



**Partnering in red meat
innovation**

MLA Donor Company

A wholly-owned subsidiary of MLA

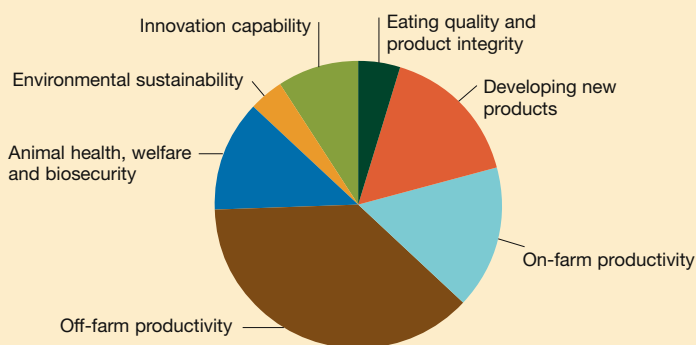
The MLA Donor Company Limited (MDC) facilitates private investments in R&D innovations across the red meat supply chain. The Australian Government matches voluntary partner contributions through the MDC, where eligible projects deliver outcomes that address broader industry and/or government priorities and benefit the entire industry.

This model injects valuable new funding into the Australian red meat industry R&D and commercialisation, with a number of resulting benefits:

- Improved sustainability on- and off-farm
- Reduced production costs leading to a more competitive industry
- Higher standards of workplace health and safety
- Value-added products that facilitate access to new international markets and increased export earnings
- Enhanced supply chain collaboration
- Increased innovation capability

A breakdown of MDC investment for 2014-15 across key areas is provided in the graph below.

MDC portfolio



MDC partners have included breed societies, pastoral companies, processors, value-adders, and technology providers, as well as some international collaborations.

While no producer levies are invested in MDC-funded projects, the model does allow for leveraging of previous investment of industry dollars through supporting some of the more commercial aspects of R&D.

MDC partnership has enabled a number of key projects that are highlighted throughout this brochure, including:

- Pigeon Hole project
- Beef Information Nucleus
- Managing wastewater
- Bladestop technology
- LEAP automation technologies
- Pulled beef brisket and lamb shoulder
- Working with Lupin Australia
- Collaborative Innovation Strategies Program

Delivering on-farm and off-farm benefits

Efficient infrastructure and innovations from Pigeon Hole project

The Pigeon Hole project, located in the Victoria River District of the Northern Territory, was initiated to identify strategies to improve the profitability and sustainability of large cattle stations in northern Australia. The commercial scale research trial brought together the funding and capabilities of the MDC, Heytesbury Beef, CSIRO, Northern Territory Department of Primary Industry and Fisheries (NTDPI&F), Northern Territory Parks and Wildlife, and the University of Queensland.

Over five years Heytesbury Beef developed a set of grazing and infrastructure guidelines to increase profitability while maintaining rangeland condition and minimising adverse effects on biodiversity.

Many cattle properties in northern Australia are adopting the outcomes of this significant investment, and the information generated from the project is used by state government agencies to develop best practice guidelines for beef cattle producers.

The key learning from the project was that intensifying cattle grazing enterprises in northern Australia, by creating smaller paddocks and installing more watering points could increase overall pasture utilisation to 20–25%, offering the potential to sustainably increase cattle numbers and financial returns.



Working with beef cattle breed societies to deliver on-farm benefits

The Beef Information Nucleus (BIN) portfolio of projects established through the MDC and co-funded by the major breed societies. The BIN projects are a series of progeny trials with high merit sires and record a comprehensive list of 'hard to measure' traits that can be used in BREEDPLAN analyses and the national performance and DNA databases managed by AGBU. These hard to measure traits include net feed intake, MSA eating quality, new measures of fertility and parasite resilience, and methane emissions. This data is considered essential to improve commercial on-farm profit through faster rates of genetic gain, and to underpin future genetic assessment using DNA technology.

BIN project snapshot 1: Brahmans

The Australian Brahman Breeders Association established the breed's largest progeny test program in 2010, with funding from MDC. It involves 2,000 animals in two commercial herds in Queensland, as well as two joinings in the CSIRO Belmont Brahman stud herd. It aims to improve the accuracy of existing EBVs and collect valuable data on hard-to-measure traits, such as eating quality and female reproduction. Over seven years, the progeny of 73 Brahman sires will be evaluated for growth, carcass, meat quality and female reproduction traits, and the project has already delivered a 20% improvement in the accuracy of Brahman-sire EBVs. It will provide access to new DNA technology, as well as validate the Beef CRC carcass markers for Brahmans.



BIN project snapshot 2: Herefords

Since 2010, data has been collected from the progeny of about 50 Hereford and Poll Hereford sires considered in the top 25% for important traits. Twelve herds, from south-west Queensland to South Australia, have been measured for birth weight, calving difficulty, gestation length, 200-, 400- and 600-day weights, structural soundness, docility, net feed intake and carcass traits. Full sets of Meat Standards Australia chiller assessment data have been collected, and meat samples analysed for tenderness, cooking loss and intramuscular fat.

In anticipation of future genomic-based technologies, tail hairs and blood samples have been collected from all progeny to use as a source of DNA information and genotyping.



Managing wastewater to maximise biogas production and environmental outcomes

Meat processing in Australia creates a lot of wastewater that has traditionally been managed in anaerobic lagoons or ponds. The challenge with managing these lagoons has been to reduce odour and greenhouse gases, primarily methane, which has global warming potential 21 times that of carbon dioxide.

While industry has embraced improved wastewater management, there were gaps in knowledge on design, biogas optimisation, collection and handling.

The MDC, together with Thomas Foods International (TFI), funded research to consolidate industry knowledge and research on Covered Anaerobic Lagoon (CAL) technology, the production of biogas from lagoons and how to most effectively manage wastewater. The research has been carried out in two stages utilising purpose-built CALs at TFI Murray Bridge, South Australia.

The first stage focused on the most effective design of a CAL, along with effective automated sludge removal and biogas collection and handling. Stage two investigated the ideal organic load for CALs to enable maximum biogas production, while avoiding overloading and crust accumulation that leads to treatment failure. The equivalent of 2,174 9kg BBQ gas bottles are captured each day and recycled back into the plant as energy, saving 30% of the plant's requirements.



Processing efficiency and automation

The Australian red meat supply chain faces significant challenges in sustaining efficiency and productivity at levels that ensure global competitiveness is maintained. MLA works with the Australian Meat Processor Corporation (AMPC) to reduce and optimise input usage, while simultaneously increasing the sector's efficiency in harvesting available saleable products from each animal processed. AMPC, MLA and the MDC work across a wide range of processing efficiency areas, including semi or full automation, objective carcass measurement linked to automation systems and to producers, as well as improved workplace health and safety.

BladeStop

Many of the processing tasks in the red meat industry are physically arduous and repetitive, and in some instances hazardous. Bandsaws are widely used and pose safety concerns. The MDC together with Machinery Automation & Robotics (MAR) has delivered a workplace health and safety technology called *BladeStop*. *BladeStop* comprises of a trip mechanism to stop a bandsaw blade in under 10 milliseconds if contact is made with the operator. The operator wears a waist belt, sensor and electrically insulated glove, which triggers a high speed pneumatic clamp to stop the blade if contact is made with the skin. Several serious injuries have been prevented through successful operation of the technology.

To see *bladestop* in action, visit the following link:
www.mla.com.au/News-and-resources/Industry-news/Safety-breakthrough-to-save-abattoir-injuries



LEAP™ automated lamb processing technology

MDC is partnering with Scott Technology to deliver the LEAP™ suite of technologies; an x-ray guided automated lamb primal cutting system and a lamb automated middle processing system. The lamb primal system separates carcasses into shoulder, middle and hind, and increases the value of the carcass by between \$1.30 and \$1.40 per head through precise cutting lines and consequent yield improvement and improved overall processing efficiency. The middle system breaks the rack barrel into various sub-primal components, and increases the value of the carcass by between \$3.20 and \$4.20 per head, once again through precise cutting and processing efficiencies.

The LEAP system in action.



Developing new products

MDC and AMPC work with the Australian red meat industry to identify opportunities for traditionally lower value – secondary – cuts to maximise carcass utilisation and create demand.

Pulled beef brisket and lamb shoulder

Pulled meat is popular in the United States but was not commercially available in Australia. MLA worked with the Australian agent of machinery manufacturer FAM to develop a new process for beef brisket and lamb shoulder that combined a number of technological platforms including tenderising, sous vide cooking and high speed pulling. The product was found to be well suited to use as a meat filling alternative to the current sliced and shaved smallgoods with potential as an alternative to ground minced toppings for tacos, hot bun slider rolls and Asian noodle and rice toppings. These products can potentially add a net \$6 per head to the value of the carcass. MLA presented the pulled meat concept product and process to leading domestic retailers and quick service restaurants with products since being launched by Hungry Jacks and Woolworths.

This work is being continued through a commercial partnership with the MDC using spiral cook as an alternative to slow cooking platform as well as trialling other raw meat secondary cuts.



Working with Lupin Australia

MDC in collaboration with Lupin Australia investigated how the inclusion of a natural legume, Lupin as a prebiotic, in red meat can increase consumption. The project looked at identifying new consumer usage and occasions and examining the market positioning opportunities around ‘superfoods’ with particular reference to gut health benefits of red meat and lupin in the areas of zinc, iron, protein and dietary fibre.

The project used consumer and market insights on lupin and red meat combinations with concept ‘superfood’ products such as mince, meatballs, crumbed lamb cutlets (pictured below) and schnitzels. Next stage commercialisation plans are being developed.

Concept product: Lupinflake crusted lamb rack



Building enterprise and supply chain capability

MLA works with commercial enterprises through the Collaborative Innovation Strategies Program (CISP) to build the capability of the red meat supply chain. This program involves the development and implementation of an innovation strategy which defines the key focus areas and priorities for innovation for the company and its supply chain partners to support the supply chain’s long-term growth and sustainability. Fifteen companies have been involved in the program since its inception in 2008. Over this time more than \$36m has been invested in the industry through the program and associated projects. CISP partners are from a range of sectors across the supply chain including breed societies, vertically integrated producers, feedlots and processors, as well as food companies.



Further information

For more information contact
E: info@mla.com.au
W: www.mla.com.au

PO Box 1961
North Sydney NSW 2059
Ph: +61 2 9463 9333
Fax: +61 2 9463 9393