mla Your levies at work // August/September 2016

Feedback

Systems for profit

20// **How a new MLA program is supporting the Bassingthwaightes' decision making**

48 PAGE BUMPER EDITION & Have your say on Feedback

A note from the MD...

MLA has made some big announcements since the last edition of *Feedback*.

Firstly, MLA announced it will be leading the development of a new Value Chain Digital Strategy. This work will capture, integrate and interpret the vast and increasing range of data being generated through technology, providing all players across the value chain with the ability to share and mine data to benefit their businesses. You can read more about this strategy on page 3.

Secondly, just as *Feedback* was being finalised, I announced further detail on MLA's objective measurement plan at the East Gippsland Beef Conference in Bairnsdale, Victoria. This plan will drive the adoption and use of new objective measurement systems and technology in areas including eating quality, carcase yield and grading, market specifications, feedbase, nutrition, reproduction, animal health and welfare, and traceability. I'm very excited by this plan as objective measurement has the potential to transform the red meat industry by improving efficiency and underpinning a new, value-based pricing model. If delivered successfully, the returns across the value chain are estimated to be in the region of $250 million per year by 2030. Read more about this on pages 16-17.

Last month I also attended Lambex 2016 which MLA was delighted to sponsor. This event showcased speakers from researchers and producers through to chefs and even a futurist. It was a very worthwhile event and reinforced the optimism in this industry. See page 47 for more.

In closing, I'd like to encourage you to attend MLA's Annual General Meeting being held in Hahndorf in the Adelaide Hills, SA on 10 November. It will contain a compelling mix of industry forums and other events. In the lead-up to the AGM, members will start receiving their voting entitlement information packs. Please keep an eye out during October for your pack.

Richard Norton
MLA Managing Director

Contents

Feedback is produced and published by Meat & Livestock Australia Ltd (ABN 39 081 678 364).

MLA acknowledges the matching funds provided by the Australian Government to support the research and development detailed in this publication.

E: info@mla.com.au
T: 1800 023 100 // **F**: 02 9463 9393
www.mla.com.au

This magazine was printed on Sumo Offset Laser, an environmentally responsible paper manufactured under the environmental management system ISO 14001 using Elemental Chlorine Free (ECF) pulp sourced from sustainable forests. Sumo Offset Laser is FSC Chain of Custody (CoC) certified (mixed sources).

Cover: Queensland cattle producers Cassie and Sam Bassingthwaighte.

Accelerating our digital future

MLA has recently unveiled its plan to chart the digital future of Australia's red meat and livestock industry and how to use data to make better commercial decisions.

The Value Chain Digital Strategy – an industry first – is designed to empower every participant at every point in the value chain to make commercial decisions based on data.

MLA will lead the development of the strategy with industry to deliver seamless capture, integration and interpretation of the vast and increasing range of data being generated through technology.

MLA Managing Director Richard Norton said the strategy would harness the multitude of new digital technologies across the value chain to ensure they work together to build prosperity throughout the industry.

"While our Australian industry enjoys significant natural advantages, increasing competition within our domestic and export markets – and input costs that are consistently higher than all of our major international competitors – mean it is imperative for our industry to work smarter," Richard said.

"But an uncoordinated, ad-hoc approach to new technology simply will not capture, let alone unlock, the potential that big data offers our industry."

The strategy will require close collaboration across industry with the world's best innovation companies.

"As new disruptive automation and objective measurement technologies emerge and the digital footprint expands, there is an increasing need for an integrated platform that provides more ways for value chain partners to share and mine data to benefit their business," Richard said.

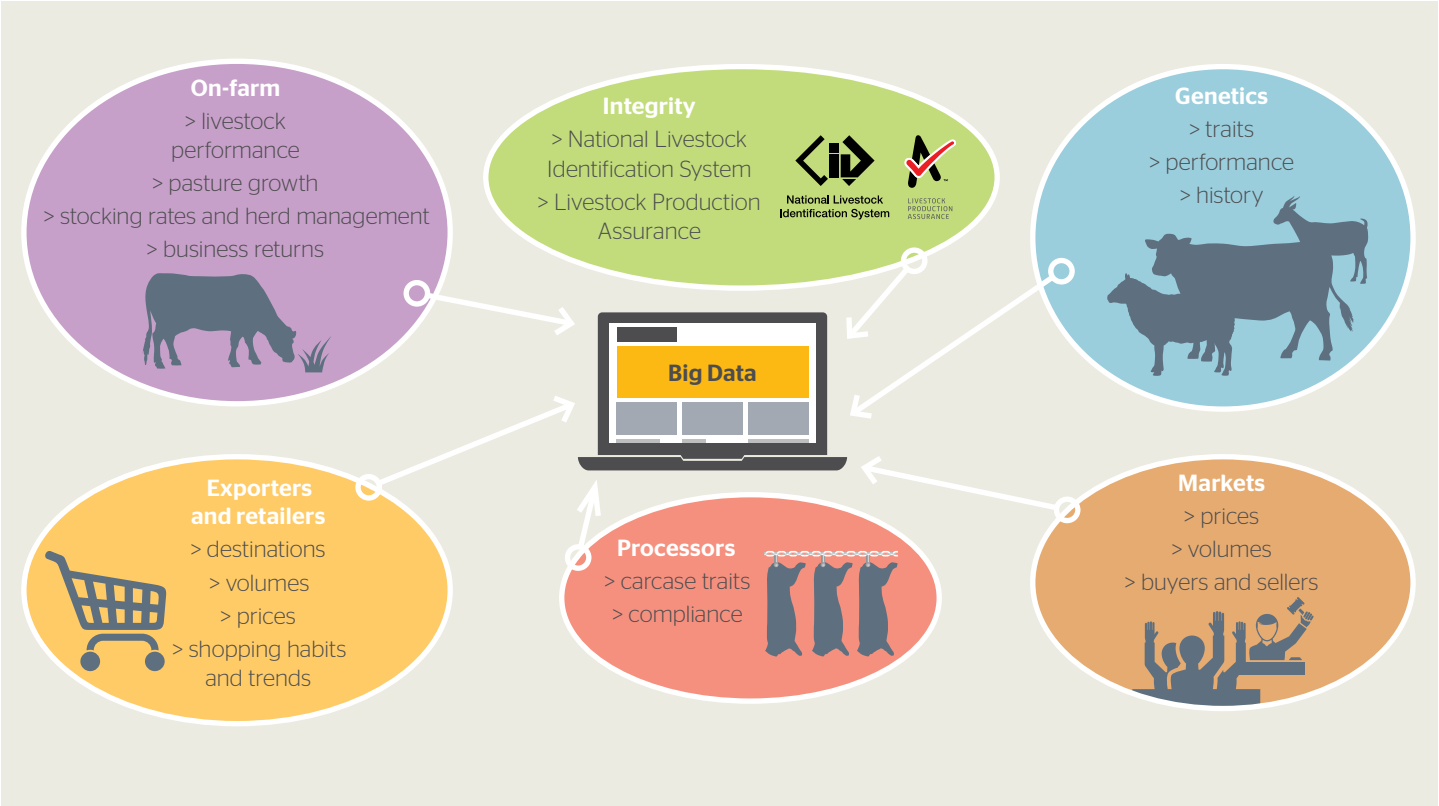
"There will be increasing use of robotics, drones, driverless vehicles, satellite imagery of pastures, Meat Standards Australia data and compliance, objective measurement and value-based marketing. At the consumer level, home grocery deliveries, provenance, branded products and ethical consumer purchasing will also make an increasing impact."

MLA is well placed, according to Richard, to lead the strategy development.

"In servicing the entire red meat and livestock value chain, MLA is in a position to lead the development of a digital strategy that maximises the opportunity to exchange information and its use to produce what our markets need, more sustainably and more profitably," he said.

www.mla.com.au

Figure 1 Opportunities to use, collect and distribute data

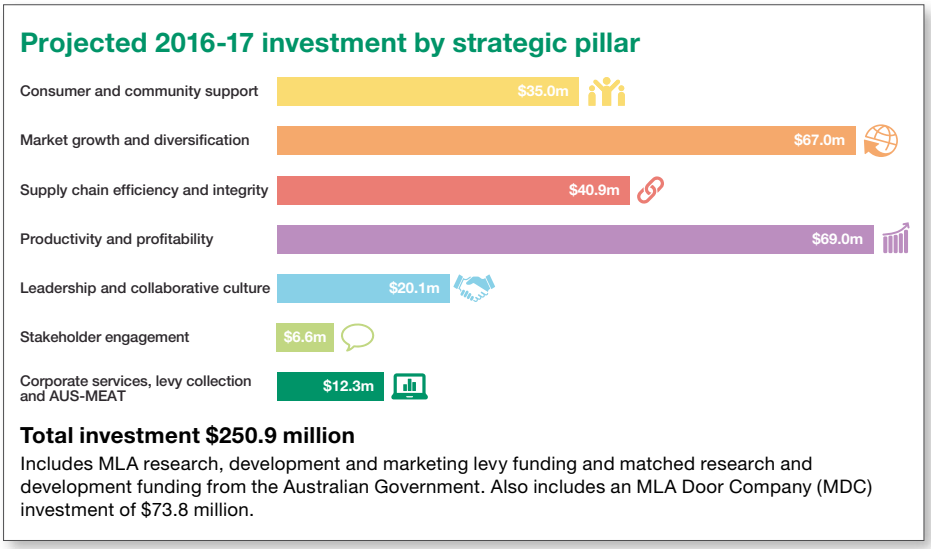


Where your levies will be invested

MLA's Annual Investment Plan 2016-17 **has been developed to inform levy payers, peak industry councils, the Australian Government and the wider industry about MLA's proposed work program for the year.**

The plan guides the practical delivery of MLA's long-term investment priorities and outcomes, which are set out in its *Strategic Plan 2016-2020*. These priorities align with those in the Australian Government's Science and Research Priorities and its Rural Research, Development and Extension Priorities.

They also centre on the six strategic targets that the Australian red meat and livestock industry has set itself to achieve by 2020 through its *Meat Industry Strategic Plan 2020*.



Want to know more? Download the plan at **www.mla.com.au** and search for 'annual reporting'

Bluetongue testing now fast-tracked

New real-time tests that allow for results in a day, rather than weeks, will help to detect and identify exotic insects and any bluetongue viruses they might carry. This will improve Australia's ability to implement control measures and protect market access.

The presence of bluetongue virus (BTV) places restrictions on where livestock exports can be sourced from for trade. However, surveillance conducted through the National Arbovirus Monitoring Program (NAMP) defines the limits of BTV transmission and provides confidence to gain and maintain access to valuable markets.

The new surveillance tests, funded by red meat levies through MLA, are the work of a team led by Dr Peter Kirkland, Senior Principal Research Scientist at Elizabeth Macarthur Agriculture Institute and technical coordinator of the NAMP.

Dr Johann Schröder, MLA's R&D Project Manager Animal Health, Welfare and Biosecurity, said improved testing offers many advantages.

"There's less room for error, especially in the insect identification, and there's more immediate indication and warning of possible BTV spread," Johann said.

"The advantage of quicker diagnosis to producers is that jurisdictions will more quickly be able to institute control measures if a disease threat emerges.

"Being a viral disease, there is no treatment, other than good nursing. In countries where the disease is endemic, sheep are vaccinated successfully, but at this stage, Australia has not seen the need to establish a vaccine bank."

And while Australia has BTV, it has never had a clinical case of the disease in its commercial livestock populations.

Peter said with some countries preferring Australian livestock sourced from BTV-free zones, enhancing testing capabilities for BTV is an important element to protect market access.

"Results can now be obtained for virus detection and identification for several hundred samples in a day, whereas previous methods would usually have taken weeks.

What is BTV?

A virus spread by small biting midges known as *Culicoides*. It is endemic in northern and north-eastern Australia with the BTV-free zone varying from season to season. However, BTV remains undetected in South Australia, Tasmania and Victoria.

"We now also have the potential to detect a single exotic midge in a collection of more than 50,000 insects," he said.

Dr Johann Schröder
E: jschroder@mla.com.au

Partnering for productivity

Four major red meat and livestock industry research projects involving MLA were recently announced.

Northern gains: The Northern Beef Collaborative Partnership between MLA Donor Company and The University of Queensland is worth up to $8 million a year for a minimum of three years and targets productivity improvement research projects in three main areas:

- animal nutrition, supplementation and feedbase
- cattle health and welfare
- reproductive efficiency and management.

Information: www.uq.edu.au

Phosphorus-focused future: MLA will manage a $3.46 million Australian Government Rural R&D for Profit project which aims to reduce the phosphorus dependence of Australian pasture systems. Reducing the requirements for phosphorus fertiliser will achieve multiple benefits including nitrogen use efficiency, water efficiency and improved productivity for Australia's pasture systems. The project will also develop the knowledge and necessary protocols to equip and inform producers about how to improve their phosphorus efficiency.

Information: www.agriculture.gov.au and search 'approved projects round 2'.

Securing the safety net: Another Rural R&D for Profit investment, this $5.8 million project will be managed by MLA to improve surveillance, preparedness and return to trade for emergency animal disease incursions, using foot and mouth disease as a model.

Information: www.agriculture.gov.au and search 'approved projects round 2'.

Maintaining our reputation: MLA is providing $1.5 million in funding to the Tasmanian Institute of Agriculture to develop new food safety technologies and management tools for temperatures for domestic and export red meat. The research is funded through MLA's food safety program, jointly funded by producer and processor levies.

The three-year project will develop a tool that helps manage the shelf life of vacuum packed beef and lamb and will further develop technologies to reduce bacterial contamination on carcases.

The TIA Food Safety Centre's Associate Professor in Food Microbiology Tom Ross with MLA Manager Market Access Science and Technology Ian Jenson at the announcement of the food safety research project.

A call at calving

Receiving a text message when a cow goes into labour could soon be a reality with MLA-funded research on a calf alert device.

Associate Professor Scott Norman from Charles Sturt University and Professor Dave Swain from Central Queensland University are managing the research which aims to improve the reproductive performance of Australian beef herds by reducing calf loss.

The intra-uterine device is inserted during pregnancy testing. When expelled at calving, it starts emitting a radio signal that can be detected from a tower or even an unmanned aerial vehicle.

"Prior to this research, it has been extremely difficult to produce a device that could be retained for three to four months," Scott said.

"However, retention rates of 85% are now being achieved at the Belmont Research Station near Rockhampton with the calf alert device. Work is continuing to improve the strength and reception of the signal so more calving events can be reliably identified."

Other devices are also being developed to help with calf-loss research, such as activity monitors which detect changing behavioural patterns around calving to help identify good mothers and bad mothers.

Associate Professor Scott Norman // E: snorman@csu.edu.au
Professor Dave Swain // E: d.swain@cqu.edu.au

Vale Karen Riethmuller

Feedback magazine's graphic designer, Karen Riethmuller passed away suddenly last month. Karen designed *Feedback* for nearly a decade (including most of this edition). *Feedback's* editorial team will miss her greatly.

Grainfed get-together

The Australian Lot Feeders' Association (ALFA) event, BeefEx 2016, from 11-13 October on the Gold Coast, will feature a line-up of international guest speakers, such as JBS Five Rivers Feeding CEO Mike Thoren, as well as some new offerings.

ALFA Events Chair Paul Vogt said the "revitalised" event will feature a networking breakfast, a business profiling afternoon on the Paspaley Group, a student research competition and an interactive BeefEx Bootcamp.

Register at **www.beefexconference.com.au**

Correction: On the cover of the May/June 2016 edition, Elke Hocking's surname was spelt incorrectly. Also, on page 24, the location of the one of her properties should have read Kangaroo Island, not King Island. MLA apologises for the mistakes.

Research from the ground up

In just 12 months MLA's new regional consultation model has been rolled out and 18 new research projects given the go-ahead. The new model means local producers now have an even bigger say on MLA's research priorities.

The following research, development and adoption themes for 2016–17 were identified through the regional committees, research councils, Red Meat Panel and the producer panels:

- → adaption of tropical pasture species and companion legumes in new areas (in a whole farm systems context)
- → integration of cropping and livestock
- → novel feed strategies for supplementation
- → managing total grazing pressure in extensive livestock production systems
- → reducing the economic impact of cattle tick
- → scoping tool to aid farm risk management
- → attracting new and young entrants and the best brains to livestock research and development and the industry through career paths and culture change
- → rapid, cost-effective mechanisms to get superior beef genetics into northern commercial herds via heifers.

As a result, 18 new projects have been funded from sheepmeat and grassfed beef producer levies to address these topics over the next five years.

Meetings and consultation will soon take place to establish priorities for 2017–18 investment in research, development and adoption.

Mary Goodacre, MLA
T: 02 9463 9225 // E: mgoodcare@mla.com.au

Members of the Southern Australia Meat Research Council, Western Australian Livestock Research Council and the Northern Beef Research Council can be contacted directly by producers wanting to suggest research priorities for upcoming investments. Contact details can be found at **www.mla.com.au/About-MLA/RD-Consultation**

From the regions to the research: year one

18 proposals worth a total MLA investment of $9.4 million over five years selected to proceed by the Red Meat Panel

↑

28 subsequent proposals reassessed by producer panels and MLA

↑

34 full proposals (including aggregation of some of the preliminary proposals) invited to submit full applications

↑

42 proposals short-listed by the producer panels and MLA

↑

185 preliminary proposals received and reviewed by producer panels and MLA

↑

Seven terms of reference developed by the producer and expert panels to call for research, development and adoption project proposals to address these priorities aligned to industry strategic plans

↑

Sheepmeat and grassfed beef research, development and adoption priorities set for 2016–17 by the producer and expert panels

↑

Northern, southern and western producer panels and the expert panel established

↑

Regional committees, research councils and the Red Meat Panel established

Right: The Western Victoria regional committee of SAMRC recently took a field trip to look at mixed farming enterprises, including Jason Pymer's farm outside Horsham. Regional chair Tim Leeming (left) is pictured at Pymer's farm with committee members Fiona Conroy, Ed Blackwell and Ben Young and local producer Sam Eagle.

One-stop safety shop

Producers have help at hand with a new range of practical, online workplace health and safety (WHS) resources. They include comprehensive and easy-to-follow checklists, templates and guidelines on how to develop the components of a WHS plan and avoid lost productivity through workplace injuries.

The manuals feature four themes:

- → **Identify hazards** - find out what could cause harm.
- → **Assess risks** - understand the nature, seriousness and likelihood of the harm that could be caused.
- → **Control risks** - implement the most effective control measure that is reasonably practicable.
- → **Review control measures** - ensure they are working as planned.

The project was carried out by Associate Professor Tony Lower from the University of Sydney's Australian Centre for Agricultural Health and Safety and funded by the Primary Industries Health and Safety Partnership (PIHSP) - which is funded by MLA, the Australian Meat Processor Corporation and the Cotton, Grains and Rural Industries Research and Development Corporations.

"In the past 12 months alone, we've worked with almost 50 sheep and cattle producers from various industry groups around Australia to ensure these manuals are as simple and effective as possible," Tony said.

"The result is a one-stop shop for on-farm health and safety, available to download free from MLA's website.

"These manuals are designed as a quick and easy way to kickstart a WHS plan in the right direction, while allowing producers to adapt and tweak the templates to suit their respective operations."

36,000

weeks of work lost between June 2008 and July 2013, due to workplace injuries in the beef industry

$91 million:

in lost productivity (in that period)

Creating a new culture

Business growth and increased staff numbers in the past eight years prompted Western Australian producer Will Browne to instil a culture of safety into his operation through the adoption of a formalised workplace health and safety plan.

"My main tip for a safer farm is to hold regular tailgate meetings where staff can have their say and raise any WHS issues that they've noticed, and can be acted on straight away."

"Previously being an operation with no employees, I was able to get by with a common-sense approach to health and safety, but now with the safety of a new team to consider, it's time to really ramp it up," Will said. He recently employed three permanent staff.

"Time equals money in our game, particularly now we're growing. For us, implementing a formal WHS plan comes at a very low cost and we believe it makes good business sense.

"There are quite a few people involved in the sheep side of the business with shearers, truck drivers and lamb marking contractors, so we've decided to adopt a formal but easy-to-follow plan that will help make my family, staff and contractors safer and more productive."

Through his role as chairman of the livestock committee for West Midlands Group - a local crop and pasture research group - Will recently had the opportunity to work on the new Primary Industries Health and Safety Partnership WHS sheep manual with Associate Professor Tony Lower from the Australian Centre for Agricultural Health and Safety.

Will was asked to provide feedback on the manual after "ground-truthing" sections of the document on his own farm. The process has led him to more critically evaluate on-farm health and safety.

A new policy for stockyards came out of the first ever 'Warradarge Hill' tailgate (informal safety) meeting that was held earlier this year.

"To ensure there are no dangerous incidents now and in the future, we all agreed that two people were required in the sheep (and cattle) yards at all times, whether they're back-lining, weighing or even drafting sheep," Will said.

Will Browne
E: warrahill@gmail.com
Download the manuals at:
www.mla.com.au/whs

Livestock exports

Livestock exports ... five years on

Australia's livestock export trade has undergone enormous changes in the five years since the ban on Australian livestock exports to Indonesia. In this feature, *Feedback* takes a look at the changes and what lies ahead.

Livestock exports – who does what?

Australian Livestock Exporters' Council (ALEC): The peak industry body of the livestock export industry, its members include the Australian Government's licensed exporters by sea and air of feeder, slaughter and breeder sheep, cattle (including dairy), goats, buffalo and camels. ALEC is responsible for setting industry policy, providing strategic direction and representing its members at all levels. www.auslivestockexport.com

LiveCorp: While ALEC develops industry policy, LiveCorp is an industry service provider to livestock exporters. LiveCorp – funded through statutory levies – works closely with stakeholders to improve performance in animal health and welfare, supply chain efficiency and market access through the provision of technical services and research, development and extension. LiveCorp is also responsible for training on-board stockpersons. LiveCorp partners with MLA to deliver the Livestock Export Program in destination markets. www.livecorp.com.au

MLA: In partnership with LiveCorp, MLA works with exporters and conducts whole of supply chain reviews, then develops strategies and projects to help supply chains comply with ESCAS. MLA also develops collaboration projects in tandem with overseas governments to improve capability (see story 'Building capability in Vietnam' on page 9). www.mla.com.au

Livestock exporters: Under the Australian Government assurance program – Exporter Supply Chain Assurance System (ESCAS) – livestock exporters must use a system of reporting and independent auditing to demonstrate:

- → Animal welfare – animal handling and slaughter meets World Organisation for Animal Health (OIE) animal welfare guidelines
- → Control – the exporter has control of all supply chain arrangements, including transport, feedlot and slaughter, and all livestock remain in the supply chain
- → Traceability – the exporter can trace and account for all livestock through the supply chain to the point of slaughter.

The Australian Government: The Government regulates ESCAS and implements consequences for non-compliance that can include suspension and cancellation of an export licence. It also imposes conditions upon supply chains to improve compliance. www.agriculture.gov.au

MLA's Manager of Livestock Exports, Peter Dundon, says the livestock export industry is important to all producers, offering alternative markets for both breeding and slaughter stock and supporting livestock prices.

"The trade underpins the prices in southern markets, particularly in times of high cattle turn-off, by adding to the competition for livestock in Australia. If stock don't go overseas they have to go somewhere, and whenever you increase supply without increasing demand, price will suffer," Peter said.

"It's also a critical market for northern cattle producers, particularly family operations that don't have the scale of the large corporate operators who can send cattle south to their fattening blocks or feedlots, then sell them into domestic markets."

Given the significance of the livestock export industry to producers, MLA has an important role to play.

"MLA's role is to build capability in the livestock export industry, particularly working with exporters and whole supply chains to help them comply with ESCAS," Peter said.

Driving improvements

MLA and LiveCorp have partnered to deliver the Livestock Export Program (LEP) in Australia's destination markets.

With the implementation of ESCAS in August 2011, MLA's LEP role in-market expanded from delivery of market access assistance, general animal welfare advice and technical support, to delivering programs specifically designed to support exporters' compliance with ESCAS.

One of the key delivery platforms – the Industry Collaborative Welfare Program – is now getting a makeover.

"Under the Industry Collaborative Welfare Program, the LEP funds up to 50% of the costs of an animal welfare staff member employed by an Australian exporter to work in a supply chain," Peter said.

"This program has delivered great results throughout the supply chain – for exporters, importers and the LEP.

"Starting in July, the LEP is expanding its co-funding focus beyond welfare to the other key responsibilities under ESCAS: traceability and control."

The expanded co-funding program will have a total expenditure of $900,000 with a cap of $100,000 per exporter, and staff may be employed to provide supply chain assistance with traceability and control systems, as well as provide advice on feedlot management, abattoir design, animal health and nutrition, and general animal welfare.

What's next?

The industry is enhancing the systems it operates under and the next phase of this is the Livestock Global Assurance Program (LGAP), which has been developed through the Livestock Export Program R&D program and supported by the Australian Government.

LGAP aims to take ESCAS further and do even more for improving the welfare of all animals in foreign markets, as its scope is not limited to just Australian livestock.

Peter Dundon
E: pdundon@mla.com.au

Welfare breaches

Earlier this year, Animals Australia exposed evidence of poor slaughter practices and suspected breaches of the ESCAS system in 13 abattoirs in central and north Vietnam.

They included one ESCAS-unapproved abattoir using a sledgehammer to stun Australian cattle before slaughter, and several ESCAS-approved abattoirs with poor slaughter practices, including not checking to ensure cattle had lost consciousness before ensuing death.

Australia's Department of Agriculture and Water Resources conducted control and traceability audits for all eight exporters with supply chains in Vietnam. At the time of publication, two exporters had been suspended from supplying Australian cattle to Vietnam with additional conditions placed on a further four.

The Department also suspended licences in 21 facilities in Vietnam, including three feedlots and 18 abattoirs.

Building capability in Vietnam

MLA is working with a range of live cattle trade stakeholders in Vietnam to improve systems and procedures to limit the potential for future animal welfare breaches in ESCAS-approved supply chains.

Dr Michael Patching, MLA's Manager of Livestock Services in Vietnam, said a response plan was in place to reduce the risk of poor welfare through training and and more oversight of cattle movements by the Vietnamese Government.

"MLA is working closely with the Australian Embassy in Hanoi to develop an animal welfare program with the Vietnamese Ministry of Agriculture and Rural Development," Michael said.

"Assisting Vietnam to continue to improve animal husbandry, handling, nutrition and slaughter practices will continue to be a priority of the Australian industry."

Michael said improving food safety and traceability of products to market would also help Australia build a long-term, sustainable trade with Vietnam.

"Building these long-term, strategic partnerships with the Vietnamese Government and industry will help ensure Australia is well positioned to capture the strong potential growth for beef in the country," he said.

Dr Michael Patching
E: mpatching@mla.com.au

Viewpoint: Producer

Committed to welfare

Supplying the live cattle trade sits comfortably with Garry and Michelle Riggs' strong commitment to animal welfare.

The Northern Territory producers run 7,000 Brahman-cross cattle on Lakefield Station on the Sturt Plateau, 160km south of Katherine.

They have been involved in numerous animal welfare research projects – including an MLA Producer Demonstration Site – and implemented practices aimed at enhancing welfare, including breeding polled cattle, using controlled mating and early weaning, and intensive supplementary feeding.

Lakefield turns off about 1,500 head a year, the majority being feeder steers to Indonesia and Vietnam, but older cows and bulls are also exported.

"During the 2011 ban, we made one foray into sending cows south, but I would never do it again – the number one reason being animal welfare."

Long journey too much to ask

Garry said after a long and tough life in the north it was too much to expect an aged cow with "worn-out joints" and carrying a lot of weight to stand up in a truck for a journey of up to 3,000km.

"It doesn't work from a financial perspective because they lose too much condition, and it doesn't work from an animal welfare perspective because they can't handle the long trip standing up. Some of them sit down and can't get back up," Garry said.

"We're only 460km to Darwin, so it's a much shorter trip for them to the port, and once they are on the boat they have room to sit down or move around. They also have constant access to food and water.

"Selling young cattle into the southern markets may be fine if you cross with European breeds and find a market for Brahman-cross, but it's no good for aged cows."

Vietnam reaction

Garry has travelled to Indonesia several times and seen his cattle being well cared for in feedlots and has witnessed humane slaughter.

With many of his cattle now going to Vietnam, Garry said he was disappointed to hear reports of ESCAS breaches occurring there, but felt it was critical that Australian exporters remain in the market.

"I think it's important that we stay in that market, both for our industry's sake and for the animals' sake," Garry said.

"If Australia is not supplying the market, someone else will be – and no one will care about the animals then.

"Australia can make a real difference around the world when it comes to animal welfare. It's up to us – our exporters and our government – to ensure the regulations are enforced, while at the same time moving forward with education."

Garry Riggs
E: lakefieldstation@bigpond.com

Viewpoint: Industry

Transparency crucial: NTCA

The Northern Territory Cattleman's Association (NTCA) is a keen supporter of the Australian Government's ESCAS program and its emphasis on animal welfare and accountability.

NTCA president Tom Stockwell said ESCAS meant NTCA members were reassured to know there was a system to protect the welfare of their animals in overseas markets.

"ESCAS is important to producers because it helps maintain access to markets that will increasingly demand higher animal welfare standards, and it gives us – as well as the general public – a level of comfort knowing there is a system in place that improves and protects the welfare of our animals," Tom said.

But the organisation, which represents more than 90% of the Territory's pastoral industry, also believes more can be done.

"Transparency throughout the supply chain is essential to ensure community expectations are being met – it is the key," Tom said.

"It is also critical that there is a strong level of trust between producers and exporters and, for that to exist, we need a clear line of sight to what is going on in our markets.

"The NTCA has initiated discussions on the development of a Producer Assurance Program that would independently provide the necessary transparency on supply chain performance and risk.

"The results would be available to producers who could then easily identify the best-practice supply chains when marketing their cattle."

Tom Stockwell
E: sunday.creek.stn@bigpond.com

Viewpoint: Exporter

Striving for 'ESCAS-plus'

Livestock exporter AUSTREX has a zero tolerance policy on animal cruelty and is strongly committed to meeting its obligations under ESCAS.

"As exporters, we recognise we are only judged on our poorest performance, so it is imperative that we strive for 'ESCAS-plus' and get it right," AUSTREX chief executive officer Justin Slaughter said.

"AUSTREX has and will continue to suspend trade with any importer not committed to the success of ESCAS."

Justin said thorough due diligence when choosing importer partners was critical to meeting ESCAS obligations.

"For example, we began undertaking due diligence for the feeder and slaughter cattle market in Vietnam in July 2013," he said.

"Although AUSTREX was approached by over 30 Vietnamese importers, after undertaking thorough due diligence on each importer, we have selected only two to partner with to date."

Embracing change

Operating since 1973, AUSTREX is one of the world's largest livestock exporters, with operations in Russia, China, the US, Uruguay, Turkey, Indonesia and New Zealand.

When ESCAS was introduced five years ago, the company immediately responded by forming a dedicated ESCAS department in their Brisbane office to work on the new requirements.

"It was decided that permanent staff on the ground in receiving countries was key to our success," Justin said.

"We have since worked hard to grow and develop teams in-country, made up of both Australian and local team members. Our ESCAS team is now our largest department."

Justin said the benefits of ESCAS had extended beyond the intended animal welfare and industry sustainability goals to better business relationships.

"ESCAS and our in-market presence have allowed us to develop stronger relationships with our stakeholders," he said.

"Importers now understand the importance of exporters demonstrating control of the supply chain from delivery port to the point of slaughter, and we have worked together to agree on and establish procedures that work for both parties."

Investing in technology

In order to meet its ESCAS obligations, AUSTREX has invested significantly in the development of a proprietary online integrated livestock management traceability system (from on-farm to processing), independent audits, market monitoring (CCTVs), training and upgrades to infrastructure.

"We have supplied handheld stunners and thousands of stunner cartridges for use in approved feedlots and abattoirs, as well as handheld radio-frequency identification (RFID) scanners, RFID panel scanners, thousands of RFIDs, animal health treatments, veterinary equipment, mobile phones, CCTVs and other abattoir infrastructure," Justin said.

"We're also continuing to increase our on-the-ground presence in all our markets. This investment in human resources will further complement our current staff, providing compliance oversight, technical support for slaughtering and animal handling, advice on improvement to abattoir efficiency, animal husbandry, veterinary advice, biosecurity, livestock nutrition, capacity building, feedlot design, depot design, abattoir design, stunner maintenance, beef marketing, traceability training, crisis management and ESCAS obligations.

"Our Animal Welfare Officers each carry a toolkit stocked for Matador/Matacase stunner maintenance. They check and clean each stunner when visiting an abattoir, and also remind and retrain staff on maintenance."

More to be done

Justin said achieving all this in just five years had been a challenge, but there was still more to be done.

"AUSTREX is proud of our technological advances made in the past five years, however, we need to continue to improve systems to try to stamp out poor animal handling practices," he said.

"Technology implementation has tightened the loop on traceability gaps at critical points within the supply chain, but there is more work to do.

"Further technological research is being undertaken on the merits of new technologies to complement our current systems."

www.austrex.com.au

Building capability

Fostering a passion for science

MLA is ensuring the future of animal production research is in good hands by supporting Australia's best and brightest young scientists.

Animal health, welfare and biosecurity program manager Jim Rothwell oversees MLA's investment in science education. He says the meat industry has a long history of supporting PhD students and young scientists.

"MLA has had a PhD scholarship and support program for many years, going right back to the Meat Research Corporation days," Jim said.

"The program is designed to attract students into areas that are relevant to the red meat industry and provide the capacity to do relevant research into the long-term.

"It is a competitive process, so the scholarship applicants we end up supporting are the top students."

As well as supporting scholarship holders financially, MLA seeks to value-add to the experience by immersing the young scientists in the red meat industry.

"Together with the Sheep CRC, we run an annual postgraduate students' two-day seminar and workshop where scholarship recipients come together with red meat industry members," Jim said.

"This is something we have strengthened so MLA can get the most value out of our investment in this area."

Feedback spoke to four young scientists about their involvement in livestock production research:

Dr Rebecca Doyle

Research fellow at the Animal Welfare Science Centre, University of Melbourne

What is your area of research? Animal welfare.

What question/s does your research aim to answer? My research focuses on improving ruminant welfare, both in Australia and internationally. One of my projects aims to assess on-farm sheep welfare in extensive Australian systems. With my PhD student Carolina Munoz, I'm examining the relationships between producer perceptions, profits and animal welfare.

In what way could your research help livestock producers? It will show where producers are doing a good job and if there are areas where gains could be made. The research will report on the health and welfare status of the ewe flock nationally and could be used to develop targeted education programs.

What have been your findings to date? A survey at the start of project looked at perceptions of sheep welfare among producers and the general community. The general public was most concerned with off-farm issues, such as live export, transport and slaughter. People in the sheep industry saw nutrition-based issues as most important. The results clearly demonstrated that producers place a high importance on the welfare of their ewe flock.

What do you find most rewarding about working in this field? It's rewarding to do work that makes a difference, both to the livelihood of producers and to their animals.

Dr Rebecca Doyle
E: rebecca.doyle@unimelb.edu.au

Geraldine Lammers

Associate lecturer in veterinary epidemiology and public health, Charles Sturt University, Wagga Wagga

What is your area of research? I recently finished my PhD, which looked at the dynamics of *Escherichia coli* (*E. coli*) O157 in grassfed beef cattle.

What question does your research aim to answer? Which factors, if any, contribute to the development of cattle shedding the pathogen?

In what way could your research help livestock producers? Gaining more knowledge about *E. coli* O157 dynamics in beef cattle will contribute to a safer food supply, which is important for maintaining our trade relations with North America, which has stringent *E. coli* testing protocols. If we can find predictors for shedding, or can point out specific periods when shedding is much higher, we could control the timing of the animals going to slaughter. This would reduce the load of contamination on animals going into processing, keeping the numbers of *E. coli* O157 to a minimum in abattoirs.

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What have been your findings to date? My findings indicated a distinctive pattern of shedding of *E. coli* O157 over time, which seemed to be linked to rainfall. I have to be careful with interpreting these results, however, as I only used one herd. Ideally, the study would be repeated in multiple herds.

What led you to this career? After the major Q-fever outbreak in the Netherlands (where I am originally from) between 2005–2009, in which thousands of goats were culled to control an outbreak of Q-fever in humans, I became intrigued by zoonoses – diseases that transmit from animals to humans – and became very aware of the importance of food safety.

Geraldine Lammers
E: glammers@csu.edu.au

Jane Kelly

Lecturer in livestock production management at Charles Sturt University, Orange, and PhD student

What is your area of research? Pasture weed seed contamination in sheep.

What question/s does your research aim to answer? These are evolving, but at the moment include:

- → What is the level of seed contamination seen in sheep within abattoirs in Australia, in particular in NSW?
- → Are there regional differences and any statistical relationships seen with climate factors?
- → Where are the main weeds that cause infestation seen across NSW, and what is the level of severity?
- → What is the cost of seed infestation in sheep to producers?
- → What differences exist between different populations and how can control strategies be integrated?

In what way could this research help producers? Producers could learn more about how large the seed infestation issue is, where it is occurring and why it has been such a problem, particularly in recent years. I want to give producers an understanding of the cost of seed infestation to their businesses, the cost of different methods of control and how we can use current strategies in an integrated way to control different populations on their farms – without relying solely on herbicides.

What have been your findings to date? NSW appears to be one of the states with the greatest problem. It's also quite prevalent in Victoria and South Australia and, to some extent, Western Australia.

Why choose this area of study? I was a sheep and wool livestock officer with the NSW Department of Primary Industries for more than 10 years, and I had clients who had suffered enormous financial losses due to seed in their flocks. I have a particular interest in animal welfare, so this is a topic I'm pretty passionate about.

Jane Kelly
E: janekelly@csu.edu.au

Dr Ben Allen

Wildlife ecologist, Vice Chancellor's Research Fellow, University of Southern Queensland

What is your area of research? Dingoes and wild dog management. My current involvement with MLA is through the Invasive Animals CRC, working on the impact of wild dogs on livestock.

What question/s does your research aim to answer? How can we better manage pests for the benefit of both wildlife and agricultural production?

In what way could your research help producers? Together with the University of Southern Queensland, I'm working on a program called FOFI5M – it stands for 'Five pests out, five threatened species in, and five million sheep for Queensland'.

Producers are undertaking an enormous amount of cluster fencing in Queensland to reduce the impact of wild dogs and other pests, and we want to help make that process even more effective and efficient. Fences facilitate massive increases in livestock benefits and, at the same time, fencing is good for threatened wildlife, because you're creating a pest-free sanctuary.

We will analyse the impact of different types of fences and different fencing strategies on land health and productivity, wildlife populations, livestock and carrying capacity.

What drew you to this career? My father is a dingo researcher for the Queensland government, so I've been doing this since I was a child. I love the bush and wildlife, but I also love lamb and beef and I wear wool, so I try and work in the agricultural–environmental space. When you work on wild dog and livestock conflicts you can always help someone, and that's rewarding.

Dr Ben Allen
E: benjamin.allen@usq.edu.au

Value chain innovation

Accelerating innovation

MLA Donor Company's inaugural CEO, Dr Christine Pitt, says the company is set to double its investments in research, development and innovation, and deliver more benefits to industry, more quickly.

MLA Donor Company (MDC) is a fully-owned subsidiary of MLA charged with increasing private investment in innovation, accelerating research commercialisation and developing innovation capacity across the whole red meat and livestock value chain.

In her former role as MLA's General Manager of Value Chain Innovation, Christine was responsible for MDC. She said the decision to appoint a full-time CEO was in response to a "convergence of opportunities" the industry couldn't afford to miss.

"MDC offers an extremely valuable industry partnership with government. Voluntary private investments secured by MDC are matched by Australian Government funding of up to 50% of a project's value," Christine said.

"The amount of matching Australian Government funds available to MLA is determined by the gross value of industry production. The industry's rising value means there will be a larger pool of matching funds available to MLA over the next few years – much more than we could match with producer levies alone.

"In recent years, MDC's program of work has been worth about $30 million a year, with about $110 million of activity under contract at any time. With the extra funding available from the Australian Government, we now have the opportunity to more than double that.

"The CEO role has been created to make sure we capture that opportunity."

Competing in the global investment market

The other opportunities that are 'converging' include the enormous global interest in food and agriculture investment, rapidly growing markets close to Australia, and rapid technological development, particularly in areas such as sensing and automation, where MDC already has runs on the board.

"There are food tech and agri-tech investment funds being formed on an almost daily basis, particularly in the US but also here in Australia and New Zealand, that we want to attract," Christine said.

"As part of MLA, MDC has a great level of credibility. We're the only organisation in our industry that operates across the whole value chain, so that widens the scope of what we can offer investors.

"We have a substantial body of work that we have developed and successfully commercialised, which gives us a compelling value proposition to take into the global investment market."

Supporting the whole value chain

Christine said MDC's investment goals were closely aligned to the new *MLA Strategic Plan 2016-2020*, focusing on through-chain digital and automation strategies, traceability and integrity systems, and the development of high-value new products and packaging solutions.

"These programs lend themselves to MDC-style investment," she said.

"Through our private partnerships – particularly international partnerships – we help industry achieve MLA's strategic goals sooner than planned – and also achieve more than expected."

In keeping with these goals, MDC will launch a number of new programs this year, including one which will fast-track innovation development and adoption among producers; an expansion of the highly successful value chain Collaborative Innovation Strategies Partnerships program. Another initiative will be aimed at attracting fast-moving global agri-tech and food tech entrepreneurs to the industry.

Dr Christine Pitt
E: cpitt@mla.com.au

www.mla.com.au/strategicplan

Why MLA Donor Company (MDC) exists

MLA can access matching Australian Government funds for the purpose of research and development investment through two avenues:

- → money that comes via a levy designated for research purposes (i.e. from producer levies), and
- → money that comes as voluntary contributions via a donor company (i.e. from MDC's co-investment partners).

Typically, there is more Australian Government funding available than there are producer levies to match.

Without the ability to attract voluntary co-investment dollars via MDC, these funds remain within the Australian Government's consolidated revenue and are lost to the industry.

Producer levies are typically not used in MDC projects, but outcomes from the projects are available for broader dissemination and generate significant benefits throughout the whole value chain.

Serving up dining solutions

Australians are quickly moving away from the traditional 'meat and three veg' eaten at the dinner table. Meals are increasingly eaten on-the-go, in restaurants and cafes, at desks and in snack form. So how do beef and lamb maintain their place on the plate in this changing landscape?

One way is by investing MLA Donor Company (MDC) funds into innovative technologies, often in partnership with brand owners and processors. Here, we take a look at new red meat products under development that will increase market share, create new markets and develop new opportunities to add value to beef and lamb. Producer levies have not been used in the development of these products.

Grab 'n' go

What: Grab 'n' go hot roast or corned beef from supermarkets and takeaway outlets.

Why: To secure a portion of the massive barbecue chicken sector. More than 100 million barbecue chickens are sold through supermarkets annually, with a further 20 million moved through takeaway outlets. This market is worth $932.6 million a year.

How: MDC, meat processor Teys Australia and the Australian Meat Processing Corporation worked together to develop the cuts, pack design and cooking techniques for roast and corned beef that could be prepared and sold using current supermarket capacity.

Now: Grab 'n' go hot roast and corned beef are now available in selected Woolworths stores under the 'Cedric Walter' brand.

From waste to wow

What: Proform High Moisture Cooking turns under-utilised low-value trim into fully cooked products that can be diced, shredded, sliced and flavoured for use as a meat base with gourmet potential. Think meat-based ready-to-heat meals, pizza toppings, sandwich fillings and even jerky.

Why: Secondary and under-utilised cuts provide affordable high-quality red meat options to large-scale users such as foodservice and health care caterers, who need satisfying protein components for meals but are also price sensitive.

How: MDC and Proform Gourmet partnered to fine-tune the process and to research the market potential. The process starts with blending meat with other protein ingredients according to the desired end product. The content of meat and texture of the end result can be adjusted for various markets.

It is then cooked and cut or shredded into many different products including mince toppings, nuggets, steakettes and shredded or pulled style products. The end result can be a range of natural textures such as fine fibres, ribbons, slices or diced portions.

Now: Proform Gourmet has invested $10 million in a processing plant in Sydney and is already taking orders from domestic and export customers. It is expected that 2,000 tonnes of product will be created in the first year.

At the press of a button

What: Hot lamb dishes from vending machines.

Why: To ensure red meat finds a position in the rapidly growing vending machine foodservice sector. Salads, sandwiches and even hot chips are being distributed in this format.

How: MDC partnered with The Frew Group, Australian Meat Processing Corporation, and research and development company BMC to develop lamb dishes that could be delivered via vending machines. The project also assessed the business proposition for processors who could value add to secondary cuts by supplying the processor-owned vending machines.

Now: The project's final dishes – Napoli meatballs, lamb meatball tagine, tamarind lamb meatballs and massaman curry – have moved to stage two, where their storage, delivery and management are being assessed. The project was recently showcased at IFFA in Germany, which is one of the world's largest food innovation trade shows.

And coming up ...

3D printed meat: This innovative project was initially run with levy funds. The University of Queensland is working on how to create new meat 'products' using 3D printing technology. Initial uses would be by chefs looking for creative ways to add meat to a dish and for making unique foodservice products, such as sandwich fillings, where texture and nutrition could be customised.

Powdered meat: Secondary cuts are being processed into a high protein powder that could be added as natural red meat flavour boosts and high-protein functional ingredients, or even as the 'ink' for 3D printed foods.

Find out more about MDC at:
www.mla.com.au/mdc

Value chain innovation

Made to measure

The Australian red meat industry is positioning itself as a world leader in the use of objective measurement technologies.

MLA Managing Director Richard Norton detailed the plan to advance objective measurement systems through the red meat value chain at the East Gippsland Beef Conference in Bairnsdale, Victoria in August.

"Objective measurement has the potential to transform the red meat industry by improving efficiency and underpinning a new, value-based pricing model," Richard said.

"If delivered successfully, the returns across the value chain are estimated to be in the region of $250 million per year by 2030."

Richard said MLA's plan was the culmination of 20 years of research investment and included the development and rollout of world-leading on and off-farm precision measurement technologies coupled with integrated feedback systems.

"Our aim is to fast-track the commercialisation of these technologies," Richard said.

"This will see the progression of measurement systems that provide objective information on a wide range of areas such as eating quality, carcase yield and grading, market specifications, feedbase, nutrition, reproduction, animal health and welfare, and traceability."

Part of the plan is an MLA-led project which will accelerate the availability of objective carcase and live animal measurement technologies, including X-ray and 3-D digital imaging. The research project recently received a $4.8 million funding injection from the Australian Government. A further $6.7 million has been pledged by a partnership of 19 processors, technology providers, universities, government departments and research and development corporations, including MLA.

Feedback caught up with project leader Associate Professor Graham Gardner, from Murdoch University, for an update on this project:

What is the project aiming to achieve?
To develop a suite of reliable devices that can operate at chain speed to assess carcase lean meat yield (LMY) and eating quality attributes. We also need to develop a standardised way of calibrating the devices and a standardised language for describing the values we are measuring.

Once we can reliably measure these characteristics, the data will be fed into feedback systems such as Livestock Data Link and genetic databases. The data will also inform systems that enable greater precision for carcase sorting, boning room efficiency, retail inventory management and value-based payment systems.

Devices for measuring LMY and eating quality in live animals, such as young seedstock sires or feedlot animals, are also being developed.

How will objective measurement benefit producers, processors and consumers?
For **producers**, improved feedback from these technologies will impact profitability by enabling better targeting of markets and improved compliance to grids, plus improved genetic gain based on feedback to genetic databases. Producers will receive more accurate feedback from processors, which they can use to drive management decisions.

Processors will improve their profitability by achieving maximum yield from carcases through more accurate cutting, streamlining processing via automation of some manual tasks and allocating carcases to the most profitable markets. Objective measurement of eating quality attributes will give their customers more confidence in their products.

Consumers will benefit from having confidence in the known quality of meat they are buying, every time.

How long before we see the devices operating commercially?
The Australian Government signed the contract at the end of June, so this joint project has officially just begun, however work on these devices has been ongoing for some years.

For example, there is a working prototype DEXA (dual-energy X-ray absorptiometry) device in a South Australian abattoir now which is doing a great job of predicting meat yield (with 85% precision), while also guiding a robotic cutter.

Researchers scanning a carcase at Murdoch University. Carcases are CT scanned and the data is used to calibrate other lean meat yield-predicting devices, such as DEXA devices. Photo supplied by Murdoch University.

There is still some development needed but, realistically, that device could be operating commercially by the end of the year.

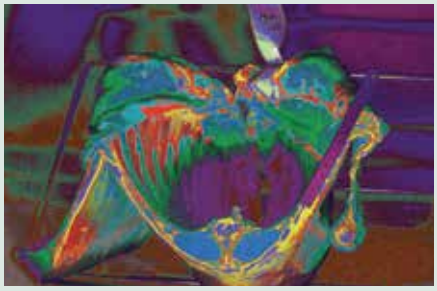
The danger is that we don't have a corresponding measure of eating quality yet. The negative relationship between yield and eating quality means we must be careful not to set up price signals for yield, before we can ensure it's not to the detriment of eating quality.

Graham Gardner
E: g.gardner@murdoch.edu.au

Technologies on trial

Objective measurement technologies include:

- **On-farm 3D camera imaging** – using cameras to measure indicative body composition characteristics of cattle and predict lean meat yield, which includes meat, bone and fat, and eating quality. This will help producers achieve market specifications and receive payment based on expected carcase traits and subsequent value.
- **Whole of carcase X-ray systems** – developed by MLA in conjunction with Scott Automation and Robotics for optimising lamb and beef boning and cutting operations. MLA, Scott and Murdoch University have recently demonstrated an additional opportunity in the high precision measurement of lean meat yield with these systems.
- **Hyperspectral camera** – (pictured below) using enhanced images of loin eye muscles to better measure the colour and size of the most valuable carcase products and provide intramuscular fat marbling measurements.
- **Near-infrared spectroscopy (NIR)** – used to analyse the fat, moisture and protein content of meat and other quality traits such as meat colour, ultimate pH and ossification.



Teys sees value in a collaborative supply chain

Beef processor Teys Australia sees objective measurement technology as a way to build trust between producers and processors, and make the supply chain more collaborative and responsive to consumer demand.

Teys Australia is one of 19 partners in the MLA-led objective carcase and live animal measurement project.

"Teys has been involved in objective carcase measurement R&D for about three years and we're very proud to be partnering in this new project," Teys' General Manager of Corporate Services Tom Maguire said.

"We see objective measurement as fulfilling two goals. One is to build trust with producers in our grading systems, and the other is to deliver clear market signals from our consumers to our producers, through value-based payment."

Tom said producer trust in the current, subjective grading system had been strained by the rising price differential between compliant and non-compliant product.

"Three years ago, cattle that graded MSA or at the top of our grid could bring about a $15 per carcase premium to a producer; now the premium can be in excess of $300," Tom said.

"To build trust with producers, we need an objective system. It's like the video referee in rugby – the technology is becoming available, so we should take advantage of it."

Teys Australia is working with developers on technologies to replace subjective grading, including hyperspectral cameras which are being trialled to measure attributes such as fat and meat colour, and marbling.

Other research and development work is examining the potential of dual X-ray absorptiometry (DEXA) and 3D cameras to estimate carcase yield.

"We have successfully used DEXA in a static trial, processing about nine head a day," Tom said.

"We're now looking at full installation in one of our plants, which will deliver a lot of data and, we expect, accelerate development."

Tom said trials of a value-based payment system based on carcase yield would begin shortly.

"We'll be inviting collaborative producers to get involved in coming months, with the trial up and running by the end of the year," he said.

"We'll be estimating saleable meat yield using an equation until such time as DEXA is functioning in beef plants, which is probably still about two years away.

"To be honest, the technology is the secondary player in this development. For us, value-based payment is about building a closer and more collaborative supply chain."

Tom said value-based pricing would help the industry move further along the continuum from commodity producers to suppliers of higher-value, branded products.

"Objective measurement and value-based payment will allow us to reward producers who produce a carcase that closely matches what our consumers want," he said. "It will align production more closely with consumer demand."

Tom said Teys would only adopt value-based payment when producers were happy with the system.

"I expect the value-based payment trial will run in parallel with our current grid-based system for some time," he said.

"The full-scale version is probably a couple of years away and producers will be involved in its development. Trust and confidence in the system is what matters – if producers don't accept and trust the new system, we won't adopt it."

Tom Maguire // E: tomm@teysaust.com.au

Read more about the Sheep CRC's research in this area: **www.sheepcrc.org.au**

Research at work

The latest on-farm strategies emerging from MLA's investment in research, development and adoption.

In this issue

Taking a new approach

MLA is taking a new approach to how it extends its research and development with a pilot program that hinges on producers adopting practices to improve profitability and productivity with the guidance of specialist coaches.

Profitable Grazing Systems is being piloted with 95 producers nationally and takes the traditional 'workshop' approach to a new level.

MLA has developed a range of tools over the years and runs a variety of programs to increase producers' knowledge, skills and confidence to implement practice change.

Profitable Grazing Systems combines group learning with specialist coaches to provide longer-term support and guidance.

Producers are supported to analyse their business opportunities and implement changes to drive productivity and profitability. This includes measuring, monitoring and managing key business performance indicators and making decisions that are informed by the data.

The pilot phase in 2016 will ensure this new approach to adoption delivers real on-farm impact. If successful, a full program rollout is scheduled for 2017.

The pilot includes 10 producer groups with different enterprise types across a range of production zones and focuses on different profit drivers, such as the feedbase, business management, people management, reproduction and genetics, and the value chain.

Feedback caught up with three producers and their coaches to see why they are participating in the pilot and how they are already adopting practice change in their grazing businesses.

Interested?
The pilot phase is already at capacity, but if you would like to register your interest to participate in the full program being proposed in 2017, email info@mla.com.au

Julie Petty
E: jpetty@mla.com.au

www.mla.com.au/profitable-grazing-systems

Coach perspective:

Coach: James Whale, Meridian Agriculture
E: jwhale@meridian-ag.com.au

Group details: Hamilton, Victoria, eight businesses (sheep and cattle)

What is this pilot group focusing on? Business performance, so producers can identify strengths and weaknesses of their grazing business.

How have you approached the Profitable Grazing Systems pilot? We partnered with Rabobank to identify producers who were open to analysing their grazing business and increasing profitability. The pilot involves a combination of group workshops, business benchmarking against the Farm Monitor Project (which measures the business performance of participating Victorian livestock enterprises) and one-on-one coaching/mentoring sessions to assist producers apply the principles of the program to their business.

What will 'success' look like for you? I'd like to see the producers involved have more clarity around the direction of their businesses. If they can identify where they are performing well and the areas that are holding them back, they can identify where to make the biggest impacts, both in the paddock and from a business structure perspective, to improve overall performance.

Producer case study: Stuart and Anja Croft

Stuart Croft says his Victorian and NSW livestock enterprise are at a crossroads.

It was a position that motivated Stuart and his wife Anja to participate in a pilot program run by MLA to equip producers to critically assess their business and identify areas for improvement and action plans.

The family-run wool and lamb enterprise, which includes Stuart's parents Alex and Margaret, stretches from their home property, 'Dalarossie', at Heywood, Victoria, to leased country at Hamilton and Harrow, to a grazing block between Balranald and Ivanhoe in NSW. They also have a small herd of Murray Grey breeders on a coastal block in south-west Victoria.

At the crossroads

The business expansion began after Stuart returned home from university 18 years ago and has now reached a point where it is time to assess 'where to from here?'

"Prior to starting this program, circumstance was our main decision-making tool," he said.

"For example, if we had surplus stock, we either had to sell good genetics or find land for them, so we bought or leased properties.

"We have expanded our assets and ramped up production, so the actual business side of the business is the next step."

Stuart said the timing of a local Profitable Grazing Systems pilot program was perfect.

"We wanted to step back and critically analyse the business's strengths and weaknesses, to guide decision making to move forward," he said.

Stuart and Anja went into the first meeting, led by James Whale, with an open mind. They came out inspired and enthusiastic to take a good, hard look at how their business was structured.

"In the first session, James worked through financial ratios to assess economic performance and it was really insightful," Stuart said.

Snapshot

Stuart and Anja Croft and Alex and Margaret Croft, south-west Victoria and Western Division of NSW.

Property:
1,600ha in Victoria (owned and leased), 24,300ha in NSW

Enterprise:
Wool and lamb production, cattle production

Livestock:
6,000 Merino ewes, 4,000 commercial Corriedale ewes, 400 stud Corriedale ewes, 60 Murray Grey breeders

Pasture:
Victoria – improved pastures interspersed with cropping. NSW – saltbush/bluebush based rangelands

Soil:
Victoria – heavy volcanic soils. NSW – mixture of red rises and heavier grey swamps

Rainfall:
Victoria 800mm. NSW 250mm

"We applied principles such as turnover ratios and cash income versus assets to one year of our business, which gave us a snapshot. I'm looking forward to applying it to other years to build up a picture over time."

Stuart and Anja have already identified an area to focus on in their business.

"We have a large asset base and good production levels, but aren't getting the cash flow to match," he said.

"We want to use the sessions and coaching to work out why. Is it our production system? Are our expenses too high? Is our leased land not pulling its weight, or is it something else?"

He said that in the past they had not been able to find a 'go-to' person who could provide frank business advice for a grazing enterprise.

"We've gone to workshops before, come home inspired, and then never made the time to actually implement a thing. The format of this program – with the coaching and group components – allows us to build relationships, and access the information and advice we need in smaller bites over time so we can maximise the learning outcomes."

With a young family and his parents to consider, Stuart said he also enjoyed meeting other producers and learning from their experiences with running multi-generational businesses.

The first session also gave Anja, with her non-farming background, a deeper understanding of what debt levels are manageable in an agricultural business.

What does 'success' from Profitable Grazing Systems look like to the Crofts?

"We would love to be in a position where we understand why our business is where it is, so we can work out for ourselves where we are going right or wrong."

Stuart and Anja Croft
E: dalarossie.pc@gmail.com

Coach perspective:

Coach: Jill Alexander, Applied Ag
E: jillalexander@bigpond.com

Group details: Western Downs, Queensland, 11 cattle enterprises

What is this pilot group focusing on? All participants have attended a Grazing Fundamentals workshop, so the Profitable Grazing Systems pilot is a follow-up.

What has the pilot involved so far? I started with individual on-farm sessions, where I worked with producers to identify opportunities to improve land condition and lift the carrying capacity of their property. Producers developed strategies and an action plan specific to their business. We had group events, including a webinar on dung sampling to assess diet quality, a field workshop to develop the skills to assess land condition and do forage budgets, and sessions on diet quality and costing out different grazing management strategies. In between the sessions, I provide participants with information and research outcomes to reinforce what they have learnt.

What will 'success' look like for you? I would like all the producers to have a full-year feed and grazing plan, so they can pull together everything they have learnt and apply it to their own business.

Producer case study: The Bassingthwaightes

Snapshot

Sam and Cassie Bassingthwaighte, Jandowae and Dalby, south-east Queensland.

Property:
5,500ha

Enterprise:
Breeding and backgrounding cattle

Livestock:
310 breeders – Droughtmaster/Santa Gertrudis, Shorthorn/Wagyu

Pasture:
Native and sown species

Soil:
Mountain coolibah and narrow-leaved ironbark, spotted gum, brigalow uplands and poplar box flats

Rainfall:
475–500mm

Starting at the grassroots

When Sam and Cassie Bassingthwaighte returned four years ago to run the family cattle enterprise, 'Diamondy', after careers in the oil and gas industry, they recognised that disciplined grazing management was going to be key to building a strong business.

The couple are sinking their teeth into their new life, running 5,500ha across two properties at Dalby and Jandowae and raising their young family (two-year-old George and baby, Jack, born in August). They have been on a steep learning curve and said the timing of the Profitable Grazing Systems pilot was ideal.

Sam and Cassie originally completed a Grazing Fundamentals course and were offered the opportunity to participate in the Profitable Grazing Systems pilot with coach Jill Alexander.

"We knew we were out of touch with pasture species identification and matching paddocks with stocking rates, so the feedbase component of the program appealed to us. We also liked how it targeted different factors, from production to business principles," Sam said.

"We were both raised with traditional grazing practices, but when we came home to Diamondy we wanted to implement modern practices."

Sam and Cassie said the challenges they faced when they returned to the property included the economics of buying grazing land, working with the climate and a lack of experience with matching stocking rates to pastures.

"We thought we were stocking paddocks appropriately, but the program has already shown us this is not the case. We would have had to reduce numbers if we kept going the way we were going," Sam said.

Sam and Cassie run Droughtmaster/Santa Gertrudis and Shorthorn/Wagyu breeders, and background Wagyu composite cattle. They aim to turn off steers at 360–440kg for the feed-on market, through the Dalby saleyards or into one of the local Darling Downs feedlots.

Although the couple received 80mm of rain in February and June, which produced some late growth in summer and herbage through winter, their properties remain significantly destocked following a run of dry seasons.

Their current business is 75% breeding and 25% backgrounding, but they plan to flip this to focus predominately on backgrounding, to be more flexible in response to seasonal and market conditions.

"Through the workshops, we identified changes that we need to make and we believe we have a better opportunity to make these changes (especially with improving pastures) with a dry herd," Cassie said.

"Once we have completed the improvements within the paddocks, we will reassess the situation and will likely incorporate breeding back into our business management."

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Tackling the challenges

With coaching from Jill and practical sessions with grazing advisers such as Col Paton and Désirée Jackson, Sam and Cassie are adding new strategies and tools to their grazing toolbox to match stocking rate with feed availability and prevent running down their valuable feedbase.

These include:

- → pasture identification to determine the percentage of 3P (palatable, productive, perennial) grasses
- → dung sampling to identify pasture deficiencies (which will be backed up by soil testing)
- → feed budgeting to assess short-term carrying capacity
- → supplementation strategies that are economically and nutritionally sound.

"We started making changes the week after our first session with Jill," Cassie said.

"We destocked one paddock based on the forage budget to relieve pressure on the feedbase. It wasn't an easy decision to sell breeders, but we realised we had to take the short-term pain for long-term gain to sustainably increase our carrying capacity."

Sam and Cassie plan to destock on a paddock-by-paddock basis and improve feed quality by re-sowing some pastures and over-sowing others with a legume-based mix. They also plan to fence some paddocks to land type.

Pasture identification revealed that some pastures were not as palatable as they had thought, while dung sampling showed deficiencies in protein, energy and phosphorus.

To improve herd nutrition, Cassie and Sam will replace their winter supplementation strategy with a targeted year-round approach using licks tailored to each paddock. They will use dung sampling, weighing and herd recording to monitor how this strategy affects animal condition, and are shopping around for a herd recording program to improve performance monitoring and reduce inefficiencies.

The Bassingthwaightes have identified a target of a 25% increase in stocking rates in the next three to five years. This will allow them to run about 600 adult animal equivalents.

What does 'success' from Profitable Grazing Systems look like to you?

"Success, for us, is for our business to become a well-oiled machine, where we know exactly what is in each paddock and what we need to do to get productivity gains." – Sam Bassingthwaighte

Cassie and Sam Bassingthwaighte
E: cassie@diamondyfieldservices.com.au

Coach perspective:

Coach: Simon Vogt, Rural Directions
E: svogt@ruraldirections.com

Group details: Barossa Valley/ mid-north SA, nine businesses involved (predominantly wool/lamb enterprises, three with cattle)

What is this pilot group focusing on? This group is based on the Pasture Principles program (developed by Macquarie Franklin), which is a practical guide to pasture management and rotational grazing principles. The goal is to grow more dry matter/ha through understanding plant physiology and how pastures grow.

What do you like about the coaching focus of the Profitable Grazing Systems pilot? The retention rate of new skills and knowledge from workshops alone can be low, but coaching engages producers over time to build their understanding of information and provide opportunity to practise new skills. As the saying goes, 'tell me and I forget, teach me and I may remember, involve me and I learn'. Unlike the standard workshop delivery format of 'teaching', coaching is a supported learning process that guides producers to solve challenges for themselves.

What will 'success' look like for your group? I would like to see the group upskilled and confident in managing their pasture base to produce more kilograms of dry matter on an annual basis, so they can use this to increase stocking rates, accelerate turn-off rates or take animals to heavier sale weights to capture more profit for their businesses.

Producer case study: The Hazel family

More lamb from less land

South Australian sheep producers, the Hazel family, were focusing on lifting stocking capacity on their Kapunda property, so a local Profitable Grazing Systems pilot presented the perfect opportunity to hone in on productivity.

Fifth generation producer Robert Hazel farms in partnership with his wife Lorin and his parents Clyde and Janet at Hawkers Creek Farm. Their property, 5km south of Kapunda in the lower-north region of SA, has been in the family since 1842.

The Hazels run 650 Merino ewes and grow wheat, barley, beans, vetch and oaten hay. They join 250 ewes to Merino rams for replacement females, while the remainder are mated to Poll Dorset rams.

Most of the 1,100ha property is arable, so the Hazels finish the crossbred lambs and Merino wethers on bean stubble and aim to turn them off by the start of August. The majority are sold over-the-hooks and sometimes through the market at Dublin.

The family won the crossbred category of the 2016 Thomas Foods International Booborowie Lamb Competition (their Poll Dorset-Merino lambs achieved a 70.4% gain and an average daily weight gain of 276g/day, to dress out at 51.7%). They also sell lambs under the Hawkers Creek Farm brand into the Adelaide restaurant trade.

The value chain is an important factor, and Robert said the Lambex conference in Adelaide in 2014 had motivated the family to look for opportunities to sharpen the grazing side of their business.

They had started implementing strategies to increase production on their existing land so, when Simon Vogt of Rural Directions approached them to participate in the Profitable Grazing Systems pilot program, they jumped at the chance. →

Snapshot

Clyde and Janet Hazel, Robert and Lorin Hazel, Kapunda, SA.

Property:
1,100ha

Enterprise:
Wool and prime lamb production, cropping

Livestock:
650 Merino ewes, 250 mated to Merino rams, remainder to Poll Dorset rams

Pasture:
Annual vetch pastures, cereal and bean stubble

Soil:
Highly variable

Rainfall:
450mm

Robert Hazel is implementing new practices to increase the productivity of his grazing area as part of a systems approach to boosting profitability.

→

The Kapunda Profitable Grazing Systems group is based on the Pasture Principles program, which is a practical guide to pasture management and rotational grazing principles.

"We had started changing a few things with the livestock side of the business, so the program seemed like a good opportunity to continue what we had started – the timing was right," Robert said.

The Profitable Grazing Systems program targets improved business outcomes by taking a systems approach to measure, monitor and manage practice change. In Robert's case, he will assess his new skills and practice changes based on whether he can get through their traditional winter feed gap without relying on supplementary feeding and, at the other end, avoiding having under-utilised feed at the end of spring.

He said their ultimate target was to increase their stocking rate while reducing grazing area as a way to free up more land for cropping.

A challenge has been uneven grazing, so the Hazels now use portable electric fencing to increase productivity from every paddock by ensuring pastures and cereals are not over-grazed or under-grazed.

They also introduced dual-purpose crops in 2009 so they can run more sheep over winter, and also strategically graze some grain crops.

"We plant Naparoo, a dual-purpose winter wheat in April and graze it once it passes the pluck test until around late July and then bale it for hay. This allows us to run the same number of sheep without decreasing the cropping area and, importantly, helps to bridge the winter feed gap," Robert said.

Increasing the area sown to pastures or fodder crops ideal for baling and selling as hay also provides another income stream.

New skills

Robert said the Profitable Grazing Systems program had provided new tools to incorporate into their business.

So far, the group has held two on-farm days – both at the Hazels' property – and a coaching session in Clare. They have worked through how to use leaf emergence rates to develop feed budgets and how growth stages of pastures can be used to calculate the optimal time for grazing.

"We have done rough feed budgets in the past, but these sessions reinforced that we were on the right track and have given us concrete information to base future feed budgets on," Robert said.

The format of the pilot program, with a mix of group sessions, on-farm days and individual coaching, ticks the boxes for Robert.

"It's taking us out of the classroom and into the paddock to show us how to put what we have learnt into practice," he said.

Robert said he also appreciated the one-on-one advice, encouragement and information provided through the coaching model.

What does 'success' from Profitable Grazing Systems look like to you?

"Success, for us, will be to reduce the area grazed but produce the same kilograms of lamb."

Robert Hazel
E: hcfhazel@bigpond.com

Sustainability

It pays to be green

Enhancing the environment can also be good for your hip pocket, according to research into methane emission reduction in northern Australian beef herds.

The research team, led by Queensland Department of Agriculture and Fisheries sustainable grazing scientist Dr Steven Bray, found management decisions that improve beef productivity also improve on-farm greenhouse gas emission performance, in most cases. The research was carried out under the Climate Clever Beef project, which was supported by MLA in its first phase.

"This is a win-win for most northern producers, with the potential to improve their business productivity and profitability and their environmental sustainability, and to position themselves to take advantage of any carbon trading opportunities," he said.

The research points to three key areas producers can focus on to improve environmental outcomes while lifting profitability. They are:

1. Assess your business

Steven and the team found that although broad farm management principles applied to improving productivity and emissions performance, each property was different.

Each farm business should be individually assessed for what works best and to ensure that any management changes are cost effective.

"This is particularly so when talking about how animal genetics best suit certain types of country and what turnoff strategies work best," Steven said.

"It pays for grazing businesses to work with the strengths and limitations of their environment."

For most grazing businesses, Steven said the benefits of reducing their emissions intensity would be in improved productivity and profitability and being able to demonstrate to the community they were improving their environment.

"Emissions Reduction Fund methodologies are available to generate carbon income from changing that emissions performance; however, participation needs to be carefully considered to ensure the additional income – taking into account carbon price fluctuations – will cover the costs of being involved, which is presently unlikely without very large herds," he said.

2. Improve reproductive efficiency

Research revealed it is crucial to make every cow count. By increasing weaning rates, breeders are more productive over their lifetime, producing more calves or kilograms of beef for their total methane emissions.

One of the most powerful tools for identifying low-performing breeders is pregnancy testing.

By identifying and culling empty cows and/or out-of-season calvers, the producer will grow more kilograms of beef/ha as well as conserving valuable pasture and water for those more productive animals.

Culling unreliable breeders also improves the herd's maternal genetics, leading to better reproductive performance in the future.

3. Go for growth

Steven said improving growth rates through targeted supplementation or by providing better quality feed led to a higher proportion of feed intake contributing to growth.

"In practical terms, this can mean running a lower stocking rate, enabling livestock to select a better quality diet and/or being able to better match stocking rates to feed on offer and a property's long-term carrying capacity," he said.

"Both these strategies will help reduce turnoff times for heifers and steers and reduce overall emissions."

Steven said the use of improved forages (such as legumes or oats) and supplements could also improve livestock growth rates and reduce their turnoff time, thereby reducing the number of days cattle are emitting methane.

Another useful strategy is dividing the herd into stock classes such as weaners/lactating cows/dry cows, and prioritising their feed management. This will not only improve growth but also help breeder cows to get back in calf within a 12-month cycle.

Where pasture improvement is an option, the establishment of legumes such as leucaena or stylos can deliver significant productivity gains while lowering a herd's emissions intensity.

Steven said previous MLA-funded research had shown leucaena improved liveweight gain, reduced turnoff times and increased a property's average annual livestock turn-off.

"Leucaena has also been shown to have anti-methanogenic properties, potentially reducing methane emissions per head per day," he said.

The research was funded by Queensland Department of Agriculture and Fisheries, Northern Territory Department of Primary Industries and Fisheries, and the Australian Government.

Steven Bray
E: steven.bray@daf.qld.gov.au

Resources to help you become more profitable while introducing environmentally friendly practices

- Case studies and fact sheets outlining the best practice recommendations **futurebeef.com.au/resources/projects/climate-clever-beef/**
- The Beef Cattle Herd Management Methodology **www.environment.gov.au** and search 'emissions reduction fund'
- Growing leucaena **www.daf.qld.gov.au/plants/field-crops-and-pastures**
- Improving reproduction (CashCow Report) **www.mla.com.au/cashcow**
- Nutrition and Breeding EDGE workshops **www.mla.com.au/EDGEnetwork**

Sustainability

Winning on every front

More productivity, lower emissions intensity, better environment – NAPCO's Northern Territory cattle enterprise on 'Alexandria' station shows you can have it all.

When someone said, 'you can't have your cake and eat it too', the team at Northern Australian Pastoral Company's (NAPCO) 'Alexandria' station clearly wasn't listening.

During the past 30 years, this breeding operation in the Northern Territory's Barkly region has increased its annual liveweight turn-off by two-thirds while almost halving emissions intensity per tonne of liveweight sold.

During the same period, Alexandria's land condition improved while stocking rates stayed within recommended limits.

How?

Infrastructure, genetics and excellent husbandry is responsible, according to NT Department of Primary Industry and Fisheries researcher, Dr Dionne Walsh.

Dionne evaluated the station's performance from 1981 to 2013, as part of the Climate Clever Beef project, funded by the Australian Government's Action on the Ground program.

"Adding more watering points lifted the carrying capacity of Alexandria by more than 50% by opening more country that was previously beyond stock's grazing range," she said.

"There have also been the added benefits of reducing land degradation and improving pasture availability, particularly around older bores.

"One of the bores on Alexandria is more than 100 years old and is part of a long-term pasture monitoring trial, which is assessing the impact of wet season spelling and sustainable stocking rates."

Change your genes

Moving the station's breeding herd from pure Shorthorn to a stabilised composite has captured further improvements. These include:

- → a 46% improvement in weaning rate (56% up to 82%)
- → an 82% reduction in breeder mortality rate (10% down to 1.8%)
- → an increase in annual liveweight turn-off from 75kg (1981) to 128kg (2013) per adult equivalent (AE)
- → a 43% decline in intensity of emissions per tonne of liveweight sold.

NAPCO General Manager Breeding and Genetics Sam Harburg said Alexandria's tropically adapted composite breed combined the best of *Bos indicus*, British, Euro and tropically adapted *Bos taurus* traits while capturing the benefits of hybrid vigour.

"There had been Shorthorns here since 1877, however, despite selecting larger, longer-legged bulls that could cover greater distances between food and water and cope with less feed, there were still significant problems with calf losses and breeder mortality," he said.

In 1982, NAPCO introduced Brahmans to improve environmental adaptation.

"The resulting F1s were far better adapted to the environment and more tick resistant, and weaned calves that were 20–30% heavier," Sam said.

"It raised awareness of hybrid vigour and what other breed traits NAPCO could capitalise on to improve reproductive performance, maternal ability, growth rate and carcase characteristics."

Snapshot

Northern Australian Pastoral Company, Barkly Tableland, NT.

Property:
1,611,800ha

Enterprise:
Breeding composite cattle for NAPCO's feedlot and bull-breeding for the NAPCO herd

Livestock:
70,000 head, depending on season

Pasture:
Mitchell grass

Soil:
Black soil

Rainfall:
382mm

Measuring up

Today, the Alexandria composite, which is ⅜ Brahman, ⅛ Africander, 5/16 Shorthorn, ⅛ Charolais and 1/16 Hereford, is fully stabilised, however, there is still great variation in physical appearance across the herd with no uniform type apparent.

"Phenotypically (what can be seen), most animals appear to show characteristics that are a combination of the different foundation breeds with no particular breed dominating," Sam said.

"We have used genomic information to trace the ratios of the foundation breeds in individual animals and found that these observations are correct.

"On average, each animal contains genes from each foundation breed, in ratios that are consistent with the original composite."

With the composite now fully stabilised and deployed across the company, focus has shifted to creating genetic gain through the selection of superior animals within the composite.

Alexandria runs its own BREEDPLAN database, performance testing within its stud herds to create Estimated Breeding Values (EBVs) for birth weight, growth traits, days to calving and scrotal circumference, as well as taking ultrasound measurements of carcase traits to drive EBVs for eye muscle, rib, rump and intramuscular fat.

Flight time EBVs are used as indicators of temperament and data is also being collected for sheath score and cow body condition score EBVs.

Within the next year, NAPCO hopes to be measuring net feed intake at its Wainui feedlot, near Toowoomba.

For the past six years, NAPCO has undertaken high-density genotyping and developed genomic breeding values for most of its valued traits.

This enables the company to blend its genomic breeding values and conventional EBVs to produce higher accuracy, genomically enhanced EBVs to help it select genetically high-value sires for use across the NAPCO herds.

The 'take-home' message

Dionne said the key message from the Climate Clever Beef project was that management changes that improved productivity and profit could also have positive environmental benefits, including greenhouse gas emission reductions.

"Even if those emission reductions are not creating income directly via carbon trading, they are sending a great message to the wider community: that the beef industry is actively engaged in caring for the environment while producing high-quality food," she said.

NAPCO General Manager Breeding and Genetics Sam Harburg
E: sharburg@napco.com

NT Department of Primary Industry and Fisheries Dr Dionne Walsh
T: 08 8928 6572
E: dionne.walsh@nt.gov.au

NAPCO - **www.napco.com.au**

To read more about the Climate Clever Beef project at Alexandria visit: **http://www.publish.csiro.au/nid/202/issue/8023.htm**

Feedbase

Getting the crop-to-pasture ratio right

The facts on dual-purpose crops are well established. They can fill the winter feed gap and reduce supplementary feeding with little penalty in grain yield and, at the same time, spell pastures for later grazing.

The unknown being explored by MLA-funded research is the optimal area to be sown to dual-purpose crops.

"The introduction of dual-purpose crops into a pasture-only livestock system will reduce the area of pasture available for grazing, producing changes in the livestock carrying capacity of the whole farm," CSIRO researcher Dr Cesar Pinares-Patino, who is overseeing the research, said.

These changes have been studied using experimental modelling (a study funded by Grains Research and Development Corporation - GRDC) and, more recently, measured directly in MLA-funded experiments using a fixed stocking rate in Canberra.

The four-year system study in Canberra is being conducted with breeding Merino ewes and their weaners.

"Dual-purpose canola and wheat in the system that incorporates cropping are contained in one-third of the total farm area," Cesar said.

"The rotation is canola - wheat - first-year pasture - second-year pasture - canola, and so on.

"The plots devoted to dual-purpose cropping and permanent pastures are fixed from year to year and the stocking rate in summer is 8.7 sheep/ha (4.35 ewes + 4.35 weaners per ha of total area)."

Impact on pastures

The experiment has confirmed previous findings from GRDC-funded research that there are clear advantages (e.g. filling winter feed gap, improved animal performance and higher gross returns) from having the extra feed and grain production that is provided by inclusion of dual-purpose crops in the grazing system.

However, the experiment is also indicating there is an optimal amount of crop within a dual-purpose crops-pasture farming system.

"Over the first three-and-a-half years of the study, pasture condition in the pasture-only system has been maintained, whereas pasture condition in the dual-purpose crops system has deteriorated," Cesar said.

"There is now low pasture cover and increased presence of weed species, with animals requiring more supplementary feeding during summer and autumn than animals in the control treatment.

"These findings indicate the proportion of land devoted to the dual-purpose crops in the experiment is higher than the optimum for this particular system because it is affecting the sustainable productivity of pastures.

"More research is needed but, given present knowledge, the optimum proportion of farm area devoted to dual-purpose crops cropping should probably be no higher than about 15-20%."

Cesar Pinares-Patino
E: cesar.pinarespatino@csiro.au

Read Cesar's tips on maximising the benefits of dual-purpose crops for ewes at **www.mla.com.au** and search 'grazing crops for ewes'.

Going for the gain, not just the grain

Dual-purpose crops are an integral part of James and Emma Baldry's mixed enterprise at Wallendbeen in southern NSW. Here they share how dual-purpose crops underpin high lamb weaning targets, fast liveweight gain and a trading enterprise.

What is your annual grain and graze program? We sow grazing canola in February and after germination it can survive hot weather until the autumn break. We start grazing in early April. A stocking rate of 20 lambs/ha and weight gains of 2kg/week make this a very attractive proposition. We monitor crops to retain leaf area at the base of the plant and destock in July to give the canola time to recover before harvest. The grazing canola does take a yield hit (1.8-2.2 tonnes/ha compared to 2.2-2.6 tonnes/ha with conventional canola), however, the weight gains we achieve far outweigh yield reductions. Grazing wheat varieties are sown in mid-March and can usually be grazed from mid-May until early August.

How does cropping complement the livestock? We crop 40-45% of the property - two-thirds conventional wheat and canola and one-third grazing varieties. We have grazed oats since the 1960s and wheat since the 1980s but, after seeing the results from grazing canola in the area and on the advice of our agronomist, we introduced it into the program four years ago. We grow two Clearfield® canola varieties (971 and 970) at the moment.

How are you utilising grazing canola? Our main lambing is in spring (all Dorset-cross lambs and half the Dohne-cross portion). One-third of these lambs are sold before April, when the remainder go onto the canola. We introduced autumn lambing with half the Dohne-cross flock two years ago to increase production. After these autumn-drop lambs are marked, they may run on the canola with their mothers in May-June. We market the Dohne-cross wethers by the end of the year, and join the ewe lambs the following March when they

Snapshot

James and Emma Baldry, Wallendbeen, NSW

Property: 870ha owned and 700ha leased.

Enterprise: Cropping and prime lambs with opportunity cattle and lamb trading

Livestock: 3,600 Merino ewes joined to Dorset and Dohne rams to produce 2,600 Dorset-cross lambs and 1,600 Dohne-cross lambs annually

Pasture: Phalaris and lucerne based

Soil: Mainly red basalt with about 15% red granite

Rainfall: 700mm

are 12 months old. We hope for 80% conception and 90% lambing from scanned ewe lambs. The August lambs are joined the following October, aged 14 months.

What are your marketing targets? Lambs under 50kg liveweight are directed to the domestic supermarket trade, and lambs over 50kg are destined for the export market through JBS, ALC (Australian Lamb Company) and the Manildra Meat Company.

How have you focused your business to reach market specifications? Livestock health is at the forefront for us, as a healthy ewe is a productive ewe. We maintain a low worm environment using crop stubbles and grazing crops, plus a drench and vaccination regime backed by good record keeping. Producing the right product is important for market compliance, so we weigh samples of each mob to monitor growth rates and turn-off weights. This involves weighing 10–15% of lambs on a three to four week basis, to save time and reduce stress from excess handling.

How do trade stock fit into your management program? We buy in 800–1,000 Merino lambs and/or 100-plus weaners to supplement our own lambs on the grazing crops. We are trading Angus and Angus-cross cattle at the moment as there are opportunities with processors, including the Manildra Meat Company's grassfed program.

Why have you selected your breed composition? The Dohne-cross component provides replacement females while still enabling an efficient meat/wool flock and earlier lamb turn-off and joining age compared to a pure Merino flock. We wanted to shorten the generational gap, down from the traditional two years in Merinos, to be more competitive with crossbred lamb enterprises. Our wool clip will take a bit of a hit, but this will be more than compensated for by kilograms of lamb produced each year. Joining Dorset rams to 55% of our ewes maximises the number of crossbred lambs while still retaining a self-replacing flock.

How is this year playing out? This is a 750mm annual rainfall area, but the autumn break can be unreliable. However, we had already received 525mm by 20 July, including falls of 120mm in May, 170mm in June and 75mm so far in July. We are on track to exceed our annual average – this sets us up to finish this year's livestock and lock up the grazing crops before harvest, and also presents the opportunity to grow the 2016 lambs through spring.

How will you manage the grazing crops through to spring? We will finish the last of our Dohne-cross wether lambs and 800 trade lambs on grazing canola by the end of July and market them through the Manildra Meat Company. This canola will be locked up to give it time to recover before harvest, which starts in late November. On the back of a mild, wet winter, the canola has good ground cover which sets it up for yield performance. We also purchased 140 trade cattle (Angus and Angus-cross, averaging 280kg) in late April and are finishing them on the grazing wheat. We are targeting a turn-off of 400kg by the end of August, so we can lock the wheat up for harvest in early December.

How do you manage other pastures? The conventional crops will always have a role in our business as this is a productive cropping region, and the summer stubbles play an important part in our stock program as an opportunity to spell pastures. The majority of our non-cropping paddocks are improved with phalaris and lucerne-based pastures. We have some native grasses on leased land and have aerial sown them with clover. We take a total farm approach to our grain and graze programs and hope to sow fodder crop on some unimproved paddocks before they are sown to perennial grasses.

What's on the horizon for your business? I would like to ramp up our grazing focus to half the cropping area, to create more opportunities for trading livestock.

James Baldry
E: james.baldry1@bigpond.com

Feedbase

Doing the detective work

Researchers are 'finger printing' sub-clovers in the hunt for new pasture varieties that may deliver economic and productivity gains to producers.

Scientists from the University of Western Australia (UWA) are developing DNA markers for subterranean clovers (sub-clovers) and techniques to speed up variety development.

These pre-breeding technologies produce a platform of information to help plant breeders fast-track new and improved sub-clover varieties to ultimately deliver big benefits in the paddock.

The MLA-funded project responds to producer calls for new and improved annual legume pastures to better handle Australian growing conditions. (MLA generally operates in the pre-breeding space of the supply chain for new varieties to avoid competing with companies responsible for breeding new varieties.)

Project leader and pasture breeder Dr Phil Nichols, from the Department of Agriculture and Food Western Australia (DAFWA), said the industry's 'wish list' included productive and persistent pastures, both tolerant to pests and diseases and hardy in the face of climate change.

"From an economic and livestock management perspective, the priorities for plant breeding are varieties that produce more feed early in the growing season to fill the autumn/winter feed gap," Phil said.

"Red-legged earth mite can also be a major problem when pastures are emerging, so producers want resistant varieties. Varieties that are 'false-break tolerant' (germinate on sufficient rainfall for establishment) will also reduce seedling losses early in dry seasons, while varieties with high early season growth rates can provide more feed."

The main project focuses on sub-clovers, which are grown on around 29 million hectares in southern Australia. A spin-off project run by the South Australian Research and Development Institute (SARDI) is looking at DNA markers for boron and cold tolerance in annual medics, which are grown on an estimated 20 million ha.

Data diversity

DAFWA hosts a collection of about 10,000 different sub-clovers, collected from their natural habitat in the Mediterranean region. While this collection is an extremely valuable resource for plant breeding, it is too large to work with efficiently. Researchers have drilled down to a core group of 97 lines, representing 80% of the genetic diversity in sub-clovers.

"This collection, combined with 28 diverse cultivars, gives us 125 samples that display the diversity of traits needed for breeding," Phil said.

Researchers are building a database of the genetic variability within these sub-clovers – this includes capturing information about agronomic and morphological traits (flowering times, red-legged earth mite resistance, oestrogen contents and more than 30 different growth characteristics). This is being linked to information about collection site location, altitude, soil type and rainfall.

Data is being added from other projects, including MLA-funded research into phosphorus-efficient legume pasture systems, an Australian Research Council Linkage project that has looked at genetic variation for methane production from sheep grazing sub-clovers, and a Rural Industries Research and Development Corporation-funded project investigating diversity for important diseases.

When the project finishes in September 2017 researchers will have painted a picture of the genetic diversity of sub-clovers for several important traits and will have an understanding of the number of genes controlling these traits and how they interact with each other.

Table1 **Pastures – from pre-breeding to the paddock**

Current breeding process for subterranean clover

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7
Hand crossing between two parents to incorporate new traits (from a donor variety with the desired traits) into a well-adapted cultivar. Several crossing combinations are made each year.	Growing of F_1 hybrids between the two parents.	Selection among F_2 progeny for desired traits – this is the generation of maximum genetic diversity.	Selection of pure breeding lines containing the desired traits (generations F_3–F_6), with genetic purity increasing each generation.			

1. **The rapid generation method developed in this project can reduce the processes in years 3–7 to just two years, reducing cultivar development time by three years. This means new cultivars can reach the paddock 12 years after crossing, instead of 15.**
2. **Molecular markers developed in this project will help identify new genes for important traits prior to year 1 and make the selection process more efficient in years 3–7, particularly for traits difficult or costly to measure in the field.**

Project leader and pasture breeder, Dr Phil Nichols from the Department of Agriculture and Food Western Australia.

Fast-tracking improved pastures

This MLA-funded southern feedbase research is also ticking another box for producers who want better pastures, quicker.

"Plant breeding can take many years. After crossing and selecting for traits, it has traditionally taken six or seven generations (one a year) to produce pure breeding lines for testing under farm conditions," project leader Dr Phil Nichols said.

"However, the University of Western Australia has developed a technique called rapid generation turnover. This allows plant breeders to grow three to five generations a year under glasshouse conditions, substantially reducing the time for variety development so new genetics get out into the paddock sooner."

29 million ha of sub-clover and **20 million ha** of annual medics in Australia

DNA markers will also be developed for these traits – information that plant breeders can use to develop new and improved varieties more efficiently.

"The ultimate aim is to combine all the desirable traits into individual varieties with improved productivity and persistence," Phil said.

"For example, a new sub-clover that has more early growth, is resistant to red-legged earth mite and important diseases, and is more phosphorus efficient, leading to reduced methane emissions and is more tolerant of false breaks."

Such improved varieties will help producers overcome environmental and economic challenges, for example a phosphorus-efficient variety requires less fertiliser; pastures with better early growth reduce the need for supplementary feeding and enable earlier turn-off; while more vigorous varieties are more competitive against weeds for better pasture quality.

Phil Nichols
E: phil.nichols@agric.wa.gov.au

				Seed multiplication and release to producers			
Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15
Identification and seed increase of elite pure breeding (F_7) lines for field testing.	Field evaluation of short-listed elite breeding lines under grazed conditions on producers' properties and research stations in target environments – measurement of biomass production and persistence in comparison with existing cultivars. Selection of superior breeding line for cultivar release.			Multiplication of 'breeders' seed', based on 1,500 spaced plants – each plant checked individually for uniformity and freedom from seed-borne viruses. Aim to produce 10kg of 'pre-basic seed'.	Multiplication by seed growers of 'pre-basic seed' over 1ha, to produce basic seed.	Multiplication by seed growers of 'basic seed' to produce 'certified seed'.	'Certified seed' available to producers for sowing.

Feedbase

Biocontrol – a weapon in the fight against weeds

With invasive weeds costing Australia billions of dollars each year and herbicide resistance increasing, biocontrol could provide solutions for weed management.

This project is funded by MLA and the Australian Government Department of Agriculture and Water Resources as part of its Rural R&D for Profit Program.

According to researcher Dr Andrew McConnachie from the NSW Department of Primary Industries, producers are down to their last effective herbicide for some weeds, while other weeds are now completely herbicide resistant.

"Research needs to look at alternative approaches as part of an integrated management strategy and biocontrol is one of the available options," Andrew said.

"Biocontrol is environmentally friendly and cost effective, with host-specific insects or pathogens that will form self-sustaining populations released into the environment, compared to herbicides which are costly, have to be repeatedly applied and may have non-target impacts.

"The cost savings over time with biocontrol are huge – the average benefit-cost ratio of biocontrol for Australia is 22:1."

Biocontrol research takes time and significant funding due to stringent quarantine and testing protocols.

"We need to scientifically demonstrate the specific, co-evolved relationship between the target plant and the potential biocontrol agent being tested to assure authorities that they don't have the potential to feed on any other plants. As a result, it can take anywhere between three and seven years for quarantine testing before paddock release," Andrew said.

Andrew is part of a project team developing a sustainable funding model to overcome the historical boom-bust funding cycle and ensure the accessibility of dedicated funds for biocontrol and research.

"Funding for biocontrol waxes and wanes; at its peak it is great, with maximum staff and maximum output. We want to avoid the situation where we build up research expertise and then lose it due to a lack of funds," he said.

The project, which will work with state-based land management stakeholders, is assessing the feasibility of a collaborative consortium-style model (similar to one used in New Zealand). A funding model will be piloted in NSW and Queensland in 2017-2018.

Andrew McConnachie
E: andrew.mcconnachie@dpi.nsw.gov.au

Australian Government
Department of Agriculture and Water Resources

Rural Research and Development for Profit
Keeping Australian farmers at the cutting edge

Finding the natural enemies

What's around the corner for Australian weed management? *Feedback* asked researchers about some of the MLA-funded biocontrol projects underway.

A prickly subject

Target: The *Cylindropuntia* cactus species, four of which have naturalised in the arid to semi-arid areas of Australia, form dense infestations that compete with native vegetation, limiting the growth of small shrubs and ground cover. The plant's sharp spines can injure stock and contaminate wool and hides, and reduce or prevent grazing.

Control: New biotypes of cochineal insects are being released. Since the introduction of the first cochineal to Australia in 1925, which targeted rope pear but was less effective on the other *Cylindropuntia* species, researchers have selected a range of new cochineal biotypes from the United States and Mexico. Initial releases of the new cochineal biotype for coral cactus have been carried out at sites in Queensland and NSW, with several long-term monitoring sites being established.

Timeline: Researchers will shortly submit release applications for four new cochineal biotypes to the Department of Agriculture and Water Resources. Once approved for release (which may take up to 18 months), they plan to release and monitor these biotypes at sites throughout Queensland and NSW.

And: A molecular diagnostic tool is also being developed to help differentiate between *Cylindropuntia* species.

Information: Andrew McConnachie
E: andrew.mcconnachie@dpi.nsw.gov.au

Moths for management

Target: Gorse, which is found across Australia, infests up to one million ha. The cost of controlling gorse was estimated at $7 million a year in 2000. Introduced during the 1800s as a hedging plant, gorse is now listed as a weed of national significance with the largest infestations in Tasmania, Victoria, SA and NSW. Gorse significantly reduces pasture and animal productivity.

Control: Four biocontrol agents have been released onto gorse in Australia, with varying success. The gorse soft shoot moth was released in 2007 and shows the most promise.

Researchers are working to determine the conditions and management required to allow the soft shoot moth to flourish.

The project has found the moth populations to be abundant and well established in Tasmania, but less so in other areas, such as Victoria.

Timeline: The completion of the project in September 2018 will see new agent releases and clear management guidelines.

Information: Greg Lefoe // E: greg.lefoe@ecodev.vic.gov.au

Looper resilience

Target: Parkinsonia is a highly invasive woody weed, causing significant economic costs stemming from mustering impacts, reduced access to watering points and pasture competition. Infestations also provide refuges for feral animals, especially pigs. The annual cost of parkinsonia management in the Lake Eyre Basin of Australia has been estimated at $40,000/ha.

Control: Capitalising on lessons from a previous MLA-funded project, researchers are set to release the pupae of two looper moth biocontrol agents to combat the spread of parkinsonia. Initially, researchers released larvae into parkinsonia-infested sites, but significant numbers were lost to predation by ants and wasps. A key development of the research is the shift to releasing the more resilient pupae (cocoons). Adults emerge and lay eggs in locations that are safer than those chosen by researchers or land managers.

Timeline: Efforts are focused on refining the release and establishment guidelines and aim to deliver 10,000 pupae to 18 sites across northern Australia by mid-2018.

Information: Raghu Sathyamurthy
E: raghu.sathyamurthy@csiro.au

Population migration

Target: Parthenium costs Queensland landholders more than $22 million each year in reduced pasture production and increased management costs. It is a major problem in the rangelands and summer cropping areas of Queensland and is toxic to cattle. Meat from livestock that eat parthenium can be tainted.

Control: Since the 1980s, nine insect species and two rusts have been released. However, parthenium is spreading into south and south-east Queensland, where many of the widespread and effective biocontrol agents are not yet present.

Four of the most effective biocontrol agents identified for redistribution are:

→ a seed-feeding weevil
→ a root-feeding moth
→ a stem-boring weevil
→ a summer leaf rust.

Researchers aim to maximise impact by introducing a combination of these biocontrol agents to each area in partnership with community groups to combat the seasonal variation in activity between the agents.

The success of current grazing management and biocontrol efforts have dramatically reduced levels of parthenium in Central Queensland, so finding sufficient sources of biocontrol agents has been a challenge. To speed up the process, researchers are also establishing glasshouse populations of the biocontrol agents.

Timeline: By the end of the project in mid-2018, the team will have at least four of the key parthenium weed biocontrol agents redistributed and established across areas with emerging problems.

Information: Kunjithapatham Dhileepan
E: kunjithapatham.dhileepan@daf.qld.gov.au

Beating the berry

Target: European blackberry is widespread in high-rainfall, temperate farming areas across southern Australia and infests more than nine million ha. Herbicides have been used extensively, along with grubbing, mowing, cultivation, grazing management and fire. In 2006, the cost of blackberry to Australia was estimated to be up to $103 million.

Control: Research is testing the potential of a newly discovered organism *Phytophthora bilorbang*.

During 2007, blackberry plants on the banks of the Donnelly and Warren rivers in south-west WA were observed to be dying. Investigations revealed a novel species of *Phytophthora* thought to be contributing to the blackberry population decline.

Glasshouse trials with *P. bilorbang* are underway to replicate the decline observed in the field. Subsequent testing will examine the susceptibility of a range of blackberry species to the pathogen and confirm the resistance of at least 10 key non-target plant species.

Timeline: At least two farm-based field trials in NSW, Victoria and WA are planned to start in autumn 2017.

If results from the trials are promising, researchers will develop a plan for future large-scale delivery of *P. bilorbang* to landholders looking to manage blackberry.

Information: Louise Morin // E: louise.morin@csiro.au

Beetles battle nightshade

Target: Silverleaf nightshade was first reported in Australia in the early 1900s. It is a declared noxious weed in NSW, Victoria and SA and is starting to spread across mixed farming areas of WA.

Silverleaf nightshade has an extensive root system and can cause crop yield losses of up to 70% and pasture losses of an estimated 50%.

Control: Specificity tests and risk assessments on a potential new biocontrol agent, the silverleaf nightshade leaf beetle, are underway.

Biological control surveys in the United States and Mexico in the 1970s and 1980s identified a range of potentially useful biocontrol agents, including this beetle. Successful testing and the subsequent release of the beetle in South Africa prompted this project.

Timeline: A batch of the silverleaf nightshade beetles was imported from South Africa this year and is being tested at the AgriBio laboratories at La Trobe University, Victoria.

Genetic investigations will be carried out by the NSW Department of Primary Industries to further underpin the project results.

If researchers can demonstrate the beetle is host specific, they will apply for release in 2018 and develop a large-scale release and implementation plan for Australia.

Information: John Heap // E: john.heap@sa.gov.a

Feedbase

Strategic lucerne grazing boosts lamb numbers

2.3 million ha
sown to lucerne in Australia, both pure and mixed stands – *Analysis of Feedbase Audit* (2012), MLA

Grazing ewes on lucerne pasture during joining could lift lamb weaning numbers. New research findings are in contrast with traditional belief that diets high in protein or nitrogen and energy could lead to embryo mortality.

Sheep producers could significantly increase lamb weaning percentages from autumn-joined ewes by having them graze lucerne during joining.

Results from a recent MLA-funded project show flushing naturally cycling Merino ewes by grazing lucerne pasture **seven days before joining** and for the **first seven days of joining** lifted the number of lambs marked by 19%.

New research led by Dr Susan Robertson has shown lambing marking percentages could be increased by 19% by grazing lucerne during joining.

Researcher Dr Susan Robertson, of the Graham Centre for Agricultural Innovation, Wagga Wagga, NSW, said the study was prompted by industry concern regarding the potential fertility impact of grazing of ewes on lucerne prior to joining.

"We have been advocating for flushing with lucerne as it is cheaper than feeding lupins and it appears to have a better, more consistent response but we wanted to confirm these results and whether grazing lucerne throughout joining would have an impact on embryo mortality, " Susan said.

In the grazing trial, lamb marking percentages increased from 96% to 115% when the ewes grazed lucerne for seven days before joining and to day seven of joining, compared with grazing dead annual pasture. The results also showed ewes could graze lucerne throughout joining without any reduction in fertility or lambs marked (114%).

Management recommendations from the research include:

- For autumn-joined ewes that are naturally cycling, flushing on lucerne from seven days before joining and for the first seven days of joining is an effective method of increasing the number of lambs marked.
- Grazing ewes on lucerne throughout the whole joining period will not affect embryo mortality. Where lucerne is a limited resource, ewes only need to graze lucerne for 14 days to achieve a significant increase in lambing rates.
- The timing for spring-joined flocks where ewes are not cycling is to target the peak mating time, but it will not matter if the ewes graze on lucerne throughout joining.
- Response in ovulation rate is dependent on the quantity and quality of the lucerne. The pasture needs to be leafy, green lucerne.
- Twin lamb survival rates must be high to reap the benefits of flushing on lucerne. Producers adopting this practice need to consider the higher nutritional requirements of twin-bearing ewes, and their management during lambing, to optimise lamb survival.
- Do not graze lucerne if it is heavily infected with aphids, fungus or disease as this will reduce ovulation rates in ewes.

Results from a pen study run at the same time as the grazing trial showed feeding more than maintenance quantities of fresh lucerne to artificially inseminated (AI) ewes increased embryo mortality, reducing the number of ewes carrying twins.

"The optimal nutritional management can be expected to vary in artificial situations, but we recommend producers with AI ewes only graze lucerne at maintenance levels," Susan said.

Further research is required to evaluate different feeding strategies for both AI ewes and naturally cycling ewes.

Dr Susan Robertson
E: surobertson@csu.edu.au

Genetics

A new EBV for the north

An MLA-funded review of Beef CRC data has laid the foundations for a new cow body condition Estimated Breeding Value (EBV) for Brahmans and tropical composite breeds.

Senior Researcher Matt Wolcott, of the University of New England and NSW Department of Primary Industry's Animal Genetics and Breeding Unit, said the study reviewed 10 years of northern breeding project records, including the genetic and phenotypic data of 2,160 Brahman and tropical composite females from birth through to the weaning of their sixth calf.

It also measured the growth, carcase and meat quality traits of the females' steer half-siblings to improve the understanding of how cow growth and body condition genetics relate to female reproductive performance and steer productivity.

Matt said there were strong perceptions in the Australian cattle industry about the interaction of cow condition and reproductive performance.

"We found at the phenotypic level (observable characteristics) that there are clear associations of higher reproductive performance with lower cow weight, fatness and body condition score," he said.

"Importantly, however, we found these relationships are weak to non-existent at the genetic level, meaning that breeders can select to improve female reproduction in tropically adapted females, while simultaneously selecting to change or maintain cow body condition," Matt said.

"Similarly, we found the genetic relationships of weight, fatness, muscling and body condition score in lactating cows, particularly Brahmans, with the equivalent measures in feedlot-finished steers, were not strong."

Matt said this suggested that opportunities existed to breed females that could maintain condition under lactation while producing steer progeny that performed better under more intensive finishing regimes, such as feedlots.

"For the opportunities to be realised, it will be necessary to include cow condition score in BREEDPLAN tropical breeds," he said.

Matt Wolcott
E: mwolcott@une.edu.au

Research delivers more calves

Australian cattle producers miss out on almost $200 million a year due to calf losses between conception and weaning. The bulk of this burden is carried by northern herds.

MLA is funding a new calf-loss project, drawing on research outcomes from CashCow and the Beef CRC that will produce best practice, on-farm management interventions for producers to increase their numbers of calves weaned.

Dr Nigel Tomkins, MLA R&D Manager Grassfed Beef, said foetal and calf losses remained one of the most important issues facing the industry and was one the northern Australian beef industry continued to identify as a high research priority.

"The causes of foetal and calf loss in northern Australia are complex and multi-factorial," he said.

"However, through the CashCow and Beef CRC work, we have been able to identify many of the major factors that, when combined with other published findings, can immediately be translated into on-the-ground advice for producers."

Nigel said the work also revealed complex interactions between some of the major factors contributing to foetal and calf losses, which would need further research.

As part of the calf loss project, a new industry reference group has been established. It had its first meeting at the University of Queensland's beef cattle facility earlier this year.

This grassroots group is made up of six commercial beef producers who represent corporate and family-owned businesses (large and small) from the major beef breeding regions across northern Australia.

Nigel said the group was functioning similar to a company board of directors and would have direct input into developing the draft best practice approach that would identify intervention strategies aimed at reducing calf losses.

"They will also make recommendations for research into evaluating the effectiveness of selected management interventions for controlling calf loss," he said.

The group will meet again in September to review the project's draft outcomes.

Dr Nigel Tomkins
E: ntomkins@mla.com.au

Genetics

Size matters

Not too big, not too small. Consolidated Pastoral Company (CPC), Australia's largest privately owned beef enterprise, is applying the 'Goldilocks' philosophy to ensure its mature cow size is just right.

Two 16-year-old cows that have had 13 calves each, ready for CPC's embryo transfer program this year.

Snapshot

Consolidated Pastoral Company

Properties: 20 properties across Northern Territory, Western Australia and Queensland divided into northern and southern operations.

Size: 5.6 million ha

Livestock: 384,000 head

Enterprises:

Northern operation – 10 stations supplying livestock export, Brahman breeding and 20,000 weaners annually to CPC Queensland's backgrounding operations.

Southern operation – Elite Brahman stud, commercial Brahman and crossbred breeding, fattening and backgrounding for Japanese Ox, supermarket trade, grass-finished markets and feedlots.

CPC Chief Executive Officer Troy Setter believes 450kg liveweight is the optimum for commercial breeding cows in the north, where maintenance requirements, reproduction performance and functionality combine to produce the most profitable breeder.

This is only one of the outcomes from the Beef CRC and recent CashCow project that CPC is applying across 20 properties, including the home of its Brahman stud, 'Allawah', near Biloela, Queensland.

Collectively, the company runs up to 375,000 cattle, with steers from the northern operations targeted to the livestock export market and cattle from the southern properties supplying the feedlot and grass-finished markets in Queensland.

"We apply reproduction selection pressure across the whole herd," Troy said.

"If a cow is not pregnant or is not lactating with a calf at foot when they come into the yards, no matter what the reason, they don't stay in the herd."

Similar to southern production systems and in line with CashCow recommendations, CPC is now joining all breeders as yearlings to find genetically superior animals that will calve as two-year-olds and then produce a calf every 12 months.

"Selecting the right genetics and employing good nutritional management are the cornerstones of this approach," Troy said.

Pursuit of the 'right' genetics includes selecting animals that are fertile, early maturing, fast growing and of moderate mature size.

"We also pay a lot of attention to functionality," Troy said.

"Cows must have good udders, sound feet and good mothering ability, and we place strong emphasis on maternal lines with longevity.

"Our breeding program must also produce cattle our customers want and we use customer feedback and performance data to drive our breeding decisions."

Sourcing genetics

CPC runs its own Brahman, Angus and Charolais studs. 'Allawah' is its flagship property that collects and disseminates elite Brahman genetics to its multiplier stud, 'Newcastle Waters'.

Leading breed genetics are extrapolated across the Allawah herd using embryo transfer and artificial insemination, and offspring are intensively performance recorded with all bulls' semen tested.

Sires that meet CPC standards are sent to the Newcastle Waters Brahman stud, in the west Barkly region of the NT, where there are 4,000 stud females producing 1,000 herd bulls for the company's northern properties.

The composite breeding stud at Allawah and the Angus and Charolais studs, based at 'Isis Downs' in central western Queensland, distribute sires for CPC's tropical composite breeding program across WA, NT and Queensland.

Troy Setter
E: alison.cleverley@pastoral.com

CPC: **www.pastoral.com**

CashCow: **www.mla.com.au/cashcow**

Beef CRC: **www.beefcrc.com/**

Genetics

Learning from the data on dad

Repronomics, also known as the northern beef fertility project, is generating a wealth of information on the genetic potential of Brahmans, Droughtmasters and Santa Gertrudis.

The project will enable producers to more accurately select young sires that will rapidly progress breed productivity, performance and, in particular, female reproduction.

Building on the Beef CRC collection of reproduction data, project leader Dr David Johnston said the MLA-funded project was halfway through its five-year term and was feeding all its data through BREEDPLAN to help producers make more informed decisions on sire selection.

"Intensive phenotype recording of research station herds and genomic testing of key industry seedstock herds is improving the accuracy of Estimated Breeding Values (EBVs) for profit-driving traits in the three breeds and is laying the foundations for a new across-breed EBV that will enable producers to directly compare the genetic potential of animals across different breeds," David said.

"Potentially, this will pave the way to expand the multi-breed evaluations to include crossbreds and composite animals."

David said that, by the end of the project, the research team's work in genomic analysis would significantly improve the accuracy of female reproduction EBVs across the three breeds.

"I would hope we can lift the accuracy of EBVs for young bulls, with no daughters, to at least 40%," he said.

During the course of the project, the research team will record the phenotypes of almost 2,500 females, which will generate about 1,000 fully recorded calves each year.

Those calves, who will also be assessed using experimental measures, will be measured for traditional traits including:

→ accurate date of birth
→ birth and weaning weight
→ gestation period
→ flight time.

The females will be retained in herds and measured for:

→ age of puberty
→ maiden mating outcome
→ first calf re-cycling interval and re-breeding
→ weaning rates.

All cows are weighed, scanned and have body composition scored regularly throughout the year.

At calving, several cow traits are recorded including calving ease and teat and udder scores, as well as some new research traits for mothering ability.

Researcher Nick Corbet ovarian scanning Brahman heifer for age at puberty at Brian Pastures.

Early learnings

David said some of the key findings so far were that, within breeds, there was great variation in sires' daughters' age at puberty and their re-breed rates as first calvers.

"We're also getting a whole raft of information on auxiliary traits on the steer progeny, which will all complement the final picture of a more complete and comprehensive genetic analysis," he said.

After weaning, the steers enter the Northern Steer Beef Information Nucleus program and are grown out on several co-operator properties to be slaughtered at an average of 320kg carcase weight.

Information on growth, carcase and meat quality traits is collected for these steers.

David said the addition of this steer data would enable researchers to get the complete picture of reproduction, growth and carcase traits in these breeds.

"These records, coupled with the genomics data, will be a powerful tool to drive genetic progress," he said.

The project will evaluate almost 200 influential sires with progeny tested across varying northern environments and management systems.

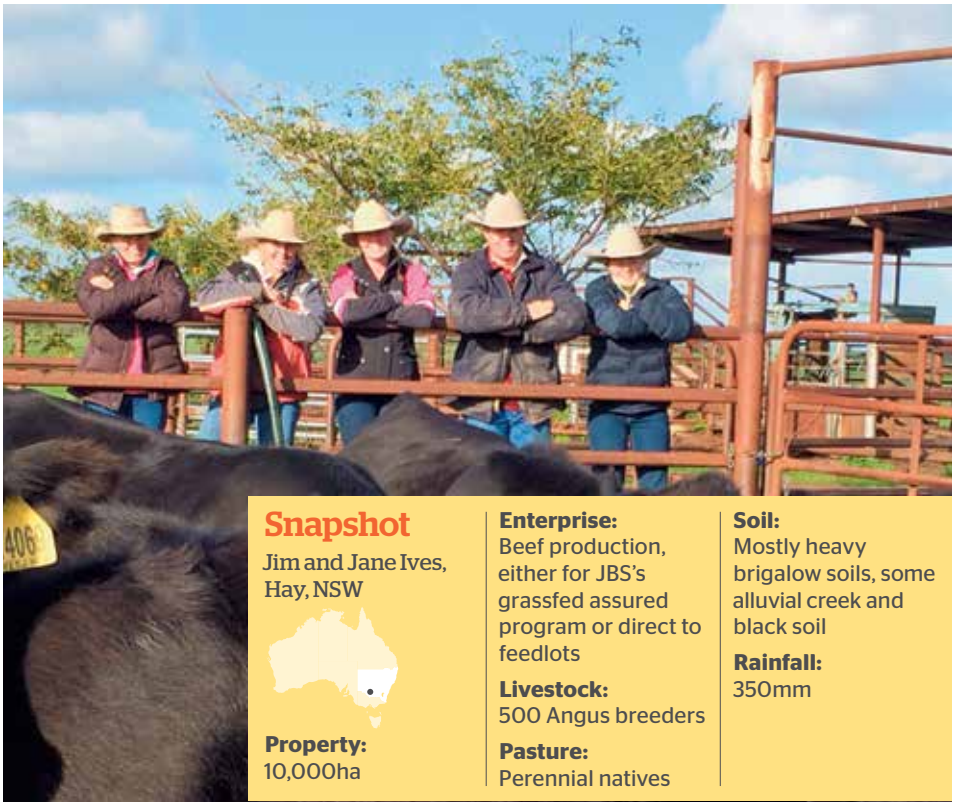
Dr David Johnston
E: djohnsto@une.edu.au

For further information view the Beef CRC Northern Reproduction Project final report at **www.mla.com.au/Research-and-development/Search-RD-reports/RD-report-details/Productivity-On-Farm/**

Business management

Making plans

Western Riverina cattle producers Jim and Jane Ives credit the new MLA/AWI Pastoral Profit program with challenging them to move their business towards future sustainability.



Snapshot

Jim and Jane Ives, Hay, NSW

Property: 10,000ha

Enterprise: Beef production, either for JBS's grassfed assured program or direct to feedlots

Livestock: 500 Angus breeders

Pasture: Perennial natives

Soil: Mostly heavy brigalow soils, some alluvial creek and black soil

Rainfall: 350mm

Jane, Lillian, Grace, Jim and Emily Ives. Image: Jack Littler

The Ives run 500 Angus breeders on 10,000ha south-east of Hay. They have spent the past decade developing a holistic rotational grazing system and now graze cattle on perennial native pastures at a stocking rate of 1 DSE/ha.

Depending on the season, they either send stock at 500–650kg liveweight through JBS's grassfed assured program or at 450–500kg to feedlots.

Jim said one of the biggest challenges facing producers in the pastoral zone has been the run of dry years. Hay has an annual rainfall of 350mm, but the Ives have received less than 315mm/year for the past 22 years.

During the dry years the family relies on droving cattle and agistment, spread from south-west Queensland to southern Victoria, to maintain productivity.

After receiving 125mm since the end of April, their enterprise is on-track from a productivity perspective, so Jim and Jane have turned their attention to the sustainability of their business with their three daughters in mind. Emily and Lillian are in years 11 and 9, while Grace is studying agribusiness at Marcus Oldham College.

"Our business goals are to remain sustainable from a production point of view, but to also set up our business for the next generation," Jim said.

"The girls have all been very involved in livestock management but they are starting to take an interest in the financial side of the business.

"We encourage our daughters to study and work off-farm to gain new experiences – which could be brought into the business – but we want structures in place so they can come back into the business if they want to."

Jim and Jane's lessons learned:

- Plan, plan and keep planning – especially for the big things like capital expenditure and succession planning.
- Involve all family members in decision making.
- Involve advisers, such as financial planners, accountants and solicitors, in regular business planning.

Inspired by past experience with MLA business webinars, the Ives and a few local families got together and formed a Pastoral Profit group, with assistance from Dubbo-based Pastoral Profit NSW coordinator Mark Gardner.

The group, which involves nine families, has met four times so far.

"Pastoral Profit has really motivated us to streamline and improve our business, especially from a financial perspective," Jim said.

"It has also given us access to information and advice, which can be challenging for us to find because of poor internet service."

They have already made changes to their business as a result of Pastoral Profit, which include:

- a full review of their business structure to improve farm succession planning
- meeting with their accountant more regularly to conduct business planning, not just taxation planning
- introducing them to the concept of business benchmarking (the NSW Pastoral Profit program is also seeking to establish a benchmarking component)
- involving their children in discussions about business and succession planning – Grace attended one of the Pastoral Profit sessions
- using tools from Pastoral Profit to examine options to assess the risk of various expansion options, such as buying land in a different climatic zone or using irrigation country that is currently owned.

Jane and Jim Ives
E: jives@activ8.net.au

Supply chain

Sharing the Tasmanian story

Tasmanian producer John Bruce is an advocate for creating close relationships throughout the value chain.

John farms at Stanley, on the north-west coast of Tasmania, with his wife Angela and son Iain. Annual turn-off is 450 steers and heifers which go directly to the Greenham family's Cape Grim brand and a Japanese restaurant chain.

John regularly hosts Cape Grim customers on the farm and travelled to Japan with fellow Greenhams suppliers last year to see their beef on the plate.

The Bruce family recently opened their farm gates to an MLA-hosted tour of influential US chefs, restaurant and foodservice managers, and food writers.

"The MLA tour group spent a day here and visited both Robbins Island Wagyu and our farm," John said.

"Top chefs are always looking for something a bit better than the average and I think they were looking to see what the point of difference was between Australian beef and lamb and what they can source in the US.

"They all seemed pretty impressed with the way the animals were rotationally grazed in paddocks, rather than in feedlots like the majority of stock in the States.

"As well as the taste and health advantages, it means they can happily use images from our grassfed production systems to market the beef to their diners – it's hard to do that with photos from a feedlot."

Location, location

Even in Australia's grassfed-dominated beef industry, the production system in northern Tasmania is unique, with its ability to turn off steers almost year round, while achieving excellent MSA compliance and index scores.

"Average rainfall in our district is about 40 inches (1,000mm) and it's usually pretty well spread throughout the year," John said.

"We have ocean on three sides which keeps the air and soil temperature moderate, allowing us to grow good quality grass through most of the year.

"Consistent, high quality nutrition – not necessarily breed – is the key to consistent, high quality meat, and there are not many areas that can supply that consistent nutrition with grass.

"The unique climate is the reason red meat from this area can be sold to high quality markets like Whole Foods Market in the US, for people who want natural, grassfed, antibiotic-free beef."

John believes it's important to share the story of northern Tasmania's beef industry with supply chain partners.

"I'm chairman of our local beef producers' group and we have done a couple of producer trips to Victoria and New Zealand, as well as Japan and South Korea with Greenhams last year," John said.

"Those sort of trips forge connections through the supply chain which are worth a lot in terms of keeping us all working towards the same goals, and seeing where the product goes and meeting people who appreciate it also keeps you motivated."

Snapshot

John, Angela and Iain Bruce, Stanley, Tas.

Property: 580ha

Enterprise: Beef cattle – supplying 450 yearling steers and heifers to Greenham Tasmania for the MSA brand 'Cape Grim' and a Japanese restaurant chain

Livestock: Self-replacing herd; mix of British breeds including Angus, South Devon and Angus-Charolais cross. Run 1,450 head through spring, breed 300 calves/year and buy in 150 weaners.

Pasture: Ryegrass, clover and lucerne

Soil: Basalt

Rainfall: 806mm

John Bruce
E: jda.bruce@bigpond.com

Animal welfare

Gearing up for new animal welfare obligations

MLA is working on a number of projects to help livestock producers comply with the new Australian Animal Welfare Standards and Guidelines for sheep and cattle.

After more than a decade of development, including extensive consultation with industry and the community, the new standards and guidelines were officially endorsed by state and territory ministers in January this year.

Once implemented by each state and territory, the standards and guidelines will replace the current model codes of practice that have been guiding sheep and cattle welfare for the past 20 years.

MLA Innovation and Adoption Project Manager Marine Empson said it could be several years before all states and territories implemented the standards and guidelines, but MLA was working to ensure producers would not be caught out by changes to their animal welfare responsibilities.

"MLA has a number of pain relief projects underway and we are working to ensure training is available to comply with the new standards," Marine said.

"We have just completed a national survey of sheep and cattle producers to identify areas where animal husbandry practices are below the new Australian standards. This will help identify where future extension and adoption efforts need to be directed."

Marine said Animal Health Australia was also developing new standards and guidelines for the operation of saleyards, with MLA contributing to the Regulation Impact Statement that assesses the potential costs of any changes to the supply chain.

"There are 22 animal welfare-related model codes of practice and eventually they will all be replaced by national standards and guidelines," Marine said.

"The first was the Australian Animal Welfare Standards and Guidelines for the Land Transport of Livestock, which was endorsed in 2012 and implemented by the various states and territories over about two years.

"MLA revised the '*Is it fit to load?*' guide in response to that change, to help producers, agents, buyers and transporters meet their legal obligations under the standards."

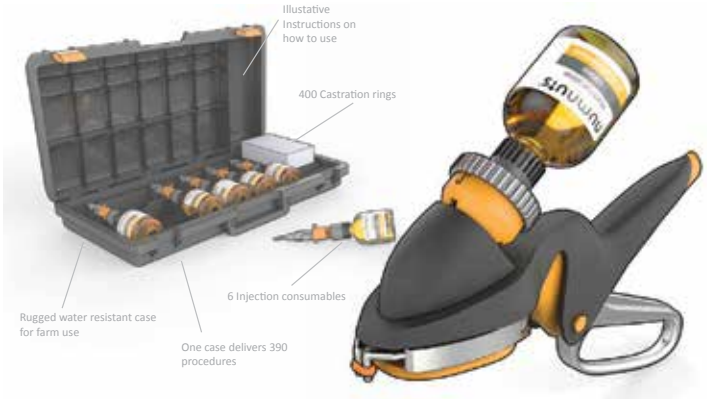
Below is a snapshot of some MLA projects designed to help producers comply with the new animal welfare standards and guidelines for sheep and cattle:

Buccalgesic

Several MLA Donor Company projects (which did not use producer levies) were conducted to develop, trial and commercialise a gel formulation of meloxicam, a non-steroidal anti-inflammatory drug (NSAID) for both sheep and cattle. The product is administered via nozzle between the animal's cheek lining and gums, reducing operator safety risks, and carcase quality and welfare issues. It is available through veterinarians.

NumNuts

MLA, in partnership with AWI, Moredun and CSIRO, is developing a pain relief technology for castration and tail docking of lambs. Version two is intended to be effective for the castration of calves. The device combines a single handheld ring activator and an injection mechanism to administer a local anaesthetic (lignocaine) which gives fast and effective pain relief, especially of the tail. MLA is seeking an investor to commercialise the technology.



Resources:

Search the following publications in MLA's publications database:
www.mla.com.au/publications

- → *A national guide to describing beef cattle in low body condition*
- → *Fit to load guide*
- → *A guide to best practice husbandry in beef cattle*
- → *A producer's guide to sheep husbandry practices*

Australian Animal Welfare Standards and Guidelines for Cattle, Sheep and Land Transport are available at:
www.animalwelfarestandards.net.au

Cattle and Sheep Standards and Guidelines Q&A
www.animalwelfarestandards.net.au

LivestockASSIST – National hotline dedicated to coordinating emergency responses for incidents involving heavy vehicles carrying livestock

1800 4 ALRTA (or 1800 4 25782)

alrta.org.au/livestockassist/

Marine Empson // T: 07 3620 5233
E: mempson@mla.com.au

National accreditation scheme to conduct dropped ovary technique spaying

In 2012, the Cattle Council of Australia (CCA) identified an industry need to introduce a national accreditation scheme for lay persons who spay cattle using the dropped ovary technique, as the new standards require someone performing the operation to be "a vet or accredited". A current MLA project is helping CCA and its partners address this training shortage.

Electroencephalography of cattle during surgical castration

It is difficult to assess pain responses in unhandled *Bos indicus* cattle and this makes assessing various methods of pain relief difficult. Using an approach pioneered to research stunning, cattle are anaesthetised and pain responses assessed using brainwaves while under anaesthetic. The results of this study should enable a better understanding of the pain pathways in *Bos indicus* cattle and how best to provide pain relief during surgical castration.

Polled genetics

MLA investment helped develop the current Australian Poll Gene Marker test, allowing beef producers to breed 'true polled' cattle, reducing the need for dehorning/disbudding in their herds. While the breeding of polled cattle is not required under the new standards, the guidelines say "preference should be given" to breeding hornless cattle. The gene marker test will help producers achieve best practice under the new guidelines.

What is the difference between a standard and a guideline?

Standards will be the legal requirements for livestock welfare and will use the word 'must'.

Guidelines will use the word 'should' – they are the recommended practices to achieve desirable livestock welfare outcomes. Non-compliance with one or more guidelines will not constitute an offence under law.

(Source: Animal Health Australia)

Table 1 SHEEP: The main changes for sheep producers when moving from Model Codes of Practice to new animal welfare standards and guidelines

Model Codes of Practice	Sheep Welfare standards and guidelines
Teeth grinding – not recommended.	→ Must not grind teeth.
Pizzle dropping if required.	→ Must not pizzle drop.
Castration – preferably <12 weeks age, anaesthetic 'required' >6 months. Ring or knife OK.	→ Must not castrate >6 months without appropriate pain relief and haemorrhage control. → Should be <3 months. → Should use least painful method.
Tail docking preferably 2–12 weeks, anaesthetic 'required' >6 months. Tail should cover the vulva. Ring knife or hot knife OK.	→ Must not tail dock >6 months without appropriate pain relief and haemorrhage control. → Must leave at least one palpable joint. → Should be <3 months. → Should use hot knife or ring.
Euthanasia can be carried out by shooting with a firearm or stunning with captive bolt followed by bleeding. Clubbing lambs (not adults) followed by bleeding acceptable, but cutting spinal cord not recommended.	→ Must only kill lambs by blow to forehead if <10kg. Must confirm sheep is dead. Bleeding out by neck cut only allowed if no bullet, captive bolt or injection available.

Table 2 CATTLE: The main changes for cattle producers when moving from Model Codes of Practice to new animal welfare standards and guidelines

Model Codes of Practice	Cattle Welfare standards and guidelines
Castration should be at first muster, preferably <6 months. Rings <2 weeks. Illegal in some states >6 months.	→ Castration – must use pain relief unless <6 months or <12 months at first yarding. Must use appropriate tools and methods.
Dehorned as young as possible, preferably <6 months or first muster.	→ Dehorning – must use pain relief unless <6 months or <12 months at first yarding.
Dropped ovary technique spaying preferred by skilled operator. Other spaying should be done by a vet or trained operator. Should use analgesia.	→ Spaying – must be carried out by a vet or accredited operator or under their direct supervision. → Must use pain relief for flank spaying and webbing. → Should use dropped ovary technique or passage webbing.
Euthanasia – must be humane and immediate. Bullet or captive bolt. Temporal shot allowed.	→ Euthanasia must give rapid unconsciousness. Must confirm death. Must only kill calf by blow to forehead if <24 hours and when no other humane method available. → Temporal shot not recommended.

Nutrition

Balancing act

MLA is equipping health professionals with tips and tools to raise awareness of the role of red meat in a healthy, balanced diet.

How does diet affect mental health? How can red meat be part of a weight loss program? What are the iron and zinc requirements of children, women and seniors? How do beef and lamb affect chronic disease risk?

These are some of the questions MLA is helping dietitians and general practitioners (GPs) answer so they can guide their patients towards balanced eating.

MLA Nutrition Manager Veronique Droulez said that, in a world where people are bombarded with dieting fads, food trends and conflicting nutrition messages, healthy eating boils down to a balanced diet down that includes red meat three to four times a week, as per the Australian Dietary Guidelines.

Here are snapshots of how MLA has been working with the nutrition industry in 2016.

Doctors and diet

"Although GPs are a trusted source of information, most are not trained in nutrition," Veronique said.

"MLA is providing doctors with practical tips on healthy eating so they can help their patients follow a healthy, balanced diet."

MLA has tapped into GPs' professional development requirements by working with Think GP, a leading GP educator, to develop two accredited learning modules on infant nutrition and weight loss. To date, 1,800 GPs have enrolled in both learning modules.

"Through our partnership with the GP publication, *Australian Doctor*, MLA has also developed a digital newsletter and supporting factsheets dedicated to nutrition," Veronique said.

"More than 2,000 GPs subscribed to the newsletter in 2015–16."

The highest rated article – 'Four steps to healthy balanced meals' – received 30,000 impressions on Facebook and the associated factsheet was downloaded almost 300 times.

Feeding the professionals

MLA raised awareness of nutrition evidence in the context of healthy eating by funding the Science into Literacy Symposium in Sydney in April.

More than 1,000 nutrition professionals and nutrition researchers registered to either attend in person or watched the live or recorded webinar. There were presentations on six MLA-funded research projects, including studies into the benefits of a healthy diet for preventing depression and achieving optimal gut health.

As part of a partnership with the Dietitians Association of Australia, MLA supported the Australian Healthy Weight Week in February, which involved 750 events around the country.

More than 1,100 dietitians and 40,000 members of the public took part in activities promoting healthy meals, and 40,000 copies of MLA's guide to healthy, balanced meals brochures were distributed.

MLA also supported the Dietitians Association of Australia's National Conference in Melbourne in May 2016, where more than 200 delegates visited MLA's stand.

One-stop shop

MLA launched a new website, www.mlahealthymeals.com.au in February to provide nutrition professionals with a central point of nutrition information, including scientific and behavioural evidence, about the role of red meat as part of a healthy balanced diet.

MLA Nutrition Manager Veronique Droulez at MLA's stand at the Dietitians Association of Australia's National Conference in Melbourne in May 2016. The stand was visited by more than 200 delegates.

The site provides facts and evidence about the health benefits of red meat, and practical advice for supporting consumption as part of a healthy, balanced diet for different life stages, as well as addressing health concerns.

Taking a global focus

MLA's nutrition work is not limited to Australia.

MLA is working with the University of Otago, New Zealand, to trial powdered beef products as a low-cost dietary supplement for young children in Indonesia to overcome iron and zinc deficiencies.

The findings from this study will inform global policy about the amount of red meat required from six months of age to prevent iron and zinc deficiencies and support normal growth and development.

A larger footprint

MLA is collaborating with the International Meat Secretariat's Nutrition and Human Health Committee to inform nutrition influencers and policy makers at a global level.

In January 2016, all 193 United Nations members adopted 17 sustainable development goals, targets and actions. One of these in particular, goal 12 (sustainable consumption and production), will influence future food and nutrition policy and dietary guidelines. Reduced red meat recommendations are prevalent and triggered by a diverse range of concerns including red meat's contribution to greenhouse gas emissions, perceived resource intensity and health concerns related to chronic diseases, including cancer and diabetes.

Since the nutritional benefits of red meat are recognised, MLA is working with the committee on recommendations on what should be the recommended amount of red meat for consumption based on sustainability and health targets.

What's on the nutrition horizon?

MLA is developing a brochure on 'active ageing' in consultation with its Active Ageing Expert Working Group. It will be informed by consumer research to ensure the advice is relevant and easy to understand. This resource will be distributed to GPs and other relevant sources of information in the community identified in the consumer research.

Feedback from the food advice sector

Australian dietitians share their experiences from the MLA-funded Science into Literacy Symposium in Sydney in April:

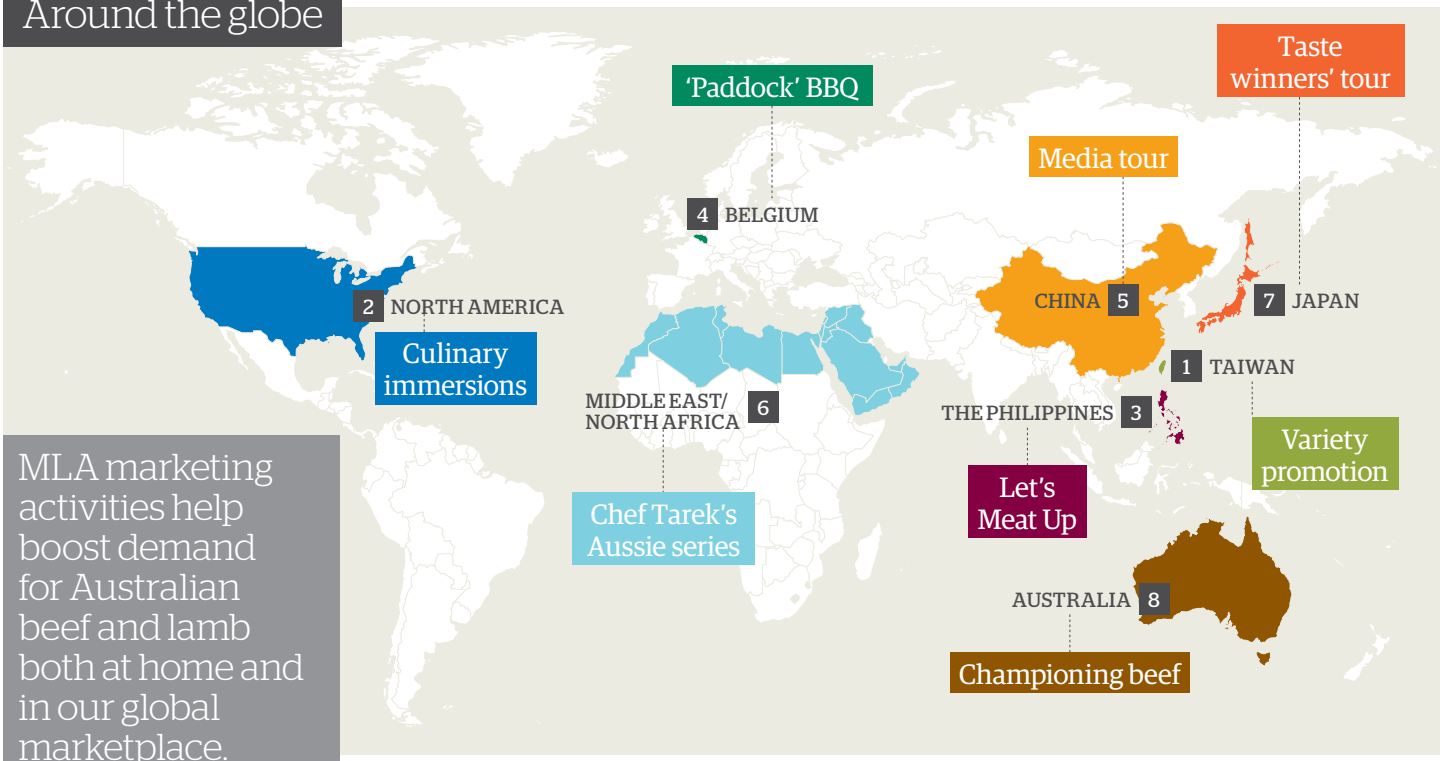
Catherine Saxelby, Foodwatch:
"I loved the interesting presentations from a wide range of expert speakers that I don't often get the chance to hear – plus the fact they are from Australia and New Zealand so they are local and understand my perspective. No other nutrition event gets my attention the way this one does."

Sara Grafenauer, Dietitians Association of Australia:
"Year after year, I am always pleasantly surprised by the quality of presentations by leaders in our field and others at the MLA symposium. The Twitter feed tells the story – so many tweetable quotes! There is something for everyone – clinicians, public health and the food industry."

Veronique Droulez
E: vdroulez@mla.com.au

MLA's nutrition website:
www.mlahealthymeals.com.au

Around the globe



MLA marketing activities help boost demand for Australian beef and lamb both at home and in our global marketplace.

1 TAIWAN

Showcasing diversity

More than 34 news items were generated by a media event organised by MLA for 36 food bloggers and journalists to promote the variety of 'True Aussie' beef cuts available in Taiwan.

Traditionally the market has preferred shin/shank and lower-priced lean beef, so seven dishes were showcased by MLA trainers to spread the word about short ribs, knuckle, mince, rump and oyster blade.

2 NORTH AMERICA

The steaks are higher

Seven new business leads and growth in four existing accounts arose from 'Raise the Steaks' culinary immersions in Los Angeles and Chicago.

Australian lamb and grassfed beef were showcased to guests representing large foodservice consumers, such as restaurant chains, hotels and educational facilities. MLA butcher Doug Piper demonstrated different cuts and attendees heard about food trends, utilisation of various cuts and participated in a chefs' challenge. More than 130 new social media followers were gained for Australian beef and lamb in the process.

Rolling on

Chef's Roll, an online campaign to promote Australian beef and lamb, reached thousands of chefs and accumulated more than 3.4 million social media impressions in six months.

The campaign featured live events, website articles, banner ads and social media content through Instagram (3.4 million impressions and 41,000 comments), Facebook (1,983 reactions/comments/shares) and Twitter (11,492 impressions).

3 THE PHILIPPINES

Getting together

Following recent food safety scares, MLA has held events to reinforce the safety of Australian grassfed beef. The 'Let's Meat Up' campaign was held at the 'I'm Angus Steakhouse' to explain

47%

of beef imported into the Philippines is Australian, of which 90% is grassfed

Australian systems, meat cuts and cooking techniques to industry. MLA partnered with importers White Stripe Foods (who supply Cape Grim beef to the country) and Werdenberg International Corporation.

4 BELGIUM

Barbecuing in Brussels

The Australian red meat industry's efforts to build momentum in the dialogue on the EU Free Trade Agreement were given a head start when 400 people, including Members of Parliament, political staffers, importers, Embassy staff and industry advocates, attended an MLA summer barbecue.

Five chefs, including MLA's corporate chef Sam Burke (pictured), cooked up a storm using eight barbecues in a central Brussels park, serving six different dishes created with 120kg of Australian beef and lamb.

The event aimed to reinforce Australia's priorities for increased market share in the EU.

5 CHINA

News focus on Australia

More than 78 media items appeared through 55 Chinese media outlets reaching more than 7.5 million consumers when MLA hosted eight influential members of the Chinese media on a seven-day tour of Australia.

Co-funded with the Victorian Government, the tour was a paddock-to-plate journey from farms and saleyards to retail outlets and restaurants. Messages were reinforced that Australian red meat was "clean and safe" and produced with quality and integrity.

7.5 million
consumers reached by tour coverage

6 MIDDLE EAST/ NORTH AFRICA

Tarek's Aussie episodes

Thousands of viewers tuned into Fatafeat TV's *Travelling Tarek's Australian Adventures*, featuring MLA's Middle Eastern-based Master Chef Tarek Ibrahim.

In the three-part series shown in June, Chef Tarek was shown in locations around Australia, including on sheep and cattle farms, cooking high quality Australian produce, including beef and lamb.

The series was broadcast on the food channel to 21 Arabic-speaking countries.

7 JAPAN

A taste success

Sales of Australian beef and lamb rose by nine tonnes at 41 fine dining restaurants in Japan during the period when their teams of chefs competed in the 'Taste of Australia' menu competition earlier this year.

The five winners from the competition, a collaboration between MLA, Austrade, Wine Australia, Tourism Australia and the Australian Embassy in Tokyo, recently enjoyed their prize of a week in Australia. The tour included visits to Australian farms and wineries and cooking demonstrations and dining out in Melbourne.

There has been an increased presence of Australian beef and lamb on menus at participating restaurants since.

8 AUSTRALIA

You're Better on Beef

Australian wheelchair basketballer Claire Nott shared her inspiring story in the latest video for the 'You're Better on Beef' campaign. Claire, who's spinal cord was severed in an accident when she was just two years old, explains the mental and physical toughness needed to succeed in her chosen sport. The video was created to fit with the wider "everyday champion" campaign to inspire and motivate women – as the meal deciders in households – to serve more beef to their families and to encourage women to eat beef as part of a healthy balanced diet. Check out the video and others in the series at the 'You're Better on Beef' YouTube channel.

On the ground

European Union

Josh Anderson
International Business Manager
Europe and Russia
E: janderson@mla.com.au

Brexit. It's the word on everyone's lips in Europe at the moment, but more than two months on from the historic day when the referendum result was announced, there are still many unanswered questions regarding the implications of this decision.

Currently the UK takes, on average, 64% of our total EU red meat exports annually. The UK has to import around 45% of its meat products and this suggests significant long-term prospects for growth of Australian exports to the UK.

In this changing landscape Australia has the opportunity to renegotiate UK access. Discounting current access restrictions, in theory, Australia should have equal preference as a red meat supplier to the UK once the exit is complete.

Where other suppliers are now looking to protect their access, Australia only has gains to make in pursuing more favourable access and levelling the playing field with major global competitors.

Aside from Brexit, the priority is still very much working towards an EU-Australia Free Trade Agreement (FTA).

It's no secret that agriculture is always a sticking point in FTA negotiations. The EU is exceedingly protectionist regarding red meat imports, which has resulted in highly restrictive quota regimes.

MLA's role is to stay closely connected with the Australian Government and industry groups in the UK and EU to ensure Australia's red meat interests are maintained.

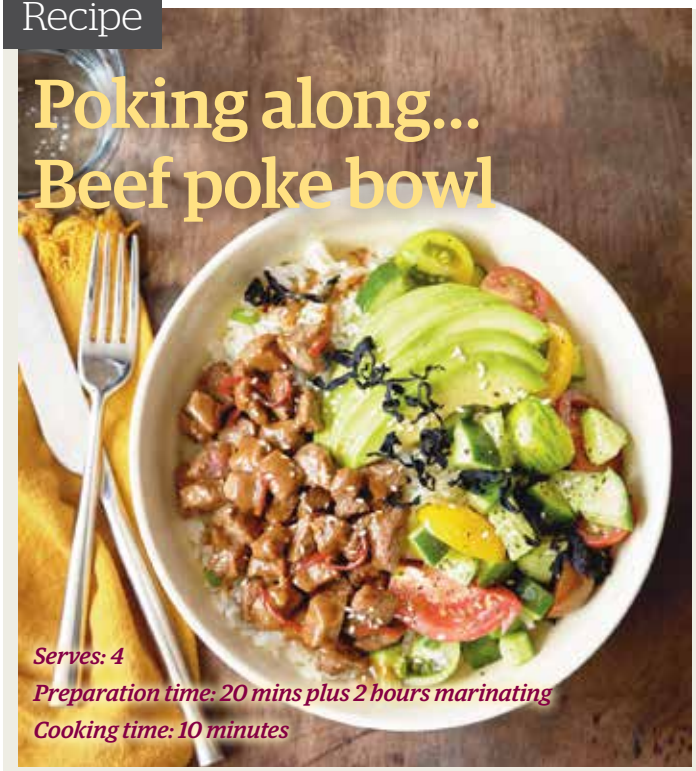
In a recent conversation in Brussels, International Meat Trade Association CEO Liz Murphy reinforced to me the value of Australia's red meat imports to European customers.

"Australia is recognised for the quality of their meat and consistency, and that is the kind of thing which makes a good trading partner," she said.

"Australia has very good beef. We get frustrated they have a limited quota on sheepmeat, so with the forthcoming FTA negotiations and scoping being done , we're certainly working very closely with MLA to hope we get a positive outcome in the long run."

Recipe

Poking along... Beef poke bowl



Serves: 4
Preparation time: 20 mins plus 2 hours marinating
Cooking time: 10 minutes

'Poke', meaning to slice or cut, is a traditional Hawaiian dish usually made with raw fish. MLA's recipe team have given it a shake-up by adapting it to rump steak.

Ingredients

1kg rump steak, trimmed, 1cm diced cubes
30ml rice bran oil
Steamed jasmine rice, to serve four
15ml oyster sauce
80ml soy sauce
20g palm or brown sugar
1 chilli, deseeded and finely shredded
20ml sesame oil
1 garlic clove, finely diced
500g cucumber
1 punnet heirloom tomatoes
3 green shallots, thinly sliced
1 avocado sliced
1 tbs sesame seeds
50ml rice wine vinegar
150ml olive oil
salt and pepper

Method

1. Mix the oyster and soy sauce, palm sugar, chilli and sesame oil in a bowl. Add the beef, cover and refrigerate for two hours.
2. Dice cucumber, quarter tomatoes and mix with salt and pepper to taste. Set aside.
3. Whisk together the vinegar and olive oil, season with salt and pepper. Set aside.
4. Steam rice and add shredded shallots and mix through one third of the rice wine vinaigrette.
5. Drain beef, reserving marinade. Heat rice bran oil in a pan to high. Cook beef 3-4 minutes and transfer to plate, cover with foil and allow to rest.
6. Add the reserved marinade to the pan and bring to the boil, then reduce and simmer until marinade thickens.

Construction

Place rice into four bowls. Toss the remaining vinaigrette through the cucumbers and tomatoes and arrange them over one half of the rice. Add the beef over the other half and then add the avocado slices. Finish with a drizzle of the marinade reduction and a sprinkle of sesame seeds and seaweed flakes.

Lamb projections

Lamb to smash more records

What's the (updated) outlook?

2016	Lamb slaughter	Lamb production	Lamb exports
	23 (million head)	511,000 (tonnes cwt)	240,000 (tonnes swt)

MLA's projections for the lamb industry back in December 2015 understated the national flock's productivity potential and MLA's latest analysis – the July 2016 update – forecasts 23 million head being processed, setting a new record for the fourth consecutive year.

Last year's projections forecast that processing in 2016 would be down 3% to 22 million head; however, improved lamb marking rates are likely to push that figure to the new high.

Similar average carcase weights to last year will result in lamb production in Australia also hitting a record high.

Fewer ewes were joined across the country in 2016, and considerably more lambs are expected to be sold over the coming months, which indicates that lamb availability is more likely to contract in the first half of 2017 rather than the second half of this year - as was originally forecast.

However, once this hiccup occurs, longer-term trends see annual lamb slaughter projected to hit a new high of 24 million head by 2020.

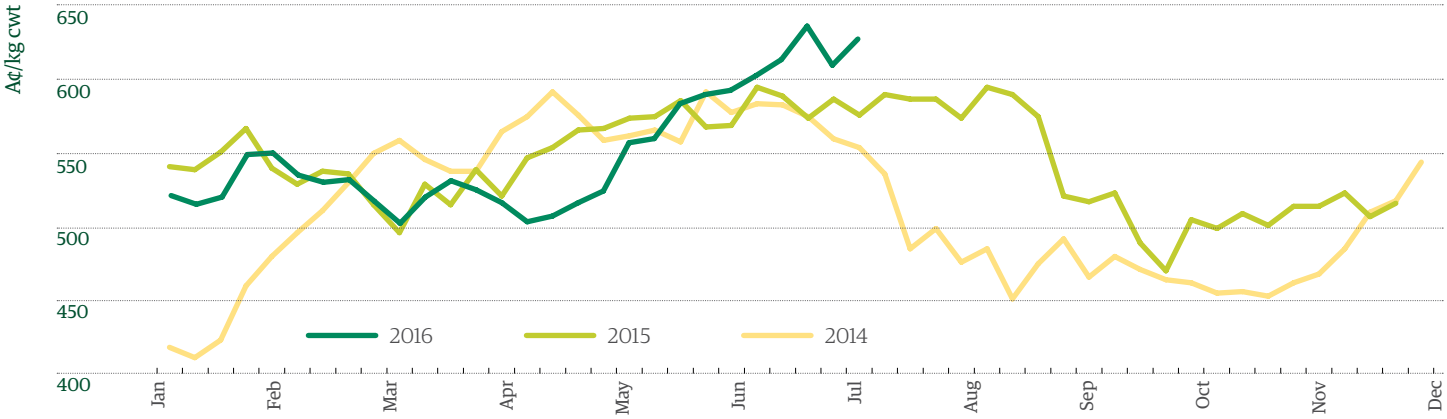
What's led to the increase?

The MLA and AWI wool and sheepmeat survey results indicate the Australian breeding ewe flock at 30 June 2016, although down slightly from the February survey, was 2% higher than the same period last year, at 41.7 million head. The rise was underpinned by a 4% lift in Merino ewes to be joined to Merino rams (21.7 million head) and an 11% lift in first-cross breeding ewes (6 million head). All states except for Victoria recorded an increase in breeding ewes on hand in June.

The total number of lambs on hand across the country in June was up 4% year-on-year, at 26 million head.

Discussions from the Lamb Forecasting Advisory Committee suggest marking rates across many parts of the south-east of the country were down during the hot dry autumn, due to the lower nutritional content of feed and ewes in poorer body condition. The onset of heavy rains in May and June, albeit a welcome relief for many producers, reportedly caused some livestock health and management issues.

Figure 1 National Trade Lamb Indicator



Source: Australian Bureau of Statistics

In contrast, WA has had an exceptional autumn season, and reports suggest lamb survival and marking rates have been very good, although the cold and wet weather during the first few weeks of July will see the larger numbers of lambs coming onto the market pushed back until late August.

Sheep and lamb processing

Underpinning this increase is a stabilising in supply (Figure 1). Before 2014, rolling 12-month averages rose as much as 23% and fell up to 13%. Today the figures – on a rolling 12-month average – only vary up to 4%.

Since August 2014, more than 22 million lambs have consistently been processed over any given 12-month period. Interestingly, the rolling average slaughter has lifted to more than 23 million head since February 2016, which suggests a 23-million-head lamb slaughter for 2016 is likely.

The reduced volatility in supply should come as welcome news for producers, with average pricing in recent years also becoming less volatile. Price is the result of two moving parts – supply and demand – and, with supply being more consistent, price volatility has also reduced.

Interestingly, the rolling 12-month average total number of sheep and lambs killed has declined from 32.3 million head nationally to 31.4 million head, which could help underpin prices.

Exports

For the first half of 2016, Australian lamb exports reached 125,909 tonnes shipped weight (swt) – up 7% year-on-year and 27% above the five-year (2011–2015) average for the period (ABS).

Higher-value chilled volumes (52,180 tonnes swt) were 3% higher year-on-year, and up 33% on the five-year average, while frozen lamb shipments (73,728 tonnes swt) for the period lifted 9% from the same time last year and 23% on the long-term average.

For the January to June period this year, Australia's largest markets – the Middle East, the US and China – accounted for 66% of Australian lamb exports, up from 57% for the same period in 2011.

Looking forward, and in line with the record production forecast, Australian lamb exports are tipped to reach a new high of 240,000 tonnes swt – with the Middle East, China and the US remaining the dominant markets.

Prices

Australian lamb prices continuously edged higher during May and June on the back of a late autumn break – to the point that the national trade lamb indicator reached near record highs in June. The momentum carried through to July and at the mid-point of the month, the trade lamb indicator was up 9% year-on-year and 13% from 2014, at 627¢/kg carcase weight (cwt).

How long those prices last will largely be dictated by the number of lambs and at what point during the spring flush they come onto the market.

During 2014, the influx of lambs came early, and the national trade lamb indicator deteriorated from July, falling to 450¢/kg cwt by September. In 2015, the decline didn't come until the beginning of September and bottomed out in the middle of October. Considering the widespread rainfall, and likely favourable spring, the lamb market may follow a similar pattern to 2015, with lambs likely to be turned off at a slightly younger age but similar weights as a result of anticipated abundant feed conditions.

The spring flush of lambs will inevitably place downward pressure on the market, especially if large numbers of NSW and Victorian lambs collide in equal masses. The extent of the decline will be supported by the reduced monthly volatility discussed in the slaughter section, the unlikely chance of any sudden strengthening of the A$ and ongoing reduced pressure from New Zealand.

Ben Thomas, MLA
E: bthomas@mla.com.au

Read the projections at:
www.mla.com.au/sheep-projections

Launceston//Red Meat Updates

As the torrential rain which dominated winter across Tasmania bucketed down outside, more than 350 delegates relished a day indoors soaking up information at this year's Red Meat Updates. In its fourth consecutive year, this year's program was developed by a working group, chaired by producer Georgie Burbury. Highlights included:

MLA Managing Director Richard Norton outlined MLA's strategies to ensure Australian producers maintain global market share as we head towards 2020. Key to this, Richard launched MLA's Value Chain Digital Strategy (for more see page 3).

John Francis, Holmes Sackett and Basil Doonan, Macquarie Franklin, ran concurrent sessions sharing the secrets of the top 20% of sheep and cattle producers. The pair reminded producers that size really doesn't matter – profitability does. The fundamental business drivers are: teamwork, animal husbandry, feedbase management and stocking rate.

Talking on the keys to achieving a high-fertility herd **Dr Shane Thomson from the Holbrook Veterinary Centre** told producers a tight conception period is more important than conception rates and to focus on "weaning the cow – not the calf".

Cattle producer **Alison Napier** inspired attendees with her strategic approach and investment in professional development for herself and her team. She said her business was about managing her people, her grass, her livestock and her budget.

What producers took away from the Red Meat Updates:

↑ *Andrew Thomson, Powranna Feedlot and Georgie Burbury, Red Meat Updates Working Group Chair*

Andrew: "It was great to hear such a positive outlook for lamb and seeing the virtual tours of local livestock producers were brilliant – it is always great to see how producers are navigating the challenges of each season. Although I think fertility rates in Tasmanian beef herds are probably okay, it was interesting to hear Shane Thomson's perspective, particularly his comments around joining all your heifers and letting the bulls do the selection."

↑ *Tim Rhodes, Killymoon, Tim Gunn, TL Gunn and Alison Napier, GH Napier and Son*

Tim Rhodes: "Richard Norton's explanation about MSA was heartening. MSA accreditation has dragged our industry past chewing through tough steaks and is giving us a great leap forward, with premiums coming back into our pockets."
Homework: "We are very conscious of the premiums from MSA and the discounts we get if we don't meet those premiums, so we are always searching for ways to get 100%. We use as many MLA tools and apps as we can get our hands on."

Tim Gunn: "A very enjoyable day – I took some 'take-home' notes during the day which I don't normally do. I especially enjoyed Richard Norton's presentation on latest industry updates, plans and market outlook. Not so pleased to hear the beef cycle may have peaked. I think on a day like this you pick up as much out of the auditorium as you do in."
Homework: "After listening to Shane Thomson's presentation we will review our management to support a tighter calving period."

Alison: "The breadth of presentations was fantastic: it was great to hear MLA, industry, consultant and research perspectives, and practical strategies from producers."
Homework: "Shane Thomson's presentation reinforced the importance of the time and length of calving, not pregnancy rates. We will look at joining all our heifers, for a shorter period, and allow the bulls to select our replacements for us."

→ *Greg Bradfield, Musselroe Beef, Rupert Gregg, Sheepmeat Council of Australia and Melissa Fergusson, Grindstone Bay Pastoral*

Greg: "Alison gave us an insight into a modern cattle operation, which looks at the future and the people in the business as being integral to its success. She is unashamedly methodical in her approach and key to her success is her ability to seek advice, balance it against her goals and objectives and implement the relevant components into her business."
Homework: "Alison has inspired me to review how we can be more methodical and objective in our decision making."

Rupert: "To have Dale Grey stitch together all the climate terminology and give us an easy-to-understand prediction of what we might expect over the coming months was great."

Melissa: "I found Shane Thomson's presentation an interesting way to look at herd fertility – slightly different to the normal approach. Dale Grey had a simple but effective way of explaining the increase in probabilities of different seasons."
Homework: "We will be shortening our joining period focusing on getting our cows back in calf."

Producers were encouraged to 'take the next step' with a broad range of management tools and training available through MLA's *More Beef from Pastures* and *Making More From Sheep*. Go to **www.redmeatupdates.com/take-the-next-step/**

Presentations from Red Meat Updates are available at **https://redmeatupdates.com/pastevents/**

Albury// Lambex 2016

More than 1,000 producers and industry members from around Australia, the US and NZ gathered in the NSW-Victoria border city in August to savour the lamb chop and learn more about lamb's global roamings.

Lambex, the biennial event sponsored by MLA, showcased presentations from researchers, scientists, chefs, producers, butchers, processors, geneticists, adventurers, a futurist and, even, a long-distance runner.

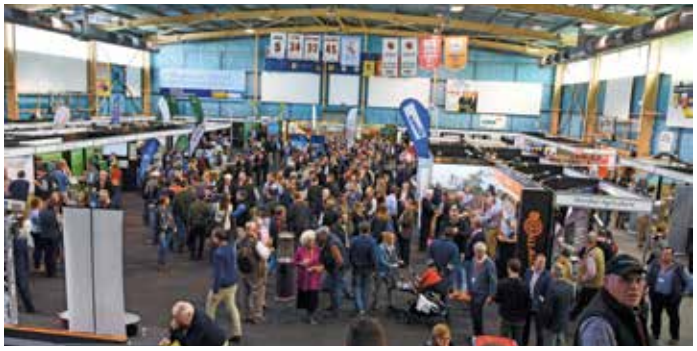
Elise Bowen, who runs a sheep data management business in Western Australia, took out the 2016 Young Guns Award (early career section), with scanning technologies researcher Steve Connaughton taking out the honours, masters and PhD section. Dubbo, NSW-based year 10 student Charlie Shadwell was named the winner of the high school/ undergraduate student award.

Presentations from Lambex can be viewed at: **www.lambex.com.au**

Attendees enjoyed lamb chops for morning smoko.

Chef Neil Doherty is the director of culinary development for the Sysco Corporation, a US-based company turning over $48 billion in food sales a year. He enjoyed Australian lamb after his presentation on the American perception of Australian lamb.

MLA Managing Director Richard Norton (right) caught up with attendees including West Australian David Boyle of the Sheepmeat Council of Australia.



Checking out the trade displays at Lambex.

Bill Travers from Paraway Pastoral, Orange, NSW, with Michael Blake, Adelaide, South Australia.

Attending Lambex as part of the Tri Lamb Young Leaders program from the US were Jennifer Osguthorpe, Karissa Maneotis and Katie Olagaray.

Andrew Archer, Westwood, Tasmania, met up with Lewis Keller, Hassad, Telopea Downs, Victoria.

Upcoming events

Find more events and information: **www.mla.com.au/events**

BusinessEDGE

This is a comprehensive workshop for owners and managers designed to improve financial literacy and business skills.

When and where:
4–5 October 2016 Launceston, Tasmania

Bookings and more information:
www.activeevents.net.au/product/businessedge-launceston-oct/

MLA AGM

This year's AGM will be accompanied by a producer forum with speakers from MLA and across the red meat and livestock industry. It is an opportunity for members to ask questions, meet the MLA Board and learn more about how their levies are being invested.

When and where:
10 November 2016 Hahndorf, Adelaide Hills, South Australia.

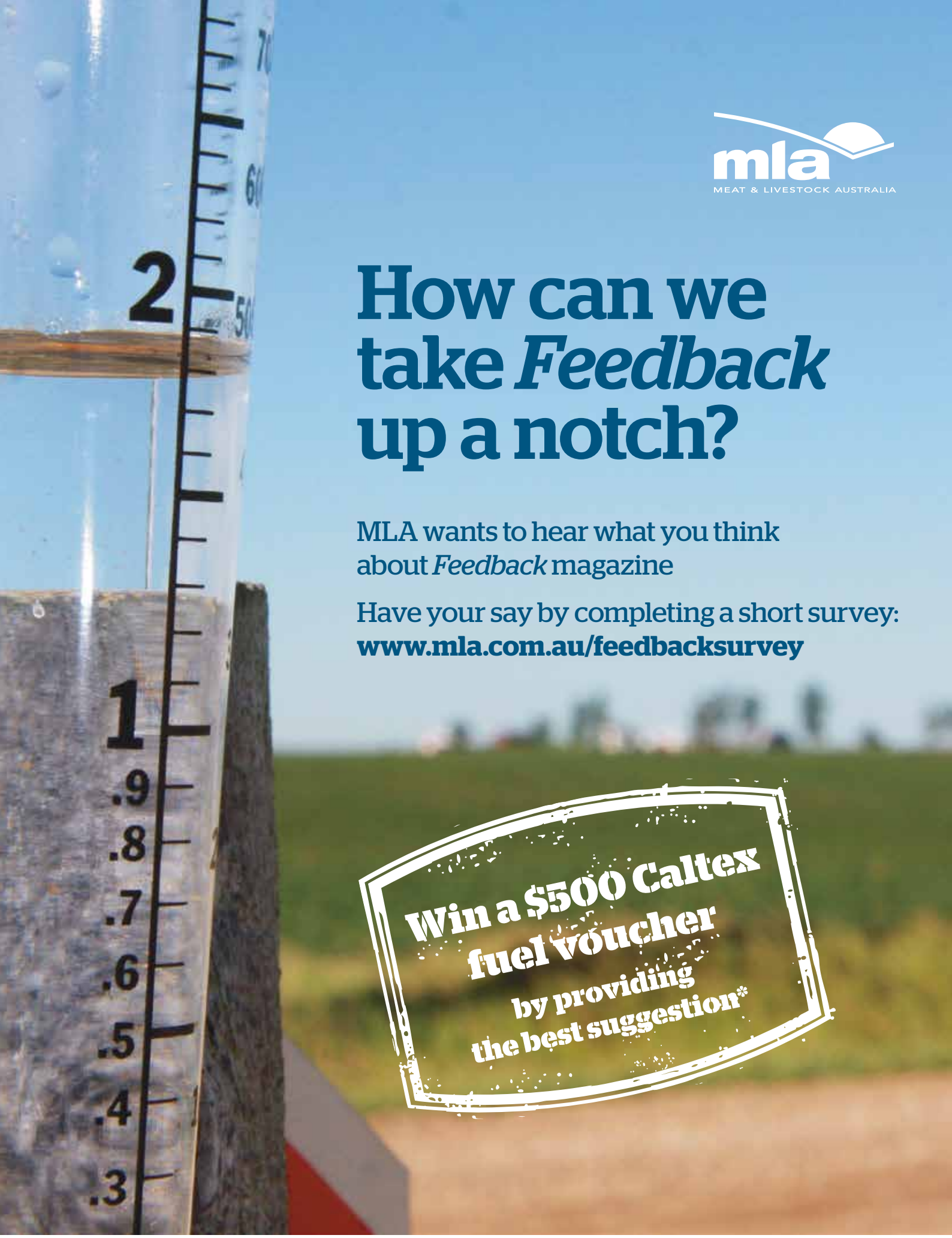
Bookings and more information:
www.mla.com.au

Better Beef Business workshops

This program works with northern beef enterprises, through mentoring, to take their business to the next level through skills, thinking and profitability.

When and where:
5 October – Roma
21 October – Toowoomba
4 November – Alice Springs
9 December – Brisbane

Bookings and more information:
www.abdi.com.au



* The respondent who completes the survey and is judged by the *Feedback* editorial team to provide the best suggestion to enhance *Feedback* magazine will win a $500 Caltex fuel voucher. Responses must be received electronically by 5pm AEDT on 21 October 2016 and the winner will be notified by email by 28 October 2016. To read the terms and conditions, visit www.mla.com.au/feedbacksurvey