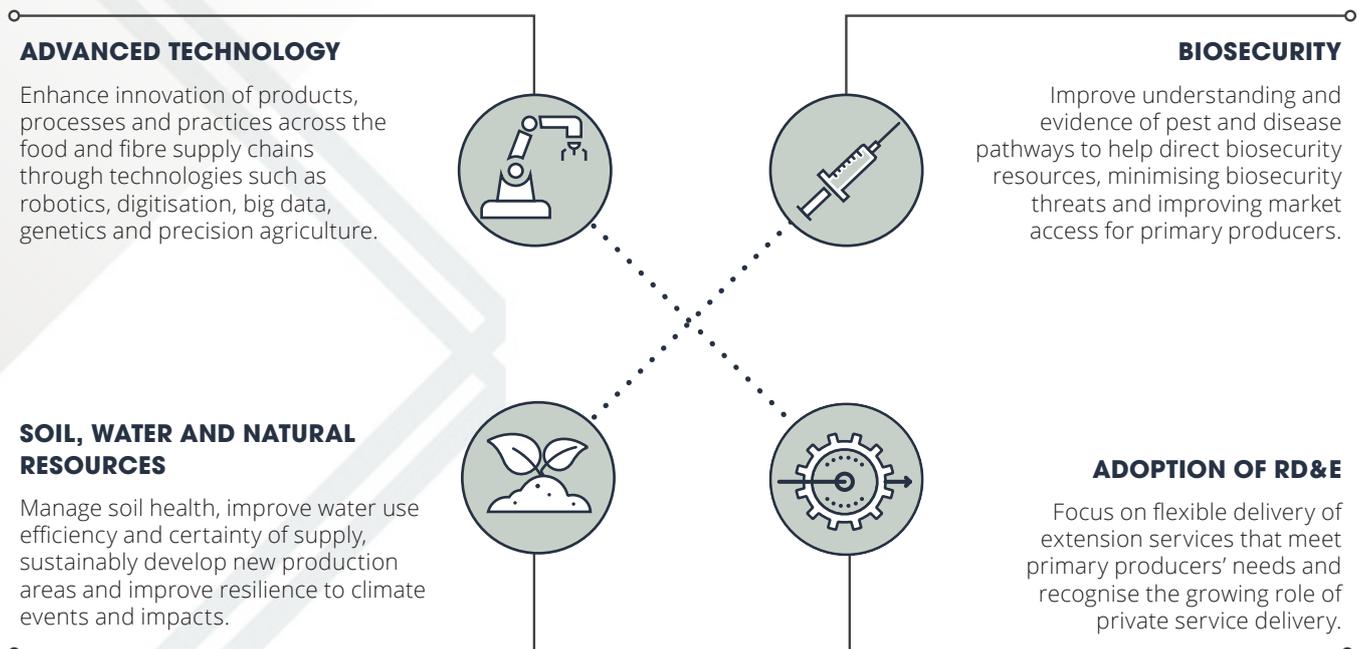
Rural RD&E priorities

The Australian Government has developed a set of rural RD&E priorities focusing on rural investment areas with a high need for funding.

National science and research priorities

In May 2015, the Australian Government announced a set of nine science and research priorities designed to increase investments in areas of immediate and critical importance to the nation. The priorities are neither exclusive nor exhaustive. AMPC strives to align its RD&E portfolio with the research priorities by sharing objectives and aiming for corresponding outcomes.

Rural RD&E priorities



National science and research priorities

FOOD

Develop internationally competitive, sustainable, profitable, high-intensity and high-production capacity in new and existing food products and maintain Australia's reputation for clean, safe and quality-controlled food production.

SOIL AND WATER

Focus on Australia's critical soil and water assets, build capacity for improved accuracy and precision in predicting change to enable better decision-making.

TRANSPORT

Develop low-cost, reliable, resilient and efficient transport systems that respond to Australia's changing urban, regional and remote communities and meet business needs.

CYBERSECURITY

Position Australia as a leader in cutting-edge cybersecurity research and innovation to safeguard the country's security, enhance resilience and enable economic growth.

ENERGY

Enable the Australian energy sector to improve efficiency and reduce emissions, integrate diverse energy sources into the electricity grid and, as a result, create jobs, growth and export opportunities.

RESOURCES

Support the exploration of traditional resources, rare earth elements and groundwater, and develop new technologies and knowledge to allow safe, environmentally sensitive and economically viable resource extraction.

ADVANCED MANUFACTURING

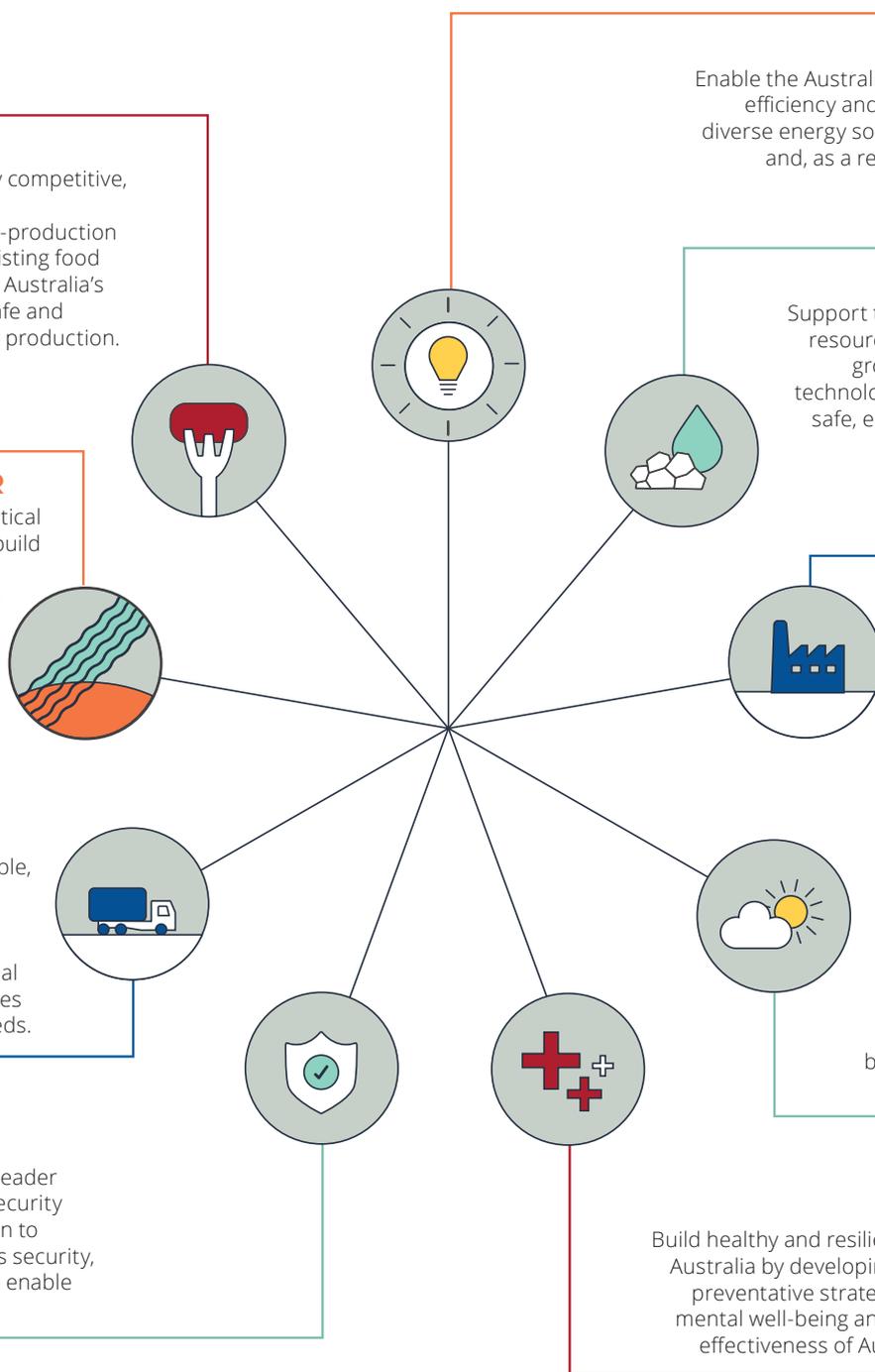
Develop and support existing industries while enabling the development of a new and advanced manufacturing sector.

ENVIRONMENTAL CHANGE

Build Australia's capacity to respond to environmental change and integrate research outcomes from biological, physical, social and economic systems.

HEALTH

Build healthy and resilient communities throughout Australia by developing treatments, solutions and preventative strategies to improve physical and mental well-being and improve the efficiency and effectiveness of Australia's health care system.



Our portfolio





Our R&D portfolio

Delivering a balanced program portfolio requires strong consultation and collaboration with members and industry stakeholders to maximise returns to levy payers.

Budget Allocation

To deliver value against the priorities of members we have significantly changed the way that budget is allocated for projects. For FY19, a high-level strategic budget has been allocated which will be consumed in order of our members' Top 10 priorities.

Core activities have attracted \$7.2m of funding for new projects, in addition to \$14.7m allocated to existing commitments.

The valuable Plant Initiated Projects have attracted \$4m of budget for our contribution to projects targeted towards on-plant adoption of R&D outputs.

Joint activities co-funded and managed by MLA have attracted \$7.8m including 100% of levy income available for marketing expenditure after corporate costs.

Portfolio development process

For FY19, AMPC has substantially changed its approach to identifying and addressing priorities. The annual call for proposals from prior years has been replaced by a relationship management approach which involves:

- In-depth, ongoing consultation with members, research providers and key stakeholders;
- Development of structured RD&E plans to address key priorities;
- Introduction of an expert, independent review panel for new project proposals; and
- Ongoing ideation and commencement of projects throughout the year.

This new approach ensures our portfolio directly addresses the priorities of members.

Balanced portfolio

The following factors are considered when building and reviewing our program portfolio:

- **Alignment:** to member, industry and government priorities
- **Outcomes:** extent of industry return on AMPC's research investment
- **Participation:** opportunities for industry collaboration and participation
- **Adoption:** opportunity for practical outputs for stakeholders
- **Gaps:** opportunities not yet addressed by the existing research
- **Continuance:** building on previous R&D activities and avoiding duplication
- **Duration:** short, medium, and longer-term priorities
- **Horizon:** adjacent, incremental and transformational projects
- **Risk:** technical, provider, financial risks and mitigation activities.

Projects are allocated based on capability, funding capacity, and the extent to which stakeholder returns can be maximised at both industry and individual member levels.

Project types



Core

Core projects, divided into six programs, address key issues facing processors in terms of productivity, profitability, sustainability, integrity and capability. They are supported by a robust industry-wide consultation process aimed at identifying and delivering innovative outcomes. Funding comes from processor levies and matched government funding (where applicable).



Plant Initiated Project (PIP)

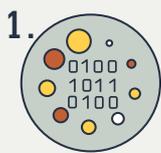
Plant Initiated Projects (PIP) enable processors to identify and undertake RD&E projects that generate whole-of-industry benefits by trialling and adopting new technologies at operating plants. These efforts are supported by private investment in industry RD&E as well as matching government funds for eligible activities.



Joint

Joint projects deliver supply chain improvements that support food safety, data integrity, eating quality and increased demand for red meat domestically and internationally. These projects are collaboratively funded by AMPC and Meat & Livestock Australia (MLA), using both processor and producer levies, as well as matching government funds for eligible activities.

Programs



Processing Technologies

It is imperative that industry be able to evolve with new technologies in order to remain competitive. The processing technologies program provides world-class research and facilitates adoption of these technologies to improve process efficiency, reduce the cost of production, facilitate improved value capture and increase workplace health and safety.



Environment & Sustainability

Corporate social responsibility is increasingly important to consumers and to the red meat processing sector. The environment & sustainability program explores ways to reduce the environmental impact of the industry, maximising efficiencies in energy and water consumption and waste management to ensure its long-term sustainability.



Processing Hygiene, Quality & Meat Science

Processing hygiene and product quality are crucial to Australia's reputation for excellence in red meat. The processing hygiene, quality & meat science program combines knowledge of meat science and quality in the continuous delivery of high-quality standards and food safety, as a key differentiator of Australian products in a competitive market.



Capability, Extension & Education

Industry relies on its workforce to continue to build its position on domestic and world markets. In order to achieve this, industry must be able to plan, and meet our current and future workforce needs in a complex and ever-changing environment. The capability, extension & education program helps Australian red meat processors to attract, recruit, support and develop personnel to meet current and future industry needs.



Industry Improvement & Economic Analysis

Economic analysis is essential to making data-driven, evidence-based investment in RD&E that benefits the whole-of-industry. The industry improvement & economic analysis program uses economic modelling, statistical analysis, benchmarking and networked information flows to study drivers of industry productivity and sustainability and provide insights to inform policy efforts.

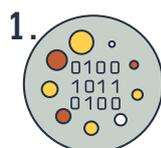


Marketing & Market Access

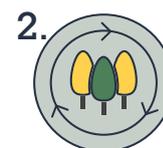
Maximising market access and effective consumer marketing are key aspects of facilitating the domestic and global competitiveness of the Australian red meat processing sector. The marketing & market access program works jointly with MLA to increase market access for Australian red meat, and enhances and communicates the value proposition of Australia's red meat to the customer, consumer and community.

Our portfolio alignment to industry and government priorities

AMPC has a responsibility to consider the needs of many stakeholders. While our new approach to relationship management will be the primary driver for identifying member priorities and allocating resources, our programs are also structured to ensure alignment against industry and government priorities.

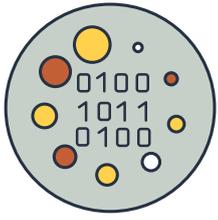


Processing Technologies



Environment & Sustainability

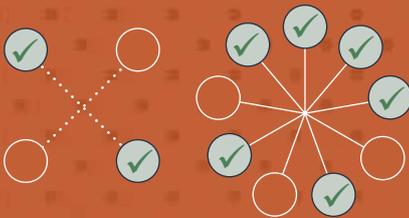
Meat Industry Strategic Plan 2020		
Consumer and Community Support		✓
Market Growth and Diversification		
Supply Chain Efficiency and Integrity	✓	✓
Productivity and Profitability	✓	✓
Rural Research, Development and Extension Priorities		
Advanced technology	✓	✓
Biosecurity		
Soil, water and managing natural resources		✓
Adoption of R&D	✓	✓
National Science and Research Priorities		
Food	✓	✓
Soil and water		✓
Transport	✓	✓
Cybersecurity		
Energy	✓	✓
Resources	✓	✓
Advanced manufacturing	✓	
Environmental change		✓
Health	✓	
FY19 investment portfolio - by stream		
Levies	\$6,322,810	\$2,578,965
Matching	\$4,028,399	\$1,578,965
Total investment	\$10.4m	\$4.2m



Processing Technologies

\$10.4m
INVESTMENT

Alignment with government priorities



Rural Research, Development and Extension Priorities:

- ✓ Advanced Technology
- ✓ Adoption of RD&E

National Science and Research Priorities:

- ✓ Food
- ✓ Transport
- ✓ Energy
- ✓ Resources
- ✓ Advanced Manufacturing
- ✓ Health

\$3.0m

1.1 PRODUCTIVITY AND QUALITY

Objectives: To investigate ways to increase processing efficiency and productivity without compromising on safety.

Outputs: Developing and implementing technologies and solutions that prioritise worker safety, automate manual tasks, increase the use of manual assist technologies, and improve resource efficiency to enhance process value and recovery.

Outcomes: Improved competitiveness in national and international markets, ensuring the long-term sustainability, high quality standards, and growth of an industry constrained by high costs and low margins.

\$2.8m

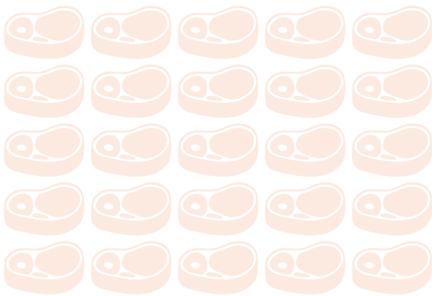
1.2 SENSING AND ANALYSIS

Objectives: To investigate and develop processing technologies capable of dealing with highly variable carcasses in terms of shape, size and composition.

Outputs: Developing and implementing systems that can manage variations to capture the data and images necessary to adjust cutting lines for automation and inform processing decisions according to carcass type, product specification, and customer and marketing requirements.

Outcomes: Development of the processing sector's ability to automatically measure characteristics 'online' and increase overall processing efficiency and productivity.

It is imperative that industry be able to evolve with new technologies in order to remain competitive. The Processing Technologies program provides world-class research and facilitates adoption of these technologies to improve process efficiency, reduce the cost of production, facilitate improved value capture and increase workplace health and safety.



\$2.9m

1.3 MATERIALS HANDLING

Objectives: To find alternative solutions to reduce labour handling tasks that can risk injury to workers.

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

Outcomes: Reduced cost burden to the sector associated with managing increasingly complex material handling tasks and employee injuries.



\$0.7m

1.4 VALUE ADDED

Objectives: To explore the potential for innovative concepts, products and technologies to add value within the processing supply chain.

Outputs: It will focus on transforming existing products (e.g. improving the eating characteristics of secondary cuts) and creating new ones (e.g. transforming inedible co-products into raw ingredients for other industries). Projects will deliver cost-effective methods of increasing value in alignment with customer needs.

Outcomes: Facilitation of productivity growth and industry competitiveness of Australian red meat processors.



\$1.0m

1.5 PLANT INITIATED PROJECTS (PIPS)

AMPC supports members to identify and undertake RD&E projects that benefit the whole sector. AMPC facilitates these projects through the PIP Program. Members can identify site or business level RD&E activities that will improve processing efficiency and technology.

Program 1: Processing Technologies

Project Title	Code	Provider	Start	Date due	Objective	Outputs
1.1 Productivity & Quality						
An On-Line System To Assess Beef Quality Characteristics	2017-1070	Goldfinch Solutions, LLC	1/12/17	15/1/19	Evaluate the TenderSpec™ Beef Classification System against Australian beef for the capability to forecast beef tenderness class from an image taken earlier postmortem.	Demonstrated the TenderSpec™ Beef Classification System for on-line image capture on hanging beef carcasses in commercial beef packing plants.
An On-Line System To Assess Beef Quality Characteristics - Project Logistics And Sampling	2018-1077	University of New England (UNE)	1/12/17	1/9/18	To evaluate the TenderSpec™ Beef Classification System for objective assessment of ribeye quality traits, including tenderness (day 14) and marbling, in Australian beef.	An accurate and objective evaluation of the TenderSpec™ Beef Classification System in predicting the quality traits of Australian beef. Provision of a mechanism to identify high quality beef, and gain domestic and international market share for Australian beef.
Automated Beef Ribset Deboning	2016-1011	exos Limited	16/3/16	23/7/18	Provide opportunities to increase yield and reduce manual labour in beef boning and limit associated injury risks.	Manufacture and trial of a single-side prototype machine to debone the beef ribset, and an assessment of labour utilisation and yield outcomes.
Prototype Development Of Machine To Remove Fat From Beef Striploins Leaving A Uniform Thickness Behind - Stage 2	2017-1045	Business and Manufacturing Consultancy UK	1/9/16	1/2/19	To reach a machine design solution as a production prototype and report detailing results and the benefits.	Development of a full-size first machine for striploin fat trimming, leaving a uniform layer of fat behind.
Automated French Dressing Of Lamb Rib Rack: Market Confirmation Of The Technical And Commercial Suitability Of An "Ideal" Automated Machine Design Followed By Its Prototype Design & Build Stages	2017-1052	Applied Robotics International Pty Ltd	1/9/16	31/10/18	Build the prototype, and do testing, evaluation, development and demonstration.	Production of a prototype design, performance evaluation and associated costs.
Tunnel Boner	2017-1059	Southern Engineering Solutions Ltd (New Zealand)	1/7/16	6/8/18	Develop and manufacture the capability of removing the femur bone from lamb or mutton hind legs while leaving the tibia bone in place.	Development and implementation of the tunnel boner machine.
Robotic Beef Splitting Cba & Development	2017-1084	Scott Automation & Robotics	1/9/19	10/11/18	Advance previous robotic beef splitting and spinal cord removal development conducted with a focus on developing viable beef slaughter automation principles.	Confirmation of a suitable test site, design and construction of a beef splitting system for trials, demonstrated capabilities of robotic beef splitting and production of a final report and accompanying videos.
Roadmap Development For A Meat Processing Intelligent Automation Centre	2018-1025	Royal Melbourne Institute of Technology (RMIT)	12/2/18	14/12/18	Establish a research center for fostering collaboration between the meat industry and academia towards the development and deployment of meat-related intelligent automation technology.	Review of the current usage of intelligent automation technology, review of the future needs for intelligent automation, industry roadmap for the future utilisation of intelligent automation in the red meat industry.

Project Title	Code	Provider	Start	Date due	Objective	Outputs
Automatic Equipment For Handling Of The Bung In The Lamb Slaughter Process – Step 2	2018-1031	Danish Meat Research Institute (DMRI)	1/9/19	1/12/18	Manufacture a factory prototype, test it in an Australian plant and successfully adapt and document the prototype in an inline installation.	Drawings and specification for a prototype of the lamb bung handling equipment, adapted to a specific slaughter line. Observations of prototype, documentation, and cost benefit analysis of commercial model.
Applications Of Deep Learning For The Red Meat Processing Industry	2018-1041	Greyshe'd, Inc.	1/11/17	16/7/18	Provide a roadmap for integrating recent machine learning techniques into image and data processing in the red meat industry.	Literature review, case studies of training with sample datasets, and a roadmap of possible applications of deep learning.
First Prototype Automation For Deboning Lamb Shoulder - Stage 2	2018-1045	Business and Manufacturing Consultancy UK	1/12/17	1/2/19	Develop a pilot automation robotic approach for the separation process of the shoulder rib-carcass from the primal piece comprising fixation and handling as well as a robot with minimum sensing to manipulate a compliant cutting tool to achieve cuts.	Automated deboning system for lamb shoulder, fixation mechanism for easy loading; handling system for transfer, compliant tool for cutting meat along desired cut paths.
Investigation Into The Suitability Of Standard Meat Conveyor Belt Materials For CO2 Pellet Cleaning	2018-1052	Cold Logic Pty Ltd	2/1/18	14/9/18	Investigate the effect of repeated cleaning of meat conveyors using CO2 pellets with respect to material properties and fatigue.	Comprehensive review of dry ice blasting for cleaning purposes, summary of application benefits, literature review materials, and a summary report of experimental testing.

1.2 Sensing & Analysis

Rnd4profit 15-02-014 Enhancing Supply Chain Profitability Through Reporting And Utilization Of Peri-Mortem Information By Livestock Producers	2017-1099	Australian Pork Limited	28/6/16	30/7/20	Develop and implement a standardised national framework and a minimum set of data standards to support consistent reporting of peri-mortem information for beef, sheepmeat and pork to producers. To gain industry endorsement of governance rules to manage data access and integrity to stakeholders.	Improved on-farm productivity and profitability through the utilisation of peri-mortem information to inform production and animal health decisions and reduce losses associated with carcass and offal condemnation at slaughter.
Development And Validation Of A Probe For Measuring Fat In Lamb Carcasses	2017-1100	Sheep CRC Ltd	16/12/16	1/5/19	Develop automatic and accurate methods of measuring carcasses for traits like farness and GR tissue depth, to aid a reduction by the red meat industry in carcass fat levels in line with domestic and international consumer demands.	Development of a probe to measure GR at chain speed. Validation of the probe for robustness and accuracy. Establishment of a pathway for commercial provision with the required technical backup.
Noninvasive Measurement Of Meat Quality In Live Animals Using Deep Tissue Raman Spectroscopy	2017-1011	Royal Melbourne Institute of Technology (RMIT)	1/2/17	16/12/19	Reduce the level of dark cutting meat in Australia by developing sensor technology that can be used to screen cattle in real-time at the abattoir, either at receipt, or immediately pre-slaughter. This will allow dark cutting susceptible animals to be diverted so they can better recover their levels of glycogen.	To detect and quantitatively determine key biochemical determinants of meat quality within living animals, and establish a new ability to quickly and accurately assess the likelihood of dark cutting in each live animal.

Program 1: Processing Technologies

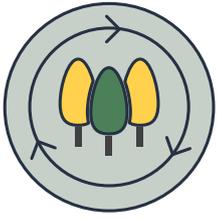
Project Title	Code	Provider	Start	Date due	Objective	Outputs
Abattoir Production Data Analysis For Operational Performance Improvements	2018-1020	Wiley & Co Pty Ltd	1/8/18	1/6/19	Make the meat grading process faster and more consistent through the development and implementation of a purpose-built computer vision & analysis suite.	Physical proof of concept computer vision solution. Solution should perform all the analytical functions desired by the industry representatives and be ready for tweaking in preparation for wide scale deployment.
Naked Primal Cut Recognition Vision System Trial In Plant	2018-1048	Strategic Engineering Pty Ltd	1/5/18	1/2/19	Implement the project "Development of Naked Primal Cut Recognition Software" in a meat processing plant for a live trial.	Deliver a robust sending network coupled with advanced software algorithms capable of rapidly identifying a range of pre-packaged red meat primal cuts from a predefined database.
Scoping The Requirements In Beef Yield And Quality Prediction And Control Using Advanced Sensing And Traceability Integration With Robotics And Structured Human Based Cutting	2018-1112	Business and Manufacturing Consultancy UK	20/6/18	31/7/18	Review current practices and produce a technical requirements document which specifies solutions for acquisition and management of information.	Scoping of Australian processors' requirements for online quality and yield measurement including use of predictive solutions from systems, implementation of methodology and process, framework for adoption, and a final report.

1.3 Materials Handling

Automated Container Load Production System	2018-1042	Scott Automation & Robotics	20/6/18	30/6/19	Next stage development of an automated container loading system to manufacture and test a production capable system, and put into operation at an Australian meat processing facility.	Design, construction and testing of the automated container loading system, installation and commission of the system in a red meat processing facility, and evaluation and refinement of the concept to provide the basis for a production machine that can be rolled out to industry.
Automation Of Primal Cut Bagging	2018-1049	Strategic Engineering Pty Ltd	20/6/18	15/4/19	Examine the most effective way of bagging and labelling naked primal cuts.	Development of a proposed system in consultation with processing facilities to ensure the deliverables meet the needs of the processors in the red meat industry. Demonstration of the practicability and viability of autonomous naked primal cut bagging using intelligent technologies.

Project Title	Code	Provider	Start	Date due	Objective	Outputs
In Plant Trial Of Robotic Picking And Packing System	2018-1050	Strategic Engineering Pty Ltd	1/8/18	30/6/19	Install the Robotic Picking and Packing system developed in project 2017-1065 in an actual plant and trial it on real product and in real-time on the production line.	Development of the system in consultation with one of more processing facilities, development of standard electrical & mechanical interfaces, demonstration of the practicability and viability of autonomous picking and packing, and marketing of the technology.
Feed Study To Establish Pilot Plant Boundaries For The Implementation Of A Co2 Capturing Facility	2018-1051	Cold Logic Pty Ltd	2/1/18	1/9/18	Identify suitable equipment for the capture, upgrading, and liquefaction of CO2 from either pre- or post-combustion process and remove any large-scale risk when considering implementation of such a system at an existing red meat processing facility.	List of required input and output variables for other users; report of sizing considerations for other users in the industry, detailing of the boundary conditions pertaining to daily requirements of liquid CO2; report containing outputs of feed study and implications to capital expenditure; and separation of scalable expenses.
Prevention Of Contamination Of Rendered Meal And Tallow By Foreign Matter	2018-1113	All Energy Pty Ltd	1/3/18	1/11/18	Improve the quality of rendered products by addressing the issue of the presence of foreign matter in raw material.	An education and training program to communicate that foreign material in rendered products is unacceptable. Review of mechanical separation, automated detection, and materials of construction options to remove foreign material from rendered products.
1.4 Value Added						
Value Adding Stage 2	2017-1063	All Energy Pty Ltd	1/9/16	1/3/19	Continue work performed on biomolecules to cover the demand for Australian-derived and manufactured value-added products prior to potential commercial development.	An extensive database of molecules, equipment and process models to ensure that revenue opportunities are defined from the perspective of a domestic meat processing facility.

PROGRAM 2



Environment & Sustainability

\$4.2m

INVESTMENT

Alignment with government priorities



Rural Research, Development and Extension Priorities:

- ✓ Advanced technology
- ✓ Soil, water and managing natural resources
- ✓ Adoption of RD&E

National Science and Research Priorities:

- ✓ Food
- ✓ Soil and Water
- ✓ Transport
- ✓ Energy
- ✓ Resources
- ✓ Environmental Change

\$0.5m \$0.5m

2.1 ENERGY EFFICIENCY

Objectives: To investigate ways for the Australian red meat processing sector to utilise energy efficient technologies, reducing their energy usage and minimising their impact on the environment.

Outputs: This stream focuses on developing pioneering concepts, methodologies and products for reducing overall energy consumption within the industry and limiting greenhouse gas emissions. It considers the use of renewable energy sources instead of relying on external energy derived from fossil fuels such as coal, gas, liquefied petroleum gas, oil or diesel.

Outcomes: Reduced energy costs and increased social licence to operate as communities see that the processing sector views corporate social responsibility and stewardship of our natural resources to be a major priority.

2.2 WASTE MANAGEMENT

Objectives: To look at methods by which the processing sector can more efficiently treat and safely remove liquid and solid waste by-products of red meat processing, and to investigate waste management as an additional source of revenue by converting waste into solid and liquid biofuels, nutrients and edible or non-edible products.

Outputs: This stream focuses on developing innovative products and processes to reduce waste and transform traditional waste streams into streams that add value to the industry while reducing the impact on the environment.

Outcomes: Improved overall efficiency of the processing sector due to reduced overhead costs of waste treatment and disposal, along with new revenue streams of recycled or converted waste that can be reused or sold.

Corporate social responsibility is increasingly important to consumers and to the red meat processing sector. The Environment & Sustainability program explores ways to reduce the environmental impact of the industry, maximising efficiencies in energy and water consumption and assisting our members to deliver improved animal welfare outcomes.



2.3 WATER CONSERVATION

Objectives: To reduce water consumption, recycle where it is safe to do so, and consider new sources where it is available, while continuing to ensure high levels of food safety and hygiene are maintained.

Outputs: This stream focuses on finding new products and processes to conserve water while delivering the highest food safety standards.

Outcomes: Reduced economic and environmental burden of excessive water usage in the Australian red meat processing sector and increases efficiency through recycling programs.

2.4 SUSTAINABILITY

Objectives: To investigate ways for the Australian red meat processing industry to negotiate economic, social and environmental challenges while preserving the productivity and sustainability of our sector.

Outputs: This stream focuses on researching new concepts, methodologies and processes that can contribute to the improvement of the industry supply chain sustainability (food safety, integrity systems, animal health and welfare, biosecurity, etc.).

Outcomes: Continued productivity and competitiveness of Australian red meat in the international market without compromising food safety, integrity or quality.

2.5 Plant Initiated Projects (PIPs)

AMPC supports its members in identifying and undertaking RD&E projects that benefit the international competitiveness of the Australian red meat processing industry, e.g. site or business-level RD&E activities and the areas that will enable the sustainable development of the business.

Program 2: Environment & Sustainability

Project Title	Code	Provider	Start	Date due	Objective	Outputs
2.1 Energy Efficiency						
Energy-sufficient meat processing plant	2018-1014	Smart Business Hub Pty Ltd	1/2/18	1/11/18	Demonstrate that meat processing plants can become energy self-sufficient by utilising reliable renewable energy technologies, and identify any gaps that require further research.	Written reports and snapshots, an infographic regarding implementation, an animated explainer video, fact sheets, and a stakeholder presentation.
Employing Wastewater for Passive Heating and Cooling in Red Meat Processing Facilities	2018-1017	Greynshed, Inc.	31/5/18	14/6/19	Minimise the use of non-renewable energy in meat processing facilities by leveraging passive heating and cooling methods which rely partially upon plant waste systems.	Thermal analysis of heating and cooling loads for typical Australian red meat processing facilities. Prototypes of radiant sky cooling method, as well as cooling system that minimizes electrical refrigeration.
2.2 Waste Management						
Enhanced Energy Recovery in Australian Industry through Anaerobic Co-digestion	2014-1073	University of Queensland (UQ)	1/7/14	30/8/18	Improve energy recovery and reduce the whole-of-life cost of treating solid slaughterhouse wastes using anaerobic co-digestion and leveraging previous research and investment by AMPC and other domestic industries.	Detailed report on how anaerobic co-digestion is influenced by the various organic wastes, individually and in combination with each other.
Investigation into sensor technologies to manage waste streams and optimise the use of their by-products	2017-1032	Environmental Engineers International Pty Ltd	1/9/16	3/8/18	Identify, using sensor technologies, key parameters for waste stream management and for the optimisation of the treatment process.	State-of-the-art review of current waste stream sensor platforms and associated control systems as well as software of different types and costs.
Assessment of Smouldering as an Efficient and Low-Cost Alternative for Management of Agricultural Solid Wastes	2017-1037	University of Queensland (UQ)	3/10/16	27/7/18	Demonstrate proof-of-concept for smouldering in red meat processing applications and develop a R&D pathway to commercial applications.	Assessment of smouldering in red meat processing applications compared to other current practices.
Problem to Profit: Developing a sustainable feed base from agricultural wastes using single cell protein	2017-1039	University of Queensland (UQ)	3/10/16	20/8/18	Continue research and development on Purple Phototrophic Bacteria (PPB) in red meat processing applications in order to demonstrate its value proposition for red meat processing wastewater streams.	Small-scale proof-of-concept and continuous laboratory-scale operations to support a future R&D strategy for continuous process development.

Project Title	Code	Provider	Start	Date due	Objective	Outputs
Energy and Materials Recovery From Paunch Waste Using Novel Hydrothermal and Supercritical Water Gasification Processes	2018-1027	Royal Melbourne Institute of Technology (RMIT)	1/8/18	1/11/18	Investigate the feasibility of hydrothermal carbonisation and supercritical water gasification processes for processing heavily moisture-laden paunch waste.	Evaluation of two novel technologies, and experimental validation of the new processes at laboratory scale. Techno-economic comparison of hydrothermal carbonisation and supercritical water gasification processes. Establishment of thermodynamic and process models relating to paunch waste utilisation.

2.3 Water Conservation

Technical and economic feasibility of water recycling and energy recovery for red meat processing operations in abattoirs	2018-1030	University of New South Wales (UNSW)	1/8/18	30/7/18	Conduct a technical and economic feasibility study to identify technologies capable of water recycling while simultaneously recovering energy from meat processing waste streams.	Report including technical feasibility of compliance with safety constraints of the meat industry and findings of the economic and environmental benefits of implementing reuse technology will be implemented.
Future of water recycling and purification technologies	2018-1046	GHD Pty Ltd	1/8/18	20/3/19	Reduce the amount of water and wastewater consumed by red meat processing plants. Identify restrictions imposed by Australian Government and export market trade barriers to select adequate technology for water recycle and re-use.	Review of typical wastewater streams in the red meat industry; better understanding of regulatory requirements in recycling wastewater streams; and review of the current and future promising technologies relevant to contaminated water recycling identifying economic, regulatory, and social benefits.

2.4 Sustainability

National Livestock Animal Welfare RD&E: Capability and gaps analysis	2016-1444	Australian Pork Limited	1/7/15	28/8/18	Undertake a detailed analysis of current and future livestock animal welfare RD&E capability and infrastructure, identify current and emerging gaps, and develop recommendations and strategies to address these gaps.	Refreshed capability analysis but with significant enhancements, including trends analysis with reference to the past capability and infrastructure audit and the future intentions of major research providers and investors.
Quantitative Risk Analysis of the Impact of Climate Variability on the Australian Red Meat Processing Industry	2017-1036	EY	1/9/16	20/8/18	Assess the risks and opportunities associated with climate variability upon the Australian red meat processing industry in order to gauge the overall sustainability of the supply chain and identify risk mitigation strategies.	Assessment of climate variability upon the industry and results of backward scenario analysis looking at the impact of and learning from climate extremes on the meat and livestock industry.

Program 2: Environment & Sustainability

Project Title	Code	Provider	Start	Date due	Objective	Outputs
Review and compare Australian animal welfare systems throughout the supply chain to major trading partners (whole of life animal welfare)	2018-1021	Food and Veterinary Services Pty. Ltd.	1/12/17	15/10/18	Provide a tool for industry and individual processors to defend Australian meat animal welfare practices on a whole of value chain basis.	Development of a comprehensive picture of Australian animal welfare regulation and industry systems presented on a whole of value chain basis.
Communications for improved livestock welfare	2018-1024	Australian Animal Health Council Limited	1/8/18	5/11/18	Develop and implement a directed & targeted communications plan based around the relevant animal welfare legislation.	Workshop held to draft a red meat processing tailored communications plan, and a final communication plan developed in consultation with the working group to identify how to key messages will be communicated.
Predicting and scheduling lamb supply with variable seasonal conditions	2018-1029	Sheep CRC Ltd	20/12/17	1/6/19	Climactic conditions make the forecasting of lamb turnoff dates, and managing production systems challenging. The CRC's predictive sheep management program aims to solve this through an online computer app used to forecast flock information.	Facilitation of processors and buyers forecasting and scheduling, lamb producers turn-off prediction and quality assurance, supply chain processor and producer data sharing, and delivery of a number of specialists able to use the modelling and prediction apps with confidence.
Development of "Is it fit to process?" guides for Tier 1 export abattoirs and small to medium enterprises processing for the domestic market	2018-1037	Joan Lloyd Consulting Pty Ltd	1/3/18	1/12/18	Develop short pictorial guides to help underpin decision making about whether an animal is fit to process for small to medium enterprises processing for the domestic market, as well as Tier 1 abattoirs.	Fitness to process guides for the red meat processing industry, endorsement of the guides by key industry organisations and government, distribution of guides through the MINTRAC networks and related training activities and displays.

Project Title	Code	Provider	Start	Date due	Objective	Outputs
Executive Support - National Animal Welfare R, D & E Strategy	3000-5088	Australian Pork Limited	1/7/12	30/6/19	Develop national arrangements to deliver strong collaboration amongst existing RD&E provider groups and effective partnerships between investors and providers.	Secretariat support, development and management of meetings, forums, etc.; provision of suitable venues for strategy committee meetings; developing publications, communication activities, stakeholder engagement, presentations on RD&E priorities, outcomes and other activities as required by the Committee.
National Animal Biosecurity Research, Development & Extension (RD&E) Strategy Implementation Project	3000-5111	Australian Animal Health Council Limited	1/7/14	30/8/18	Encourage greater collaboration and promotion of continuous improvement in the investment of RD&E resources nationally in the area of animal biosecurity.	A national strategy including current knowledge and capability gaps to inform future RD&E in the area of animal biosecurity, encouraging greater collaboration throughout the supply chain.
Monitoring public attitudes to livestock industries and livestock welfare	2018-1120	Australian Pork Limited	16/7/18	30/12/18	Develop a tool to monitor public perceptions and sources of knowledge relating to animal welfare in the primary industry sector.	Identification of trends in community attitudes and behaviour and the development of communication strategies designed to inform the community on welfare related developments in livestock industries.
Climate Research Strategy for Primary Industries (CRSPI)	2018-1128	AgriFutures Australia	1/7/17	30/6/20	Strengthen the connection between RD&E investment and industry outcomes through an emphasis on adaptation to a changing climate, emissions intensity, and climate change in business.	Approval of the CRSPI Research Strategy and Communication Plan, analysis of database of climate research development and extension activities, running of national conference on climate in primary industries, maintenance of a communication portal for climate research and policy.

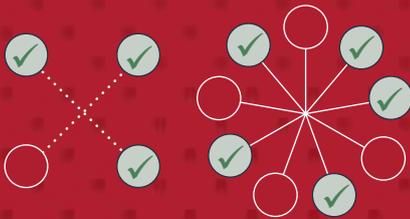


Processing Hygiene, Quality & Meat Science

\$9.0m

INVESTMENT

Alignment with government priorities



Rural Research, Development and Extension Priorities:

- ✓ Advanced technology
- ✓ Biosecurity
- ✓ Adoption of RD&E

National Science and Research Priorities:

- ✓ Food
- ✓ Transport
- ✓ Resources
- ✓ Advanced Manufacturing
- ✓ Health



3.1 FOOD SAFETY

Objectives: Aims to deliver the appropriate level of protection to the market and ensure that this level of protection is constantly reviewed against regulatory requirements.

Outputs: Identification of tools and meat safety technologies which comply with industry standards for hygiene and food safety risks.

Outcomes: Managed under the Joint Program with MLA, joint food safety initiatives will ensure better value chain integration, improved technical market access and continuous compliance with market and regulatory requirements.

3.2 INTEGRITY SYSTEMS

Objectives: To develop and implement systems and technologies that ensure traceability, biosecurity, disease risk mitigation, strong animal health and hygiene, and overall meat quality standards.

Outputs: Development of enhanced animal welfare, carcass grading and cold chain integrity systems based on yield and eating quality.

Outcomes: Accelerated through-chain traceability of animal welfare measures, carcass grading and temperature control systems.

Processing hygiene and product quality are crucial to Australia's reputation for excellence in red meat. The Processing Hygiene, Quality & Meat Science program combines knowledge of meat science and quality in the continuous delivery of high-quality standards and food safety, as a key differentiator of Australian products in a competitive market.

\$0.8m **\$1.2m** **\$1.0m**

3.3 MEAT SCIENCE

Objectives: To explore technologies and innovations that measure texture, nutrient bio-availability and colour to improve eating properties.

Outputs: Identification of key attributes and biochemical markers of food quality that are consumer driven through the value chain.

Outcomes: Better market access through innovative response to changing consumer patterns in the creation of products tailored to optimal health and quality.

3.4 TRANSFORMATIONAL MEAT SCIENCE (TMS)

Objectives: Investigation of fundamental meat properties such as protein structure at a molecular level and research how advanced technologies can be used to extract desired functionalities.

Outputs: Through industry-wide collaboration, identification of elements and potentially bioactive compounds that can be ethically and sustainably co-produced from meat fractions.

Outcomes: Equipping the next generation of meat scientists with expertise to transform commodity-based operations into high-value, market focused ventures.

3.5 Plant Initiated Projects (PIPs)

AMPC supports its members in identifying and undertaking RD&E projects that benefit the international competitiveness of the Australian red meat processing industry, e.g. site or business-level RD&E activities and areas that will ensure food safety, quality and integrity.

Program 3: Processing Hygiene, Quality & Meat Science

Project Title	Code	Provider	Start	Date due	Objective	Outputs
3.1 Food Safety						
Hyperspectral ZT and Food Safety Determination (Phase 2)	2017-1053	Scott Automation & Robotics	20/1/17	1/7/18	Detect and evaluate meat quality objectively using new hyperspectral technology, which has shown great results in identifying bile, faeces and ingesta.	Demonstration of the system operating in a beef meat processing facility at line, including improving Phase 1 algorithms.
Contemporary chemical lean validation – national standard for measurement	2017-1058	Commonwealth Scientific & Industrial Research Organisation (CSIRO)	1/3/17	1/3/19	Conduct an inter-laboratory comparison to validate the performance of methods used for Chemical Lean (CL) determination by Australian domestic and international facilities for meat export.	Identification of currently used methods for CL determination and associated providers. Assessment and performance evaluation of methods used for CL analysis by domestic and international providers. Development of a proposal for national standards for CL determination.
Australian Export Meat Inspection Service Review	2018-1131	Palladium International Pty Ltd	15/5/18	22/2/19	To review the Export Certification Services (Australian Export Meat Inspection System - AEMIS) provided by the Australian Government to the Australian meat processing industry.	Identification of potential value adding opportunities. A set of recommendations to support the intent that AEMIS is cost-effective, efficient and fit-for-purpose in protecting and promoting market access for Australian meat and meat products.
A cold plasma wash water technology for meat safety and shelf-life extension	2016-1326	University of New South Wales (UNSW)	1/12/17	1/11/20	To develop and validate a novel non-thermal plasma (NTP) based technology for microbial control of red meat, to be used in carcass wash water.	Delivery of a pre-commercial prototype technology aimed at the red meat sector, a report that documents the key findings, outcomes and conclusions as a result of carrying out the pilot plant trials with plasma-water treated meat.
Laser shock wave processing facility for cryovac meat products	2018-1082	University of New South Wales (UNSW)	1/2/18	1/8/19	To design and build a facility capable of testing samples of cryovac meat at pressures between 10 and 50 MPa, with optical access for generation and visualisation of laser-driven localised blast waves, to test the effect of laser pulse energy and distance from the spark location to the surface of the meat on the pressure and temperature change experienced by the meat sample and to investigate the effect of shock waves on bacteria using optical microscopy.	Delivery of a working chamber where high-pressure impulsive testing can be performed to see the effectiveness of this proposed treatment on a sample of meat, a report characterising the performance of the device.

Project Title	Code	Provider	Start	Date due	Objective	Outputs
3.2 Integrity Systems						
Process monitoring for the Australian meat industry - a comparative industry trial	2018-1070	South Australian Research & Development Institute (SARDI)	1/9/17	1/8/18	To generate and analyse comparative data between the existing and proposed PHI systems, as the basis for an equivalence submission that DAWR can use in negotiations with international markets; and to generate data to evaluate the integrity of the proposed system – this includes the validation of microbiological parameters for end product testing.	Validate proposed microbial limits for APC and E. coli for bulk meat, primals and offal (APC only), data to validate proposed visual defect limits for MHA for bulk meat and primals, revised PHI data recording and reporting spreadsheets, which can form the basis for an ongoing monitoring system, including development into a cloud-based data system accessible by industry and DAWR (not part of this project).
Microbiological food safety and storage life of Australian red meat	2018-1086	South Australian Research & Development Institute (SARDI)	1/2/18	2/7/18	To prepare a monograph: “Microbiological food safety and storage life of Australian red meat” which is an amalgamation of all relevant information and publications on Australian microbiological food safety and storage quality.	A monograph showcasing, with scientific rigour, the status of the Australian red meat industry in terms of microbiological storage life and food safety.
Real-Time Meat Eating Quality Probe: Technology Refinement and Commercialisation	2018-1088	MEQ Probe Pty Ltd	TBC	30/8/18	To refine the MEQ Probe via testing numerous situations, Build the robustness of the MEQ Probe software via calibrations, refine the total package to meet industry requirements, refine the Proof-Of-Concept technology to a commercial ready solution.	A commercial ready meat-eating-quality probe, a probe that is scalable to processors chain-speed requirements, and software and statistical model that is ready for validation by AUS Meat and MSA, and any independent testing house.
TSE Freedom Assurance Program for Business Plan 2013-18	3000-5105	Australian Animal Health Council Limited	1/7/13	31/10/18	To maintain Australia’s freedom from BSE and scrapie and highest level international rating, to carry out sufficient surveillance to meet international requirements, to demonstrate that no restricted animal material is fed to ruminants, to manage the risks posed by animals imported from countries that have had native-born cases of TSE, to provide a forum to involve all stakeholders in addressing animal-related TSE issues.	The outputs to be delivered by the TSEFAP Project are: A program description and annual summary of TSEFAP activity published in Animal Health in Australia (AHIA) annual report, annual report of TSEFAP (ARFB and IAQSS) for AHC and SAFEMEAT, a program homepage on the AHA website, ad hoc reports as required, communications to all stakeholders.
3.3 Meat Science						
Sensing for Offal Grading and Enablement of Automation	2016-1003	AgResearch Limited	1/4/17	31/7/18	To develop a multi-sensor grading tunnel through which the viscera tray can pass. X-ray expertise will be used to inspect internally for cysts, lesions and pus; while a hyperspectral camera and UV source (to fluoresce faecal and urine contamination) will inspect the surface for lesions, colour and contamination.	A full report describing the trial methodology, analysis and results, a draft Functional Specification describing the sub-system sensor requirements, integration requirements and operator/plant interfaces for an integrated sensor tunnel for this application, a snapshot of the project.

Program 3: Processing Hygiene, Quality & Meat Science

Project Title	Code	Provider	Start	Date due	Objective	Outputs
Pilot study on design of lairage, handling and stunning facilities and the potential impact on animal welfare and meat quality	2016-1190	University of Melbourne	1/12/15	31/7/18	To identify facility design features that impact on animal handling and pre-slaughter stress in sheep.	This project will deliver an extensive overview of the literature, including published scientific articles as well as research reports held by MLA and AMPC and Trade Journal Reports, on facility design at abattoirs and the potential effect on pre-slaughter stress and meat quality.
Intelligent solutions for boxed beef trim export enhancement	2017-1006	Royal Melbourne Institute of Technology (RMIT)	1/12/16	29/9/18	Investigate the extent and causes of the mislabelling problem. Study the issue of market complexity for boxed beef export and identify possible solutions for the mislabelling problem, including simplification and automation of the labelling processes.	Identification of the possible solutions for the rectification of the mislabelling problem and pathways for the adoption of AMPC-owned technologies for the full automation of the labelling process, including a feasibility study.
Can on-site beef dark cutting evaluation (monitoring) be improved and value-added?	2017-1044	Department of Primary Industries (NSW)	30/1/17	31/7/18	To determine DC parameter variation between beef muscles (within-carcase) and formulate a monitoring guide (when and where) to improve evaluation precision, accuracy and whole carcass representation, evaluate the capacity for monitored DC parameters to provide additional information to industry in terms of product shelf-life, spoilage, and purge characteristics.	To deliver a report that details the comparison of beef muscles for within carcass variation of parameters underpinning dark cutting incidence, formulation of a dark cutting guide (when and where) detailing the best monitoring option to improve its precision, accuracy and whole carcass representation, and the evaluation of the potential for monitored dark cutting parameters to provide industry with additional information regarding shelf-life, spoilage, and purge concerns.
A practical means to accelerate beef ageing and sustain acceptable eating quality and safety: Chilled storage temperature manipulation	2017-1048	Department of Primary Industries (NSW)	16/1/17	3/6/19	To establish temperature control guidelines for industry to apply when ageing beef and safely achieve improved meat quality within a reduced timeline, use technology (intelligent packaging) to quantify beef ageing period and quality traits in situ (non-destructive and within pack), identify purge loss and other yield parameter associations with ageing period and temperature to provide industry the information to limit waste and increase profits, validate instrumental measures associated with consumer perception of eating quality.	To deliver a report that identifies temperature control guidelines, beef aging periods and quality traits.

Project Title	Code	Provider	Start	Date due	Objective	Outputs
Shelf-life extension of fresh meat products using high pressure processing	2017-1056	Commonwealth Scientific & Industrial Research Organisation (CSIRO)	1/3/17	3/6/19	To define the limits of applied pressure to achieve a fresh meat product with 'acceptable' colour and appearance, without impacting on objective texture and yield, whilst providing extended shelf life due to destruction of spoilage causing microbes.	To provide an accurate cost benefit analysis to facilitate decision making for the meat industry in relation to investment in HPP technology.
Meat Science Towards 2030: An International Forum for the Development of Strategic Objectives	2017-1144	Birkenwood Pty Ltd	15/7/17	31/12/18	To develop a meat science issues paper for broad circulation across the international scientific community seeking widespread comment and solutions to current and emerging risks and challenges in the meat industry.	To deliver the AMPC Meat Science Towards 2030: An International Forum for the Development of Strategic Objectives.
Non-invasive prediction of flavour, tenderness and juiciness for individual animals at point of slaughter – Stages 1 & 2	2018-1083	AgResearch Limited	23/4/18	1/5/19	Stage 1: Mathematical modelling to identify key factors underlying meat quality attribute pathways. Stage 2: Measurement of muscle-to-meat factors and sensory indicators and physical attributes in at least one muscle.	Advancement in meat measuring models to assist in the improved management of animals for optimal meat quality.
Development of shockwave technology for tenderisation and decontamination of beef cuts	2018-1085	Commonwealth Scientific & Industrial Research Organisation (CSIRO)	9/7/18	3/9/21	To determine shockwave parameters that impact meat tenderness and develop customised treatments for a range of beef cuts.	To assess a new processing method for tenderisation and disinfection of beef.

3.4 Transformational Meat Science

Transforming low-value meat cuts and non-meat products into high quality powders	2018-1084	Commonwealth Scientific & Industrial Research Organisation (CSIRO)	1/5/18	1/5/20	To utilise low value meat cuts and by products into high value shelf stable powders.	the development of a new process and prototype for a cost-effective manufacture of meat co-products into high quality powders integrated with 3DP for new product development application (potential new project IP for exploitation).
Development of novel bioactive peptides from slaughterhouse blood	2018-1087	University of New South Wales (UNSW)	1/5/18	1/6/21	To develop bovine and ovine blood protein-based bioactive peptides with a wide range of applications in pharmaceutical, nutraceutical and functional food products.	To produce several outputs that will be of significant value to the Australian red meat industry.



Capability, Extension & Education

\$3.9m
INVESTMENT

Alignment with government priorities



Rural Research, Development and Extension Priorities:

- ✓ Adoption of RD&E

National Science and Research Priorities:

- ✓ Food
- ✓ Advanced Manufacturing
- ✓ Environmental Change
- ✓ Health

\$1.1m

4.1 INDUSTRY CAPABILITY

Objectives: To develop capabilities within the red meat processing sector and among its personnel to ensure long-term sustainability.

Outputs: Identification of the training, education and capability gaps that exist between different sized processors and development of new initiatives to fill those gaps through both face-to-face training and online extension programs.

Outcomes: Increased industry education and capability among small and medium red meat processors.

\$1.9m

4.2 EXTENSION SERVICES

Objectives: To ensure that the outcomes of research and development are successfully communicated and disseminated among processors to promote implementation.

Outputs: Provision of support for the extension and adoption of R&D outputs to ensure they deliver value and high return on investment to industry.

Outcomes: Increased member understanding of AMPC R&D outcomes. Increased adoption of successful R&D outcomes into members' processing facilities.

Industry relies on its workforce to continue to build its position on domestic and world markets. In order to achieve this, industry must be able to plan, and meet our current and future workforce needs in a complex and ever-changing environment. The Capability, Extension & Education program helps Australian red meat processors to attract, recruit, support and develop personnel to meet current and future industry needs.



The infographic features two large blue numbers, '\$0.7m' and '\$0.2m', set against a background of stylized human icons. The '\$0.7m' is positioned on the left and is partially overlaid by five icons. The '\$0.2m' is on the right and is partially overlaid by two icons. The icons are light blue and show a person with arms raised, symbolizing achievement or growth.

4.3 SCIENTIFIC EDUCATION

Objectives: Improving collaboration with the government, Rural Research and Development Corporations (RDCs) and educators can lead to significant results such as innovative development, reducing duplication and improved efficiency.

Outputs: Strengthening of relationships between industry and education providers to jointly conduct scientific research with maximal impact and return on investment to the industry.

Outcomes: Increased employment across all sectors of the industry and ensuring succession planning in critical shortage areas including meat safety, quality assurance and laboratory.

4.4 VOCATIONAL TRAINING

Objectives: To facilitate ongoing professional development and training for employees in the red meat industry, where it has historically been difficult to attract and retain highly skilled personnel.

Outputs: Attracting, supporting, developing and retaining industry personnel through ongoing professional development to meet current and future industry needs.

Outcomes: Improve the overall skill level of industry personnel via professional development and have strategies in place to retain our skilled workforce.

Program 4: Capability, Extension & Education

Project Title	Code	Provider	Start	Date due	Objective	Outputs
4.1 Industry Capability						
Leveraging Strategic Energy Products to Enhance Productivity at Red Meat Processing Sites	2017-1015	Energetics Pty Ltd	1/9/16	30/8/18	Apply existing energy research via education and engagement activities (face-to-face demonstrations) at 'implementation ready' small and medium processors.	Reduced energy costs per carcase processed and improved energy productivity across the sector, contributing to the 2030 National Energy Productivity target to increase energy productivity by 40 per cent.
Developing a model for meat inspection and quality assurance employment outcomes for University graduates and undergraduates	2017-1024	National Meat Industry Training Advisory Council Limited (MINTRAC)	1/9/16	1/9/18	Develop a model of meat inspection and Quality Assurance (QA) training and recruitment which will address a recruitment problem affecting the red meat industry and provide university students with a recognised qualification which will enhance their employment opportunities.	Development and trial of a model of training whereby undergraduate and graduate university animal science students receive training as meat inspectors and quality assurance officers.
An Integrated Scholarship Program in Water, Water Re-use and Environment - Year 1	2017-1077	University of Queensland (UQ)	1/2/17	31/1/19	Upskill the current red meat industry workforce and attract new skills through targeted education and professional development programs. Extend a strategic education and extension partnership with UQ in the areas of water usage, treatment and re-use, and the environment.	Development of a critical mass of industry-ready students and research outcomes in the areas of water, water treatment and re-use, and the environment through industry.
MINTRAC provision of extension services to red meat processors 2017-2019	2018-1009	National Meat Industry Training Advisory Council Limited (MINTRAC)	1/8/17	3/6/19	Provision of support to the red meat industry to address critical industry needs, education and attraction.	Promote and support the red meat industry in the areas of training, innovation, attraction, retention and developing programs to upskill the industry.
Development of an engineering maintenance training strategy	2018-1013	National Meat Industry Training Advisory Council Limited (MINTRAC)	1/8/17	8/10/18	Develop a pathway for maintenance and engineering staff to upskill qualifications to keep up with new and emerging technologies.	A platform to upskill current maintenance and engineering staff in the latest technologies entering the red meat industry.
Making the Meat Industry a Safer Place for Workers	2018-1016	Australian Meat Industry Council (AMIC)	22/1/18	20/9/18	Develop an up-to-date, detailed and accurate picture of worker's compensation claims in the meat processing industry across Australia.	A 3-5 year R&D strategic plan for work health and safety in the industry that identifies a series of recommendations, activities and resources for prevention and intervention to reduce incident rates.

Project Title	Code	Provider	Start	Date due	Objective	Outputs
4.2 Extension Services						
Meat Industry Efficiency and Innovation Capacity Enhancement: Benchmarking Technologies and Systems from Automotive Industry	2017-1001	Royal Melbourne Institute of Technology (RMIT)	1/12/16	15/11/19	Accelerate the adoption of new technologies by benchmarking the automotive and other manufacturing industries.	Creation of a database for a rapid knowledge transfer in order to improve red meat industry's innovation capacity on a sustained basis. This database will generate the basis for several future research activities in line with AMPC's capability for building strategic plans.
Development of an on-line virtual abattoir for education and training	2017-1018	University of Melbourne	1/9/16	31/12/19	The project will build two virtual abattoirs (covering sheep and beef production) that can be used to explain the processors used in a meat processing plant including WHS, animal welfare, production etc.	Development of an electronic platform (virtual abattoir) that can be further developed into an interactive learning tool package for education and training encompassing different types of Australian red meat processing plants.
Meat Industry Training Network 2017-2019	2018-1002	National Meat Industry Training Advisory Council Limited (MINTRAC)	1/8/17	14/6/19	The Meat Industry Training Network is a well-established network that is a highly effective means of distributing new information and providing extension services for AMPC RD&E activities. The network meetings offer forums for the implications of new developments to be explained, explored and discussed.	Industry is kept well-informed about current trends, new technologies and potential threats to industry.
Meat Inspection and Quality Assurance Network 2017-2019	2018-1003	National Meat Industry Training Advisory Council Limited (MINTRAC)	1/8/17	3/6/19	As above	As above
Meat Industry Environment Network 2017-2019	2018-1011	National Meat Industry Training Advisory Council Limited (MINTRAC)	1/8/17	20/7/19	As above	As above
Meat Processing Engineering Network 2017-2019	2018-1012	National Meat Industry Training Advisory Council Limited (MINTRAC)	1/8/17	3/6/19	As above	As above
Compiling knowledge base for red meat processing knowledge Hub	2018-1044	Freshagenda Pty Ltd	1/11/17	1/8/18	Design and implement an interim red meat processing industry knowledge support hub to make it easier for industry participants to access research and development findings, as well as a wider body of insights, relevant expertise and extension materials available to the processing membership.	Ensure members can access the latest research information relevant to their businesses.

Program 4: Capability, Extension & Education

Project Title	Code	Provider	Start	Date due	Objective	Outputs
Strengthening industry RD&E outcomes	2018-1103	Broad Aperture Pty Ltd	1/1/18	4/8/18	Hold a series of workshops and meetings with large and medium-sized processors to inform the development of 3-5 year strategy documents.	The creation of strategic plans tailored to large and some medium sized processing plants, informed by industry feedback.
Strengthening engagement with micro, small and medium red meat processors by identifying key priorities for research and development	2018-1111	Broad Aperture Pty Ltd	15/1/18	6/7/18	Reinvigorate processor relationships between micro and small to medium enterprises (MSMEs) through a process of engagement, consultation and collaboration. The priorities of MSMEs will form the basis for a strategic roadmap for research and development.	Action plans based on the R&D strategic plans, and project plans that will hold the detail of how R&D outcomes are developed on a project basis. These project plans will form the framework for continual alignment between industry R&D and strategic imperatives of the Australian red meat industry.

4.3 Scientific Education

Educational Pathways: Creating a Highly Skilled Meat Industry - Year 1	2016-1027	Royal Melbourne Institute of Technology (RMIT)	1/7/16	1/8/18	Create a holistic educational program to develop people to have the skills and knowledge to contribute to the meat industry over the coming decades (Bachelor Degree Program and Honours Degree Program).	Creation of a hub for process engineering and technology research. Support of students that undertake studies and research that are fully aligned with AMPC's strategic plan. Provision of ongoing educational opportunity for the benefit of the Australian meat industry.
An Integrated Scholarship Program in Process Engineering - Year 2	2016-1366	Queensland University of Technology (QUT)	1/1/18	31/12/18	The scholarship program will be marketed to attract outstanding students to choose process engineering and to expose these students to the opportunities and challenges offered by the red meat processing industry.	Attraction of talented and qualified candidates into the red meat processing industry.
An Integrated Scholarship Program in Process Engineering - Year 3	2016-1367	Queensland University of Technology (QUT)	1/1/19	31/12/19	As above	As above
An Integrated Scholarship Program in Process Engineering - Year 4	2016-1368	Queensland University of Technology (QUT)	1/1/20	1/2/21	As above	As above

Project Title	Code	Provider	Start	Date due	Objective	Outputs
Educational Pathways: Creating a Highly Skilled Meat Industry - Year 2	2016-1438	Royal Melbourne Institute of Technology (RMIT)	3/3/18	4/3/19	Create a holistic educational program to develop people that will have the skills and knowledge to contribute to the meat industry over the coming decades.	Developing students knowledge and awarness of the industry.
Educational Pathways: Creating a Highly Skilled Meat Industry - Year 3 & 4	2016-1439	Royal Melbourne Institute of Technlogy (RMIT)	5/3/19	15/2/21	As above	As above
An Integrated Scholarship Program in Red Meat Safety and Microbiology - Year 2	2017-1092	Curtin University of Technology	1/1/18	3/12/18	Curtin University will establish, in partnership with AMPC and CSIRO Food and Nutrition, an integrated scholarship scheme in the area of red meat safety and microbiology.	Graduates at a range of levels with expertise in the red meat safety and microbiology area who are aware of the actual issues facing the industry and ready to enter the red meat processing industry workforce with this knowledge.
An Integrated Scholarship Program in Red Meat Safety and Microbiology - Year 3	2017-1093	Curtin University of Technology	1/1/19	2/12/19	As above	As above
An Integrated Scholarship Program in Red Meat Safety and Microbiology - Year 4	2017-1094	Curtin University of Technology	1/1/20	1/12/20	As above	As above
Charles Sturt University Partnership Program for Red Meat Capacity Development	2018-1033	Charles Sturt University	1/9/18	31/7/22	Support capacity development in the red meat processing industry and build a stronger regional university-processor network. To investigate the opportunity to transition the internships into a formal cadetship scheme and for CSU to provide an advanced educational program to support industry and innovation, leadership and capacity development.	A series of undergraduate short and long-term internships, industry secondments and Masters projects across the regional processing sector that will address the specific needs of regional processors.

Program 4: Capability, Extension & Education

Project Title	Code	Provider	Start	Date due	Objective	Outputs
Innovation, value and health---New meat product development competition for China and Australia university students	2018-1043	University of Melbourne	1/9/17	1/7/18	Coordinate and organise a new red meat product development competition for Food Science Masters students in the School of Agriculture and Food at The University of Melbourne and the School of Food Science and Technology of Jiangnan University China.	Strengthened relationships with Jiangnan University and increased innovation in red meat product development.

4.4 Vocational Training

Red Meat Processing Upskilling Scholarship Program	2016-1019	National Meat Industry Training Advisory Council Limited (MINTRAC)	1/7/15	30/12/20	Deliver an upskilling scholarship program to enable existing red meat processing employees to upgrade their current knowledge and qualifications and to network and share ideas with fellow scholarship holders and industry representatives.	Provision of support to red meat processing companies and the greater industry via the upskilling scholarship to address current skills shortages, build plant capacity in a dynamic and changing environment and ensure succession planning is in place.
Redeveloping the Core Unit CDs into on-line resources for meat processors	2017-1013	National Meat Industry Training Advisory Council Limited (MINTRAC)	1/9/16	1/9/18	Replace the 17-year old Core Unit CDs with a series of short, sharp online films which can be used by processing companies and trainers alike to support induction, careers promotion, commencement of training, contractor information and refresher training.	Development and translation of at least 10 multi-language films on a series of topics agreed with meat processors: each 2- to 3-minute film will be accompanied by downloadable quizzes and worksheets available in multiple languages.
Australian Agribusiness Leadership Program	2017-1078	Australian Rural Leadership Foundation Limited	1/12/16	16/12/19	Increase the pool of industry representatives who have the capability to engage in leading the industry into the future.	Investment in four scholarships each year for three years.

Project Title	Code	Provider	Start	Date due	Objective	Outputs
Australian Rural Leadership Program - Course 24	2017-1079	Australian Rural Leadership Foundation Limited	1/4/17	31/1/19	Produce a network of informed, capable and ethical leaders who are able to work collaboratively to advance the interests of their industries, businesses, communities and rural Australia in general.	Sponsorship of one scholar from the red meat processing industry.
Diploma of Meat Processing Scholarship Program	2018-1007	National Meat Industry Training Advisory Council Limited (MINTRAC)	1/8/17	1/8/18	To provide essential, relevant and transferable skills for employees undertaking management roles within the meat processing industry.	Provision of support for people in lower and middle-management roles in the red meat processing industry to improve their business expertise and experience.
Diploma of Meat Processing Scholarship Program FY19	2018-1126	National Meat Industry Training Advisory Council Limited (MINTRAC)	1/5/18	16/12/19	To increase the capability of industry through development of workforce leaders.	The creation and promotion of educational pathways for the leaders and future leaders of the industry.



Industry Improvement & Economic Analysis

\$1.7m

INVESTMENT

Alignment with government priorities



Rural Research, Development and Extension Priorities:

- ✓ Advanced Technology
- ✓ Soil, water and managing natural resources
- ✓ Adoption of RD&E

National Science and Research Priorities:

- ✓ Food
- ✓ Soil and Water
- ✓ Transport
- ✓ Cybersecurity
- ✓ Energy
- ✓ Advanced Manufacturing
- ✓ Health

\$0.2m

5.1 INDUSTRY IMPROVEMENT

Objectives: To ensure AMPC provides quality RD&E projects that improve industry's livelihood now and into the future.

Outputs: Analysis and research to improve the overall performance (productivity, profitability and sustainability) of the Australian red meat processing industry against its international competitors.

Outcomes: Australia's red meat processing industry continuing to be a world leader in producing and supplying high quality meat protein.

\$0.4m

5.2 ECONOMIC ANALYSIS, DATA AND STATISTICS

Objectives: To understand the economic drivers of our industry, our competitors in export and domestic markets, the competitive protein landscape and opportunities and constraints on the industry.

Outputs: Development of economic models for the red meat supply chain in order to better understand supply and demand, and provision of insights and recommendations to industry for supply chain improvements.

Outcomes: The red meat processing sector is better equipped to take advantage of supply chain efficiencies and to maintain supply for a sustainable future.

Economic analysis is essential to making data-driven, evidence-based investment in RD&E that benefits the whole-of-industry. The Industry Improvement & Economic Analysis program uses economic modelling, statistical analysis, benchmarking and networked information flows to study drivers of industry productivity and sustainability and provide insights to inform policy efforts.



\$0.2m

5.3 INDUSTRY-WIDE SYSTEM IMPROVEMENTS

Objectives: To identify efficiency and productivity gains and system improvements to the Australian red meat processing industry.

Outputs: Industry-wide improvements to the red meat processing sector with a specific focus on areas where industry reputation is critical to export success and maintaining market share.

Outcomes: The Australian processing sector is supported to maintain its competitiveness and leadership as a world-leading exporter of high quality, sustainable red meat.

\$0.1m

5.4 STRATEGIC COMMUNICATIONS

Objectives: To guide industry to better appreciate, understand and optimize their approach to presenting their key concerns to the Australian Government, Committees, Rural Develop Corporations and with their peers.

Outputs: Sound industry projects/ reports that provide industry with a strong voice (backed by credible information) to appeal to government policy makers.

Outcomes: AMPC enlightening heads of industry on how to provide 'industry evidence' to best align and leverage government's 'evidence-based policy' principles.

\$1.0m

5.5 PLANT INITIATED PROJECTS (PIPS)

AMPC supports its members in identifying and undertaking RD&E projects that benefit the international competitiveness of the Australian red meat processing industry through improvement and economic analysis.

Program 5: Industry Improvement & Economic Analysis

Project Title	Code	Provider	Start	Date due	Objective	Outputs
5.1 Industry Improvement						
Providing feedback to producers – what value for the processor?	2018-1039	National Meat Industry Training Advisory Council Limited (MINTRAC)	1/8/17	3/6/19	To review five existing models of producer feedback and develop case studies, particularly focusing on the returns and benefits to processors of each model.	Development and trialling of a simplified model for SME processors for the collection and analysis of data and provision of feedback to producers.
5.2 Economic Analysis						
Investigation of options and development of models for industry supply chain information system standards and programs	2017-1067	Management for Technology Pty Ltd	24/10/16	31/12/2019	To address the shortcomings of Australia's fragmented supply chain systems and provide a coordinated Australian Red Meat Industry Supply Chain Standard.	A report on the current supply chain requirements, systems and practices. Development of an Australian Red Meat Industry Supply Chain Standard. A report on viable models for the operation of running industry portals for the storage, analysis and reporting of industry supply chain information.

Project Title	Code	Provider	Start	Date due	Objective	Outputs
5.3 Industry-Wide System Improvement						
Development of economic model for analysis of regulatory and related costs and duplication in red meat processing	2017-1062	SG Heilbron Pty Ltd	1/9/16	31/7/18	To conduct economic analysis of the costs of certification, policy analysis for improved productivity, and a cost comparison analysis.	Generation of a range of options to reduce duplication in red meat processing costs, and updated Australian processing cost data to enable real-time comparison to our competitors.
Carcase Cut Yield Prediction with Machine Learning	2018-1028	Nukon Pty Ltd	9/3/18	1/09/2018	Investigate the feasibility of using analytics capabilities combined with machine learning to unlock some of the value currently hidden in meat processing data.	A detailed report on the process, algorithms tested and results, and a machine learning model that can be reproduced and used to predict the yield profile given the features that are entered.
Blockchain for the Meat Industry: Where and How?	2018-1047	Griffith University	15/3/18	2/9/18	Explore the use of blockchain technology for the red meat industry, including its ability to record sequential events and their timestamps throughout a supply chain.	A report highlighting opportunities for streamlining the red meat supply chain using cross-industry comparisons, analysis of blockchain data collection, ROI analysis, funding structure and potential risks/benefits. Development of a process mapping tool and ROI calculator.



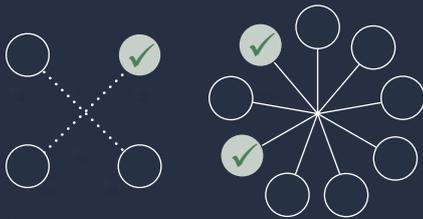
Marketing & Market Access



\$4.5m

INVESTMENT

Alignment with government priorities



Rural Research, Development and Extension Priorities:

- ✓ Biosecurity

National Science and Research Priorities:

- ✓ Food
- ✓ Transport

\$3.8m

6.1 MARKET ACCESS

Objectives: To ensure markets remain accessible, efficient and attractive for investment.

Outputs: Maximise market access options for red meat processors through effective trade reform activities.

Unlock market potential by addressing market access barriers for the red meat industry's sustainability and profitability.

Outcomes: A joint program with MLA provides funding for the development of market access capabilities. This includes monitoring trade developments in overseas and domestic markets, undertaking market access research, developing industry-wide positions to support submissions to government and lobbying for market access improvements.

\$0.4m

6.2 MARKETING & PROMOTION - EXPORT

Objectives: To maximise value delivery to our global customers and consumers and to maintain and increase the demand for Australia's red meat.

Outputs: Product integrity and quality is demonstrated to consumers and markets.

Provide industry with detailed market intelligence, consumer insights and analysis to support strategic decision-making.

Outcomes: 'True Aussie' brand building and business development.

Maximising market access and effective consumer marketing are key aspects of facilitating the domestic and global competitiveness of the Australian red meat processing sector. The Marketing & Market Access program works jointly with MLA to increase market access for Australian red meat, and enhances and communicates the value proposition of Australia's red meat to the customer, consumer and community.

\$0.4m



6.3 MARKETING & PROMOTION - DOMESTIC

Objectives: To promote and maintain red meat consumption.

Outputs: Product integrity and quality is demonstrated to consumers and markets.

Provide industry with detailed market intelligence, consumer insights and analysis to support strategic decision-making.

Outcomes: Brand building and business development to defend market position, defend per capita consumption or to increase awareness.

Budget FY19



FY19 investment portfolio - by stream

Budgeted investment before corporate costs

Program Stream	Levies	Matching	Total Investment
1 Processing Technology			
1.1 Productivity and Quality	\$1,477,725	\$1,477,724.5	\$2,955,449
1.2 Sensing and Analysis	\$1,968,407	\$822,668	\$2,791,076
1.3 Material Handling	\$1,434,821	\$1,434,821	\$2,869,642
1.4 Value Added	\$441,858	\$293,185	\$735,043
1.5 Plant Initiated Projects	\$1,000,000	-	\$1,000,000
Total	\$6,322,810	\$4,028,399	\$10,351,209
2 Environment & Sustainability			
2.1 Energy Efficiency	\$266,083	\$266,083	\$532,165
2.2 Waste Management	\$252,220	\$252,220	\$504,440
2.3 Water Conservation	\$889,812	\$889,812	\$1,779,624
2.4 Sustainability	\$170,850	\$170,850	\$341,700
2.5 Plant Initiated Projects	\$1,000,000	-	\$1,000,000
Total	\$2,578,965	\$1,578,965	\$4,157,929
3 Processing Hygiene, Quality & Meat Science			
3.1 Food Safety	\$1,622,783	\$971,692	\$2,594,472
3.2 Integrity Systems	\$2,803,073	\$686,681	\$3,489,754
3.3 Meat Science	\$422,986	\$332,319	\$755,305
3.4 Transformational Meat Science	\$609,267	\$609,267	\$1,218,534
3.5 Plant Initiated Projects	\$1,000,000	-	\$1,000,000
Total	\$6,458,109	\$2,599,959	\$9,058,068
4 Capability, Extension & Education			
4.1 Industry Capability	\$572,409	\$540,057	\$1,112,465
4.2 Extension Services	\$956,727	\$956,727	\$1,913,453
4.3 Scientific Education	\$336,600	\$336,600	\$673,200
4.4 Vocational Training	\$104,900	\$104,900	\$209,800
4.5 Plant Initiated Projects	-	-	-
Total	\$1,970,635	\$1,938,283	\$3,908,918
5 Industry Improvement & Economic Analysis			
5.1 Industry Improvement	\$81,975	\$81,975	\$163,950
5.2 Economic Analysis, Data & Statistics	\$177,335	\$177,335	\$354,670
5.3 Industry-Wide System Improvements	\$75,000	\$75,000	\$150,000
5.4 Strategic Communication	\$25,000	\$25,000	\$50,000
5.5 Plant Initiated Projects	\$1,000,000	-	\$1,000,000
Total	\$1,359,310	\$359,310	\$1,718,620
6 Marketing & Market Access			
6.1 Market Access	\$3,333,250	\$450,000	\$3,783,250
6.2 Marketing & Promotion - Export	\$350,000	-	\$350,000
6.3 Marketing & Promotion - Domestic	\$353,560	-	\$353,560
6.5 Plant Initiated Projects	-	-	-
Total	\$4,036,810	\$450,000	\$4,486,810
Total Program Investment	\$22,726,639	\$10,954,915	\$33,681,554

FY19 budget financials

Budgeted income and costs for FY19

	RD&E	Marketing	Pre-stat	Total
Income				
Levies	\$11,200,996	\$6,300,560	-	\$17,501,556
Interest	\$318,515	\$335,068	\$272,255	\$925,839
Government Matching	\$12,039,232	-	-	\$12,039,232
Total	\$ 23,558,743	\$6,635,629	\$272,255	\$30,466,627
Program Expenditure				
Core RD&E				
1. Processing Technologies	\$10,351,209	-	-	\$10,351,209
2. Environment & Sustainability	\$4,157,929	-	-	\$4,157,929
3. Processing Hygiene, Quality & Meat Science	\$7,366,188	\$1,691,879	-	\$9,058,068
4. Capability, Extension & Education	\$3,908,918	-	-	\$3,908,918
5. Industry Improvement & Economic Analysis	\$1,718,620	-	-	\$1,718,620
6. Marketing & Market Access	\$1,178,689	\$3,308,121	-	\$4,486,810
Total	\$28,681,553	\$5,000,000	-	\$33,681,554
Corporate Costs				
AUS-MEAT Contribution	-	\$550,000	-	\$550,000
Direct Corporate Costs (Project Support)	\$2,168,634	\$125,000	-	\$2,293,634
Indirect Corporate Costs	\$1,538,572	\$865,447	-	\$2,404,019
Total	\$3,707,206	\$1,540,447	-	\$5,247,653
Net Income	-\$8,830,017	\$95,181	\$272,255	-\$8,462,580

Reserves movements for FY19

	RD&E	Marketing	Pre-stat	Total
Opening Reserves as at 30 June 2018	\$17,054,145	\$8,006,351	\$6,757,429	\$31,817,925
Budget Net Income FY19	-\$8,830,017	\$95,181	\$272,255	-\$8,462,580
Closing Reserves as at 30 June 2019	\$8,224,128	\$8,101,533	\$7,029,684	\$23,355,345

Evaluation, communication, extension and adoption

Evaluation Framework

AMPC is increasing its performance evaluation capacity and focus, implementing an Evaluation Framework across the full investment lifecycle:

1. At the point of investment
2. During investment implementation
3. After project completion.

The Evaluation Framework provides a systematic and objective approach to RD&E decision making, and will enable AMPC to:

1. Identify, understand and monitor the drivers of investment success, and potential investment impact
2. Ensure a balanced portfolio based on industry priorities, potential investment impact and investment risk
3. Review project performance and risk to ensure that investments are on track
4. Derive lessons learnt to continuously improve investment planning and delivery
5. Communicate to industry members, broader industry stakeholders and research providers the progress and outcomes of levy and matched funding investments.

AMPC will disseminate evaluation results through a range of communication channels to maximise engagement with members and other stakeholders.

AMPC's Evaluation Framework is available on our website.

Stakeholder Communications

Consistent with our new relationship management model, the AMPC Marketing & Communications function supports the three key stakeholder groups: members, providers and external stakeholders.

Strategic marketing and communications activities will be targeted to these stakeholder groups. In FY19, we plan to use the following means of communicating with our stakeholders:

- Website enhancements to streamline information access and support two-way feedback
- Regular email campaigns, including project completion notifications and letters to members
- Social media, including Facebook, Twitter, LinkedIn, YouTube
- Events, workshops, webinars and seminars
- Personalised, face-to-face communication
- Corporate reporting that focuses on stakeholder outcomes.

Through using this suite of tools, our aim is to increase the satisfaction of our stakeholder groups by communicating on our activities, and opening up communication channels to encourage interaction and feedback.

Project Outputs - Providing Extension and Encouraging Adoption

An extension and adoption plan is included in each new project from FY19 to increase uptake of AMPC's research outputs. Each project will have its own extension or adoption activity, whether it be a webinar, website portal, promotional plan, industry roll-out or similar.

We are now distributing one-page project summaries to stakeholders at the completion of each project. This will provide a succinct, accessible snapshot of the project, its objectives, and its outcomes.







AUSTRALIAN MEAT PROCESSOR CORPORATION (AMPC)

Suite 1, Level 5
110 Walker Street
North Sydney NSW 2060
PO Box 6418
North Sydney NSW 2059

Tel: **02 8908 5500**

Email: **admin@ampc.com.au**

Website: **ampc.com.au**

Disclaimer: The Australian Meat Processor Corporation (AMPC), has developed this Annual Operating Plan for internal use only. In publishing this document, AMPC is engaged in disseminating information, not rendering professional advice or services. AMPC, its authors and editors expressly disclaim any form of liability to any person in respect of anything done or omitted to be done by such person in reliance upon the whole or any part of the contents of this document.