FEEDBACK

MLA – FOSTERING PROSPERITY

FEBRUARY/MARCH 2019

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MEAT & LIVESTOCK AUSTRALIA

FEEDBACK

MLA fosters the long-term prosperity of the Australian red meat and livestock industry by delivering world-class research, development and marketing outcomes.

Cover: *Haddon Rig General Manager Charlie Blomfield. (Page 43)* Image: Dillon Price.

On page 28 of the December 2018/ January 2019 edition of *Feedback* the area of the farm operated by Anne Marie and Daniel Barrow was stated incorrectly. It is 303ha. We apologise for this error.

Have your say!

We'd love to hear from you

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A NOTE FROM THE ACTING CEO...

Welcome to the first edition of *Feedback* for 2019.

Unfortunately, the year is off to a tragic start for many Queensland cattle producers and their wider communities. While I know words provide little sanctuary in times like these, on behalf of MLA and the Board, I'd like to offer our condolences to those affected by the disaster.

You're not alone in tackling these challenges. MLA is working closely with industry partners and recently compiled a comprehensive list of resources, which includes links to emergency and financial assistance, farm management information and contacts for personal support. You can access this list at mla.com.au/floodresources and read more about them on page 4.

On a more positive note for the industry, I'm pleased to announce that Jason Strong will fill MLA's Managing Director position from 1 April. Find out more about our new MD on page 4.

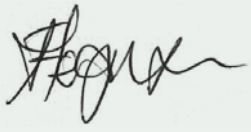
On the marketing front, MLA's investing more than ever before in market research to understand our consumers and grow demand for Australian red meat. We're sharing insights to promote our product in more than 100 international markets and we're using this knowledge to help our industry gain market access around the world.

At Red Meat 2018, MLA announced one of our most important international marketing programs yet – Australian beef's official partnership with the 2020 Australian Olympic Team, giving our product an unprecedented platform on the global stage. This exciting new partnership will run through to the Olympic Games in Tokyo, Japan, in July 2020 and builds on MLA's marketing initiatives in our domestic market. Australian beef is the greatest in the world, so it makes sense that it should help fuel our athletes in what is the ultimate test of strength and stamina.

On the research and development front, MLA-funded research is helping industry learn more about Georgina gidgee poisoning – one of the most costly problems for northern beef producers (page 25). From our extensive market research and regional consultation, we know animal welfare is a huge priority for both consumers and producers. MLA currently has $34 million invested in welfare-related projects, many of which we can expect to see some tangible outcomes from in the coming years.

As the Acting CEO, it's my pleasure to introduce the first issue of the year. From the update on our fantastic new summer beef and lamb campaigns on page 5 to the business management feature on page 28, there's something for everyone in this edition.

As always, we welcome your thoughts on *Feedback* and wish you all the best for the year ahead. ■



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Strong new MD

Jason Strong has been appointed as MLA's Managing Director, replacing Richard Norton, who resigned in late 2018.

MLA Chair Dr Michele Allan said the MLA Board unanimously supported the appointment.

"I am looking forward to working with MLA's Board, staff, red meat producers and the broader industry to make certain we are best positioned to respond to the challenges and opportunities ahead," Jason (pictured) said.

"I want to ensure MLA's current programs and projects continue to deliver value, but also identify and implement what is required for the future success of the red meat industry.

"Having previous experience with MLA, both within the organisation and as an external partner, I understand the workings and responsibilities of our industry research and marketing service company. I also appreciate the responsibility MLA has to meet the expectations of red meat producers and broader industry," Jason said.

Most recently, Jason was Chief Executive Officer of Smithfield Cattle Company, a family owned feedlot and cattle supply business. Prior to this he was Managing Director with AACo, during which time he led its evolution into a vertically integrated supply chain company.

Jason has also represented industry as MLA's Regional Manager in Europe and Russia. In a previous role he was responsible for the expansion of Pfizer's (now Zoetis) DNA technology into new international markets.

He made a significant and early

contribution to the development of the Meat Standards Australia (MSA) program and has owned a number of meat retail outlets.

Jason is the current Chair of the EU and UK Red Meat Market Access Taskforce and is the past Chair of the Australian Beef Industry Foundation. He also spent 17 years managing and coaching the Australian Intercollegiate Meat Judging Team. ■

mla.com.au

Supporting flood-affected producers

While the focus during the catastrophic flooding in north-west Queensland is naturally on the emergency situation, MLA is also focused on the longer-term impacts.

MLA's Chief Marketing and Communications Officer Lisa Sharp said while the floods may lead to tighter supply and may subsequently impact prices in the short term, there are numerous factors that also influence prices. These include weather conditions in other regions, global demand and supply and exchange rates to name a few.

"Production over summer is generally lower in Queensland. However, later in the year, there could be a tightening of supply as producers hold stock over," she said.

"While some parts of Queensland are experiencing this natural disaster, it's important to remind our customers and consumers that Australia continues to produce and supply quality red meat from other regions."

Implications for NLIS and LPA

NLIS is managed and regulated in Queensland by the Queensland Department of Agriculture and Fisheries (QDAF). MLA's subsidiary, Integrity Systems Company (ISC), oversees NLIS and LPA and will play a supporting role to QDAF in communication activities and supporting producers.

"It's likely ISC will be required to utilise data within the NLIS database to assist identifying Property Identification Codes on which livestock were recorded and support producers to update the database with stock losses," Lisa said.

For flood-affected producers who've been contacted recently to complete their LPA accreditation renewal process, a direct communication will be sent notifying them that their renewal requirements have now been deferred until further notice. Any upcoming LPA accreditation renewals scheduled for the affected region will be deferred until a future date. ■

If you're a flood-affected producer in need of help, or you can assist with the provision of fodder or transport, call AgForce's emergency hotline: 1800 648 974.

LPA Helpdesk:
T: 1800 683 111
E: lpa@mla.com.au

MLA's flood resources: mla.com.au/floodresources

LPA/NLIS FAQs: mla.com.au/lpafloodfaq

Brian the Butcher sings beef's praises

The latest chapter of the 'Australian Beef. The Greatest' campaign, which reinforces and promotes the provenance and high quality of Australian beef, returned to Brian the Butcher's shop.

Continuing the format of the first chapter, Brian is asked a common question about where the meat is from. Breaking out into song, his response takes the customer on a journey from a family of beef producers to a sausage sizzle, demonstrating not only where Australian beef comes from, but also the key moments where beef is part of our lives.

MLA Domestic Market Manager Graeme Yardy said the new campaign continued the story and highlights how Australian beef is produced in a fun and humorous way.

"Consumers are increasingly interested in where their food comes from, and this campaign sets out to remind Australians that by choosing Australian beef they're enjoying the freshest, highest quality and best tasting meat on earth," he said.

"Our campaigns are informed by detailed consumer insights and need to be targeted and effective in order to drive demand for Australian beef domestically and, ultimately, return value to our levy payers."

The integrated campaign featured across national television, print, digital, social, radio and in retail outlets. It also shared stories and recipes from Australia's 'best local finds' as selected by popular celebrity chefs, Frank Camorra (head chef of MoVida in Melbourne) and Adam Liaw (former MasterChef winner).

"Whether it's a filet mignon or a humble potpie, we want to encourage Aussies to feel pride when they buy the 'best beef in the world'. This will enable us to celebrate the fact that we can enjoy top quality Australian beef everywhere; from Michelin Star restaurants to your local bakery and RSL," Graeme said. ■

Watch the video via the Australian Beef Facebook and YouTube pages or go to: australianbeef.com.au

Welcome to the lamb-loving New Australia-land

MLA's summer campaign for Australian lamb called for Australia and New Zealand to come together over a lamb meal.

Building on the new brand platform 'Share the Lamb', the integrated campaign set out to extend the 'rosemary sprig' to Australia's neighbouring nation and bridge the divide over something everyone can agree on – lamb.

The campaign featured a new long-form advert, which takes viewers back to 1900 when Australia's first Prime Minister, Edmund Barton, was finalising the *Constitution Act* to make New Zealand part of the Commonwealth of Australia. This actual historical moment then inspires two modern-day Aussie politicians to connect both countries again.

The stage is then set for both nations to come together over a lamb barbecue, amongst a huge floating party in the middle of the Tasman Sea. The comical advert celebrates the best of both nations and joins us together in 'New Australia-Land'.

"The good-humoured rivalry between Australia and New Zealand is something that underpins both countries' cultures. As a brand, lamb stands for unity, so we thought it was the perfect opportunity to bring both nations together over some tasty Aussie lamb," MLA Domestic Market Manager Graeme Yardy said.

The campaign saw the advert run across national metro and regional TV, digital, social and radio. As part of the broader campaign, media partners – Nova Network and Junkee – will support the campaign across multiple channels, encouraging both nations to unite as New Australia-Land.

In-store, product-focused point-of-sale will deliver meal inspiration, focusing on the variety of different lamb cuts and cuisines. Trans-Tasman recipes developed by Daniel Wilson, underpinned the campaign, inspiring Aussies to cook and share a lamb meal together. ■

australianlamb.com.au

Producers sign up to enhanced LPA program

Almost 70,000 producers have completed accreditation under the Integrity Systems Company's enhanced Livestock Production Assurance (LPA) program in its first year of operation.

The new accreditation process was launched alongside two new LPA program elements: animal welfare and biosecurity.

Integrity Systems Company (ISC) is a fully owned subsidiary of MLA. Its Chief Operating Officer Jo Quigley said the new accreditation process utilised a system of learning modules and a short assessment completed every three years.

"Accreditation has been designed to help producers re-familiarise themselves with the requirements of the program by using the new LPA learning modules, while ensuring they're also across the new requirements of animal welfare and biosecurity," Jo said.

Underpinning market access

While the animal welfare and biosecurity requirements are 'new', Jo said it won't represent much of a change for producers and shouldn't be an impost on them.

"Most producers already meet these requirements as part of their day-to-day management, record keeping and livestock husbandry," Jo said.

"The difference now is that we're able to illustrate to our customers that we have integrity systems in place to not only verify the traceability and safety of the product they're receiving, but also underpin our product claims in relation to animal welfare and biosecurity.

"These systems represent a key underpinning of our $22.9 billion industry. Even though LPA is a voluntary program, it is recognised both domestically and internationally, and demanded by supply chains around the globe."

On-farm audits

As part of the integrity program, ISC oversees about 2,000 random audits of LPA-accredited producers each year (see story opposite).

"From July 2018, producers were expected to demonstrate to auditors that they understand and comply with the new requirements under animal welfare and biosecurity," Jo said.

"Including the new elements in our audits will help us understand how they are being implemented on-farm and, if we feel producers need more support with those areas, it will help us direct communication and education efforts."

Looking forward

The past six months has also seen ISC work with industry and government to develop an integrity systems strategy for 2025 and beyond.

"We recognise that for Australian red meat to remain competitive in the global market we need to be investing in new technologies and R&D," Jo said.

"We're still finalising the draft strategy, but at this stage it's focused on three primary elements.

"Number one is investing in new technologies to ensure the integrity system of the future is simple to use and interact with.

"Number two is helping producers shift from a compliance mentality to recognising the value that integrity adds to their business. This may involve using some of those new technologies to support integrity systems while also boosting on-farm productivity.

"And number three is ensuring our investments provide customers with trust in the system and a distinct willingness to pay more for Australian red meat." ■

Completed accreditations:
69,667

New accreditations:
12,877

Voluntary renewals:
39,572

Requested renewals:
15,710

as of February 2019

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What to expect from an LPA audit

The Integrity Systems Company oversees 2,000 random audits of LPA-accredited producers each year.

If selected for an audit, a producer receives an LPA audit advice pack containing information to help them prepare for the process.

AUS-MEAT contract auditor Brendan Ryan conducts LPA audits and says most producers are already on the right track.

"When they're notified about an audit, my advice to producers is: don't panic – just read the information pack carefully and you'll know what to do," he said.

Since July 2018, the LPA program's two new requirements – animal welfare and biosecurity – have been included in the audits.

To meet the new biosecurity requirements, every LPA-accredited producer needs to have a farm biosecurity plan in place and implemented on their farm.

A biosecurity plan template can be found at mla.com.au/biosecurityplan.

To meet the new animal welfare requirements, producers must be able to demonstrate that their on-farm handling of livestock is consistent with the Australian Animal Welfare Standards and Guidelines.

Those responsible for livestock management need to have a copy of the Standards and Guidelines, be familiar with its content, complete the LPA Learning module, and advise and oversee others handling livestock.

You can download copies of the Standards and Guidelines at animalwelfarestandards.net.au.

Resources are available to help producers meet LPA requirements for biosecurity and animal welfare:

- LPA Learning
- LPA audit check list
- LPA requirement #6: Biosecurity (fact sheet and video)
- LPA On-farm Biosecurity Plan (template)
- LPA requirement #7: Animal welfare (fact sheet and video)
- Animal Welfare Standards and Guidelines for sheep, cattle and goats.

View them at mla.com.au/integritytoolsresources ■

How to renew your LPA accreditation or become accredited for the first time

Step 1: Await your reaccreditation letter or voluntarily accredit/ reaccredit

LPA producers must reaccredit every three years. You will receive notification two months before your reaccreditation is due.

You may also voluntarily become accredited or reaccredit at any time. Visit lpa.nlis.com.au or call the LPA helpdesk on 1800 683 111.

Step 2: Complete the LPA Learning modules

For all seven elements of LPA:

- Online: visit lpa.nlis.com.au
- Offline: call the LPA helpdesk on 1800 683 111 for a printed version of the pack. Cost is $22 (including GST).

Step 3: Complete the assessment

- Online: lpa.nlis.com.au
- Offline: complete the assessment from the printed pack in Step 2.

Step 4: Complete the LPA declaration and pay the $66 fee

- Online: lpa.nlis.com.au
- Offline: complete the declaration and payment information from the printed pack in Step 2.

Lamb's virtual journey

MLA's virtual reality Australian Lamb Paddock to Plate Story hit the road in February for a three-month tour of Victoria, the ACT and NSW.

Among the stops were AgriFutures evokeAG in Melbourne, the Royal Canberra and Newcastle shows with Sydney Royal Easter Show pencilled in from 12–23 April. It will continue visiting schools and community events until 17 May.

The immersive 360^0 virtual reality experience tells the story of Australian lamb production, from the farm through to the consumer, and explains why Australia produces the greatest lamb in the world.

The video features producer Michael Craig, from Harrow, Victoria, and value chain stakeholders including Paul Christopher, Manager of Horsham Regional Livestock Exchange; Mark Inglis, Farm Assurance & Supply Chain Manager, JBS; and butcher, Gary McBean, Gary's Quality Meats, Prahran Markets, Prahran. ■

Any school or community event wishing to have the Paddock to Plate Story visit can register at goodmeat.com.au/roadshow.

2019 Sheep projections released

Ongoing dry conditions are set to continue across many key production regions in 2019, according to the latest sheep industry projections, released in January. Here *Feedback* talks to MLA's Market Intelligence Manager, Scott Tolmie, about this year's forecast.

The *2019 Sheep industry projections* indicate that Australian lamb slaughter will reach its lowest level since 2012 as poor seasonal conditions continue to impact sheepmeat supply.

The significantly reduced breeding flock and widespread rainfall deficiencies suggest fewer joinings than usual and a continuation of below-average lambing rates experienced in 2018. Many producers are still destocking as they wait for a turnaround in the weather.

"The national flock is forecast to experience a further decline of 3.7% by mid-2019 to 65.3 million head," Scott said.

"Fortunately, robust international demand and a low Australian dollar will continue to support Australian exports and, in turn, domestic saleyard prices. Records were broken in 2018 as markets around the world competed strongly for Australia's high quality sheepmeat."

Key points:

- Lamb slaughter is forecast to fall due to reduced flock and poor lambing rates and the national flock is expected to decline 3.7%.
- Strong demand from international markets continues to support prices. ■

To read MLA's *2019 Sheep industry projections*, visit: mla.com.au/sheepprojections

MLA's 2019 Cattle industry projections were also released in January but will be updated in April to incorporate the impact of the Queensland floods.

ON FARM

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IN BRIEF

Don't fence me in

Trials at the NT Government's Victoria River Research Station (also known as Kidman Springs) are testing whether self-herding techniques can be used to establish new rotational grazing patterns without permanent fencing.

Several months into the MLA-funded trials, observations reveal that the techniques have been able to draw cattle into areas traditionally under-utilised, thereby reducing the grazing pressure on over-used patches.

Drawing on behavioural science, nutrition, physiology and ecology, self herding is a behaviour-based livestock management approach which provides managers with strategies and tools to positively influence grazing distribution. Self herding for the rangelands has been developed by Dr Dean Revell of Revell Science and Bruce Maynard of Stress Free Stockmanship.

The Kidman Springs self-herding trial began in July 2018 when both staff and a group of heifers received training prior to the cattle being introduced into the trial paddock.

"A training period is an essential first step to give the cattle an opportunity to become familiar with the attractant station, food rewards and cues, or signals, prior to being moved to a new environment," Bruce Maynard said.

To track the animals and observe their grazing behaviour, GPS collars were fitted to 10 heifers within the herd. In the first few weeks the GPS data showed the heifers had a strong attraction to the historically overgrazed areas of the paddock.

"We think the cattle were responding to existing landscape cues such as old cattle pads, shorter patches of previously grazed pastures and freshly graded tracks," said Spud Thomas, Kidman Springs Station Manager.

In response, the research team increased the frequency of the feed rewards at locations distant from the over-utilised areas.

The trial will conclude in mid-2019. Analysis will focus on not only the paddock utilisation patterns and pasture utilisation levels, but also observations of cattle behaviour, cattle productivity and costs, including labour, vehicle and feed rewards. An economic analysis of the self-herding technique employed, in comparison to using fencing to achieve similar management objectives, will be undertaken.

See pages 30–31 to read how self herding is being used in a WA project. ■

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Look out for LambEx 2020

LambEx is bound for Melbourne in 2020 and will be chaired by sheep producer Georgina Gubbins.

Georgina said it's the first time the event will be held in Melbourne but the second time for Victoria, which successfully hosted the 2012 conference in Bendigo.

"Work will start in earnest on conference development shortly but, at this stage, the event is likely to be held in late June (2020) and the search for a suitable venue has started," she said.

"The Best Wool Best Lamb team at Agriculture Victoria are supporting us as we bring LambEx to Victoria and they've kindly offered to merge their annual conference with LambEx in 2020.

"We're looking forward to showcasing the Victorian sheep industry to our interstate and international visitors too and hope to be able to roll out many of the features which LambEx is known for across the nation." ■

Sign up for updates at lambex.com.au

Make time for It's Ewe Time

One of the sheep industry's most popular extension and adoption programs, *It's Ewe Time!*, is returning this year.

The half-day forums will deliver practical tools and information designed to increase producer awareness and provide take-home tips on the principles, practices and tools of sheep enterprise profitability and productivity.

A joint initiative of MLA and Australian Wool Innovation (AWI), the forums are part of the flagship Making More From Sheep program.

The forums are scheduled on the following dates:

- Tuesday, 26 March – Jamestown, SA
- Wednesday, 27 March – Karoonda, SA
- Thursday, 28 March – Naracoorte, SA
- Tuesday, 2 April – Armidale, NSW.

The cost is $35 per person, which includes a forum booklet and catering. ■

For more information and to register, go to:
makingmorefromsheep.com.au/events
T: 1800 070 099

Finding the sweet spot

The CashCow project, which ran for four consecutive years from 2008, found there was an opportunity to improve breeder performance in northern Australia.

Previous research has focused on disease, herd management and genetics, but little is known about how different levels of pasture utilisation impact breeder productivity.

The new MLA-funded 'Sweet Spot' project will address this knowledge gap and find the sweet spot of pasture utilisation to ensure long-term optimal breeder performance in northern Australia. The $2 million four-year project brings together pasture and cattle scientists, and modellers from across the north.

It will use existing breeder datasets to ask new questions, increasing the value of previously funded research.

"There's an untapped gold mine of breeder production data from sites across northern Australia. By bringing together these existing datasets, we'll gain new insights into how to manage breeders to improve reproduction," NT Department of Primary Industries and Resources' Dr Robyn Cowley said.

The project aims to develop tools to predict the impact of pasture utilisation on reproduction, so producers can optimise pasture use to maximise kilograms turned off, while maintaining the resource base.

The first phase of the project is searching across the north for suitable breeder datasets that can be collated and modelled. ■

Dr Robyn Cowley
T: 0419 829 493

Dr Kieren McCosker
T: 08 8973 9771

Have your say on parasites

At a cost to producers of around $715 million a year, parasites including worms, flies and lice continue to be one of the most expensive and production-impacting challenges for sheep enterprises.

To gain a better understanding of how producers control parasites, University of New England researchers are surveying producers in an Australian Wool Innovation-funded project to follow on from research carried out in 2003 and 2011.

The survey covers:
- parasite control options
- how chemical resistance has changed
- how parasite challenges are monitored and managed.

The results will bolster tools like the MLA-funded WormBoss, LiceBoss and FlyBoss. ■

The survey is open until 9 April 2019.

surveygizmo.com/s3/4584571/Benchmarking-Australian-Sheep-Parasite-Control

Producers who prefer to complete a hard copy survey can request one from the researchers:

Dr Alison Colvin
E: alison.colvin@une.edu.au

Professor Stephen Walkden-Brown
E: swalkden@une.edu.au
T: 02 6773 5152

Goat industry on target

The Australian goatmeat industry is on track to achieving key targets as it looks to stabilise its supply base and capture new market opportunities.

The findings are contained in a mid-term review of the *Goatmeat and Livestock Industry Strategic Plan 2020*. The five-year plan was developed by the Goat Industry Council of Australia (GICA) and MLA.

GICA President John Falkenhagen said a number of key performance indicators have been achieved or are on track to be delivered by 2020.

"We're now halfway through the plan's timeframe and the mid-term review has been completed by GICA and MLA, concluding the industry is making overwhelmingly good progress," John said.

"The plan identified several KPIs and critical success factors to enable the industry to grow and prosper.

"A feasibility study into opportunities to encourage goatmeat consumption in Australia has been completed and identified that value-adding could create more demand and potentially generate $13 million for the industry annually." ■

The *Goatmeat and Livestock Industry Strategic Plan 2020* is available at mla.com.au.

Testing the tools of the trade

Tools to make life easier for producers are a priority for Integrity Systems Company (ISC) and they want to hear from producers interested in testing their practicality and use.

The implementation of the 'single sign-on' functionality within myMLA – which allows producers to access their National Livestock Identification System, Livestock Production Assurance (LPA), Livestock Data Link and Meat Standards Australia accounts through one log-in – is an example of such a tool.

Another is a search engine called Find My Data which enables producers to quickly and securely identify where they have data in industry and integrity programs, including data in programs they do not currently have an account for.

Improvements to the LPA eNVD are also underway, with the development of a mobile version in progress. ■

If you're interested in keeping up to date with these tools, and providing ISC with feedback about how they work in your farming operation, log on to: mla.com.au/iscproducts

Over the fence

In this series, *Feedback* follows a group of producers from across Australia as they manage their operations over the course of a year and respond to the challenges that arise in a modern beef enterprise. This is the third instalment of the 2018–19 series.

SNAPSHOT:

Lynda and Darcy O'Brien,
Basalt, Queensland

Area:
21,000ha

Enterprise:
Breeding, backgrounding and agistment

Lynda O'Brien
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SEASONAL CHALLENGES:

We received 57mm of rain in mid-December and the ground really retained the moisture, which was a wonderful relief. Without that, we were facing the prospect of downsizing our herd. We'd had some significant heatwaves in the lead-up – people hadn't seen a heatwave like that for around 30 years. We've had to be vigilant with water maintenance, as the cattle drink so much in those conditions. We're still executing our plan for rotating mobs with the feed budget we have developed. We're constantly trying to manage stocking rates to carrying capacity and we always know how much feed we have ahead of us.

WHAT'S ON OUR PLATE:

We're preparing more country for leucaena (see stories on the latest with leucaena pages 14–15). Last year we planted 400ha, making it one of the largest commercial leucaena sites in Australia. We're also about to trial other legumes including Progardes®, which can go in now that we have a bit more moisture in the soil.

PROGRESS AGAINST LONG-TERM GOALS:

Over the next couple of months, we'll be reformulating our breeding strategy. The goal is to ensure we're spending the money in the right area to get the best gross margin out of our breeders. This includes calving in the optimal windows, making sure the body condition score is optimal and making decisions about unproductive breeding cattle. We're consulting with a vet who specialises in breeding in northern Australia. Breeding here has its own particular challenges, for example, seasonal conditions and a harsher environment put pressure on cattle in terms of weight gain.

We're also in the process of installing an earth wire into our cell system in thirty 100ha paddocks. Our electric fence system wasn't getting enough current to it, so the earth wire should fix that issue. ■

ACTIVITIES OVER THE NEXT TWO MONTHS:

- preparing country for leucaena
- reformulating and tightening our breeding strategy
- installing an earth wire into the electric fencing system.

SNAPSHOT:

Jock Hughes,
Longford, Tasmania

Area:
800ha

Enterprise:
Breeding seedstock Angus and Coopworth ewes, finishing lambs, cropping poppies, peas and grass seed

Jock Hughes
E: info@cludennewry.com.au

SEASONAL CHALLENGES:

Early spring was dry but we received substantial rains in November, so it turned into a good season. Because of this, we delayed weaning the lambs. We normally wean them onto feed grown under irrigation but we wanted to keep grazing pressure on the dryland pastures. The high quality irrigated feed will go to lambs we buy in.

Around February we'll wean calves, with feed availability and cow condition determining the exact timing. We'll delay weaning as long as possible provided there is feed available and the cows have adequate body condition. The cows will be cleaning up the pastures before autumn.

WHAT'S ON MY PLATE:

We began marketing the lambs in late December to early January. Pregnancy testing the heifers began in mid-January and we'll start the cows in February. In January–February, we'll harvest peas, poppies and grass seed and, once the crops come off, sow ryegrass. This time of year, we go through the herd, structurally assessing all the cows and their calves to decide what stays and what goes. We're currently checking the condition of our ewes to prepare for joining in March, and the lambs are trickling out as they get to market weight.

PROGRESS AGAINST LONG-TERM GOALS:

We bought another farm late last year which we've stocked with a commercial cow herd. It's a wetter area with a later growing season than our home block, so the bulls went out there in late November. One of our strategies is to increase our operations – we now have a full-time and a casual worker which frees up some time for me. ■

ACTIVITIES OVER THE NEXT TWO MONTHS:

- pregnancy testing heifers and cows
- preparing ewes for joining
- annual bull sale in March.

SNAPSHOT:

Will, Simone and Mandy Onus,
Adjungbilly, NSW

Area:
2,630ha plus 4,850ha of state forest lease

Enterprise:
Steers and wool production

Will Onus
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SEASONAL CHALLENGES:

We've had some rain so conditions are improving, which is a huge relief. We've sown summer crops but they're not looking too flash, despite the rain – I think we may have missed the window.

WHAT'S ON MY PLATE:

Calf marking, and we've just finished weaning lambs and are now working on weight gain with the hope of getting summer rain. This will extend the period they can stay in the paddock, as opposed to locking them up and feeding them. The margins are still there, but it is risky to do that without some agreement on feed costs.

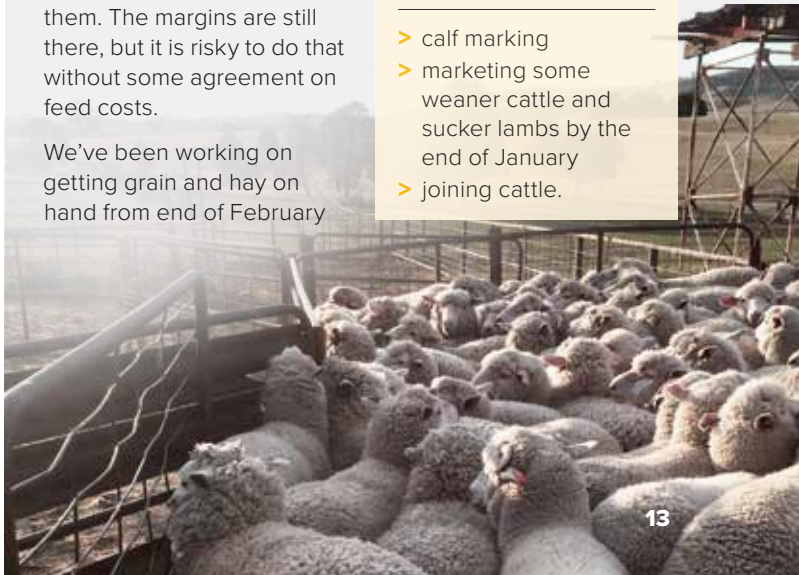
We've been working on getting grain and hay on hand from end of February to the end of April. At that point we'll make the decision about what the best return will be: finishing stock or maintaining breeding stock. If it rains consistently, the quality of feed won't be there to finish lambs or wean calves – summer rain denudes the feed quality – so we'll give them the high quality feed. If it hasn't rained, we may need to quit the lambs and focus on the breeders, or we might quit the breeders. We'll make that decision in February. We can't just assume it's the right economic decision to feed stock. We need to look at the possibility of selling down and buying back in – we'll just do the numbers.

PROGRESS AGAINST LONG-TERM GOALS:

Our strategy is to have summer-active pasture species, whether they're natives or perennials. There seems to be a reward for that in the marketplace towards the back of February; that's been a market trend for quite a while. The rainfall here for January–February in the past few years has been reasonable and, if you get all your ducks in a row, you can take advantage of that. It's a marginal hedge because those rainfall events are unseasonal, but if you happen to jag it, you're rewarded well. ■

ACTIVITIES OVER THE NEXT TWO MONTHS:

- calf marking
- marketing some weaner cattle and sucker lambs by the end of January
- joining cattle.



Global lessons for Aussie leucaena growers

The future for leucaena in Australia has never looked brighter, according to leucaena expert Dr Max Shelton, a University of Queensland Associate Professor.

Max helped deliver Australia's first psyllid-resistant variety, Redlands, and organised the MLA-funded 2018 International Leucaena Conference in Brisbane. He said leucaena adoption around the world was growing.

"It's one of the most productive, sustainable and intensive cattle production system we have for northern Australia, and plantings are expanding every year," he said.

"Nevertheless, adoption of this clearly productive and profitable innovation in Australia and around the world has potential for significant expansion. How to achieve this was the subject of much debate at the conference."

Hosted by the University of Queensland, the conference attracted 120 participants from 12 countries including large groups from Asia and Latin America, where leucaena is grown extensively.

Max said one of the most valuable outcomes was stronger collaboration between countries, and the opportunity to learn from some of the most experienced leucaena scientists, extension workers and producers in the world.

Drought-proofing

"The ability of leucaena to drought-proof an enterprise was a strong message from participants," Max said.

"We had a lot of conference attendees from eastern Indonesia who experience six months of a good wet season and then six months of dry when nothing grows except leucaena.

"They use it as it a drought management strategy, so why can't we use it on the volcanic uplands of far northern Queensland? It's perfectly suited.

"There are challenges for extensive, low-input systems but the [consumer] market increasingly demands a higher quality product with a clean, green, hormone-free, range-fed background."

Managing toxicity

Indonesia also had some valuable lessons for Australia in managing mimosine toxicity, which can occur in animals not used to eating leucaena.

"Since the 1980s, we've believed we need to use inoculant to help ruminants in Australia digest leucaena safely," Max said.

"However, Indonesian producers don't inoculate. They gradually introduce their cattle (and goats) to leucaena and the cattle adapt to the mimosine by neutralising it in the liver.

"Indonesian animals initially experience minor symptoms, such as hair loss, but they gradually adapt over 2–4 weeks.

"They are then able to consume 100% leucaena diets without health problems, make excellent weight gains, and win the local bull-fattening competitions.

"We now have good evidence that this process of adaptation is also occurring in Australian cattle consuming leucaena."

Environment

The conference also highlighted leucaena's environmental impacts, both positive and negative.

"Environmentally, leucaena is a bonus for beef production systems, reducing greenhouse gas emissions by 20%, and has carbon sequestration benefits as well," Max said.

"In Colombia and Mexico, biodiversity and soil health improvements have been achieved through the integrated plantings of improved tropical grasses and avenues of valuable tree species within leucaena plantations.

"This has increased milk and meat production through providing additional nutrients, shade and animal welfare benefits."

Is it a weed?

Leucaena's tendency to spread and the importance of managing seed production was also discussed at the conference. In Queensland, this is managed by producers under The Leucaena Network's Code of Practice.

Max said producers growing leucaena need to minimise the amount of seed produced.

"If leucaena produces a lot of seed, it's not being used efficiently and producers need to follow the Code of Practice recommendations on where to plant and control any unwanted spread," he said.

This concern is driving the development of sterile leucaena varieties which could create new grazing opportunities, particularly in WA's north where forage plant species are tightly controlled. ■

Takeaways:

- 120 delegates from 12 countries attended the 2018 International Leucaena Conference.
- Leucaena is one of the most productive, profitable and sustainable forage option for tropical and subtropical regions.
- Leucaena provides an effective drought management strategy.
- Producers in Indonesia, Thailand and Mexico do not use livestock rumen inoculant and still manage high levels of leucaena feeding.
- Development of sterile leucaena varieties would benefit the environment and potentially boost productivity in WA's northern region.

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Information on toxicity: mla.com.au/leucaena-toxicity

Growing leucaena: leucaena.net

Seed supply limited by dry

Supplies of Redlands, Australia's new psyllid-resistant leucaena variety, will remain tight during 2019 due to ongoing dry conditions.

However, according to its exclusive growers and suppliers (Peter Larsen of Leucseeds, Banana, Queensland, and Bruce Mayne, Calliope, Queensland), some seed may be available for those who can wait to plant late in the growing season.

"At the moment, signs are encouraging that we'll have seed ready to be harvested in February, so, by the time it's cleaned and analysed, I hope we'd have seed available by mid-to-late March," Bruce said.

"We're hoping to have enough to satisfy the list of orders we have so far.

"The biggest inhibitor this year has been the extreme heat, a dry winter and not much rain in the spring."

Bruce said a consequence of the tough year was the tendency of seeds to ripen unevenly, potentially leading to reduced yields if the crop is harvested mechanically.

"We're considering picking some of the seed by hand as it ripens, which is labour intensive and expensive, but it's the best way to retain as much quality seed as possible," he said.

Peter, who has also weathered a challenging season, said there was little chance of seed-set on his crop before June–July.

"The trees lost most of their leaves through the dry and there has only been enough rain to regrow new leaf," he said.

"If we get a good drenching this summer I would expect a flowering, and it takes five months for seed to be ready for harvest.

"Our only hope of getting any seed before then is if someone who planted this time last year from our seed sales has had a lot of rain in spring." ■

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Peter Larsen
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FEEDBASE

Doing it better in dry times

SNAPSHOT: **Rob and Jude Cooke,** ‘Maradana’, Cudal, NSW

Area:
1,190ha

Enterprise:
Second cross lamb production from crossbred ewes, cattle and Merino trading and cereal and oilseed crops

Livestock:
2,500 ewes, 940 Merino wethers and 200–300 steers

Pasture:
Dual-purpose crops and improved perennial pastures

Soil:
Red loam

Rainfall:
600mm

Developing a robust drought feeding regime for their sheep enterprise has laid the foundations for central-west NSW producers Rob and Jude Cooke to lift long-term productivity even further.

Having identified they were under-prepared for a drought and that one was due, the Cookes started developing a drought management plan.

The dry spring of 2017 accelerated progress dramatically.

"We went through what we had in our heads for the management plan with our animal nutritionist, Robert Bell, and he said 'well if you're talking about building a drought lot, you better do it now'," Rob said.

Setting up the drought lot

Completed in October 2017, the drought lot (consisting of six pens which can each hold 275 head) is located within walking distance of the sheds and homestead. An initial trial of PVC troughs wasn't successful as they were damaged by the sheep, so they were replaced with concrete troughs and watered by a nearby bore.

The feed ration is administered through self feeders which can be filled direct from the mixer from a central laneway.

Preparing for the worst

A +100mm rainfall event in December 2017 helped with the summer feed situation and left the drought lot empty – but come March 2018, the Cookes were faced with lambs on the ground and no feed in the months ahead.

"2018 provided a unique set of circumstances where, not by choice, three groups of lambs this year have been finished on a grain-based ration," Rob said.

Traditionally, lambs are left on the ewes for as long as possible – even up to 30kg – but in 2018, the February drop lambs were weaned in three lots by the end of May at an average of 12kg.

Preparation began with the ewes. They were trail-fed in a pasture paddock for three weeks prior to lambing.

Lambs were introduced to grain post-weaning with twice daily bucket feeding, with the ration gradually increasing to 300g/head/day. They were vaccinated and received liquid minerals, administered via the water supply.

For the first 21 days, the emphasis was on setting up lambs and their rumens through a rigid induction process in small paddocks. They were being hand-fed twice a day with a mix of grain, locally-sourced canola meal pellets and ProAgni* ProTect S, a high protein supplement featuring probiotic extract.

Boosting lamb survival and feed conversion

"The Protect S was added for three reasons. One, to reduce the risk of acidosis. Two, to ensure the sheep were getting the micro and macro nutrients they needed and three, to improve feed efficiency," Rob Cooke said.

Once on the self feeders, the ratio evolved to wheat, canola meal pellets, cereal hay and the supplement.

The result was minimal loss of lambs – less than 0.2% – and lambs which had a feed conversion ratio of average 3.2–3.5:1. The feed cost was 19c/head/day.

The earliest lambs were sold in August at 42kg (20kg carcase) for $156.80/head, 80 days post-weaning. The second sale was in October at an average of 48kg (23.5kg carcase) for $202 and the last lot were sold in late October at 60kg (29.4kg carcase) for $230/head.

Robert Bell calculated the total cost of feeding was 60c/kg, accounting for labour, overheads and machinery use and depreciation.

Benefits for cull ewes

Inspired by the results and the simplicity of the drought lot operation, which is managed by employee Glenn Haynes, Jude crunched the numbers on improving the condition of five to seven-year-old cull ewes.

The first lot were sold in the yards straight from the paddock for $12/head.

The remainder were moved into the drought lot and fed a lower cost ration where the canola meal pellets were replaced with urea and the straw intake was increased. After 42 days, they were sold for $103/head.

"To make a $65.80/head gross return after $25.20 in feed costs plus labour in six weeks is not a bad return," Rob said.

Business planning is key

Robert Bell said the strategies employed by the Cookes have demonstrated how to lift an enterprise's carrying capacity by focusing on optimum ewe lactation, early weaning and good rumen set up for feed efficiency.

"Rob and Jude have gone from producing 97kg of meat/ha/year to 300kg/ha/year in just five years," Robert said.

Increasing productivity has been a key focus for Rob and Jude, who've implemented a business plan for a resilient and flexible enterprise which meets their business, lifestyle and environmental goals.

To build knowledge, the couple undertook any livestock and farming training available, including MLA's Bred Well Fed Well, and sought out advisors on agronomy, animal nutrition and business. ■

Four tips for drought lot success:

1. Plan ahead in the good times by purchasing hay and feed grain at lower prices and storing it for later use.
2. Choose your supplements wisely. The Cookes are running an antibiotic- and ionophore-free feeding regime in preparation for meeting future supply chains which will seek these guarantees.
3. Take a preventative and proactive approach to animal health.
4. Set up the drought lot in repeatable modules so it can be replicated and expanded easily (producers can operate a drought lot for up to 4,000 head before needing full planning permission in NSW).

**ProAgni was runner up in the 2018 Beef Australia MLA Producer Innovation Award and won the inaugural Beef Australia Pitch in the Paddock competition for their development of the business model which utilises novel organic compounds, including probiotics, to improve feed efficiency and reduce induction time on to a grain based ration.*

Rob and Jude Cooke
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Bred Well Fed Well: mla.com.au/bredwellfedwell

FEEDBASE

Keep it confined

Daniel Dempster is quick to point out that he's no expert on confinement feeding, but he's happy with the direction and flexibility the system has given his family's enterprise.

Daniel shared his learnings at an MLA Pasture and Livestock Update at Moora last spring.

The Dempsters – Daniel (pictured) and his wife Emily; Daniel's brother Robert and sister-in-law Jade, and Daniel and Robert's parents Vern and Amanda – run a mixed cropping and sheep enterprise at Goomalling, 140km east of Perth. In 2017 they introduced confinement feeding to manage ewes through the difficult autumn period, when feed is scarce.

"Confining the ewes enabled us to sow crops and pastures without compromising timing," Daniel said.

"It was logistically simple because the sheep were in one location. It also meant we could defer grazing the pastures until they established."

The net result of confining the pregnant ewes for May and June was that the Dempsters were able to increase their stocking rate.

"There are many ways to set up pens but we chose to do it with 14 pens holding (a total of) 5,600 head," Daniel said. The pens are 40m by 50m and each hold up to 400 head, giving 5m^2 per head with two feeders. Water is supplied from a 26,000-litre tank, windmill-fed from a dam, with town water connected as back-up.

"We built the pens down each side of a laneway and used the lane to drive down with a chaser bin to fill feeders.

"The ewes were used to lick feeders so they adjusted well. We fed a ration of two-thirds oats and one-third lupins, with barley straw provided ad lib as roughage. In the future, I'd like to be much more precise with how much feed they are getting.

"This harvest we plan to bale our chaff dumps (behind the header) and use them as the roughage source."

When the sheep entered the yards, they were drenched with moxydectin.

Daniel estimated the yard system cost $25,000, taking into account buying a silo ($12,000), fencing ($8,000) and allowing $5,000 for labour. The overall price does not include pickets, netting or feeders, as they were on hand. Water infrastructure added another $35,000 in costs. The confinement system enabled the Dempsters to crop an additional 150ha. Between that, and the higher stocking rate, Daniel calculated the investment paid for itself in the first year. They also made an additional $20/head selling trade weight lambs in June and July instead of selling them as stores prior to seeding, as done previously.

The sheep grazed stubbles before going into confinement and were inducted with trail feeding with grain for a couple of weeks. Other than some issues with pregnancy toxaemia in one group of ewes, the sheep had no trouble adjusting.

"Nursing the ewes through the preg tox took some time," Daniel said.

"If it hadn't been for that, we'd have saved labour by having the sheep confined."

Daniel expects there will be labour-efficiency gains by having the sheep close at hand rather than spread across the farm, especially when supplementary feeding would be necessary in the paddock and labour is in high demand at crop sowing.

Daniel said the confinement system provided flexibility in terms of timing and overall farm management, and there may be more benefits in the future as they work to refine their system.

"There are also benefits in terms of better land management and erosion prevention during dry times," he said.

"The confinement pens are close to the shearing shed, so it would be convenient to shear them while they are in confinement, but at present we shear in January." ■

SNAPSHOT:

Daniel and Emily Dempster, Robert and Jade Dempster and Vern and Amanda Dempster, Goomalling, WA

Area:
4,000ha

Enterprise:
Sheep and growing (wheat, barley, lupins and oats)

Livestock:
Merinos – 3,500 ewes (50% mated to Poll Dorsets and remainder to Merinos)

Poll Merino and Poll Dorset studs

Pasture:
Forage oats, vetch, clover and serradella

Soil:
Varied – deep yellow and white sands, gravelly loams, grey clays and some basaltic red clay

Rainfall:
350mm

Daniel and Emily Dempster
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LESSONS LEARNED

- Confining pregnant ewes during May–June enabled stocking rate to be increased.
- Confinement offers greater overall farm flexibility and improved land management.
- Setting up a simple system enabled it to pay for itself in one year.

BUSINESS MANAGEMENT

Next generation on-farm extension

Stephen Brockhurst and his father Kevin with Northern Beef Development (NBD) project development officers Daisy Goodwin, Stephanie Coombes and Mariah Maughan. The Brockhursts hosted a Northern Beef Development twilight forum for producers at Larrawa Station, Halls Creek.

The WA Department of Primary Industries and Regional Development is enhancing its extension program in the Kimberley and Pilbara, which recently benefited from MLA mentoring.

The Northern Beef Development project forms part of the Department's approach to building a stronger agriculture and food sector in WA. The project is focused on knowledge sharing, promoting industry best practice and supporting the project's Business Improvement Grants (BIG) program, which has helped 48 pastoral enterprises so far, including 12 Indigenous enterprises.

Project manager Trevor Price said the team of development officers, including Mariah Maughan, Stephanie Coombes and Daisy Goodwin, who is from the Aboriginal Business Development team, recently received mentoring from MLA Research Coordinator Geoff Neithe.

"We had three great outcomes from Geoff and MLA's involvement," Trevor said.

"Geoff provided one-on-one training for our development officers and was the keynote speaker at the Larrawa Station twilight forum, where the development officers had the benefit of observing his extension methods and learning from his presentation on breeder management.

"Finally, Geoff led a series of on-farm consultations, which provided hands-on experience teaching producers to use MLA's breeder mortality calculator. He also led a discussion on important management strategies, such as controlled mating, identifying the ideal joining time based on green date, and critical mating weights in heifers."

Claire Atkins has since joined the Northern Beef Development project team as a development officer to provide support to pastoralists in the east Kimberley, including the new participants in the BIG program. Trevor said the grants program has been a successful component of the team's work, providing $25,000 to each successful applicant to improve profitability, resilience and sustainability of beef businesses.

"The grant is divided into two parts," he said.

"Initially, a reimbursement of up to $10,000 is invested to engage a consultant to develop a business plan and capture benchmarking data across five compulsory key performance indicators, as well as a further five optional key performance indicators. This is followed by two annual business reviews.

"The aim is to build a complete picture of economic performance, reinforce the value of measuring performance, and set up opportunities for these businesses to create regional benchmarking groups to collectively drive their performance with real-life data sets."

Trevor said the second part of the program provided a reimbursement of up to $15,000 to support implementation of a business improvement project, identified in the participant's business plan, that will drive productivity.

"This might include trialling remote water monitoring systems, bringing a new area into production by installing a water point, or buying software and hardware to capture crush-side data," he said.

The Northern Beef Development project team will facilitate peer-to-peer learning opportunities between Business Improvement Grants program participants and develop products and tools from the data captured throughout the program. ■

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agric.wa.gov.au/r4r/northern-beef-development-project

MLA's breeder mortality calculator – mla.com.au/tools > Animal Health and Nutrition Calculators > Breeder Mortality Calculator

REPRODUCTIVE EFFICIENCY

No substitute for 'just doing it'

Great outcomes are the result of great dedication. Merv and Jenny Wortley's enviable beef herd mortality rate in WA's extensive Kimberley region shows there's no substitute for best practice management.

SNAPSHOT: Merv and Jenny Wortley,

'Ruby Plains Station' and 'Sturt Creek' outstation, Halls Creek, WA

Area: 9,501km²

Enterprise: Breeding Brahman, Charbray-cross and Coolibah composites (Murray Grey, Tulie, Charbray, Brahman cross) weaners for growing out at other company properties; export heifers

Livestock: 14,000 breeders

Pasture: Buffel, spinifex, ribbon and Mitchell grasses, some Seca and Verano stylos

Soil: Black soil, red gravel and sandy pindan

Rainfall: Ruby Plains – 450mm; Sturt Creek – 300mm

When it comes to beef breeding in extensive pastoral country, Merv and Jenny Wortley are leaders in their field.

The couple (pictured), who manage 'Ruby Plains' and its outstation 'Sturt Creek' in the Kimberley, combine best practice management with extensive experience to achieve an enviable breeder cow mortality rate of just 1.32%.

MLA Research Coordinator Geoff Niethe, who toured the Kimberley recently as part of a Northern Beef Extension Officer Mentoring Program (see story on page 19), was impressed when he crunched the enterprise's numbers through the MLA breeder mortality calculator.

"In all my years of analysing herd data and scrutinising breeder productivity in northern beef pastoral operations, I've never seen a mortality rate this low," he said.

Geoff credited the result to textbook herd management supported by meticulous, long-term record keeping.

"Turn-off numbers, such as the number of stock that are actually counted on to a truck, are usually the most accurate data reported for any breeding enterprise," he said.

"These figures should be closely aligned with the number of animals branded and, in the cases of Ruby Plains and Sturt Creek, after taking into account final closing numbers, around 95% of the stock branded were trucked off the property in the past five years."

Geoff said another quick guide to breeder mortality rates is the percentage of females sold as a proportion of the total turn-off if the size of the herd is stable. At Ruby Plains, it was 50%.

According to Merv, the primary cause of cow mortality on the property is nutritional stress and, to manage this, a combination of strategies to preserve and manage cow body condition are employed.

"We have a controlled breeding program so calves are born approaching the wet season and lactation is matched with peak pasture growth periods," he said.

"We segregate first-calf heifers and pregnancy test them into calving groups, so we can target cows that are out of season with lick and put them in better paddocks for the hardest parts of the year."

Merv and Jenny also wet-season spell paddocks to build up their fodder reserves.

The secret to great bookkeeping

According to Jenny, it's not rocket science: "Just do it."

"We use a computer program that head office set up for us and we make sure we record numbers and enter them into the system," she said.

"Every movement is recorded in and out of paddocks. We record weanings, brandings, deaths, pregnancy test results and vaccinations."

To reduce the workload associated with data input, every animal has a management tag and corresponding National Livestock Identification System button which is scanned into a Gallagher TSi system. However, if this system isn't available, cattle are still manually counted.

According to Jenny, the main challenge to robust record keeping is technology failure.

"Our largest time loss is when the TSi freezes, so we always keep a spare," she said. "And we use a lot of manual back-up. The company has specially-made books for keeping the paddock records and they're returned to the office where the information gets entered into the system.

"My advice is the more details you write for a paddock, the better." ■

LESSONS LEARNED

- Cow nutrition has the most influence on herd mortality rate.
- Good record keeping relies on finding a system that works for you; have back-up options in case of technology failures.
- There's no substitute for best practice management.

Merv and Jenny Wortley
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MLA's breeder mortality calculator – mla.com.au/tools > Animal Health and Nutrition Calculators > Breeder Mortality Calculator

Want to learn more about the fundamentals behind successful northern cattle breeding? Get along to an MLA Breeding EDGE workshop. Upcoming events will be held at: Katherine, NT, and Cloncurry, Qld. Information: mla.com.au/events

INNOVATION

Sheep CRC's legacy: making the possible practical

Professor James Rowe has been at the helm of the Sheep Cooperative Research Centre (CRC) for the past 17 years, overseeing research and development (R&D) collaborations that have 'made the possible practical' and driven rapid transformation in the Australian sheep industry.

The CRC is due to wind up this year, and James explained how the vision that drove these practical outcomes evolved.

The first Sheep CRC was established in July 2001 with a vision to understand the integration of wool and lamb production systems.

That initial vision evolved over the past 17 years, as the CRC delivered a range of major innovations that changed the face of the sheepmeat and wool industries. These include electronic identification, automatic weighing and drafting, DNA technologies for faster genetic gain, supporting dual-energy X-ray absorptiometry (DEXA) technology for measuring carcase lean meat yield, and data systems to improve sheep wellbeing and production.

Bringing the industry together

According to Professor James Rowe, research into wool and sheepmeat production was organised along mostly independent paths before the CRC was established.

"The challenge [for the first Sheep CRC] was to understand the complex interactions between the dual production system and to identify gaps in our knowledge," he said.

"This integrated program of research, focusing on sheep production, sparked the next stage of the vision, which focused on opportunities to take the sheep industry into the emerging era of DNA technologies. It also focused on using genomics to accelerate genetic gain and select for a broad range of traits simultaneously."

Driving genetic gain

The hallmark of the second CRC, which began in July 2007, was the Information Nucleus Flock program (transitioning to become the MLA-funded Resource Flock in 2012).

The Information Nucleus Flock was designed to provide the data for genomic-based predictions and simultaneously understand the underlying biology and interaction between traits.

According to James, meeting consumer demands for product quality was front of mind for CRC participants at that time.

"This focus resulted in successful initiatives to understand the importance of lean meat yield, as well as eating quality, in terms of meeting consumer demands," he said.

"On the wool side, the key challenge was to measure and relate next-to-skin comfort of lightweight knitwear to consumer perceptions and willingness to pay."

Delivering practical tools

The third stage of the Sheep CRC vision was to provide industry with practical ways to integrate and apply the new knowledge and technologies.

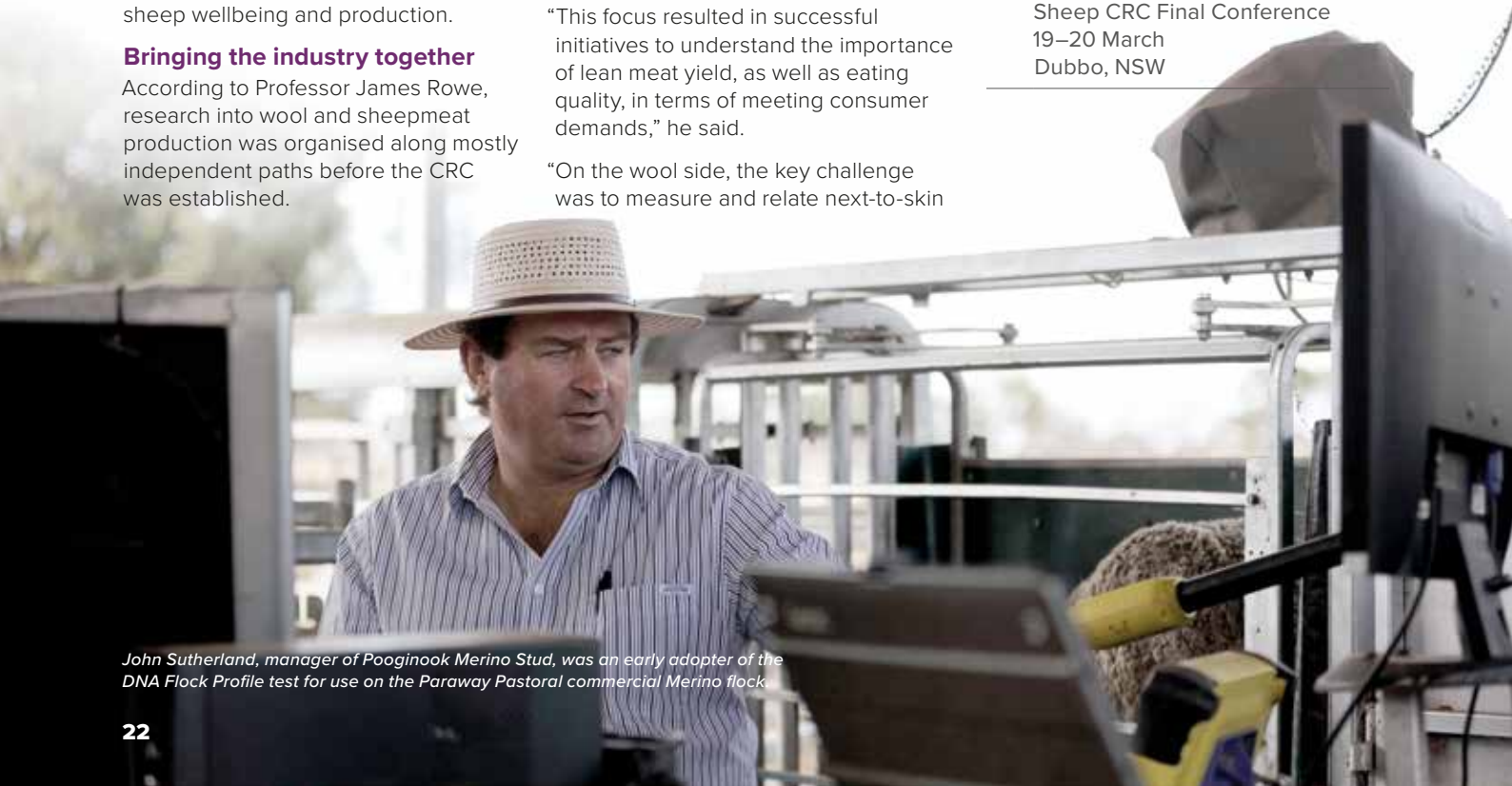
This has resulted in a suite of tools and technologies for use throughout the supply chain, including ASKBILL for flock-management decisions, DNA testing and RamSelect for breeding, and DEXA analysis at processing.

"The interconnectedness and ability to use all the technologies in a seamless way are great attributes of a CRC, covering all key aspects of sheep production and product quality," James said.

"With less than six months to go until the Sheep CRC is wound up, the focus is squarely on encouraging all sectors of the sheep industry to use these tools and technologies to ensure the benefits of R&D continue to have an impact for years to come." ■

sheepcrc.org.au

Sheep CRC Final Conference
19–20 March
Dubbo, NSW



John Sutherland, manager of Pooginook Merino Stud, was an early adopter of the DNA Flock Profile test for use on the Paraway Pastoral commercial Merino flock.

Measuring the impact

Here we talk to three stakeholders who have worked alongside the Sheep CRC to deliver change for the Australian sheep industry about what they see as the long-lasting benefits of the collaboration.

Peter Trefort
Sheep CRC director

WA lamb industry innovator and former MLA Director Peter Trefort has been a Sheep CRC director for the past nine years, but his involvement with the CRC dates back much further.

Q. How did you first get involved with the Sheep CRC?
It began after I helped set up the Q Lamb producer alliance in the 1990s. Our first project with the CRC was trialling electronic identification in an experimental feedlot on my farm, using walk-over-weighing to monitor growth rates. We were able to show our Q Lamb members that, by using the right genetics, they could achieve growth rates of well over 500g per day, compared to the 275–320g they were achieving by using any old crossbred ram. With the help of the CRC, we put a hook-tracking system in our abattoir and were able to provide individual lamb carcase weights back to producers on their kill sheets. We also did experiments showing how on-farm nutrition and in-plant processing practices affect carcase quality.

Q. Where would you like to see sheep industry research head now?
The Sheep CRC has had participants from every section of the industry working together to achieve the same result, even if they are competitors in the market. We were able to combine skills and share resources, and I'd hate to lose that now. I'm hopeful there are enough people around who will work together to maintain these valuable relationships.

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Sally Martin
Sheep CRC research collaborator

Sally Martin has been involved with the Sheep CRC since its early days, first as a sheep and wool officer with NSW Department of Primary Industries, and later in her roles as a private consultant and Chief Executive Officer of the not-for-profit research group MerinoLink.

Q. What do you consider the most valuable outcome from the Sheep CRC?
There are a number of important outcomes: the establishment of the Information Nucleus Flock, enabling the development of genomics and DNA parentage testing, led by Professor Julius van der Werf at the University of New England, and the meat eating quality work led by Professor Dave Pethick at Murdoch University.

Genomic predictions mean producers can now select for hard-to-measure traits and we can select animals at a younger age, speeding up the rate of genetic gain. The Information Nucleus Flock data has also helped to improve the accuracy of sheep-breeding values along with good quality data. In terms of the eating quality work, I see its value as both ensuring customer satisfaction and allowing producers, in the future, to be paid for quality as well as quantity.

Q. Where would you like to see sheep industry research head now?
We need to continue to think outside the square and look at what other industries are doing. We also need to continue to have a commercial focus and ensure that, if we do research, it doesn't end up on a shelf.

Sally Martin
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Stuart Mitchell
Sheep CRC director

Queensland sheep producer Stuart Mitchell has been associated with the Sheep CRC since its inception, first as a research collaborator and then, for the past 12 years, as a non-executive board member.

Q. What do you consider the most valuable outcome from the Sheep CRC?
The Information Nucleus Flock (now known as the MLA Resource Flock) has delivered more to industry than we imagined it could. On my own property the genomic traits and enhanced Australian sheep breeding values delivered by the Information Nucleus Flock have transformed our flock. In the mid-2000s we had a typical south-west Queensland flock, mainly 21 micron, quite wrinkly sheep. That was before we made a conscious decision to stop mulesing. It took just six or seven years of strategic genetic selection and we had a plain-bodied flock. We haven't lost any size and we reduced our micron down to around 19 – and I can't remember the last time we had a fly-blown sheep.

Q. Where would you like to see sheep industry research head now?
The amount of information generated by research programs has been immense, but in some ways industry hasn't kept pace in its ability to use this knowledge. The Sheep CRC has tried to overcome this by focusing on digital tools to help producers access knowledge and profit from it – ASKBILL and RamSelect are great examples. More work needs to be done in integrating information from multiple sources. ■

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INNOVATION

Sheep CRC's top 10 innovations

1 Information Nucleus Flock (INF)
The INF involved mating approximately 100 sires by artificial insemination to 5,000 ewes each year for five years, across eight sites representative of major sheep production environments. The INF was central to the CRC's work in delivering new and far-reaching genetic information and data for genomic predictions of sheep breeding values. While traditional production traits were also measured, new consumer-oriented eating quality traits, such as tenderness and intramuscular fat, were a prime focus. In 2011, the INF transitioned to an industry-funded model and in 2012 became the MLA Resource Flock.

2 Genomic testing
DNA tests are now commercially available to assess a range of genetic traits, as well as identify parentage and specific genetic conditions (e.g. horn or poll status). These tests have been widely adopted by sheep breeders, with more than 50,000 tests used in 2018. This has resulted in accelerated rates of genetic gain through more precise selection of the genetics required to improve flock performance for productive traits and environmental conditions. One of the breakthroughs to making genomic technologies available to commercial producers was the development of the DNA Flock Profile test specifically for commercial Merino breeders, and combining it with the web-based RamSelect tool.

3 Objective measurement of meat eating quality
New genetic traits were identified for carcase characteristics, lean meat yield (LMY) and eating quality. The dual-energy X-ray absorptiometry (DEXA) meat-grading system for estimating LMY is allowing abattoirs to accurately measure carcase LMY at line speed and has the potential to change the structure of the Australian sheepmeat industry through a shift to value-based pricing of carcases.

4 Wool ComfortMeter and Wool HandleMeter
These objective measurement systems add value to traditional measurements of fabric quality, which cannot account for the effects of processing and finishing, or accurately predict comfort and softness. Used together, the instruments allow manufacturers and retailers to produce greatly improved next-to-skin garments and market these products with objective customer assurance measures.

5 RamSelect
This project started as a training program providing a practical approach to using Australian Sheep Breeding Values (ASBVs). The program delivered 73 workshops to 1,389 participants, with more than 95% indicating they had a better understanding of how to make better use of ASBVs. In 2016, the popular RamSelect app was launched, which made it even easier to select superior genetics specifically matched to flock needs.

6 ASKBILL
This program was designed to forewarn sheep producers about risks of cold snaps and parasite outbreaks, as well as better manage their pasture base in order to meet production targets. ASKBILL provides timely and accurate predictions of sheep wellbeing and productivity using a combination of historical weather records, short and long-range weather forecasts, biophysical models for stock and pasture production, and on-farm measurements and flock information.

7 Precision technologies
With affordable and robust technology such as fast, electronic weighing systems, electronic identification and automated drafting, producers can easily monitor and manage each animal in the mob according to its needs and merits. The precision production tools are particularly useful when used with ASKBILL forecast information.

8 ParaBoss
The ParaBoss suite of products, including WormBoss, FlyBoss and LiceBoss, was developed as part of the CRC's parasite control program and continues to be hosted by the University of New England. Innovations included the targeted treatment approach in which only animals most susceptible to worms are drenched in order to slow the development of drench resistance.

9 Lifetime Ewe Management
This program sees groups of five or six producers meet in six 'hands-on' sessions over 12 months with a trained facilitator. The group visits each participating farm and learns skills in condition scoring, pasture assessment and best practice management to increase lambing performance and wool production. Results have included increased whole-farm stocking rates by up to 13%, increased lamb marking percentages by up to 14%, decreased annual ewe mortality rates by up to 43%, and increased numbers of lambs weaned per hectare by up to 30%.

10 Managing scanned ewes
A total of 88 pregnancy scanning workshops were delivered around Australia and attended by 1,800 sheep producers. The workshops resulted in about 80% of attendees changing their management practices. It's estimated that improved use of pregnancy scanning data and increased uptake of testing has led to significantly improved reproductive efficiency under many production systems. ■

ANIMAL HEALTH

Fighting FA toxicity

MLA-funded research is helping industry to learn more about a natural toxin's impact on red meat production and is uncovering options to manage it.

When grass becomes exhausted in the Georgina region of north-western Queensland and eastern Northern Territory, grazing cattle are attracted to the local Georgina gidgee trees. However, it's an attraction that comes with a toxic cost.

The trees contain sodium fluoroacetate (FA), which is commercially known as the invasive animal control poison '1080'.

A metabolic toxin, FA – also found in the Heart-leaf poison bush of the desert uplands of central Queensland and WA – is deadly to cattle and annually causes a 10% mortality rate in cattle grazing Georgina gidgee-covered areas, with a direct cost of $45 million.

MLA-funded research projects are uncovering management options and working on natural detoxifiers to deal with FA's impact. Both projects provide a platform for further investigation.

Measuring the impact

Dr Ian Perkins, who has led a research project to survey the toxin's impact, said that while both Georgina gidgee trees and Heart-leaf poison bush increased mortality, management options for each plant differed.

For example, producers manage toxicity in the Georgina gidgee by reducing cattle movement. Ian, a resource management specialist at consultancy LPM Queensland, surveyed producers in the affected areas and found that if cattle are moved while affected by this metabolic toxin, mortality rates jump to as high as 30% (of affected cattle).

"The only real option is to stop moving them. On some properties where there is a walk of 20km home or more, the muster is delayed," he said.

"If you can't move them, you can't wean them or sell them, so you miss out on another reproductive cycle."

Finished cattle ready in November or December cannot be mustered for sale because they can't be moved without increasing their risk of mortality.

Management options for dealing with the Heart-leaf bush differ somewhat.

"After a fire, it's the first green shoot up, so it's attractive to cattle," Ian said.

"Management options include holding yards to keep cattle off it, or removing the bush itself."

Ian's survey points to the need to do further work to document management practices in place now and build an extension tool.

Detoxifying FA

Another research project looked at managing FA's impact with antidotes. This project, led by CSIRO's Dr Chris McSweeney, investigated the way in which certain bacteria, naturally occurring in the rumens of cattle, can detoxify FA. The work has the potential to lead to supplements that could increase the proportion of these bacteria in rumen microflora and allow cattle to browse the plants and not fall ill.

Chris, a chief research scientist, said past strategies included developing a genetically modified organism that successfully detoxified FA within the gastrointestinal tract of ruminant livestock (colloquially called the 'Gidgee vaccine'). However, concerns over the release of transgenic bacteria and regulatory hurdles led the team to study naturally occurring anaerobic microorganisms that could do a similar job.

Chris' team has since identified a consortium of FA-degrading rumen bacteria; found nutrients and compounds that stimulate growth and/or the degradation of FA by these bacteria; and developed molecular tools that can be used to measure the abundance of these bacteria in the rumen.

He said feed supplements enriched with these nutrients could optimise the bacteria's ability to protect cattle from toxicity. However, further work is needed.

"Future studies should focus on animal experiments to demonstrate the benefit that various supplements may provide in preventing FA poisoning in cattle," Chris said.

"It's an important, ongoing issue for producers and while we have identified the bacteria – and they exist in northern Australian cattle already so there is no need for us to inoculate them – we need to do further research to prove the supplements are protective." ■

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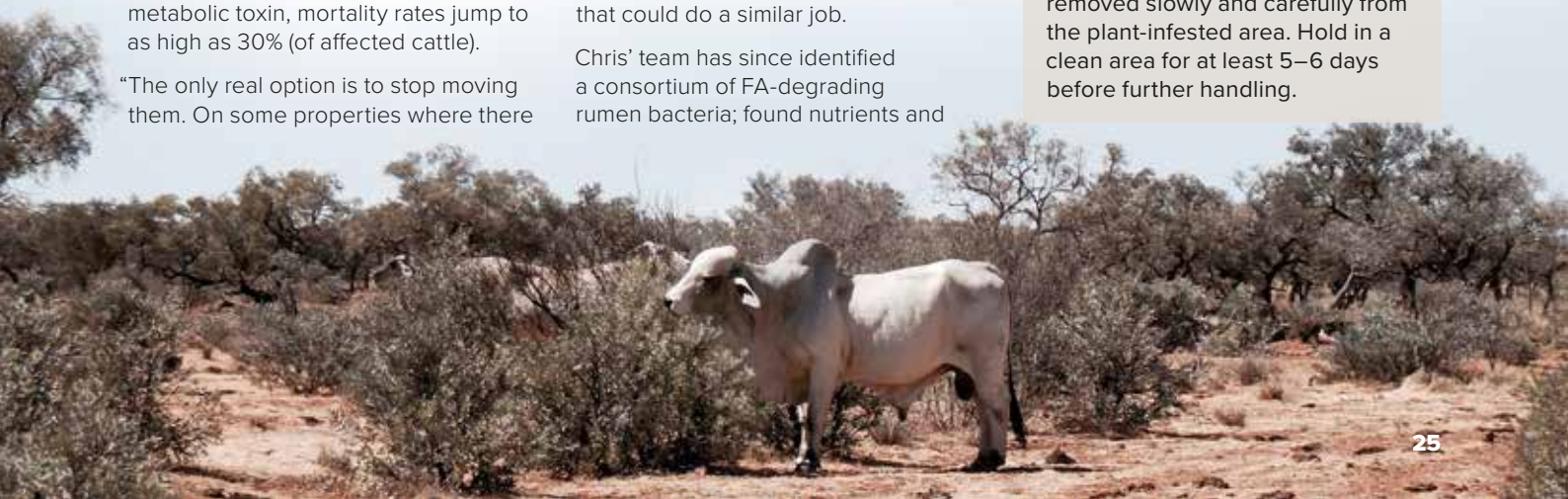
Chill out to fight off toxin

A veterinarian by training, Dr Ian Perkins said if intoxication is suspected, the best option is to allow the cattle to relax.

"You've got to keep them calm, don't muster or move them. It's a neurotoxin and if you heat the cattle up – by moving them – they can die suddenly with symptoms like a heart attack," he said.

Cattle will eliminate the toxin if removed slowly and carefully from the plant-infested area. Hold in a clean area for at least 5–6 days before further handling.



Making good pasture investments

The first indication there was a problem on the Hams family's Kangaroo Island was when lambing percentages dropped to around 25%. The ewes were in good condition and, while the pastures looked fine, the problem was soon identified as being oestrogenic clovers.

That was 38 years ago.

At the time, Primary Industries and Regions South Australia researchers David Little and David Woodard were working on a research project on renovating oestrogenic pastures on Kangaroo Island and they identified the problem and mapped the oestrogenic clovers on the Hams's farm.

"The percentages were pretty ugly," David Woodard said.

"The paddocks ranged from 4% to 59% oestrogenic clovers. We work on anything above about 20% as posing a risk. Back in those days on the Hams's place, we found that out of thirteen paddocks, nine were high or very high and only two were totally safe."

David Woodard returned to the Hams's farm in October 2018 to conduct a field walk organised by Agriculture Kangaroo Island (AgKI), MacKillop Farm Management Group (MFMG) and MLA, who have partnered on a project called 'Good clover, bad clover'. The project will work closely with local producers to determine what constitutes good and bad clover and how to implement effective management of clovers.

Oestrogenic clovers – the bad clovers – are Dinninup, Dwalganup, Yarloop and Geraldton. These older varieties contain high levels of the isoflavone formononetin, which leads to fertility problems in ewes. The effect is cumulative, so lambing percentages will continue to drop from one year to the next.

"Wethers may also experience problems on oestrogenic clovers over time due to enlarged bulbo-urethral glands, which may lead to death," David said.

"Wethers to be sold as prime lamb can be run on the oestrogenic clovers because they aren't on the pasture for long enough to have any problems.

"Ewes may fail to conceive or abort before full term. Conception rates will vary and a wide spread of lambing time may occur within the flock. Rams are the only sheep not affected by the bad clovers.

"Pastures can be renovated and Rob Hams (pictured) is doing a good job renovating his."

Rob said the process of renovating the affected pastures takes several years. The enterprise's lambing percentages are now back up to around 80%.

"We began renovating them by cropping the paddocks two years in a row," he said. So far 180ha has been renovated with Rob admitting the significant investment and taking those paddocks out of grazing rotation does slow the process.

"We sprayed out the clover at seeding and then sprayed again over the top of the crop. Then in the third year, we knocked the paddock again before reseeding it with two sub-clovers and balansa. It seems to be going alright but we had to reduce stock to be able to do it.

"The new cultivars that we've sown are producing better quality and quantity of feed, but we've only had stock running on it for a year because we had to let the seed bank establish.

"In the early days, we just managed the oestrogenic pastures we had by running cattle or wethers on them, rather than trying to renovate them. We've also run our older ewes on them and accepted lower lambing percentages in that mob. The oestrogenic clovers can also be grazed safely by ewes when the grass is completely dry." ■

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Head to sheepconnectsa.com.au and search 'clover identification'

The case for clover

Southern Australian sheep producers are benefiting from new knowledge on an old issue, with MLA funding research identifying problem sub-clover cultivars in pastures.

Clovers are an important feedbase for many producers, but older, high-oestrogenic varieties can cause havoc with flock fertility.

A three-year producer demonstration site (PDS) is addressing declining ewe fertility from clover-based pastures.

The 'Good clover, bad clover' project aims to increase producer awareness of potential issues from problem varieties and give producers practical tools to manage pastures and improve animal health. Due to conclude in late 2019, the two-and-a-half-year project is funded by MLA and MacKillop Farm Management Group with in-kind and sponsorship support from SheepConnect SA and Natural Resources South East.

The project has revealed that oestrogenic pastures are more prevalent than initially thought.

A survey of 160 producers showed most were unaware of the presence of oestrogenic clovers, with 85% never having undertaken a visual assessment or laboratory analysis of their clover pastures.

The good news is there are management strategies available to producers, including the following tips:

1. Understand the issue

- Analyse each paddock to assess farm-scale prevalence of problem clovers.

2. Graze strategically

- Avoid grazing ewes on oestrogenic clovers before or during mating, as clover can cause temporary infertility.
- Avoid long-term exposure of ewes to large amounts of oestrogenic clovers, as this can cause permanent infertility. This cumulative effect can occur over two to three years' exposure.
- Reserve high-oestrogenic clovers to finish terminal lambs or cattle, which are not affected.
- Graze weaner and young ewes on the least oestrogenic pastures available.
- As the plant senesces (dies off), isoflavones break down and plant material becomes safe for grazing ewes.
- Avoid cutting hay and silage from oestrogenic clover paddocks, because fodder cut at the ideal time before clover has senesced is still problematic.

3. Manage pastures

- Dilute clover-based pastures with newer, non-oestrogenic clovers or other pasture species.
- Develop a long-term strategic spraying and grazing program with an agronomist to prevent clover seed-set and reduce the seed bank.
- Buy certified clover seed to ensure it does not contain older varieties.
- Be aware that purchased hay or silage for feeding ewes could contain high-oestrogenic clovers. ■

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SNAPSHOT:

Robert Hams, Ron and Yvonne Hams, Vivonne Bay, Kangaroo Island, SA

Area:
900ha arable

Enterprise:
Lamb and wool production

Livestock:
4,000 ewes and weaners

Pasture:
Sub-clovers

Soil:
Ironstone rubble over clay

Rainfall:
550mm

LESSONS LEARNED

- Oestrogenic clovers are a potential cause of low lambing percentages.
- The clovers can be safely grazed by rams or finishing prime lambs for sale.
- When oestrogenic clovers are completely dried off, they may be grazed by ewes.

BUSINESS MANAGEMENT

Planning for growth

Waverley Station's King Island operations manager Jamie Roebuck is implementing simple strategies to build resilience and increase productivity in the station's intensive grazing enterprise.

Jamie (pictured right) oversees 10,000ha, 8,000 Angus breeders and 12 staff across four farms on King Island for the family-run company, which also has properties in NSW.

His business plan is founded on three principles:

- focus on the 'low-hanging fruit' of soil fertility and grazing management
- invest heavily in staff training
- match production systems to pasture supply.

"When it comes to developing a business plan, you have to assess what's best for your individual situation," he said.

"If you start with the basics and get the profit drivers right, the rest will start to fall into place."

Jamie and his team concentrate on what's within their control, such as adjusting production focus to reflect the environment.

One example of this approach was when the 2018 turn-off of 3,700 steers (weighing 400–500kg) was sold to backgrounders in Tasmania from November 2017 to February 2018. This replaced their traditional pathway of sending 500–600kg steers direct to processing.

"We've always had a strong relationship with (processor) Greenhams and, although fewer cattle will now be going direct to slaughter, our steers are being purchased by some of their finishers," Jamie said.

The decision to turn stock off earlier and lighter was motivated by knowledge gained from the MLA-supported Pasture Principles program, and supported by business analysis conducted with John Francis of Holmes and Sackett. John manages the King Island grazing benchmarking group, of which Jamie is a member.

"Analysing our business and assessing profit drivers showed us we could better match our production systems to our environment by turning stock off earlier to relieve grazing pressure through winter and increase kilos of beef produced per hectare annually," Jamie said.

"The Pasture Principles program completely changed how we manage our grass to match animal nutrition requirements to feed supply.

"At the end of the day, we're just as much about farming and using grass as we're about producing beef."

Whole-of-business focus

King Island may be remote, but it plays an important role within the family company.

The decision to sell young stock before winter supported an additional 2,000 head in the past 12 months, sent down from Waverley Station's drought-affected Scone and Gunnedah properties.

The business has been in a growth phase for the past 10–15 years, so 90% of heifers are retained as replacements. As the herd stabilises, surplus heifers will be used to rebuild the Scone herd once the drought breaks. Jamie also sees potential to sell heifers which have been pregnancy-tested in-calf.

Pasture management

Soil and rainfall vary across King Island, from lighter breeding country with 850mm rainfall in the north to heavier finishing country with 1,000mm rainfall in the south.

Stocking rates range from 22 DSE/ha for breeders to 18 DSE/ha for young cattle.

Pasture management changes included increasing mob size to extend the grazing rotation from 30 to 60 days during winter, giving ryegrass–clover pastures more time to rest and recover (rotation length decreases as it warms up to match rotation periods to leaf emergence rates).

Jamie hopes the amended grazing management will support 15–20% more breeders.

It's halved the amount of country under grazing pressure at any one time, leaving a lot more in recovery and growth phase. As well as increasing production, the new grazing management plan has reduced labour because there are fewer mobs to shift.

LESSONS LEARNED

- Review your business plan throughout the year to ensure targets are being met.
- Invest in people to build skills and foster ownership of ideas.
- Match production systems to the environment.
- Balance external advice with your own knowledge and experience.

Productivity boosters

Grazing management is supported by an autumn nitrogen-based fertiliser program to build the winter feed wedge, supplemented by strategic urea application to bridge feed deficits.

Extensive soil testing helps manage applications, targeting the huge variation in soil fertility within and between properties.

"We've been able to reduce inputs on the really good areas and use that money to rebuild levels on the country that was lacking, by strategically managing fertiliser inputs rather than blanket application," Jamie said.

An intensive animal health program is necessary to manage the worm burden in

SNAPSHOT:

Jamie Roebuck,
Waverley Station King Island operations manager,
King Island

Area:
10,000ha

Enterprise:
Beef cattle

Livestock:
8,000 Angus breeders

Pasture:
Ryegrass-clover pastures

Soil:
Sandy loam to heavy clay

Rainfall:
850–1,000mm

the high-rainfall environment and counteract soils which are deficient in many trace elements.

Productivity is also lifted through genetics, with bulls sourced from Waverley Station's Angus stud at Scone. As well as delivering desired traits such as soundness, good growth and a moderate cow frame, this economically allows higher turnover of bulls to accelerate the rate of genetic gain.

Investing in people

A labour-intensive enterprise and the challenge of attracting and retaining skilled staff in a remote rural community means people are just as important as pastures.

"No business can be sustainable without profit, and at our scale it's not possible without people," Jamie said.

"My biggest driver is profit and my biggest consideration in achieving that is the impact on the team.

"I believe the more you invest in your staff, the more they give back. I enrolled all our staff on the island in the Pasture Principles program, and by having everyone 'on board' it's been easier to implement the changes to our grazing."

Strategies to increase labour efficiency include simple repeatable systems, technologies such as farm-management software and electronic data collection, and infrastructure such as laneways and well-designed yards.

Jamie has also lifted labour efficiency by adjusting breeder management.

He runs a strict six-week joining period, but calving is spread over eight weeks as heifers are joined two weeks earlier than cows to give first-calf breeders time to get back into calf the following year.

"For the past two years, we've scanned heifers into first and second-cycle mobs and run them separately. This reduces labour during the calving period as we know which mobs will calve first and can monitor heifers accordingly," Jamie said. ■

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Soil fertility testing: agassist.com.au

Benchmarking group: holmessackett.com.au

Pasture Principles program: macquariefranklin.com.au

Improve your management skills by attending an upcoming MLA Business EDGE workshop at locations across Australia. Information: mla.com.au/events

Jamie presented a case study on his farm business management strategy at the 2018 MLA-sponsored Tasmanian Red Meat Updates. The 2019 event is on 26 July. Find out more at redmeatupdates.com.au

FEEDBASE

Large-scale cell grazing

WA's Murchison region was once a highly profitable sheep-producing region, driven by the Merino wool industry.

Today, it's a different story, with surplus sheep sales contributing about half the income of a Merino enterprise.

Pastoralists have been challenged with wild dog predation and native and feral animal grazing pressure on their country.

Buoyed by evolving natural resource management techniques and strong prices, brothers Angus and Toby Nichols are implementing an ambitious plan for achieving sustainable long-term livestock productivity on their property. Supporting them in this endeavour is an MLA Donor Company Producer Innovation Fast-Track project to revitalise soil health and livestock productivity.

Angus and Toby took on the 50-year pastoral lease of the 100,000ha 'Edah Station', between Yalgoo and Mt Magnet, with two friends (who have since been bought out) with a view to running sheep.

It didn't take them long to realise that any plans they had to raise livestock profitably would have to address the total grazing pressure created by high populations of goats and kangaroos, as well as the impact of wild dog predation.

"This place should be able to carry 7,000 sheep, not 500," Angus said.

Backed by science

Enter Angus' brother-in-law, Greg Brennan, an agricultural scientist who has long worked in WA's semi-arid rangelands. He has a particular interest in the control of total grazing pressure to enable perennial grasses and other groundcover plant species to regenerate. Greg says there is a strong scientific evidence base to show that these species are necessary to rebuild livestock productivity.

Angus developed a plan for Edah Station, which initially involved building a 30,000ha predator-proof cell on the southern end of the property. Collaborating with neighbours has resulted in a grant from the WA state government to expand the cell to enclose a total of 230,000ha.

The Fast-Track project is supporting the development of the plan to implement, manage and monitor total grazing pressure in a 30,000ha fenced cell while accurately assessing the impact of kangaroos and wild dogs. Careful feed budgeting will be used to ensure the perennial grasses can re-establish themselves, providing the much-needed

Consultant Bruce Maynard demonstrating self-herding techniques on Edah Station.

on track

energy source for livestock production while protecting the soil and the landscape.

"Shrubs are high in protein, and while they remain they will keep sheep alive, but what the landscape is missing is the grasses and other plants that grow between the shrubs and Mulga. They provide energy to enable animals to thrive," Greg said.

"Ideally, a good mix of perennial grasses and other groundcover plants growing between the shrubs can provide a supply of quality protein and energy, delivering high reproduction and growth rates. This groundcover also reduces run-off, retains water in the landscape and repairs the soil."

Collaborative effort

The 30,000ha cell involves 70km of 1.2m high, 11-wire fence. Angus is halfway, having completed the work to date with neighbours at a cost of $3,500/km (materials only). In collaboration with neighbours, the Nichols's will install more fencing (in addition to the fencing around the original cell) to be part of a 230,000ha predator-proof cell.

"It's based, to some extent, on what has worked in western Queensland for wild dog and kangaroo control," Angus said.

The cell captures seven water points, and rangeland self-herding and stress-free stockmanship methods will be tested for rotating the sheep around these water points to minimise internal fencing. To date, the fence has proved a successful barrier and Angus plans to install electric wires on high-pressure areas to reduce pressure from the outside and thus reduce the need for continual monitoring and repairs.

Tracking the impact

Self-mustering yards are being installed at watering points and equipped with cameras to monitor kangaroo numbers. A university honours student is currently capturing data on kangaroo and wild dog populations over a three-month period, using 100 motion-activated cameras located around the property.

"The Fast-Track support has helped us collect the data for what's going on both inside and outside the cell to illustrate just what impact kangaroos and wild dogs have in these environments," Angus said.

"We had all these thoughts on how to best run the property and restore it to productivity, but the Fast-Track project made us put it all down on paper. It was somewhat daunting to realise how much there was to do, but the process of applying for the program and reporting back to MDC has helped us to clarify our short and medium-term goals, as well as bringing more discipline to our approach.

"Without Fast-Track, we might have attempted the fence, but we certainly wouldn't have been as disciplined in managing and monitoring the grazing pressure and making sure the whole system worked."

The next step is to develop a management regimen by matching stocking rates to pasture growth. Angus believes the ideal enterprise will be sheep trading, where animals are bought and sold based on pasture conditions.

"We hope this project will add to the developing blueprint for successful livestock production in the Murchison. We have neighbours who have been successful out here and they are onboard and are looking forward to sharing in the journey," he said. ■

LESSONS LEARNED

- Management of total grazing pressure is expected to help underpin successful livestock enterprises in the Murchison.
- The restoration of grasses is essential to running a productive sheep enterprise.

SNAPSHOT:

Angus and Toby Nichols, Edah Station, Murchison, WA

Area:
100,000ha

Enterprise:
Lamb and wool production

Livestock:
500 sheep

Pasture:
Mixed native grasses and shrubs and saltbush

Soil:
Hardpan Mulga

Rainfall:
230mm

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Understanding true carrying capacity

Matching stocking rate to carrying capacity is good land management but can be difficult in practice. A producer group in Queensland is upskilling to meet the challenge.

RESEARCH IN REVIEW

PROJECT NAME
Matching stocking rate to carrying capacity in the Maranoa

RESEARCH ORGANISATIONS
Bush Agribusiness

FUNDING ORGANISATIONS
MLA Donor Company

GOAL
To match carrying capacity and stocking rate; to train producers to assess and monitor land condition

DURATION
2017–2019

KEY FINDINGS TO DATE
Assessment of current and potential carrying capacity is much more important than simple pasture classification.

Col Paton discussing land condition and carrying capacity with a producer group.

The catalyst for a benchmarking group in the Maranoa region of Queensland to undertake a grazing management project was a detailed analysis of their businesses and the performance per animal equivalent (AE).

"It's one thing to work out how many AEs are being carried and how many kilograms of beef each animal unit is producing, but this information is much more meaningful within the context of what the carrying capacity of the property is; that is, how many AEs it should be running in the long term," said consultant Ian McLean of Bush Agribusiness, who runs the group.

The group had been established for about three years, meeting four times a year, when it began a project through the MLA Donor Company Producer Innovation Fast-Track program to determine long-term carrying capacity and land condition.

Ian said while matching stocking rate to carrying capacity is a fundamental tenet of pastoral production, applying the principle has practical challenges. Ultimately, failing to meet this challenge leads to declining land condition in some places.

"Land condition gives a good measure of long-term carrying capacity," Ian said.

"It's independent of season and rainfall.

"At the moment, most producers have a gut feel for what their carrying capacity is and some do it very well. This project is looking to formalise it more and ask what the carrying capacity would be if the whole property was in 'A' condition.

"We're also setting up some monitoring sites and training producers in formal land condition assessment and annual forage budgeting, so they continue to monitor land condition and better match stocking rate to carrying capacity year-to-year, after this project ends."

While there are some sheep producers in the group, it's predominantly rangeland cattle producers with extensive pastoral properties and a small amount of forage cropping thrown in.

"We began the project by engaging rangeland ecologist Col Paton from EcoRich Grazing to conduct a detailed assessment of all 12 properties in the group," Ian said.

The assessment process

Col used Queensland land type classifications and the land assessment system described in MLA's Grazing Land Management material. It applies the A, B, C or D classification to land in each paddock of the properties, where A, as Ian describes, is "as good as it gets".

"There are very few places anywhere that are in A condition across the whole property," Ian says.

Land in C condition (poor) is less than half as productive as land in A condition, and this has a proportionate effect on carrying capacity. Col said land in condition B or C can usually come back to A condition with rest.

"Land in B condition will bounce back quickly," Col said.

"If it's C condition, it will take longer. Category D is irretrievable without mechanical intervention.

"If pastures are in poor condition, they need spelling. The poorer the condition, the longer the spelling required for recovery. Where there's woody weed encroachment, that may need controlling. Where pastures are in particularly poor condition, pasture replacement may be necessary."

More important than the simple pasture classification in this project was Col's assessment of the current carrying capacity and the potential carrying capacity if the land was in A condition.

"We assessed the land condition but also applied some economics into what it will cost to improve it and what they will get in return with extra carrying capacity," Col said.

"The power is in being able to put real figures on improved carrying capacity and improved land condition.

"Most producers are stocked to capacity for the pasture and land condition that they have, but could have higher carrying capacities if the land was in better condition with more productive pastures," Col said.

"They were encouraged by seeing what they could do." ■

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Land Condition Guide: southerngulf.com.au/wp-content/uploads/2016/07/GUI-Land-Condition-Rev2.pdf

mla.com.au/barklygrazingmanagement

Want to learn more about grazing management in northern enterprises? Get along to an upcoming MLA Grazing Land Management EDGE event at Rockhampton or Toowoomba, Qld. Information: mla.com.au/events

Producer Geoff Nicol on Ninderra, near Injune, working on land condition assessment.

INVASIVE SPECIES

Widening the invasive net

There's a new kid on the block in invasive species management. The Centre for Invasive Species Solutions (CISS) promises to be, as its name suggests, focused on solutions to the problem of invasive species.

Building on the work of the Invasive Animals Cooperative Research Centre, which finished in June 2017, CISS is a collaborative effort between industry, government and the research sector.

Cameron Allan, MLA Program Manager – Sustainable Feedbase Resources, said MLA's support of CISS commits investment into pest animals, and potentially weeds, in a national and collaborative framework.

"CISS will ensure the investment in invasive species research and innovation made by government and industry to date continues and that the products developed are delivered on-farm," Cameron says.

CISS Chief Executive Officer Andreas Glanznig said CISS has an initial portfolio of 21 projects, all to be delivered within five years.

"The portfolio is worth a combined $48 million of direct investment and in-kind support from our members and partners over five years, of which $2.5 million has been invested through MLA," Andreas said.

"All 21 projects have been developed in collaboration with the priorities of all members and partners and with the end user at the front of mind.

"They focus on solutions to key invasive species problems such as pest rabbits, wild dogs and feral deer, which are an emerging threat in several regions. We're also developing a 10-year investment plan for a weed research, development and extension portfolio.

"We're focused on getting new products and technologies out onto the land to make things happen. We're not just about doing more research to define the problems further – we're about finding innovative solutions to decrease the scourge of invasive species."

MLA is directly contributing to projects related to wild dogs and rabbits

(including the National Wild Dog Management Coordinator project) and studies into the biodiversity, economic and productivity gains from exclusion fencing in WA and Queensland.

Cameron says continuation and momentum in these areas is critical.

"The wild dog exclusion fencing project will help identify how changes in predator and herbivore density can be used in practical ways by producers to improve small stock production and native biodiversity," Cameron said.

"Rabbits have been subject to control measures in Australia since the 1920s," Andreas said.

"We need to put out new tools and technologies about every eight to 10 years to ensure they can be controlled at manageable levels.

"Rabbit management is not about one-off applications of solutions but regular, community-based approaches drawing from a pipeline of new, existing and evolving solutions."

CISS has several rabbit control projects, including ongoing work on the potential of rabbit viruses (including new strains of calicivirus) in future rabbit biocontrol.

"We also plan to improve knowledge about how to apply biocontrol agents to maximise rabbit biocontrol effectiveness through monitoring and evaluation of current rabbit viruses in the Australian landscape," Andreas said. ■

invasives.com.au

Below: *CISS will assess the biodiversity, productivity and economic gains from cluster fences, such as this one in Queensland, to help inform future management.*

RESEARCH IN REVIEW

PROJECT NAME
Centre for Invasive Species Solutions

RESEARCH ORGANISATIONS
Seventeen member organisations across government, industry and research institutions including MLA

FUNDING ORGANISATIONS
Memberships and specific project funding

GOAL
To deliver solutions for managing and mitigating invasive species

BUDGET
$48 million in first five years

DURATION
Ongoing

Protecting brand 'Australia'

Teys Australia has teamed up with MLA in a 'proof-of-concept' project to determine the possible uses and value proposition of blockchain technology for the Australian red meat export industry.

Teys' Chief Value Chain Officer Tom Maguire said a critical component of the project is assessing blockchain's potential to help overcome substitution and other food fraud.

"Australian red meat is a valued brand around the world and, like other high-cost, luxury products, people try to cash in on it through substitution and misrepresentation," Tom said.

"Teys Australia has a growing stable of brands that are exported around the world and underpinned by Meat Standards Australia. Trust and security in those brands is of paramount importance to us and our suppliers."

Tom said Australian red meat's clean, green image commanded a price premium overseas which must be safeguarded.

"'Australia' is a valuable brand and we need to use whatever technology we can to ensure consumers are getting the real McCoy," he said.

"Substitution and the subsequent market disruption affects all of us.

"Blockchain is like a virtual ledger, providing a record that can't be altered. It could potentially underpin provenance stories for Australian red meat around the world, to improve trust and traceability."

Tom said the technology could potentially create a record of all product information collected along the supply chain, which could then be shared with customers.

"All information recorded by producers, lot feeders, processors and distributors would be available to consumers so they could have absolute certainty about where the product had come from, how the animals were raised, how the meat has been handled, and so on."

At the Integrity Systems Company, Program Manager for Digital Value Chain Development Rebecca Austin said that given this is a proof-of-concept project, the blockchain environment will not be integrated with all the systems that exist across the supply chain.

"However, key opportunities for integration will be identified and tested," Rebecca said.

"MLA is also investigating other applications of blockchain and all final reports and case studies will be publicly available on completion."

According to Tom, the technology also has potential application within maintenance systems of processing plants. ■

RESEARCH IN REVIEW

PROJECT NAME
Blockchain technology to support provenance

RESEARCH ORGANISATIONS
Teys Australia and Unico

FUNDING ORGANISATIONS
MLA Donor Company

GOAL
To prove or disprove the following concepts:
- blockchain can provide a transparent, trusted lineage of a value chain
- blockchain technology has the potential to integrate into existing processes
- blockchain offers an advantage over existing industry systems.

BUDGET
$234,898

DURATION
January to July 2019

Tom Maguire
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TRUST: THE KEY TO BLOCKCHAIN'S APPEAL

We're hearing the term 'blockchain' a lot these days, but what is it and how might it benefit the red meat industry?

MLA's Manager of Information Architecture and Solution Design Andrew Skinner is part of the team tasked with answering those questions.

"Blockchain first hit the headlines because of the cryptocurrency 'bitcoin'," Andrew said.

"It's one of the underlying technologies that enables bitcoin transactions to take place, but blockchain's potential is far broader than cryptocurrency."

MLA is running levy and MDC-funded research projects to identify valuable blockchain opportunities for the red meat industry.

"MLA has chosen to investigate blockchain to understand how it could improve supply chain efficiency, compliance and traceability, increase trust in product provenance and transform the way transactions are managed," Andrew said.

How does it work?

According to Andrew, the concepts behind blockchain technology are mathematically complex but, at its core, it enables trust in the transfer of value or assets between two parties, without the need for a trusted middle institution, such as a bank.

Blockchain technology is often referred to as 'distributed ledger' technology because all the transactions are recorded in a list that is shared between all users of the blockchain. This is the first potential benefit of blockchain for the Australian red meat industry: decentralisation of data.

"The detail of each transaction recorded in the list is referred to as a 'block' of data," Andrew said.

"What's important about these exchange records is that the cryptographic technology that enables blockchain ensures the records written into the shared ledger cannot be altered by any single party or minority group. This is the second potential benefit: immutability.

"It's the running transaction history saved to the ledger, or database, that is called the blockchain.

"Every party using the blockchain has to agree on the values saved into the ledger.

"If one party changes one of the values in the database, the other parties will notice when checking their copy and the change will be made known to the majority."

Additionally, if one of the ledgers fails or goes offline, the system remains unaffected. This is benefit three: transparency and high availability.

Enabling trust

"In today's digital world where it's hard to judge what's authentic, where information has come from and who has had a hand in changing it, it's easy to see why these benefits are important," Andrew said.

"For red meat supply chains, one area in which blockchain technology is showing potential is supply chain security and provenance due to the increasing use of 'internet of things' (IoT) devices, such as sensors.

"When details such as compliance measures, carton contents, shipping temperature and customs information are continuously sensed, recorded and stored in a blockchain, all parties with access to the ledger can be assured each actor in the supply chain did the right thing.

"By giving customers access to the data, they can be reassured of the provenance of their meal and even be prepared to pay premiums."

Smart contracts an added function

According to Andrew, there are several technologies that build on the core blockchain which add additional desirable functionality, such as 'smart contracts'.

"Smart contracts are immutable 'if this, then that' type actions that can be stored on the blockchain," he said.

"An example of a smart contract might be: 'If X conditions are met, then make a payment of Y.'"

In an on-farm situation, where a producer is using IoT sensors to capture information about health treatments or organic feed sources, a smart contract may be created in which a processor agrees to pay a per animal premium if certain health and feeding conditions are met.

The premium would be paid more quickly than a traditional transaction, because proof of the producers' actions would be 'sensed' and immediately entered into the database, which could then immediately execute the contract terms. ■

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A lamb-led future

Processing technology like DEXA (dual-energy X-ray absorptiometry) and meat eating science are paving the way for Australian red meat to even better meet the demands of all stages of the value chain, particularly the consumer.

MLA is one of the 19 beef, sheepmeat and pork industry stakeholders in the multi-million dollar 'Advanced measurement techologies for globally competitive Australian meat project' (ALMTech). The project aims to accelerate the development and introduction of objective carcase and live animal measurement technology.

There are five research programs within the project:

1. Development of lean meat yield measurement technology
2. Development of eating quality measurement technology
3. Development of robotic technology
4. Industry databases
5. Data decision systems.

In part two of *Feedback*'s feature on research progress in this area we talk to researchers and stakeholders helping shape red meat's future through this and other MLA-supported programs.

Project leader Professor
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Part one of this feature appeared in the December 2018/January 2019 edition of *Feedback* on pages 40–41. Visit mla.com.au/feedback to view previous editions.

Rozzie O'Reilly
LAMBPRO Breeding Manager

Rozzie O'Reilly recently took part in the Young Food Innovators program which was supported by MLA Donor Company and the Australian Government Department of Agriculture and Water Resources through the Rural R&D for Profit program. As part of the program's research component, Rozzie identified quality-based payment for producers as critical to the development of high value, high eating quality, branded lamb products.

FB: What did you learn from the Young Food Innovators program regarding whether lamb can become 'the next Wagyu'?

Rozzie: As part of the program, we were required to gather consumer insights into our individual projects. For me, this involved looking at whether a high eating quality lamb product, similar to the standards of Wagyu beef, is demanded by consumers.

Our random consumer insights determined that lamb consumers are eating lamb two to four times per month; lamb is no longer seen as a regular meal in everyday Australian households. Of the consumers interviewed, 73% said they were buying lamb to impress their family and friends on special occasions, and 64% of these said price was not a pain point when buying lamb to impress.

Common pain points were continually having inconsistent eating quality experiences, and not finding good quality lamb when they need it. These provide market opportunities for the lamb industry; high end, luxury lamb with provenance is being demanded and a considerable portion of consumers are not worried about the price paid.

Consumers want access to branded lamb products of superior eating quality and are willing to pay premiums for such products, similar to the beef industry.

For the lamb industry to achieve such branded products, a number of factors need to be addressed:

- genetics
- management
- in-plant grading systems
- quality-based payments for producers.

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Sarah Stewart

Research Fellow, Murdoch University, WA

ALMTech post-doctoral research fellow and livestock veterinarian Sarah Stewart is working on program 2 of the ALMTech project: 'Development of eating quality measurement technology'.

FB: What is the aim of program 2?

Sarah: With the advent of automation and new technologies, we're looking for devices that will objectively measure traits in carcases that can predict eating quality.

For beef, this will reduce the subjectivity of the human grading component of the MSA carcase measurement system and improve the prediction of consumer eating quality. In lamb, there's no current system for prediction of eating quality, so devices that predict key traits like intramuscular fat (IMF) will underpin the development of a cuts-based MSA model for lamb.

FB: Which devices are showing the most potential?

Sarah: Several devices are showing great promise:

- Near-infrared (NIR) technology – This technology applies a lens to the cut meat surface and measures the reflected NIR wavelengths, which vary depending on the chemical composition of the meat. It shows promise in cold carcases and may enable early carcase segregation before entering the boning room.
- Frontmatec hyperspectral camera – This camera captures multiple images (at different wave lengths) of the loin eye muscle and involves segregating fat from muscle and bone, allowing for the prediction of multiple traits including IMF, meat and fat colour, eye muscle area and fat depth of the carcase at the 12th rib site on the ribbed cold carcase. About 1,000 lamb and beef images have been taken in the past year, using MLA Resource Flock and Beef Information Nucleus herds. Image analysis for lamb clearly shows the potential of this technology to measure IMF.

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Sarita Guy

Research Fellow, Animal Genetics and Breeding Unit, NSW Department of Primary Industries/University of New England

ALMTech post-doctoral research fellow Sarita Guy is working on program 4 of the ALMTech project: 'Industry databases'.

FB: What's the aim of program 4: Industry databases?

Sarita: ALMTech is looking to deliver objective carcase measurement data on lean meat yield, eating quality and compliance to market specification.

Program 4 aims to facilitate sharing of this data up and down the value chain, to enhance producer feedback, and to increase genetic gains in lean meat yield and eating quality.

We're working with processors to streamline their producer feedback systems, while also helping them analyse and use the data themselves.

FB: How might producers and processors use this data?

Sarita: Take the use of disease and defect data as an example. A producer might not know they have a problem because some health conditions are not observable on the live animal, but their animals' carcases are ending up on the processor's retain rail for trimming. This reduces hot carcase weight and therefore payment. By providing understandable and usable feedback, the producer can make more informed management decisions to reduce the risk of these issues, increase animal welfare and increase profitability for themselves and processors.

For the processor, poor health is costly due to extra labour, slower chain speed and loss of product. Analysing the data they collect could help them identify seasonal trends and high-risk periods for particular health conditions, and allocate staff accordingly to keep the chain operating efficiently. ■

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CAN AUSTRALIAN BEEF GET BETTER WITH AGE?

SA beef producer and restaurateur Tim Burvill was intrigued when he heard that 17-year-old cows in northern Spain were producing steaks destined for Michelin-starred restaurants throughout Europe. He has been working with MLA Donor Company's Producer Innovation Fast-Track program to see if he can replicate the production system in Australia.

Txuleton (pronounced choo-le-ton) beef is produced in the Basque region that surrounds the Spanish culinary city of San Sebastian.

The beef is renowned for its intensity of flavour, with the most highly sought-after product coming from local Galician Blond breed cows. With the beef style's popularity exploding among high-end European diners, Basque producers have begun finishing retired dairy cows for the txuleton market as well.

"I'd heard of this style of beef and was intrigued because it goes against everything we do in our production system in Australia," Tim (pictured right) said.

"I knew the product must be good, though, because a number of Michelin-starred restaurants were serving it.

"We have two restaurants in Australia and my initial inquiry was 'how do I get some of this beef?' You can't import beef from the EU into Australia, so I decided it might pay to look further into producing this style of beef ourselves."

Tim, his wife Sarah, and Danish business partner Lars Damgaard operate the South Australian Cattle Co.

Together they own two SA beef properties running Hereford cattle, a butchery and dry-ageing facility in the Adelaide Hills, and the A Hereford Beefstouw restaurants in Adelaide and Melbourne. They also produce the Kings+Queens branded product, supplying their Australian restaurants, the Damgaard family's 13 Scandinavian restaurants and high-end Australian butchers, supermarkets and restaurants.

Experiment design

In this project, Tim is asking the questions: can South Australian Cattle Co produce txuleton-quality beef from old Australian cows, and is the overall value proposition viable?

The next phase of the project is set to begin this year and will leave old cows (seven to nine years of age) on a pasture-based system for varying degrees of time (one to two years) to replicate the Basque beef production model.

"The cattle will then be processed, dry-aged for 40 days in our facility, cooked by our chefs in our A Hereford Beefstouw restaurants and assessed for meat quality by a sensory panel. We'll also look at how we could scale this opportunity up and the next steps to develop a plan to market test this with consumers," Tim said.

The project will use Holstein–Friesian dairy cows, but also compare their meat quality to beef breeds of cows aged for the same length of time, such as Hereford and Angus.

"Dairy cows put all their energy into reproduction and milk production for years," Tim said.

"If you actually rest that cow, dry it off for a period of time and bring it back to good condition, you may start to see some significant improvement in eating quality of the beef. That's what we're testing.

"We're hoping the project will add an additional interesting red meat product to the Australian wholesale and retail market, while at the same time providing an improved return for Australian cattle farmers on their old breeding cows."

MLA Donor Company Manager Producer Innovation Projects Renelle Jeffrey, is interested in this idea.

"This initiative is taking a European market insight and testing not only 'can we do it?' with old breeding cows here in Australia but also 'should we do it?'; can it create higher value and is it aligned to some of the emerging consumer trends we're seeing in premium products?" she said.

"It is an exciting, producer-led initiative that begins to explore if a different form of 'aged beef' could perhaps be positioned like mature cheeses, fine wines or aged whisky, with a focus on not just days of air drying, but years."

History of collaboration

Tim has partnered with MLA on a number of past projects, including beef, lamb and mutton dry-ageing research, and marketing projects. For this project, he partnered with MLA Donor Company's Producer Innovation Fast-Track program.

"The Fast-Track pilot program was specifically aimed at building the skills of people like me; farmers who want to value add or who have a novel idea they want to test and take to market," Tim said.

"One of the benefits [of the Fast-Track program] was you meet and create relationships with other like-minded people and have access to great resources. MLA has brought in industry experts that I would never have had access to myself." ■

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Sheepmeat getting **better with age**

Australia is set to be 'ahead of the game' when it comes to dry ageing sheepmeat, following the completion of a project undertaken by MLA Donor Company (MDC) in partnership with WA's Department of Primary Industries and Regional Development (DPIRD).

With the dry-aged beef trend showing no signs of waning among high-end diners around the world, MLA is finalising a project to extend dry ageing's benefits to sheepmeat.

MLA Meat Access Science and Technology Project Manager Long Huynh said the project with WA DPIRD built on earlier pilot and proof-of-concept work by MLA and South Australian Cattle Co.

"Dry ageing is a well-established technique used more traditionally in beef, and there was little technical or financial information specific to sheepmeat for dry ageing," Long said.

"This project aimed to increase the scale of dry-aged sheepmeat production in Australia to a commercially viable level by defining potential market opportunities and optimal processing protocols, and improving awareness of appropriate regulations.

"Dry ageing is a growing trend and we want to make sure it's done safely and consistently. It's important that, just like dry-aged beef, our sheep industry gains any potential value from dry ageing."

Long said pilot projects confirmed consumer acceptance and a willingness to pay premium prices for dry-aged sheepmeat in high-end restaurants in Perth, Adelaide and Melbourne.

The latest project had several components:

- determining the ideal dry ageing time and conditions for sheepmeat
- biochemical research into the science
- production of dry ageing guidelines
- cost–benefit analysis
- workshops to share findings and connect interested industry members.

Results will be available later this year.

Finding a market for older sheep

WA DPIRD senior research officer Dr Robin Jacob said the potential for dry ageing to provide a high-value market for older Merino sheep was the impetus behind his department's involvement in the project.

"WA is quite dependent on the Merino breed – 80% of ewes in WA are Merino and we produce more hogget and mutton, proportionately, than the rest of the country," Robin said.

"We were interested in this project for its potential to provide a value-add opportunity for these older animals."

At the time of writing, final results from MSA sensory panel testing of lamb and mutton, dry aged under different protocols (7, 14, 21, 28 and 35 days), had yet to be analysed.

"Other results from the project have been promising," Robin said.

"There has been good market insights work showing potential for dry-aged mutton in international markets, and we've had some good sessions with chefs who have worked up great dishes with the product.

"The last part of the project will be to finish the eating quality work and then do a cost–benefit analysis to determine the economics of the process."

Robin sees dry-aged mutton filling a niche market at this stage, but says there is always potential for it to become more mainstream.

"Look at the dry-aged beef industry – in the US, it's worth over $10 billion, so that has gone quite mainstream," he said.

Standing out with a standardised process

According to Long, the production of guidelines for dry ageing beef and sheepmeat will further underpin Australia's reputation as a 'safe' supplier of red meat, and create a point of difference in export markets.

"The fact we're even doing this work and publishing data on dry ageing is putting us ahead of the game," Long said.

"In August, I attended a dry ageing workshop at the International Congress of Meat Science and Technology, hosted by the University of Melbourne, with participants from the US, Korea, Japan, Germany, New Zealand, Thailand, Russia and Australia.

"The workshop showed there is no standard dry ageing process even within countries, and there was no single definition of what is dry ageing."

Long said it was important that MLA and WA DPIRD had worked with meat scientists, dry ageing industry participants and state regulators to produce the guidelines.

"They will be an accepted resource for both the regulators and the producers of dry-aged meat to ensure we have a safe, quality product for consumers," he said. ■

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RESEARCH IN REVIEW

PROJECT NAME
Dry ageing Australian sheepmeat for potential markets, technical guidelines and financial benefits

RESEARCH ORGANISATIONS
University of New England, University of Melbourne, Norlane Trading P/L, M&S food consultant

FUNDING ORGANISATIONS
MDC, WA Department of Primary Industries and Regional Development

GOAL
Transform the scale of dry-aged sheepmeat production in Australia to a commercially viable level

BUDGET
$311,300

DURATION
May 2017 – March 2019

PUTTING MERINO ON HIGH-END MENUS

The team behind the historic Haddon Rig Merino stud has partnered with MLA Donor Company's Producer Innovation Fast-Track program to test a high-value Merino meat strategy.

After 12 months of product and brand development, the 'Haddon Rig Merino' meat brand launched in October 2018.

Managing Director George Falkiner said the brand was created to provide an alternative, value-added market for Merino sheep, particularly older animals.

"A few things combined to convince us the time was right to create a Merino brand," George said.

"We saw some MLA research on eating quality traits of Merino versus other breeds, with Merino comparing favourably. We know our Merino tastes good but the research quantified that.

"We'd also started intensifying our production systems by installing centre pivots and a 2,400-head lamb feedlot, initially as a drought-proofing tool and also to take advantage of the strong lamb market and resurgent Merino wool industry.

"And finally, I went to New Zealand last year and saw how they are successfully marketing Merino brands in high-end restaurants and thought it could be something we could try at home."

Managing the supply chain

Haddon Rig is located at Warren, about 120km north-west of Dubbo, in central west NSW.

Sheep are processed at Fletcher International's Dubbo abattoir before the carcases are dry aged for three to five weeks at Dubbo Meat Centre, broken down into a six-way cut – forequarters, legs and saddle cut in half – packed and distributed direct to the customer.

Haddon Rig General Manager Charlie Blomfield (pictured) said their branded Merino is currently sold fresh or dry-aged to restaurants, butchers and foodservice outlets in NSW and Queensland.

"It's important to keep a short supply chain that's as close to us as possible, to enable us to control the quality and simplify the logistics of getting our product to market," Charlie said.

"So far, we're dry ageing Merino lambs and hoggets, but we also intend to dry-age mutton.

"Customer-driven demand is key and so we've been working with chefs directly to try and create something they want. We were already producing a delicious product but found dry ageing improved the flavour profile and tenderness, especially with hogget and mutton," he said.

"Initially, we dry aged some lamb for five weeks, then hosted an event at Porteno with 50 chefs to try it. We put it up against some of our fresh lamb and they all preferred the dry aged. That's when we thought we were on to something and we've been learning ever since."

On the fast track

The Producer Innovation Fast-Track pilot program was an initiative developed by MLA Donor Company (MDC) to enable producers to be actively involved in driving the innovation agenda.

The program identified industry trailblazers and gave them the support and expertise required to build their innovation capability.

MLA's Producer Innovation Partnerships Manager, Renelle Jeffrey, said Haddon Rig's project appealed to the MDC because of its potential to add value to a traditionally low-value, commodity sheepmeat.

"Haddon Rig were keen to explore new opportunities for commodity sheepmeat, as they presented a model where they could shear their Merino flock for wool and then also derive high value later as dry-aged sheepmeat products," Renelle said.

Championing the Merino

Charlie said the goal was to differentiate the Merino breed in the minds of chefs, butchers and consumers.

"We've specifically chosen to use 'Merino' in the brand to differentiate from other lamb and use it as an education leverage point," he said.

"We want to make Merino the Angus or Wagyu of the sheep game, so people recognise it and know it stands for consistent eating quality.

"Our hope is this project will have flow-on benefits to our stud clients to encourage them to get more out of their genetics by thinking about finishing Merinos, rather than just selling sucker lambs." ■

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raremediummag.com/#5-paddock-story

MARKET FOCUS

South-East Asia: an evolving marketplace

MLA's Ellen Rodgers working with foodservice professionals on Australia's red meat supply chain.

The value of Australian red meat exports to South-East Asia has doubled over the past decade to be worth A$2.1 billion at the end of June 2018, exceeding the value of exports to China or Korea.

Australian product spans the spectrum of market segments, from chilled Wagyu steaks destined for airfreight to five-star hotels in Singapore, to beef trim suited for Bakso ball soup in Indonesia.

Demand for red meat in South-East Asia has increased substantially in the past decade and the region's changing demographics – a young and expanding population and rising wealth – underpin growth.

Yet many markets in the region, such as Indonesia, remain complex, fragmented and price sensitive, making navigating the trading environment a challenge.

South-East Asia is Australia's fourth largest beef export market and the second highest in terms of value.

Ongoing market access improvements, most notably the conclusion of the Indonesia–Australia Comprehensive Economic Partnership Agreement (IA–CEPA) negotiations, will position Australian red meat to capture growing opportunities.

A young and expanding population, growing wealth and improving infrastructure places red meat in one of the fasting growing markets in the world. However, the market is still developing and, while populations are large, the number of households that can afford premium, imported red meat is still half that of Australia.

Opportunities

Regional red meat consumption is forecast to grow 10% over the next five years, beyond the capability of Australia alone.

As the market evolves, and in the presence of a range of low-cost competitors, Australia will increasingly need to target premium consumer segments to capture value.

Up against barriers

Pursuing unrestrained access to global markets and being resilient to the changing tide of protectionism remains critical. Fortunately, red meat has featured in recent free trade agreements (FTAs) with Japan, Korea and China, and, with a US trade pact already in place, Australian exports enjoy open access to four of its largest markets. While Australia has an FTA in place with ASEAN countries (the ASEAN–Australia–New Zealand FTA [AANZFTA]), a wide range of technical and economic barriers remain.

While the fundamental statistics for red meat consumption across South-East Asia are positive, there is a wide array of non-tariff barriers hindering red meat trade. The impact of this is estimated at A$657 million a year (second only to the barriers in Middle East). Barriers are largely rooted in religious requirements, divergence in recognised food standards and governments balancing meat affordability with a desire to protect local industries.

Supplying halal markets means product must be processed in dedicated processing facilities. While compliance is readily met, at times import authorities have raised concerns over halal issues, leading to disruptions in trade. Other inefficiencies, such as delays in issue of quarantine certificates or import permits, add to the cost of navigating a complicated regulatory environment.

To overcome these trade issues, Australian industry works with the Australian Government on ongoing engagement with customer country authorities. A key component of this is sharing insights into Australia's robust halal process as well as the suite of industry integrity systems that operate throughout the supply chain.

Wins for red meat

While tariffs in the region are largely reducing, underpinned by the AANZFTA, red meat access to Indonesia has been further improved under IA–CEPA. The conclusion of negotiations were announced on

31 August 2018 by Australian Prime Minister Scott Morrison and Indonesian President Joko Widodo.

Indonesia is the largest red meat consumer market in South-East Asia, accounting for half the red meat trade from Australia to the region. It is Australia's single largest live cattle and beef offal destination, and fifth largest beef market – in all, a red meat trade worth almost A$1 billion.

Under IA–CEPA, the 5% import tariff on imported cattle and offal will be eliminated on entry, while the 5% tariff on beef and sheepmeat products will be removed on entry or halved and phased out.

Marketing

The 'True Aussie' brand underpins MLA's marketing strategies in the region. Initiatives in the past year included:

- pop-up promotions featuring giveaways and tastings in large supermarkets in Malaysia
- 'True Aussie' branding in large modern meat markets
- sponsorship of chef cooking competitions in Indonesia
- targeted social media campaigns.

Future strategies will be based on the direction provided by the Attractive Cities Study (see story right). ■

Ellen Rodgers
International Business Manager – Southern Asia
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Delving deeper

Through the three-year, $17 million Insights2Innovation project, part of the Australian Government's Rural Research and Development for Profit program, MLA undertook the Association of Southeast Asian Nations (ASEAN) Attractive Cities Study.

MLA has looked at more than 30 cities across the region and highlighted five main cities where the focus will be in the next five years. They are Singapore, Jakarta, Bangkok, Ho Chi Minh City and Kuala Lumpur.

In-depth research based on 58 data points (including economic, political, social, technological, environmental and legal factors) will be used to drive market investment and to open opportunities to Australian producers and the red meat value chain.

"We'll be doing a deep dive into these five cities to further understand demographics, consumers and purchasing behaviours, why they're buying red meat or what the barriers are. All that information will be fed back to the industry, and market strategies and programs will potentially be developed relating to those findings," said MLA's International Business Manager – Southern Asia, Ellen Rodgers.

"Focusing on cities, rather than countries, allows a more targeted approach, because obviously some countries are large and diverse, such as Vietnam."

SOUTH-EAST ASIA

Population: 641 million

Area: 4.5 million km^2

Population: 387.5 million

Population growth forecast: 403.1 million by 2022

Total annual beef consumption: 3 million t

Forecast beef consumption growth: 15% by 2022

Largest beef consumers in the region: Malaysians at 7kg/capita/year, with Singaporeans just behind

Average per capita beef consumption across the region: 4.8kg

Largest single market: Indonesia, importing 58,000t of beef and 510,000 head of live cattle in 2017–18

Greatest portion of exports: Manufacturing beef makes up 33%, followed by offal at 26%

SOUTH-EAST ASIA

- Myanmar (Burma)
- Vietnam
- Laos
- Thailand
- Cambodia
- Malaysia
- Singapore
- Indonesia
- Brunei
- Timor-Leste

INDUSTRY INSIDER

Raising a glass to red meat

Ellen Rodgers is MLA's International Business Manager – Southern Asia and she knows a thing or two about selling premium products to discerning Asian consumers.

In the four years before taking on her Singapore-based role with MLA, Ellen (pictured) was the marketing manager for Treasury Wines, responsible for growing the wine list and dinner table presence of labels like Penfolds and Wolf Blass.

"Working in the wine industry for the past 10-plus years was incredible as I was closely connected with growers, vignerons and winemakers and that drew me to becoming passionate about working in the food industry," she said.

Prior to the Singapore posting, Ellen looked after wine labels for leading Australian wineries.

"I've had to learn quickly about the differences between the Australian and Southern Asian consumer and to understand the complexity of retailers and foodservice operators in this fragmented environment."

Despite the fact she's been in the wine industry for most of her working life, this isn't Ellen's first role in red meat. When she was eight-years-old, she would help out her grandfather at his butcher shop, Calvert Meat Company, in Brisbane – both behind the register and on the Saturday morning sausage sizzle.

"I think it's very funny that I'm back selling meat and I think my Grandad would be very proud," she said.

Ellen Rodgers
E: erodgers@mla.com.au

Here Ellen talks to *Feedback* about her role with MLA.

Q:

Explain your role with MLA and how you came to a career in the red meat industry?

I represent MLA across one of the fastest-growing consumer markets in the world and I love working in this incredibly complicated and diverse region.

My remit consists of Southern Asia, Pacific Islands and India and I have a strong team based in Singapore, Indonesia, Malaysia and Vietnam. My role is to be a leader in driving market access, unlocking consumer insights and promoting 'True Aussie', making red meat the preferred choice for consumers in emerging markets.

I was drawn to the red meat industry for many reasons. One being I am incredibly interested in nutrition and health and wellness. Another being that I loved learning about the process of vine-to-glass and now I'm doing something similar with paddock-to-plate. Australia produces some of the best fresh food in the world and I admire the people who help do this as they're so dedicated and hard working.

Q:

What are the best parts of your job?

I've loved connecting with people in the industry and learning about the care and devotion they put into producing the best red meat in the world. It gives me such satisfaction, to see them doing well in this region and I really feel passionate about adding value for them and unlocking opportunities.

I also love travelling around the markets and understanding the consumer and what drives their purchasing decisions. It's really fascinating. Every market is different; however, commonalities are also evident. South-East Asian consumers are incredibly positive about the future and this is underpinned by a young population, rapid urbanisation and growing incomes. Young urban consumers tend to have a strong appetite for modern, trendy international cuisines such as western-style steaks, Japanese-style hotpots and Korean barbecue.

Q:

How do you like to eat your red meat?

Living in Singapore, it can be expensive to eat red meat often – so I order it in bulk with my expat friends and have a good old-fashioned Aussie barbecue. Everyone loves getting a taste of home, however we wash our steaks and snags down with Tiger beers instead of XXXX Golds. ■

Share the lamb

Here's one of the recipes created for MLA's summer lamb campaign (see page 5). You can find more lamb inspiration at: australianlamb.com.au

Dukkah crusted loin chops with watermelon salad

Serves 4

8 loin chops, trimmed

1 tbsp olive oil

¼ cup dukkah

80g baby salad leaves

300g seedless watermelon, rind removed and chopped

2 Lebanese cucumbers, roughly chopped

½ cup pitted kalamata olives, halved

Zest and juice of 1 lemon, plus extra wedges to serve

100g feta cheese, crumbled

Mint leaves

Steamed chat potatoes, to serve

1. Brush lamb with half the oil and sprinkle with dukkah. Season. Heat a chargrill pan or barbecue to medium-high and cook chops for 3–4 minutes each side, or until cooked to your liking. Rest on a plate loosely covered in foil for five minutes.
2. In a bowl combine salad leaves, watermelon, cucumber, olives, lemon zest and juice and remaining oil. Season and toss to coat. Top with feta cheese and sprinkle with mint leaves.
3. Serve lamb chops with salad, potatoes and lemon wedges.

MEAT & LIVESTOCK AUSTRALIA

Better your business

MLA offers red meat producers a range of training opportunities, resources and publications.

LEARNING OPPORTUNITIES

Profitable Grazing Systems takes groups of like-minded producers – who want to improve their whole-farm performance – and matches them with coaches who share their knowledge, skills and experience.

Profitable Grazing Systems your pathway to success
www.mla.com.au/pgs

Producer Demonstration Sites are run by local producer groups who want to demonstrate the value of integrating technologies and findings from known research into their local farming system.

mla.com.au/pds

EDGE*network*® workshops offer practical knowledge and skills on topics such as breeding and genetics, business management, nutrition, grazing and land management.

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Bred Well Fed Well workshops highlight the key benefits of superior genetics and feed management for improved flock and herd performance.

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RESOURCES

myMLA is a customised online dashboard that provides news, weather, events and R&D tools relevant to you, as well as a single sign-on feature for integrity systems.

mla.com.au/aboutmymla

More Beef from Pastures is a resource package for beef producers in southern Australia, drawing on the latest R&D to deliver best practice information and tools.

mbfp.mla.com.au

Making More From Sheep is a best practice package addressing the profit drivers of sheep and wool businesses.

Making More From Sheep
makingmorefromsheep.com.au

Going into Goats is a one-stop-shop of best practice information for farmed and rangeland goat production systems.

mla.com.au/goats