

Increasing productivity across the supply chain

MLA invests in R&D that creates opportunities for cattle, sheep and goat producers and supply chains to improve the productivity and profitability of their enterprises.

Objectives under this strategic imperative include:

- 3.1 Identify and deliver opportunities to increase on-farm productivity
- 3.2 Identify and deliver opportunities to increase off-farm productivity and capability
- 3.3 Deliver valued supply chain and market information
- 3.4 Support industry to improve animal health and biosecurity
- 3.5 Increase producer engagement with MLA tools and information to build capability



MILESTONE SCORECARD
Of 27 milestones: **18 achieved, 7 not achieved, 2 no longer applicable**

Australian Government National Research Priorities:

- An environmentally sustainable Australia
- Promoting and maintaining good health
- Safeguarding Australia
- Frontier technologies for building and transforming Australian industries

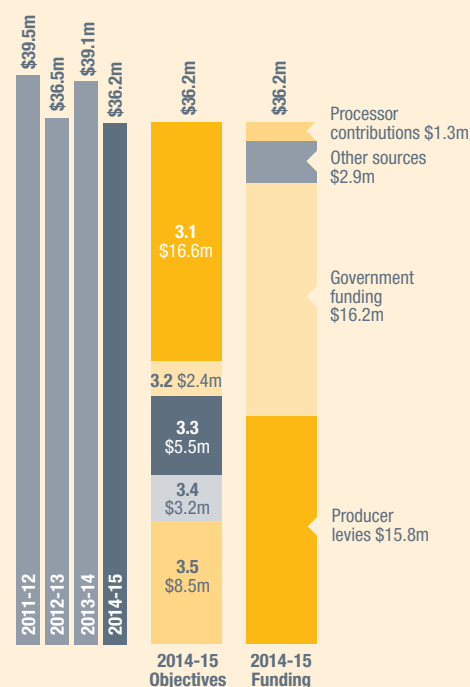
Australian Government Rural Research and Development Priorities:

- Natural resource management
- Productivity and adding value
- Supply chain and markets
- Biosecurity
- Innovation skills
- Technology

Delivering MLA business units:

- On-farm Innovation and Adoption
- Livestock Productivity
- Value Chain Innovation
- Communications and Stakeholder Engagement
- Central Marketing and Industry Insights

INVESTMENT



An additional \$19.3 million was attracted in voluntary contributions, matched with Government funding and invested via the MLA Donor Company.

KEY ACHIEVEMENTS



A world first

MLA-funded trial work contributed to the commercial release of the sheep vaccine, Barbevax, the world's first vaccine for a gut-dwelling parasite of livestock (see page 51).

Profitable practice change

A review of MLA's *Making More from Sheep and More Beef from Pastures* programs revealed participating producers not only embraced education and practice change but improved their profits as a result (page 53).



Psyllid-resistant leucaena

Seed from a new psyllid-resistant variety of leucaena will soon be available to commercial cattle producers, opening the way for productivity gains in northern Australia (page 43).

Supply chain feedback

The first commercial supply chain rollout of Livestock Data Link – a web-based application for analysing carcass performance information – commenced (page 49).

Better genetics

A new genomic days-to-calving estimated breeding value for Brahmans has been developed, providing a partial solution to low reproductive performance in the northern beef industry (pages 44-45).



Robotics adoption

Lamb processing automation technology is continuing to be developed and adopted and beef processing automation technology is being trialled (page 47).

Information expansion

The Western Young Cattle Indicator was developed and is released weekly for West Australian producers. NLRS added five more saleyards to its reporting network (page 49).

↑ OPPORTUNITIES

- > The latest endemic diseases survey will be a critical tool for assessing research and development priorities and will provide valuable information to producer consultation groups when forming their R&D agendas.
- > Producers' utilisation of the new genomic days-to-calving estimated breeding value (EBV) has the potential to lift the fertility of Australia's Brahman herd by 10 per cent which would improve profitability.
- > *Market Snapshots* aim to keep industry more informed, generate conversations between supply chain partners and help identify business opportunities.
- > Lamb and beef processing automation projects can significantly improve Australia's competitive edge through value-adding and improved yield outcomes.

↻ CHALLENGES

- > Increasing the uptake of the new genomic test for the Brahman days-to-calving EBV to improve its economic viability and speed up its turnaround time.
- > Encouraging producers to embrace technological improvements such as Livestock Data Link, *Market Snapshots* and new market reporting tools under development and use them to their full potential.
- > Ensuring reliability of processing automation systems and assist processors to manage technical and capability risks of installation.
- > Delivering engaging extension programs that achieve on-farm practice change to deliver productivity benefits.

🔍 OUTLOOK 2015-16

- > NLRS will add Deniliquin, Corowa and Moss Vale in NSW and Charters Towers in Queensland to complete its coverage of every major saleyard in Australia.
- > Developing a web-based interactive data querying tool to provide producers and industry with better access to the NLRS database.
- > The 'LEAP V' module, the automated lamb forequarter bone-in processing system, is anticipated to be in production.
- > A safety system, complementary to BladeStop®, is being developed that can be retrofitted to existing saws.
- > The Pasture Variety Trial Network project will provide economic value estimates on commonly used pastures via an online tool.
- > Further work will be undertaken to assess the Barbervax vaccine's efficacy on goats.
- > A prototype decision support tool to the extension package *Feeding Forages in the Fitzroy* is being developed.

FAST FACTS 2014-15

The endemic diseases survey

included goats and diseases diagnosed at abattoirs, but originating on-farm, for the first time

10,000+

MLA Market Information App downloads

70,000 varieties to be stored

in the Australian Pastures Genebank, which will house the world's largest collection of pasture and forage species

The automated LEAP III and LEAP IV lamb boning systems are operating at **2 sites**

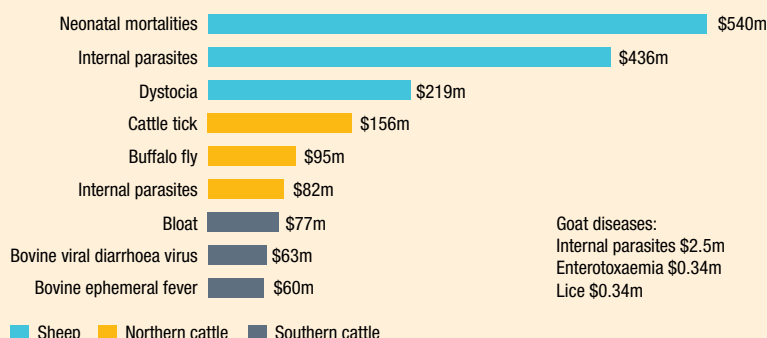
and are commercially available for about **\$4.8 million** for the complete system (excluding site-specific installation costs)

More Beef from Pastures and *Making More from Sheep* delivered participants

4.8% productivity improvements

from adopting practice change

Top three most costly northern cattle, southern cattle, sheep and goat diseases (\$ million)



Source: Priority list of endemic diseases for the red meat industries – MLA final report

Increasing productivity across the supply chain

OBJECTIVE 3.1

Identify and deliver opportunities to increase on-farm productivity

MLA assists livestock producers to increase their on-farm productivity by investing in R&D that creates opportunities to enhance genetic performance of animals and pastures, feed productivity and utilisation rates, animal reproductive efficiency, business performance and labour efficiency.

↑ STRATEGIES	🔑 KEY MILESTONES
3.1.1 Enhance rates of genetic improvement in livestock and feedbase performance	Private seed companies engaged in trialling and implementing new methods in breeding programs for phalaris and annual legumes
3.1.2 Improve productivity in grazing and feedlot systems	Partially achieved RESULT: An industry adoption plan was outlined to private seed companies, raising awareness of the two pre-breeding projects and informing use of the new technologies. Technologies not due for delivery from the project so new methods are not available for adoption by seed companies
3.1.3 Develop and implement new practices and technologies to increase labour efficiency and compliance to market specifications	Evaluation system of new pasture species (taking account of potential return on investment) established with results published
3.1.4 Use producer participatory R&D to maximise rate and effectiveness of development and evaluation of new technologies	Achieved RESULT: Program has been expanded with an MDC project with the Australian Seeds Federation. Analysed data has been published via a website developed with end users (anticipated to be launched in late 2015)
\$ INVESTMENT \$16.6 million	300 lead producers are actively engaged in participatory R&D contributing to conduct and interpretation of research projects
 <p>Producer levies \$7.7m</p> <p>Government funding \$7.6m</p> <p>Other sources \$1.3m</p>	Not achieved RESULT: An estimated 180 producers are actively involved in feedbase research via 25 Producer Research Sites projects across southern Australia
<p>'Other sources' includes funding from Australian Wool Innovation towards the Sheep Genetics program.</p> <p>An additional \$4.8 million was attracted in voluntary contributions (\$2.4 million) and matched Government funding (\$2.4 million) for investment via the MLA Donor Company.</p>	Sheep CRC extension contracted and projects established
In 2014-15 this investment included:	Achieved RESULT: Sheep CRC extension contracted and projects underway
<ul style="list-style-type: none"> > implementation of the Feedbase Investment Plan > lamb and weaner survival program > lamb supply chain and animal information program > southern beef compliance program > priority activities within the RD&E priorities prospectus for the northern Australia beef industry > implementation of a comprehensive research program addressing feedlot nutrition and heat stress > supporting investments in the Sheep CRC and MLA Resource Flock 	Productivity improvements from identification and use of animals that convert feed more efficiently established through net feed intake testing of at least 600 progeny from the Beef Information Nucleus herds
	Achieved RESULT: 936 Angus, 102 Charolais, 214 Hereford and 402 Limousin steers have been measured through the Tullimba feedlot at UNE between 2012 and 2014
	Residue testing of Kleanup product for feedlot dag treatment completed and research permit for further evaluation of the product under Australian conditions obtained
	Not achieved RESULT: Inability to source details of the composition of Kleanup meant a research permit was not granted from the Australian Pesticides and Veterinary Medicines Authority
	At least two series of workshops conducted across regional Australia to communicate latest feedlot research outcomes and deliver industry training requirements
	Achieved RESULT: Two workshop series were conducted, attended by 350 feedlot personnel

OBJECTIVE HIGHLIGHTS

Economic value of high-output forages

A recent MLA-funded benchmarking project is helping central Queensland beef producers make more informed forage choices. Focused on the three sub-regions of the Fitzroy River catchment, the project was a joint exercise with Queensland's Department of Agriculture and Fisheries (DAF). It compared the performance of oats, forage sorghum, lablab, leucaena-grass, butterfly pea and perennial grass pastures across 24 sites in the Fitzroy River catchment during 2011–2014.

Despite the wide variation in productivity and profitability for annual and perennial forages in the area, it was found perennial legume-grass pastures were more profitable than perennial grass pastures and annual forages. Leucaena-grass had the highest gross margin of \$184/ha/year and produced the highest average total beef production of 198kg/ha/year.

The project found annual forages were generally not able to add economic value to a beef enterprise due to their higher growing costs.

The project has delivered producers new decision support tools as well as commercially relevant advice. Key achievements of the project were the development of an extension package, *Feeding Forages in the Fitzroy*. Available in booklet and electronic form, it brings together information on agronomy, management, cattle production and economic performance from high quality forages.

It also developed a series of gross margin spreadsheets for comparing the costs and benefits of forages grown in each of the three sub-regions and work on a prototype decision support tool is ongoing. To help producers apply these decision support tools to their own business, MLA and DAF have offered support activities such as webinars and field days and information from the project is being incorporated into the Grazing Best Management Practice (Grazing BMP) program.

Sheep CRC update

As part of the extension of the Sheep CRC in 2014, MLA supported three new research programs for animal wellbeing and productivity, genomic testing and quality-based sheepmeat value chains.

Researchers are developing risk models to underpin on-farm decision making tools, such as 3D cameras, to measure body condition/wrinkle score for nutrition and flystrike management.

The genomic program is refining *Australian Sheep Breeding Values* to give producers better tools to select genetics which improve eating quality of prime lambs and potentially a yearling sheep meat product.

The MLA Donor Company (which doesn't use producer levies) and commercial and research partners are developing measurement technologies – such as CT, dual energy X-ray, cameras and probes – in collaboration with the Sheep CRC to objectively measure carcass quality and yield.

As part of this, 2,480 lamb and yearling samples will be tasted in China, US and Australia to better understand how consumers perceive different lamb and sheepmeat products.

Protein-packed algae

With funding from MLA, the University of Queensland has established an Algae Energy Farm to cultivate and harvest microalgae for a range of uses, including as a feed supplement for beef cattle. The project findings offer an opportunity to close the gap in dry season protein availability using an economically sustainable feed source with minimal use of land and water.



Psyllid-resistant leucaena to bolster northern production

Seed from a new psyllid-resistant variety of the tropical legume pasture leucaena (pictured being eaten by a heifer) will soon be available to commercial cattle producers, opening the way for massive productivity gains in northern Australia.

Leucaena is a fast growing perennial tree which offers one of the most productive feedbase options for northern cattle producers, but its susceptibility to attack by the leucaena psyllid (*Heteropsylla cubana*) has limited its adoption in high-rainfall and coastal areas.

This is set to change following the development of a new variety named Redlands, which was developed by University of Queensland with funding from MLA, and is resistant to psyllid attack.

“We estimate that the new variety could open up a further 1.5 million hectares of Queensland to potential leucaena production, as well as significant areas of the Northern Territory, which could in turn produce a net benefit to the industry of \$500 million or more per year,” MLA's General Manager of On-farm Innovation and Adoption, Dr Matthew McDonagh said.

“MLA has now signed agreements with two partners in Central Queensland, Carnarvon Pastoral Company and Leuceseeds, to grow seed plots for the psyllid resistant variety, with commercial volumes of seed expected to be available for purchase within three years.”

Increasing productivity across the supply chain

New breeding programs for phalaris and annual legumes

MLA-funded research is applying genomics to plant breeding with several projects aimed at identifying DNA markers to improve the productivity, adaptability and pest and disease resistance of some of Australia's most common pasture and legume species. A \$1.5 million phalaris project, conducted by the University of Melbourne, is using genomics to select for traits, such as yield and persistence, and to identify markers for seed retention, a common problem in phalaris breeding. These markers will be used to develop a rapid screening tool aimed at encouraging more private companies to invest in phalaris breeding.

The research team, supported by CSIRO and Victoria's Department of Economic Development, Jobs, Transport and Resources, is also developing a process to assess the economic value of plant traits, enabling breeders to make useful comparisons between varieties being considered for commercial release and their potential pay-back to producers. It is hoped this work on phalaris will form the basis for improved breeding methodologies in other perennial grass species such as cocksfoot.

The \$1.5 million, MLA-funded pre-breeding in annual legumes project is harnessing genetic technologies to rapidly improve varieties. Work on subterranean clover so far has shown the number of generations that can be produced in one year could be improved from one to between three and five. Researchers hope it could potentially cut breeding times of some species by up to four years.

The project has defined the genome of subterranean clover and this will be formally published after critical review. Other subterranean clover traits under the microscope include: cotyledon resistance to redlegged earth mites, optimum levels of hard seed and other seed dormancy traits, genes for increased persistence and increased seedling growth under cooler temperatures. The techniques are also being adapted for annual medics (self-regenerating pasture legumes).

Producer Research Sites

MLA-supported Producer Research Sites are contributing valuable scientific outcomes to Australia's red meat industry and are directly involving producers in research and development. During 2014-15, 25 projects were contracted across southern Australia, all contributing to and building on

MLA funded
**25 Producer
Research Sites**
around Australia

key research projects under MLA's Feedbase Investment Plan.

Projects included: improving efficiency of phosphorus fertiliser and pre-breeding phalaris (Victoria);

comparing legume species that require less phosphorus than subterranean clover and pasture persistence and establishment (Western Australia); trialling sub-tropical pastures (NSW) and investigating soil-borne root disease (South Australia).

Most projects are entering their second year of the \$2.5 million, three-year program, with the exception of Tasmania which is in its first year of a phosphorus-efficient legumes trial.

Producers involved are leaders in their field, not only contributing their own experiences and observations to improving their skills and knowledge base but also taking personal risks with capital, land resources and time. Each project is managed by one of MLA's five state coordinators, who also conduct annual reviews with each producer group, and a facilitator who oversees the trial design.

These projects help fill the gap between researchers and producers, provide better direction for valuable research funds and are expected to result in faster adoption rates at the end of the research. Producers robustly test scientific theory under commercial conditions and the ensuing field days, workshops and over-the-fence discussions bolster research extension.

New fertility test for Brahmans

The new genomic test for female reproduction in Brahmans has the potential to lift fertility across the northern beef herd by 10 per cent. A significant achievement for industry and the Brahman breed, the new days-to-calving direct genomic value means all Brahman producers can now obtain more accurate genetic prediction of daughter reproduction performance on their young bulls.

MLA, through its support of the Beef CRC, the Animal Genetics Breeding Unit and the Australian Brahman Breeders Association

(ABBA), has helped engineer a partial solution to one of the most significant issues affecting northern beef enterprise profitability – low reproductive performance.

The test underpins the existing pedigree-based days-to-calving estimated breeding value (EBV) that has been in use for some years. However, the practical implications of collecting reproduction information have impacted on its availability. Blending of the genomic values with the EBVs has been shown to increase accuracy, on average, by 10 per cent and up to 35 per cent. MLA continues to support ABBA in building its database with nearly 4,000 days-to-calving records added since 2013.

However, there has been little to no genetic trend for days-to-calving in the breed and the new genomic test, coupled with increased levels of recording, provides a unique opportunity for the breed to improve female reproduction by selection.

The challenge remains to continue building on the research outcomes delivered by the Beef CRC and to extend this genomic test to other northern beef breeds.

Blending of direct genomic values increased the accuracy of the days-to-calving breeding value by **10% on average, and up to 35%**

Almost **4,000 days-to-calving records** have been added to the Brahman BREEDPLAN database since 2013

Greater usage of the test will increase its affordability for Brahman breeders over time and further build the accuracy of the breed's fertility data. Additional genomic values will be generated from MLA and industry-funded projects to further expand the trait information available for Brahmans.

Pasture Variety Trial Network

The *Pasture Variety Trial Network* will address a major issue limiting pasture improvement in Australia – the lack of comprehensive information on the merits of pasture varieties. During the past four years MLA has invested \$1.8 million in the development of a national variety testing scheme to provide objective data to southern livestock producers on the merits of a range of commercially available pasture species.

The project has involved the implementation of an auditing and accreditation scheme for seed company pasture trials and the establishment of six independent trial sites in south-west, central and eastern Victoria, southern and central NSW and Tasmania.

Three years of seasonal production data of annual legumes, lucerne, phalaris, fescues, cocksfoot and annual Italian and perennial ryegrasses have been compiled and are being statistically analysed to outline local performance differences. In future there will be opportunity to include new breeding lines in the network, enabling breeders to focus on those traits that will deliver the greatest gains for producers. The aim is to deliver economic value estimates for varieties and assess whether more recent germplasm can provide better options within species.

A new project, in partnership with seed companies and the Australian Seed Federation, will see the number of trial sites increase across southern Australia. This is hoped to boost producer confidence in their outcomes and result in more effective use of the data collected from them. MLA's website will communicate these results in late 2015/early 2016, when analysis is expected to be complete.

Pastures genebank

MLA invested almost \$400,000 in 2014-15 in the Australian Pastures Genebank, a comprehensive seed collection aimed at conserving the diversity of the nation's pasture and forage species.

Created in response to the 2011 National Strategic Rural Research and Development Investment Plan, the genebank will house the world's largest and globally unique collection of pasture and forage species.

This will ensure access to plant genetic diversity, which is critical to national and global food security and underpins Australia's ability to maintain agricultural productivity in the face of environmental and economic challenges.

The Australian Pastures Genebank will strategically acquire, document, conserve and make available plant genetic diversity of all pasture plants important to agriculture in Australia. This includes plants to be grown for livestock, crop rotation and the environment. Australia has been a major beneficiary from the importation and utilisation of genetic resources in pasture and forages and it is important to maintain this material and not have to reimport.

MLA, along with state and federal governments, Dairy Australia, GRDC, AWI and research institutions, is investing funds to transition seed and data from major state genebanks into the Australian Pastures Genebank to rationalise collections and minimise running costs.

Grazing enterprises, including all food and fibre production, as well as crop rotation, are worth **\$48 billion per annum** to the Australian economy



The Brahman fertility test process at a glance

MLA, through its support of the Beef CRC, the Animal Genetics Breeding Unit and the Australian Brahman Breeders Association (ABBA), has helped engineer a partial solution to one of the most significant issues affecting northern beef enterprise profitability – low reproductive performance.

The Brahman days-to-calving genomic test combines traditional performance records with information from an animal's DNA to generate a unique estimated breeding value (EBV) for every animal. The test process involves: sending a hair sample to the Australian Brahman Breeders Association which registers the animal and includes it in the BREEDPLAN analysis; hair is sent to the University of Queensland for genotyping and then to the Animal Genetics and Breeding Unit for analysis where direct genomic values (DGVs) are produced and included in the Brahman BREEDPLAN analysis. Blended EBVs are then reported directly to the breeder by the breed society.

Increasing productivity across the supply chain

OBJECTIVE 3.2

Identify and deliver opportunities to increase off-farm productivity and capability

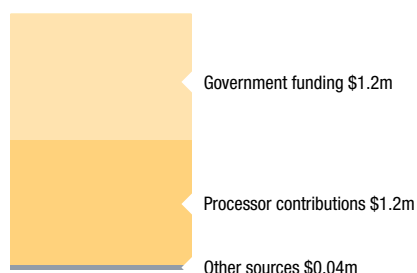
Working in partnership with technology providers, individual processors and the Australian Meat Processor Corporation (AMPC), MLA manages an R&D portfolio to improve processing efficiencies, address labour availability and OH&S, and increase innovation and capability. Much of this investment comes from voluntary and processor contributions which are matched with Government funding via the MLA Donor Company.

↑ STRATEGIES

- 3.2.1 **Develop** new technologies and systems that improve productivity and processing efficiencies
- 3.2.2 **Assist** the processing sector to improve work health and safety
- 3.2.3 **Develop** new systems to support processing decision making
- 3.2.4 **Improve** industry capability, knowledge and adoption of new technologies to increase productivity

\$ INVESTMENT

\$2.4 million



An additional \$11.3 million was attracted in voluntary contributions (\$4.6 million), processor contributions (\$1.1 million) and matched Government funding (\$5.6 million) for investment via the MLA Donor Company.

In 2014-15 this investment included:

- > enabling collaborations to develop cost effective automation and manual assist technologies
- > developing novel objective measurement systems

🔑 KEY MILESTONES

Realise net benefits of \$1 million per annum from processing technologies developed under the MDC program and for which installation is completed in 2014-15

Achieved

RESULT: LEAP IV lamb processing system installed at Australian Lamb Company alone provides \$3.9 million per annum benefit. Other technologies with benefits include McLaren waterjet French racking DEXA imaging for lamb, X-ray beef rib cutting and goat head browning

Total aggregated net benefit of MDC-funded technologies installed both in 2014-15 and previous years reaches \$8 million per annum

Achieved

RESULT: Confidential ex post cost benefit analysis completed at two processors for LEAP III and LEAP IV lamb automation installations show \$17.6 million per year benefit

Five MDC-funded commercial innovations achieved at least 80 per cent of their annual adoption strategy targets including associated cost benefit analyses

Achieved

RESULT: 11 out of 20 off-farm technologies achieved their technical or commercial adoption targets. Where appropriate these are supported by independent cost benefit analyses

OBJECTIVE HIGHLIGHTS

A LEAP for lamb processing

Australia is leading the world in the automation of beef and lamb processing, with the help of the MLA Donor Company (MDC) (which doesn't draw upon producer levies). During the past year, lamb processing advancements alone have added up to \$4.20/head in extra value at participating sites. LEAP III and IV, X-ray guided lamb primal cutting and middle processing systems, are already paying dividends to industry, with two commercial demonstration installations – the Australian Lamb Company in Sunshine and JBS Australia in Bordertown. The latest LEAP III is now also at Australian Lamb Company's Colac plant. Both machines allowed the companies to recoup their purchase and installation costs in less than a year.

LEAP II is the hindquarter deboning system, a technically complex module of the LEAP development suite that will have important yield and operational health and safety outcomes once adopted by industry. Research has demonstrated the system's feasibility and the MDC, along with its strategic technology partner and commercialiser, Scott Technology, New Zealand, hopes to see LEAP II undergoing trials within a year.

Lamb automation processes at **10 per minute** (similar to non-automated plants) but with millimetre accuracy

Further development of the LEAP V module, the lamb forequarter bone-in processing system, is also anticipated to start production in Australia within a year.

A LEAP for beef processing

The Beef Automation Transformation program, also funded by the MDC, has taken the first steps towards the development and adoption of semi-automated system modules and operator aids. In 2014-15, a loin deboning saw and oven-prepared rib saw were trialled in a number of participating plants. Work continues to quantify the value proposition of automation in beef processing, however it is anticipated to be as significant as it is with lamb.

BladeStop® and GloveCheck®

BladeStop®, an ultra-high-speed brake mechanism for bandsaws, has proven to be an adoption success during 2014-15. There are now over 80 BladeStop® products operational across industry, with each of Australia's largest processors installing two or more. Developed through the MDC with strategic technology partner, Machinery Automation & Robotics, this major safety initiative, which stops the bandsaw blades upon human contact, could prevent an estimated 10 serious accidents a year, many of them near amputations.

In addition to BladeStop®, Machinery Automation Robotics has also developed GloveCheck®, an additional safety feature that involves a saw operator wearing a camera-sensitive glove. If the glove enters the danger zone ahead of the blade, the saw stops, again preventing serious injury. GloveCheck® became commercially available during 2014-15 with more than 10 units now in operation. Developing the world first 'know-how' around this technology has taken almost 10 years and a co-investment of \$3.3 million, and has enjoyed strong long-term support from industry.

BladeStop® is estimated to **prevent 10 serious accidents** a year, many of them near amputations



Taking a leap forward

JBS innovation manager Graham Treffone first encountered the 'LEAP' system in 2011 when he visited the Scott Technology facility in New Zealand.

"Coming from a beef processing background, it was hard to imagine how a 24kg lamb carcass could add so much complexity and variation into a processing business," he said.

"This complexity increases cost and requires accuracy and consistency, so I was impressed to see that the LEAP system used X-ray technology to determine coordinates for accurate cutting. This precise cutting presented JBS with the opportunity to take inconsistencies out of cutting carcasses and maximise high value cuts such as the loin and rack."

The team at JBS did the calculations and, based on potential savings through reduced labour, increased yield and the 'knock-on' effect of reducing workplace injury risk, the project was given the green light at the JBS Bordertown plant. Installation began in June 2013 for the LEAP primal cutting system, and in early 2014 for the LEAP IV middle cutting system.

Graham said a critical component of investing in LEAP was the associated R&D support from the partnership between JBS, the Australian Meat Processing Corporation and Scott Technology, and the MLA Donor Company through matched government dollars. (No producer levies were used to support this project.)

"The system delivers our customers quality and consistency – they can now expect a consistent number of ribs in every rack, loins that are the same size and so on," Graham said.

Increasing productivity across the supply chain

OBJECTIVE 3.3

Deliver valued supply chain and market information

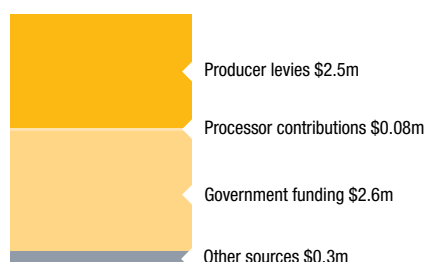
MLA delivers market and supply chain information that provides monitoring, analysis and reporting on the fundamentals of Australia's livestock industries. These tools and information enable businesses and supply chains to make informed decisions based on accurate market intelligence and feedback.

↑ STRATEGIES

- 3.3.1 **Collect and maintain** domestic and international meat market data of relevance to the Australian meat and livestock industries
- 3.3.2 **Disseminate** incisive analyses of relevant world meat market developments
- 3.3.3 **Facilitate** improved information flows within supply chains
- 3.3.4 **Work** closely with peak councils and government and seek opportunities with like-minded organisations to identify priority industry issues and commission research to address these issues

💰 INVESTMENT

\$5.5 million



In 2014-15 this investment included:

- > operation of MLA's livestock reporting service
- > digital provision of market information and analysis
- > improved supply chain data through Livestock Data Link
- > industry issues research

🔑 KEY MILESTONES

Over 90 per cent of clients find MLA market information valuable to their business, with over 60 per cent finding it highly or extremely valuable

Not available

RESULT: Quantitative survey not undertaken this year. However, qualitative research indicated the majority of producer stakeholders were satisfied, however, some refinements could be made

20 processing plants uploading data to Livestock Data Link

Not achieved

RESULT: 13 processing plants uploading data to Livestock Data Link across eight supply chains. There was a change in focus during the year to work more closely with the existing Livestock Data Link plants to drive adoption of the feedback tool within these supply chains

60 per cent of Livestock Data Link plants actively delivering feedback to their suppliers

Not achieved

RESULT: 30 per cent of Livestock Data Link plants are actively delivering feedback to their suppliers using Livestock Data Link

Develop methodology, implement and commence reporting on Australian beef 'cutout values'

Not applicable

RESULT: A current project aims to address the benefits and costs of mandatory price reporting, including an Australian cutout value

Increase reporting and analysis of cattle markets in northern and Western Australia

Achieved

RESULT: Increase market analysis in the north including live export prices and coverage of new saleyards. Western Young Cattle Indicator launched

Maintain ISO accreditation for MLA's market information activities

Achieved

RESULT: ISO accreditation maintained

Complete industry issues research as requested by Red Meat Advisory Council and peak industry councils

Achieved

RESULT: Research completed as requested by RMAC and peak industry councils

OBJECTIVE HIGHLIGHTS

Market Snapshots

Beef producers benefited from a new MLA initiative during 2014-15 with the launch of *Market Snapshots*. The reports give a big picture perspective, including domestic and export market information, analyses of consumer and customer trends and valuable insights into the latest developments in global beef markets.

Market Snapshots was produced in response to producer feedback received at forums which revealed that while MLA was producing significant detailed analysis, producers were seeking more of a broad overview of core market trends. It is hoped these market insights will promote more informed discussion along the entire supply chain and help producers to make more informed on-farm decisions that will contribute to their business profitability. So far *Market Snapshots* cover nine key beef markets: Australia, the US, China, Japan, Korea, Indonesia, South Asia, Middle East and the EU. As the service develops it will also incorporate information on Australia's main competitors such as New Zealand, India and Brazil. *Market Snapshots* will be developed during 2015-16 for Australia's core sheepmeat markets.

Market information enhancements

MLA's National Livestock Reporting Service (NLRS) continues to expand with another five selling centres added during 2014-15. Market information from Boyanup, WA, Mt Compass, SA, Gracemere and Emerald in Queensland, and Cootamundra in NSW, are contributing to a more complete picture of saleyard action nationally.

More than 13,000 people
and more than 25
newspapers subscribe to the
NLRS email service

Market reports, generated by 26 trained livestock market officers based around Australia, are available free an hour after the sale and disseminated by radio, available on MLA's website and MLA's Market Information App. In a new project, MLA is working on a customised online market tool which will select information for users based on their business objectives and geographic location. It is expected to be operational by early 2016. To further improve MLA's information services, beef and sheep industry projections have transitioned from six-monthly to quarterly and beef projections are now accompanied by a short video summary.

With 909,860 views in 2014-15
market information and
NLRS price data is highly
sought after via MLA's
website

Livestock Data Link and adoption by JBS

Livestock Data Link (LDL), a web-based application that allows processors and producers to analyse carcass performance information, is being rolled out on a supply chain basis. Embraced by JBS Southern, MLA is working with a further five supply chains to ensure this feedback service is available to a wide range of producers over the coming year. So far it is accessible to 2,300 JBS producers under the JBS Farm Assurance program.

LDL connects slaughter data from the National Livestock Identification System and Meat Standards Australia database with analytical tools and benchmark reports and the 'Solutions to Feedback' library. The library is an online resource that helps producers address non-compliance issues on farm. MLA is continuing to enhance its functionality by adding an animal health and disease feedback module. The aim for 2015-16 is to increase LDL's uptake by processors and producers and to enhance its functionality to make it more user-friendly.



In other news

West Australian producers are benefiting from improved market information with the launch of a Western Young Cattle Indicator (WYCI).

In July 2015 MLA hopes to build its northern market reporting capacity by creating a monthly overview of markets north of the Tropic of Capricorn. The new information service will include reports on the live export trade, over-the-hooks and saleyard prices (via daily radio broadcasts) to deliver meaningful sales data to all members of the supply chain.

With 5,983 views and downloads
MLA's three 2015 beef industry projections
and online videos were highly valued
by stakeholders

Increasing productivity across the supply chain

OBJECTIVE 3.4

Support industry to improve animal health and biosecurity

MLA invests in R&D to help industry address major animal diseases affecting the livestock industries and improve biosecurity measures to contain them. Any outbreak of a major animal disease could have severe impacts on international trade and adverse effects on productivity.

↑ STRATEGIES

3.4.1 **Improve** animal health and biosecurity

💰 INVESTMENT

\$3.2 million



An additional \$3.1 million was attracted in voluntary contributions (\$1.54 million) and matched Government funding (\$1.54 million) for investment via the MLA Donor Company.

In 2014-15 this investment included:

- > integrated sheep parasite management
- > footrot diagnostics and vaccine development
- > theileriosis diagnosis and control
- > cattle tick vaccine
- > bovine respiratory disease in feedlots
- > the national livestock disease survey

🔑 KEY MILESTONES

Phases one and two of the National Livestock Disease Survey completed

Achieved → **RESULT: Final report published**

Technologies to identify poor performing cattle in feedlots prioritised for further evaluation in feedlots

Achieved → **RESULT: Two scoping study reports have been received and are currently being reviewed by the ALFA R&D Committee, with a view to undertaking further development of applicable technologies**

Assessment of the bluetongue vector potential of midges in southern Australia completed, and mathematical prediction model for the spread of the disease completed

Achieved → **RESULT: Final report published**

Efficacy of two-in-one bovine respiratory disease vaccine established and plan developed to attract a commercial partner for its further development

Not achieved → **RESULT: Plan developed to attract a commercial partner. Potential partners sought a further efficacy pen trial and delays ensued. Discussions with partners may recommence following results**

Review of the impacts of fluoroacetate toxicity completed

Achieved → **RESULT: Review completed and concluded toxicity causes increased mortality and reduced stocking rates and has the potential to affect approximately 2.9 per cent of the Australian herd**

OBJECTIVE HIGHLIGHTS

Barbervax

MLA-funded trial work on the world's first vaccine for a gut-dwelling worm parasite of livestock has contributed to a major advancement in ovine internal parasite control. Barbervax will control barber's pole worm, a sheep parasite that occurs mainly in south-east Queensland and north-east NSW. It can cause sudden mass mortalities and is a significant contributor to the \$400 million annual cost of internal parasites to the Australian livestock industry.

Barbervax is expected to cost
\$3 per head
for an entire program

Barbervax had a limited commercial release during September 2014 for use in lambs and experienced an immediate sell-out of the initial batch of 600,000 doses. With extra vaccine supplies being produced for the 2015 barber's pole worm risk window, it is expected to cost 60 cents per dose or \$3 per head for an entire program.

The vaccine is now also registered for use in yearlings and adult sheep with the Australian Pesticides and Veterinary Medicines Authority and can deliver significant, ongoing cost savings to producers. Barbervax will reduce dependence on chemical worm control, helping to address issues of drench resistance, while vaccine-resistant worms are not expected to evolve.

The vaccine has no residue issues or withholding periods, meaning it is safe for organic producers to use without compromising their accreditation. It can also be used in conjunction with clostridial vaccines, if injected at a different site, drenches (which may be needed if sheep are infested with more than just barber's pole worm) and insect and/or lice medication. Work is continuing to assess the vaccine's efficacy for goats.

There is an MLA Donor Company partnership project underway (which isn't using producer levies) seeking to register a Barbervax treatment for goats.

Updated endemic diseases survey results

A comprehensive economic assessment of the most significant endemic diseases affecting Australia's red meat industry will provide the principal criteria for prioritising research and development investments. The MLA-funded report, which considered the goat industry for the first time, highlighted 17 cattle, 23 sheep and nine goat diseases as having the greatest economic impact.

For cattle, pestivirus appeared on the list for the first time as a significant disease affecting the southern beef industry but internal parasites were estimated as having the highest annual cost for northern and southern sectors at \$82 million per year. When setting research priorities however, the report recommended considering weighing this outcome against existing disease knowledge and the availability of control mechanisms. Diseases and conditions that still had relatively high annual costs (greater than \$5 million) and lower overall knowledge and available controls (less than 50 per cent) included neonatal calf mortality, vibriosis and *Theileria*.

The endemic diseases survey's list of priority diseases included
**17 cattle,
23 sheep and
9 goat diseases**
as having the greatest economic impact

For sheep, neonatal mortalities (\$540 million) and internal parasites (\$436 million) had the highest estimated annual economic impacts.

Internal parasites had the highest estimated annual impact on the goat industry, costing \$2.5 million. The next two priority diseases were enterotoxaemia and lice. This project completes phases one and two of a four-phase MLA initiative.



Barbervax – a family collaboration

Scottish father and son team, David and Robin Smith, collaborated to develop Barbervax, the ground-breaking vaccine against barber's pole worm (see Barbervax story at left). David, a scientist at Moredun Research Institute near Edinburgh, has devoted his career to researching immunity to, and vaccines for, parasitic worms of sheep and cattle. For him, the advent of Barbervax ended a 30-year quest. Contributing significantly to this success was his engineer son, Robin, who developed a worm-harvesting machine, the NemESys (Nematode Extraction System). This enabled the cost-effective collection of large amounts of intestinal enzymes from clean worms, keeping the vaccine economically viable.

Barber's pole worm females are prolific egg layers, laying up to
10,000 eggs per day

Increasing productivity across the supply chain

OBJECTIVE 3.5

Increase producer engagement with MLA tools and information to build capability

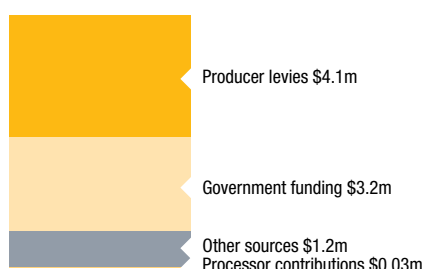
MLA produces a range of information, tools and services that help livestock producers to make sound business decisions, manage challenges and capture opportunities to boost their productivity. MLA's work in communications and extension aims to inform producers of their opportunities, influence their decision making and enquiry, and involve them in developing and evaluating programs of relevance.

↑ STRATEGIES

- 3.5.1 **Keep** producers informed about the activities and opportunities created by their levy investment in R&D and marketing
- 3.5.2 **Facilitate** the uptake of MLA information, tools and learning opportunities to influence positive practice change
- 3.5.3 **Partner** with producers and stakeholders who use and value MLA tools and information to help influence their peers as well as inform future MLA programs and activities

💰 INVESTMENT

\$8.5 million



'Other sources' includes funding from the Department of Agriculture for the Farm300 program, and from Australian Wool Innovation for the *Making More From Sheep* program.

An additional \$135,000 was attracted in voluntary contributions (\$67,500) and matched Government funding (\$67,500) for investment via the MLA Donor Company.

In 2014-15 this investment included:

- > continued rollout of the flagship extension programs including *More Beef from Pastures*, joint MLA-AWI programs *Making More From Sheep* and *Pastoral Profit* and the *FutureBeef* collaboration
- > development of new producer resources
- > delivery of *Feedback* magazine, *Friday feedback*, producer forums and events and online tools

🔑 KEY MILESTONES

Increase satisfaction with MLA communications activities from 3.6 to 3.8 out of 5

Achieved

RESULT: Member satisfaction with MLA communications rated an average of 3.8 out of 5 in the August 2015 member survey

At least 50 per cent of commercial sheep and cattle producers engage with MLA information or tools

Not achieved

RESULT: An average of 44 per cent of MLA members engaged with MLA information or tools

At least 50 per cent of those producers engaged with MLA information, tools and learning opportunities improve their knowledge, skills and/or capacity to change practice as a result of this engagement

Achieved

RESULT: 74 per cent of producers that engage with MLA information, tools and learning opportunities adopt at least one practice change

At least 25 Producer Demonstration Sites in operation to deliver localised R&D information to producers

Not achieved

RESULT: 21 Producer Demonstration Sites are currently in operation to deliver localised R&D information

Implement a new monitoring, evaluation and reporting framework to enable more effective reporting against strategic objectives

Achieved

RESULT: The framework has been developed for extension projects to demonstrate practice change and impact and has been applied to pilot projects. Application to extension projects more broadly has commenced

OBJECTIVE HIGHLIGHTS

LambEx and Beef Australia 2015

MLA supported Australia's two major meat industry events this year, connecting with beef and lamb producers and showcasing the latest research outcomes and industry insights.

About 90,000 people attended Beef Australia 2015 in Rockhampton where MLA presented a packed program of information sessions and networking opportunities. Popular attractions included MLA's Innovation Marquee sessions, which delivered the latest research and development outcomes, as well as the packed-out Producer Forum, which covered some key programs where MLA is investing producer levies.

The lamb industry event of the year, LambEx in Adelaide, attracted processors, exporters, researchers and agribusinesses. MLA gave presentations to attendees on growth markets, opportunities and consumer trends that are likely to impact lamb sales.

Website refresh

MLA has delivered a refurbished website which puts producers as its primary audience. Featuring a modern look that is consistent with other communication channels, streamlined navigation and new emphasis on levy investment transparency, the new website should encourage more online traffic and underpins MLA's aims and objectives. The project's second phase, to be delivered in early 2016, will introduce more personalisation, including a home page featuring news and market information pertinent to the user's enterprise and geographic location. MLA's aim is to improve accountability to levy payers and to share the existing online resources more effectively through improved delivery.

Pastoral Profit program

Producers in the pastoral zone can ramp up their business skills with the support of a new MLA and Australian Wool Innovation-funded program to boost farm profits. The *Pastoral Profit* program is regionally customised and features multiple delivery platforms including webinars, phone conferences and online resources, as well as face-to-face tutorials. Its launch webinar in June 2015, featuring agricultural consultant and livestock profitability specialist Dr Phil Holmes and pastoral producer Andrew Miller, attracted 120 producers. The program, which runs for three years, aims to upskill producers to make informed decisions on the business and management options they have available.

Farm300

More than 300 beef and sheep producers Australia-wide participated in Farm300, a program aimed at improving producers' awareness and skills at reducing on-farm emissions while also increasing productivity. The two-year, \$950,000 project, funded by the Federal Government and managed by MLA, finished in May 2015 and succeeded in training 128 advisors and 333 producers to manage emissions. Two-thirds of the participants intended to implement practice change as a result and the program has significantly enhanced the online resources available to producers. Economic modelling from the program showed reductions in emissions and increases in profit were possible.



Extension delivers practice change and profitability

Producers involved in the MLA-funded *More Beef from Pastures* (MBfP) program lifted their average net on-farm income by \$6,000 per business. A two-year review of the program's efficacy also showed that 75 per cent of producers who participated made changes they said they would, or made another change, as a direct result of attending MBfP.

Similarly, an in-depth review of the *Making More From Sheep* (MMFS) program showed participants gained an additional \$10/ha in income, on average, and 76 per cent of all attendees were making changes to their business following workshops.

After attending MMFS workshops, 98 per cent of attendees said they had increased confidence to adopt practice change and 56 per cent said they had decreased their stock losses as a direct result of applying their workshop learnings on farm. The review also showed that 89 per cent of participants felt they had increased their knowledge and skills and 85 per cent observed improved animal wellness on their farms.