mla Your levies at work // March 2014

Feedback

Executive producer

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Contents

Cover: Elizabeth Gunner, of Feast! Fine Foods, Adelaide. Image by John Kruger.

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Queensland Challenger in poll position

Taking a different management approach has seen one Queensland cattle family achieve better outcomes for their business, despite extreme weather conditions.

That approach and their commitment to telling their story has put Andrew and Megan Miller, who run 1,000 head of cattle on a 28,000ha property at Windorah, Queensland, in the lead for the second quarter of the MLA Challenge.

The Millers have met their business targets of better management of feed costs and improved condition of their cattle, despite being drought declared for six months.

They are one of six beef and sheepmeat producer families from across Australia participating in the inaugural MLA Challenge to improve efficiency and productivity within their farming operations over a year.

"We have received just over 404mm of rain since we moved to our property two-and-a-half years ago, and our last feed order pushed our total feed bill to more than $50,000, so getting our management right is critical – we have had to make changes to survive," Andrew said.

"Last season we really didn't understand the nutritional requirements for cattle at different stages. We were feeding a loose lick supplement to 600 cows, at a cost of $840/week. In that time we lost cows and didn't achieve good body condition scores – undermining our breeding program."

With advice and support from their MLA Challenge mentor, Walcha, NSW, cattle producer Guy Lord, the Millers researched how they could improve their nutrition program, drawing on resources from MLA and the FutureBeef website, including cost-effective supplementary feeding, to plan their feeding program in detail and with confidence.

"This season we took a new approach, carrying out pregnancy testing and focusing our resources on the 150 early calving cows and designing a supplementary feeding program of grape marc and pellets. We provided lick blocks for the late calvers, and no supplementary feeding for the dry cows," Andrew said.

"After an even drier season than the previous one, the total weekly cost of maintaining our entire herd of cows during the last quarter was roughly the same as 12 months earlier, but the results were poles apart. Body condition scores were good across the herd and we didn't lose any calving cows.

"The most rewarding experience of the last quarter was driving into our place and seeing our cattle and sappy calves in really good condition, particularly as the season has been so dry and challenging."

The MLA Challenge is supported by Woolworths, Westpac and QantasLink.

MLA Challenge leader board – second quarter

1. Andrew and Megan Miller
2. John and Annie Ramsay
3. Bill and Georgia Wilson
4. Matthew and Angela Pearce
5. Marcus and Shannon Sounness
6. Lachlan and Anna Hughes

Read more on how the Challengers are going on page 39. For updates, videos and background information on each participant, visit **www.mla.com.au/challenge**

Correction

In the Challenger profile of John Ramsay on page 39 of the January/February edition of *Feedback* it was incorrectly stated that his enterprise has 7,000 sheep. His enterprise actually has 14,000 sheep.

e-preg™ on hold

A handheld HEARD e-preg™ device, developed through an MLA Donor Company* (MDC) funded project has, to date, not been able to reach the MLA required accuracy for use by the Australian beef cattle industry.

The project, funded collaboratively through the MDC with Heard Systems Pty Ltd, began in 2009 and aimed to develop a handheld ECG non-invasive pregnancy diagnosis device.

MDC investment has been put on hold while HEARD explores e-preg™'s future options and alternative approaches.

** MLA Donor Company research is funded through private investment and matching government dollars. No producer levies are invested in MDC research projects.*

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Oats guide updated

The *Forage oat variety guide 2014* is now available, both online and in hard copy format.

Produced by the Queensland Department of Agriculture, Fisheries and Forestry with part funding from MLA, the guide covers the recommended management practices for growing oats for forage and strategies to minimise leaf rust infection.

The current varieties of forage oats available for commercial sale in Queensland are also listed in the guide.

Forage oats is the main winter forage crop in Queensland due to its ability to produce good quality feed when most pastures are dormant.

The guide can be downloaded at:
www.daff.qld.gov.au/plants/field-crops-and-pastures/broadacre-field-crops/oats/forage-oat-variety-guide
or contact DAFF Queensland on 13 25 23 to order a copy

CRC extension welcomed

The Cooperative Research Centre for Sheep Industry Innovation (Sheep CRC) has been successful in its extension application, with $15.5 million to be provided to support its activities from 2014 through to 2019.

That funding is being matched by a further $45 million in cash and in-kind contributions from 35 industry and producer organisations covering the full length of the supply chain.

Sheepmeat Council of Australia board member and chair of the sheep industry's extension application steering committee, Kate Joseph, said this would ensure the sheep industry would continue to operate at the cutting edge of research and technology.

"This is great news for the entire industry as the research program has been designed to deliver significant and on-going improvements in productivity at all levels of the supply chain," Kate said.

The Sheep CRC's research program has been built around three areas:

- → enhance monitoring and management of sheep wellbeing
- → introduce value-based trading of sheepmeat
- → deliver affordable DNA-based genetic tools

"Importantly, all levels of industry have been involved in planning the proposed research and delivery program. The engagement of sheep breeders, commercial producers, processors, service providers, supermarkets and research agencies will guarantee that any new discoveries will be useful and designed for real-world application," Kate said.

MLA is a major participant in the Sheep CRC, as well as the primary funder of the industry's Resource Flock (formerly known as the Information Nucleus). On-going data collection from this globally unique 'bio-bank' of DNA samples and phenotypic measurements will be central to each of the three research programs.

www.sheepcrc.org.au
See upcoming features in *Feedback* on the achievements of the CRC and the plans for the Resource Flock.

Watch this space

The Sheep CRC will continue the technological advancement of the Australian sheepmeat industry, including in these areas:

SHEEP CRC

Faster genetic gain: The Sheep CRC's planned use of full genome sequencing will lead to faster rates of genetic gain in the national sheep flock, and a greater ability to adapt to market opportunities.

Improved meat yield and eating quality: The CRC research program also aims to improve meat yield and eating quality, as well as create opportunities for a broader range of brands and products.

Enhanced animal wellbeing and flock productivity: Flock monitoring systems for use in extensive grazing systems will allow producers to make management decisions that enhance animal wellbeing, and improve flock productivity and survival rates.

WA Meat Profit Day

Partnering up for profit

Craig Forsyth, from Dongara, 350km north of Perth, is part of a supply network that breeds, backgrounds and fattens pastoral cattle. He transformed his farm into a perennial pasture based, rotational grazing enterprise and entered into a share profit alliance with northern pastoralists. Craig and two fellow supply network members – Sean D'Arcy and Ivan Rogers – will share their stories at the Western Australia Meat Profit Day on Thursday, 3 April 2014.

Why did you change from mixed farming to backgrounding cattle?
Our property, 'Avoca', is on the sand plain. It's 3,600ha, of which about 3,000ha is arable. In the 1990s we were mainly cropping but we ran into a brick wall with herbicide resistance, water logging and diseases.

I had started planting tagasaste in the 1980s and then became interested in subtropical perennial grasses. I sowed my first subtropical grass pasture in 2001, and we now have about half the arable land sown to perennial grasses, plus about 400ha of tagasaste.

Once the perennial grasses were established we had to try and get enough stock to utilise it. We were put in contact with some people who needed cattle fattened and it grew from there. The first mob came down in 2003 and that family still sends cattle to us. We now have five core pastoralists who send cattle from as far north as the Kimberley.

How does the share profit alliance work?
We don't buy the cattle and the pastoralists don't pay us for agistment. Instead, we're paid for two-thirds of the weight the cattle gain on Avoca. The pastoralists are paid for one-third, plus the initial weight gain.

What are the specifications for the cattle you receive and turn-off?
We run Santa Gertrudis, Droughtmaster, Brahman and Red Brahman cross.

Sean D'Arcy from Lyndon Station, north of Carnarvon, sends Droughtmasters that range from just under 200kg to over 300kg. I get them up to nearly 400kg then some go to live export, but a big percentage go to Ivan Rogers' Kylagh Feedlot at Tammin.

Other breeders send us young bulls from as low as 120kg. We get them to just over 200kg for the export bull trade. Heifers come in from 150–250kg. We get them up to 300kg for live export.

What opportunities do you see for the WA red meat industry?
There are good opportunities, as there seems to be a bit more confidence in Asia in both boxed beef and livestock exports, but we have to be more responsive to the markets and give consumers overseas what they want.

What message will you deliver at the Meat Profit Day?
My message will be pretty basic: match your feed demand to your feed supply, because that's what we do. I'll also talk about improving relationships and partnerships within the industry.

If you had told me 12 years ago I would end up running 3,000 cattle a year on Avoca, I would have thought you were crazy. But if I was still cropping and mixed farming, I don't think I'd be farming at all. It just wasn't sustainable.

At the moment there is some confidence in the industry and the past couple of seasons have been pretty kind. It's important we work together as an industry to capitalise on these good times and make good decisions.

Craig Forsyth
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Hear Craig and his fellow alliance members at the

WA Meat Profit Day

Where:
Irwin Recreation Centre, Port Denison

When:
Thursday, 3 April 2014

Register:
www.mla.com.au/MPD-WA

Greenhouse gas emissions

Lower emissions = higher productivity

Burping cows make an easy target when it comes to naming and shaming climate change culprits, but behind the scenes, the livestock industry is tackling methane emissions head on, to turn hot air into farm income.

The biology of sheep and cattle means that when they ruminate on feed, they release methane gas by belching and this energy is lost to the environment.

Simply put, they are 'leaking' carbon, rather than converting it to muscle. In fact, ruminants could be losing between 2-12% of their energy intake this way.

If the energy used to produce methane could be redirected, animal growth could be improved.

As well as economic gain from higher weight gains, cutting methane emissions gives consumers confidence that our industry is reducing its environmental impact and producing red meat in an environmentally sustainable way. So reducing net emissions, as well as emissions intensity, is also important for market access.

On the front foot

MLA-funded research is turning this hot air into farm income by equipping livestock producers with strategies to boost farm productivity, reduce emissions and access income through carbon markets.

MLA Manager for Climate R&D Tom Davison said MLA has committed $1.69 million in the second round of the federally-funded Filling the Research Gap (FtRG) program to research emissions reductions from cattle and sheep production.

As well as leading five FtRG methane mitigation projects (between 2012 and 2016), MLA coordinates the National Livestock Methane Program (to 2015) and collaborates with the dairy and wool industries to analyse greenhouse gas (GHG) abatement and carbon sequestration opportunities.

Industry-funded research has so far provided a fresh perspective on emissions from sheep and cattle production.

For example, scientists have demonstrated that methane emissions from northern Australia's cattle herd could be up to 30% less than thought.

But why tackle it now?

When many Australian producers are facing seasonal and market challenges, why should emissions be on the radar?

Tom pointed to the carbon markets proliferating around the world, on-track to cover three billion people by 2020.

The Australian Government remains committed to reducing national emissions through the Direct Action Policy while there is increasing interest from supply chains to demonstrate sustainability to their customers.

"As world carbon markets develop in the next five years with increased demand for carbon credits it would make sense that the carbon price will increase with time. Therefore research into investment in GHG abatement technologies would achieve the dual objectives of increasing productivity and a potential source of additional revenue for the red meat industry," Tom said.

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For more information on the National Livestock Methane Program visit **www.mla.com.au/methaneprogram**

Global Research Alliance: **www.globalresearchalliance.org/research/livestock**

Read the *Global agenda for sustainable livestock* at: **www.livestockdialogue.org**

In profile

Peter Whip // *Climate champion*

Snapshot

Peter, Raeleen, Toby and Sam Whip, Longreach, Qld.

Property: 16,000ha

Enterprise: Breeding, progeny sold direct to feedlots at 12-14 months and 320-350kg

Livestock: Composite breeders, joined to Angus bulls as weaners and Charolais for second calf

Pasture: Mitchell grass, Boree-Mitchell grass downs and Gidgee creek channels

Soil: Brown loamy clays and self-mulching cracking soils

Rainfall: 425mm

Peter Whip felt the full force of climate variability in January. After a dry 12 months, 130mm of rain overnight "changed everything" for the Central Queensland beef producer. Peter and his wife Raeleen, who have participated in the Climate Champions program, are developing a highly efficient enterprise at Royston, south of Longreach. As well as managing seasonal variability, they are proof that reducing emissions from cattle production does not have to come at the cost of profit.

What seasonal challenges do you face? Our climate is already highly variable - long periods of dry often end in floods. We've been in the Longreach area for 25 years and last year was the worst drought I have seen, even though it was relatively short. Most rain events are in January and February, but are storm-based so are difficult to forecast.

How does climate variability impact your enterprise, and what are your mitigation strategies? The extended dry and hot conditions put a lot of pressure on

our cattle. Heat-stressed cattle have reduced feed intake, and can use around 2MJ of energy/kilometre in walking. So, we are improving water distribution at Royston so stock only have to walk short distances to water, which retains energy for production. We've invested $150,000 so far in 25km of pipe, tank and troughs to improve half the property. A fortnight of 46°C days in January knocked stock around, but cattle on the more intensively watered half, managed better.

What did you learn from being a Climate Champion? One message that really hit home was that average temperatures are already increasing and are forecast to continue in future years. This will impact cattle energy requirements and productivity. I also realised producers need to stop worrying about what might happen in 50 years and focus on the climate variability we already experience.

What does your 'climate toolbox' contain? Our annual feed budget is our most valuable tool. I didn't give it enough weight last year and tried to carry cattle through to a better market based on a hope of 'early storms'. We quickly learned that you just can't gamble with the feed budget.

Does reducing emissions cut your profitability? No. We participated in a Department of Agriculture Fisheries and Forestry, Queensland and federal Department of Agriculture Fisheries and Forestry and Melbourne University project to see if earlier mating and improved fertility impacts emissions intensity and profitability. It modelled our greenhouse gas emissions and found by joining yearling heifers and increasing fertility, we have reduced emission intensity by 24% compared to a 'typical' business which joins breeders at two years of age. We remained profitable - our farm gross margin was $180,000 more than the typical enterprise.

How are you reducing emissions while increasing productivity? Our management strategy is to be as efficient as we can: minimal input for maximum productivity. For 10 years we have joined females at 12-14 months of age to Angus bulls with low birth weight traits, so we don't have to carry unproductive females for an extra year. We produce extra calves with the same inputs and same emissions. We intend to reduce joining from three to two months. With pregnancy tested in-calf rates around 83-92% in yearlings and 85-90% in cows, we are happy that we are getting to a more efficient and fertile herd. By joining our heifers as yearlings, we have also reduced our average breeder size from around 500kg to an average 450kg. Big, heavy cows don't handle drought and heat very well, they eat more and produce more emissions, but still only produce one calf a year. Reducing breeder size means less emissions for the same output.

To watch a video about Peter's approach to targeting emissions and productivity go to **www.mla.com.au/whip-emissionsvideo**

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Read more about the Climate Champions and find a range of climate management tools at **www.climatekelpie.com.au**

Greenhouse gas emissions

Farm300: future-focused

Reducing farm greenhouse gas emissions doesn't have to come at the cost of productivity.

In fact, a new MLA initiative targets a 10% boost in productivity hand-in-hand with a 30% reduction in emissions intensity and could deliver as much as $10 million to the industry or an extra $3,000 for an average cattle farm.

National Coordinator of the new Farm300 program, agriculture consultant Basil Doonan, said the 18 month program would help producers and advisers reduce on-farm greenhouse gas (GHG) emissions, sequester carbon and participate in the Australian Government's Carbon Farming Initiative (CFI).

Through its Direct Action Plan, the Australian Government intends to introduce the Emissions Reduction Fund (ERF) from 1 July 2014. The ERF will build on the CFI and may provide new opportunities for producers to participate in emissions reduction activities.

"So producers who implement strategies now could position their business to capitalise on potential longer term opportunities," Basil said.

Farm300 focuses on an integrated and collaborative platform for effective farm management improvement. It hinges on a unique strategy to upskill 100 industry advisers in CFI opportunities for sheep and cattle producers, and management of GHG emissions on-farm while boosting farm productivity.

From this group, 25 'coaches' will be selected to lead regionally-focused groups in 2014–15. Through these groups, coaches will support 300 sheep and cattle producers across Australia to implement research which can reduce farm emissions and increase productivity.

"Industry research has identified two categories of best practice strategies which producers could implement to achieve short-term benefits, as well as position themselves to take advantage of CFI or ERF opportunities in the future" Basil said.

"One is reducing total GHG emissions. For example, earlier joining or finishing stock more quickly reduces the period when stock are 'unproductive', or, potentially produces more product for the same amount or lower methane emissions.

"The other set of strategies increases productivity and decreases emissions intensity per kilogram of saleable product. For example, turning off younger stock (animals finished in a short time equals less belching of methane) or increasing twinning rates (less ewes produce more kilograms of lamb per ewe)."

Farm300 is supported by funding from the Australian Government and is delivered by MLA in partnership with Dairy Australia, Australian Wool Innovation and the Australian Farm Institute.

Basil Doonan, Farm300 National Coordinator
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Direct Action Plan - visit **www.daff.gov.au/climatechange/cfi**

Farm300 adviser information sessions will be held in May 2014
For dates and details - visit **www.mla.com.au/farm300**

Drought management

Decision-making during the drought

As the drought continues across large regions of Australia, producers are reminded that ongoing decision making and honest assessment of their situation remains crucial.

MLA R&D Coordinator for Northern Beef, Geoff Niethe, suggests that a rational decision making approach is the best way to tackle what can appear to be an insurmountable mountain.

"The key is to have as much information as possible and if you don't have all the facts, know where to seek advice," he said.

Geoff and livestock consultant Désirée Jackson have developed a list of focus areas for drought management decision making:

→ **Water:** Assess the quantity of and demand for water. Water intake varies considerably, depending on temperature, class of cattle and moisture content of feed but, on average, budget on 40 litres/head/day. If surface waters can be fenced and stock are forced to water at a trough, the water will last longer and it stops bogging.

→ **Feed:** Producers who are retaining stock need to comprehend the feed value and dollar contribution of pastures and all supplements purchased. Even if you have feed, as it matures, it loses its nutritive value during the dry season, regardless of the amount of feed on offer.

Do a forage budget to:

a. Determine how long the pasture will last with the cattle you have now and which mobs get preference.

b. Determine what is the pasture composition - the previous dry year has undoubtedly caused damage to pasture when feed became depleted through heavy grazing.

Get an indication of diet quality by faecal near infrared spectroscopy (NIRS) analyses. NIRS analyses will help ensure supplementation is judiciously targeted.

It is difficult to determine how much green feed stock can access when it is limited.

→ **Prioritise turnoff:** If you haven't got the financial resources to feed energy supplements for another year, consider your options. Collect as much data on your breeders (pregnancy status, age, condition score) and aim to retain a nucleus of breeders that are four to nine years of age and that will calve in their 'normal' calving window. These are the most productive animals and will be a springboard for recovery. Then:

a. Identify in what order groups of cattle will be sold and work on a contingency plan - take into account which animals have the highest nutritional requirements and which are the biggest drought risk.

b. On the preg test muster, identify breeders that are likely to calve during the dry season and consider selling them.

→ **Early weaning:** Radical weaning (down to 60kgs or at 10 weeks of age) is the best supplement to give a lactating breeder cow. The calves will need quality energy and protein but it's much cheaper to feed the calf than the cow.

→ **Hit the grid:** Ascertain what the delays are in getting stock slaughtered with your preferred export abattoir. Then check the slaughter grid and also availability of feedlot space. Usually the critical carcase weight is 200kgs (or about 380–400kg liveweight if they are non pregnant). If you have empty breeder cows that are currently around 320–360kgs, then even if feed prices are $350/tonne (ie 35¢/kg), 50 days on feed should get you above a 180kg carcase weight.

→ **Nitrogen:** If you are lucky enough to have mulga and are feeding a supplement, make sure there is a source of sulphur in your loose lick or block which is providing much needed nitrogen. Mulga is high in tannins and binds with sulphur as well as protein, making it largely unavailable to the animal for digestion. You will get more benefit from your licks if the nitrogen:sulphur ratio is balanced.

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Resources

See the *Feedback* June 2013 two-page feature on drought management at **www.mla.com.au/feedback**

Crisis and dry season management: **www.futurebeef.com.au/topics/nutrition/crisis-feeding-of-weak-and-poor-stock**

www.futurebeef.com.au/wp-content/uploads/Dry_season_mgt_of_a_beef_business_LowRes.pdf

Feed quality testing: **www.futurebeef.com.au/topics/nutrition/assessing-pasture-diet-quality-nirs**

Symbio Alliance: **www.symbioalliance.com.au**

Download *A national guide to describing and managing beef cattle in low body condition* at **www.mla.com.au/lowbodycondition**

To assess cattle for transportation download *Is it fit to load?* at **www.mla.com.au/fittoload**

Talk to your local livestock management consultant or extension officer.

Call to join Cattle Council

CATTLE COUNCIL OF AUSTRALIA

Cattle Council of Australia President
Andrew Ogilvie

Cattle producers can now become direct members of the Cattle Council of Australia (CCA), allowing for greater producer representation in the development of national policy and levy expenditure.

During its 35-year history the CCA has led industry by furthering opportunities for market access; implementing the Pasturefed Cattle Assurance System; lobbying to maintain the investment in Australia's capacity to diagnose, prevent and manage disease; and contributing to hundreds of industry committees and programs.

Currently the CCA is working on a number of policy opportunities for the agricultural sector, including the Agricultural White Papers, the Senate inquiry into beef levy expenditure and free trade agreement negotiations. The CCA is contributing to these policy papers and requires direction from Australian cattle producers. Being a direct member is an effective way for producers to contribute and to shape the CCA agenda.

Previously CCA was advised by nominated members of state producer and industry organisations only and direct membership will augment this model.

Membership rights allow producers to:

- → Stand for the CCA board
- → Vote on board elections
- → Communicate directly to the CCA on national policy
- → Receive regular updates from the CCA
- → Nominate to participate in the CCA policy sub-committees
- → Receive member-only access to the interactive website

www.cattlecouncil.com.au/members/about

In profile | Building capability

Elizabeth Gunner // *Marketer*

Meat the executive

Emerging leaders in Australia's and New Zealand's meat industries gather each year to hone their skills through the Meat Executive Program, an initiative of the Institute of Food and Grocery Management. MLA sponsored South Australian Elizabeth Gunner at the event in November 2013. She joined 40 other participants who were given the opportunity to develop their understanding of consumer trends, market opportunities, supply chain management, leadership and business strategies.

Elizabeth's top five learnings:

- → Innovation at every level of the value chain from production to the consumer is essential to remain competitive.
- → Businesses can't afford to be complacent, especially relatively small businesses like ours that do not compete on price.
- → Globally, there has been a polarisation in retail with both the bulk discount and premium sectors growing, while businesses in the middle are being squeezed.
- → There are real opportunities in marketing to baby boomers as a segment. Many are retiring reasonably well off and generally prefer home cooking.
- → While it was interesting to hear the drivers behind major supermarkets' decisions and product offerings, I am confident niche businesses will continue to play a strong role.

Elizabeth Gunner's passion for quality produce began when she was growing up on her family's Hereford stud property in NSW. Combined with her marketing career with companies such as King Island Dairy, All Saints Wine Estate and Elders, it has proved to be a powerful ingredient in the Adelaide retail meat business she runs with her husband, Richard.

How has your livestock industry journey evolved?
The Gunner family's flagship beef brand, Coorong Angus Beef, was born from the belief that our product was different and there was a need for a local beef brand in the South Australian market. We knew we would have to become retailers to maintain the brand's integrity, and Richard and I purchased our first butcher shop in 2001, the year we got married. In fact, straight after our honeymoon, he disappeared behind the counter to learn how a retail meat business works and gain some butchery skills.

What drives your paddock-to-plate meat business, Feast! Fine Foods, today? There are five Feast! Fine Foods stores in South Australia and two other outlets – designed around a family-value model, where we sell products such as schnitzels and mince that help us balance out our offer. The Feast! stores are driven by brands originating from the Gunner family farms and other artisan producers. All our products have been developed with eating experience in mind and have their own story to tell. We now have more than 70 staff and offer branded products such as Heritage Breed Beef, Saltbush Lamb and free range Berkshire Pork. Our business aims to bring restaurant-quality product direct from the farm to the consumer.

Did you find the program worthwhile?
Yes, it is far-reaching and stimulating. It gave me a rare opportunity to spend time with my peers from all segments of the meat industry supply chain and pick their brains. The bursary is a great initiative to encourage women.

What will you change in your business?
I want to explore how new technologies and fresh ways of interacting with our customers might enhance their experience with us. We want to boost their understanding of our products and cuts and lift sales and loyalty. There are some very edgy ways of doing that these days, such as QR codes and customised apps.

Elizabeth Gunner
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For more information on the Meat Executive program visit **www.ifgm.com.au/learning/programs/ifgm/meat-executive**

www.feastfinefoods.com.au

Research at work

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

In this issue

Lifting lamb numbers

Joining ewe lambs is a concept many producers steer clear of – citing concerns about costly management and long-term reproduction setbacks, but it can deliver economic and production dividends.

Reproductive efficiency

Western Australian Department of Agriculture and Food (DAFWA) Research Officer Beth Paganoni is enthusiastic about the potential for producers to fast-track the profitability of their flock by joining ewes as young as seven months of age.

"An estimated 3% of Merino producers are joining their ewe lambs – compared to 18% of non-Merino sheep producers," Beth said.

"Ewes start cycling at about seven months of age and are capable of reproduction, so it's a chance to turn-off extra lambs a year ahead of schedule."

With MLA, Murdoch University and DAFWA support, Beth spent two years monitoring the performance of research and commercial flocks to identify factors to successfully join ewe lambs.

"We realise many producers will baulk at the idea of joining ewes so young, but our research provides some guidelines for effective management of ewe lambs," Beth said.

"We now know specific targets for liveweight and condition score at joining and the growth rate over the joining period, which producers can focus on to produce lambs from their ewe lambs."

Optimum weights

Although ewe lambs conceived at a range of weights during the trials, Beth said producers should aim for a minimum 40kg liveweight at joining and, as with mature ewes, a minimum condition score of 3.

Beth measured the change in reproductive rate – the ratio of foetuses to ewes joined when scanned at 50 days – and found that the higher the liveweight and condition scores, the better the outcome.

"For every extra kilogram in joining weight of ewe lambs, producers can expect an extra two lambs scanned per 100 ewe lambs joined, and every extra condition score at joining can result in an extra 18 lambs scanned," she said.

Growth rate is also critical for increasing reproduction, with every 100g/head/day increase during the joining period boosting the reproductive rate by 20%.

"There are other important factors producers can manipulate to increase the success of joining ewe lambs, such as the flock fertility and age at joining, and management strategies such as teasing and using older, more experienced rams at joining," Beth said.

Longer term, selecting sires with positive Australian Sheep Breeding Values (ASBVs) for post-weaning weight and fat has a big influence on the reproductive rate of ewe lambs.

Reaching target weights and condition scores and maintaining ewes through pregnancy comes at a cost of extra nutrition. The research team calculated that – based on a lamb price of $3.50/kg and extra feed costs of $20–25/head from weaning to joining – producers need to achieve weaning rates of 40–50% with ewe lambs to break even.

Road testing

The West Australian research was complemented by a Producer Demonstration Site (PDS) in Victoria, initiated by the Best Wool Best Lamb (BWBL) network and supported by MLA.

As well as bearing out the DAFWA findings that weight and condition score of ewe lambs at joining significantly affects reproductive rates, the PDS allayed concerns about the cost and difficulty of joining ewe lambs.

PDS coordinator Dr Jason Trompf said four producers of crossbred sheep and 11 Merino producers from across Victoria joined lambs at 7–10 months with the aim of:

- → Achieving conception rates of 60% in Merino and 80% of crossbred ewe lambs.
- → Increasing lamb production of the entire flock by 10%.
- → Achieving second joining conception rates of at least 90% in Merino and crossbred ewes that had lambed as ewe lambs.

Numbers game

Data collected from West Australian commercial and research flocks and the Victorian PDS were combined to identify management and genetic tools to influence the reproductive performance of ewe lambs.

Table 1 This table reflects the Merino and crossbred ewe genotypes represented; responses will vary among other flocks and breeds.

For every...	There is...
1kg extra in joining weight	2% increase in reproductive rate*
Extra condition score at joining	18% increase in reproductive rate*
100g/head/day increase in growth during joining	20% increase in reproductive rate*
Extra fortnight joining is delayed (after ewe lambs are seven months old)	Another 20% of ewes will start cycling
If teasers are introduced at liveweights above 35kg	Extra 20% of ewes will start cycling
1kg increase in the sire ASBV for post-weaning weight	1% increase in reproductive rate*
1mm increase in the sire ASBV for post-weaning fat	1% increase in reproductive rate*
1mm increase in the sire ASBV for post-weaning fat	10% decrease in embryo mortality

* Reproductive rate: the ratio of foetuses to ewes joined when scanned at 50 days.

Source: DAFWA and Victorian PDS

→

"The PDS demonstrated that mating ewe lambs is a practical avenue to lift an enterprise's annual lamb production by more than 10%," Jason said.

"Between 2010 and 2012, 6,904 crossbred ewe lambs were joined – of which 5,166 conceived (75% conception rate) – and 6,980 Merino lambs were joined, with 4,124 conceiving (59% conception rate)."

When it came to the second joining, only one of the 15 PDS flocks observed a reduction in conception rates – in fact, most producers reported that joining ewes as lambs had ongoing benefits with easier lambing, improved mothering ability and better quality lambs.

"This PDS was a great opportunity for producers to really get their teeth into a production challenge, and to see how it works in their business and what steps need to be taken to improve," Jason said.

"One of the important findings was that joining ewe lambs is opportunistic. Producers should weigh up the season, economics and production goals each year to determine if they will join all, just the top, or none of their ewe lambs."

Where to from here?

Beth would like to see research into the lifetime performance of ewes joined as lambs, to address the concerns of producers that ewe lambs won't recover or could be out of sync with annual management schedules.

The performance of lambs from young ewes compared with lambs from adult ewes also needs to be evaluated. She is also interested to see what roles feed intake efficiency and liveweight as a percentage of mature weight play in reproduction.

Producers who participated in the PDS also have a list of questions for further research, including:

→ Early maturing ewe lambs appear to have higher reproductive rates, so what is the relationship between percentage of adult weight at mating and the reproductive rate?

→ How do we manage pregnant ewe lambs to optimise the survival of twins and singles born from ewe lambs?

→ How can the recovery rate from first lambing in spring to second lambing in winter be optimised?

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MLA Tips & Tools: *45 x 7 – Joining ewe lambs for more profit*: **www.mla.com.au/joining-ewe-lambs**

Victorian PDS: Improving the efficiency of ewe lambs: **www.mla.com.au/ewelambreproduction**

Reproductive efficiency

Fine tuning young

Snapshot

David, Sue and Hamish Thompson
Katanning, WA.

Property: 2,800ha

Enterprise: Multipurpose Merinos, ram breeding

Livestock: 2,700 ewes

Pasture: Mainly perennials

Soil: Light to medium duplex soils

Rainfall: 400mm

ewe fertility

Western Australian Merino breeders, the Thompson family, were confident in the reproductive ability of their flock, so joining ewe lambs was a logical step to boost production.

However David and Sue Thompson and their son Hamish found their first attempt at joining ewe lambs wasn't a huge success.

"We joined 500 young ewes but achieved 28% conception rates and only produced 126 lambs," Hamish (pictured) said. The Thompsons retain all ewes, traditionally joining them as two-year-olds.

But Hamish – who said he enjoyed a challenge – set out in 2010 to test the theory that it was too difficult to successfully join Merino ewes as lambs. His efforts were monitored by Beth Paganoni as part of her MLA-funded research (see pages 13-14).

Two years later, with some fine-tuning, he is finally proving the theory wrong.

"We initially joined the ewe lambs to young rams in single sire mobs, but we changed that in the second year, using more experienced rams in a syndicate joining at 2%," Hamish said.

"We lifted the joining weight from an average of 45kg to 52kg in the second year, and achieved 90% conception."

The Thompsons also reduced the joining period from eight to five weeks. They put teasers in for the first week followed by the rams, bringing the ewe lambs in-line with the four-week joining period given to mature ewes.

They join ewe lambs at an absolute minimum of 40kg and condition score 3, and provide pasture and supplementary feed (costing around $30/head) over summer. Ewes are separated into single and twinning mobs and fed accordingly to maintain condition during pregnancy.

Ewe lambs are joined at seven months to lamb at one year, and their lambs are weaned at 8-10 weeks. Hamish said this was an important strategy to give the young ewes as much time as possible to recover weight and condition.

Flow on effects

Ewe lambs are tagged for identification and their ongoing performance is monitored.

"The ewe lambs have improved udder development and are among the best mothers we have," Hamish said.

Hamish credits the genetics of the Moojepin flock – particularly their fast maturing, high growth traits – as important factors in the reproductive performance of ewe lambs. The Thompsons concentrate on three main genetic traits – growth, muscle and fat – and have seen a marked increase in fertility from these selection criteria, lifting weaning rates by more than 20% in the past 12 years.

Several Moojepin clients have been inspired by the Thompson's efforts and are now also successfully joining ewe lambs.

"Joining ewe lambs isn't for everyone, and it's not necessarily something we will do every year – we see it as opportunistic," Hamish said.

"Ewe lambs are our youngest, best genetics so the sooner you can utilise them, the quicker you can move your flock forward."

Looking ahead, Hamish plans to join only the top 500 or so ewe lambs (based on weight and condition), and he would like to see their lamb weaning rates increase to 100% in the next five years.

Lessons learned

- Maintaining condition score is important to reduce embryo mortality.
- Do the economics and don't push your flock too hard.
- Ewes joined as lambs appear to have improved reproductive performance in subsequent years.

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Reproductive efficiency

Banking on an annual bonus

James and Lucie Peddie made the decision to join ewe lambs eight years ago as a flock-building strategy, and it remains an integral part of their system.

Snapshot

James and Lucie Peddie, Penshurst, Vic.

Property: 780ha

Enterprise: Self-replacing composite lamb enterprise

Livestock: 6,000 ewes (run at a mid-winter average stocking rate of 21 DSE)

Pasture: Ryegrass, sub-clover, lucerne, phalaris

Soil: Grey-brown clay, loam over buckshot

Rainfall: 710mm

The Peddies see their sheep enterprise as a "bridge" between commercial and seedstock flocks.

"We buy rams with top breeding values for commercial traits like post weaning and yearling weight, eye muscle depth and fat depth, and sell 'start up packs' of ewes for producers who want to introduce composites," James said

The Peddies (pictured) operated a dairy farm near the Twelve Apostles, on Victoria's south-west coast, but changed to sheep when they bought their 780ha property at Penshurst in 2003. They chose composites as a productive option for their environment.

They started joining ewes as one-year-olds to fast-track their breeding flock, but had varying success, with the percentage of foetuses scanned to ewe lambs joined ranging from 60% to 93%.

"In that first year, we had a long joining period and ended up with light lambs and ewes that were not in the best condition as one-year-olds," James said.

The Peddies changed their strategy, putting an emphasis on tight joining and early weaning, so the young ewes have a chance to recover before their second joining.

"We now use teasers for three weeks pre-joining and then put the rams in with the ewe lambs for five weeks," James said.

"We join our mature ewes at a ram ratio of 1% minus one (or four rams to 500 ewes), but take a different approach with the ewe lambs. We put as many low-birth-weight rams as possible with the ewe lambs, usually around 3%, to maximise the chance of them getting pregnant."

Real life demonstration

The Peddies participated in the Producer Demonstration Site, joining all their ewe lambs (around 1,600 each year) in 2010 and 2011.

James said weight and condition at joining were critical factors, with conception rates increasing 40% with every additional condition score. Weights at joining varied across the flock (from 25 to 65kg) and averaged 43kg in 2010 and 45kg in 2011, while a condition score of 3 was average.

The Peddies achieved 78% lamb weaning rates from the ewe lambs.

Nutrition at all stages of the process was critical, but was balanced against the cost of grain. James doesn't join ewe lambs that are less than 30–32kg at the start of December, as these are not the best candidates to reach his cut-off of 40kg in February, for joining in mid-March.

"It is too hard and costly to achieve weight gains of above 100g/day over summer," he said.

He weans in early November when the oldest lambs are 12 weeks, to ensure ewes can recover while there is still a few weeks of green feed available.

Reaching maturity

James credited their focus on breeding early-maturing sheep as an important factor in producing fertile ewe lambs.

"Joining ewe lambs is definitely strategic in our business. We assess the season, grain prices and what we want to achieve in our business each year – for example, is it more economical to sell ewe lambs to clients or retain them and try joining?" he said.

The Peddies have a production target of 180kg lamb dwt/ha/100mm of rainfall. Joining ewe lambs provides a 'bonus' to their system, and has also realised benefits the subsequent year.

"The ewe lambs produced good quality lambs, and performed well on their second lambing – we scanned 179% foetuses with a three-and-a-half week mating," James said.

James and Lucie are prepared to be flexible with the system, and may choose to join all, none or just the top 500 ewe lambs, depending on seasonal conditions.

"Joining ewe lambs does require a higher level of management, so you need to be prepared to go through with the extra nutrition – or else it just doesn't work," James said.

"It may not suit every enterprise but, in our business, ewe lambs are a valuable resource."

Lessons learned

- Ewe lambs require more management than mature ewes.
- Identify late spring strategies to manage ewes after lambs are weaned.
- A short joining and early weaning help the one-year-old ewes recover for their second joining.
- 40kg is the minimum weight for a ewe lamb to be considered for joining.

James and Lucie Peddie
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Genetic gain

Taking the time to get artificial insemination right

Animals need to be in at least a body condition score 3 and on a rising plane of nutrition, with good feed close to the yards, for a fixed time artificial insemination cycle to be considered.

The northern cattle industry has an opportunity to lift the rate of genetic gain by using artificial insemination (AI). *Feedback* asked experts for their advice to producers interested in using two AI techniques: fixed time and observed heat. In this edition we focus on fixed time AI (FTAI). In April we will take a closer look at observed heat AI.

If you're chasing rapid genetic gains for a large herd, FTAI is the most viable and practical solution, according to reproduction researcher Dr Sophia Edwards.

Working on an MLA-funded project to improve pregnancy rates in Brahman cattle, Sophia said that, even with FTAI's modest success rates (40–60% pregnancy on the first cycle), it was the cheapest way to access bulls of high genetic merit.

"If you wanted to buy a bull with estimated breeding values (EBVs) in the top 10% of its breed, you could expect to spend about $40,000. At best, he could cover 50 cows and at a 70% weaning rate that only translates to 35 calves (at $1,142 each). It makes him very expensive," she said.

"However, if you buy equivalent semen at $40/straw or less, you can spread those genes much further."

Sophia said the first step when considering an FTAI program was to identify the breeding objective and set a realistic budget.

"About $20/straw is a good ballpark figure to work on," she said.

"If you're spending more than $50/straw or the semen is rare, I wouldn't recommend FTAI. I'd use a heat detection program, which is more labour intensive but generally more successful."

Sophia said heifers were the most cost-effective group to include in an FTAI program but generally achieved lower pregnancy rates, usually only 40% for Brahmans in a well-managed herd. Lactating cows, on the other hand, could achieve 50–60%.

"Even if producers don't want to AI, there are benefits to using the synchronising drugs," she said.

"The progesterone device can jump-start cows in lactation anoestrus to cycle."

FTAI is considered labour efficient because there is no need to manually heat detect, which takes time each morning and night over several weeks, the infrastructure requirements are less and you don't need an experienced inseminator available for the same extended period. Also, there is no need for small holding paddocks or add-on feed costs.

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Good timing

Fixed time artificial insemination (FTAI) describes the process where the oestrous cycles of cows and/or heifers are synchronised using drugs and all females are inseminated at the same time. This differs to other synchronised AI programs where females are only inseminated on signs of being 'on heat'. FTAI eliminates the need for manual heat detection and reduces the insemination period and time in yards.

MLA R&D Coordinator Geoff Niethe said that for many producers, particularly those in harsh environments, breeding their own bulls using artificial insemination made a lot of sense.

"AI is still the cheapest and most practical tool for producers in remote areas to rapidly disseminate highly sought after and emerging genetic traits such as polledness and improved fertility," he said.

"It's also an excellent way of breeding high genetic merit bulls that are well adapted to your environment and won't need a 'let-down' period before they start work."

Geoff suggested the factors which would lead a producer to choosing FTAI over observed heat were:

1. Availability and cost of skilled AI technician (one day versus 2–3 days).
2. A tight management program and the need to minimise time, fodder and staff to handle stock.
3. Inability to commit to regular heat detection.
4. Lacking confidence/skills/infrastructure to achieve good heat detection.

An AI action plan

The variables affecting the success of artificial insemination (AI) programs are many and some are not yet well understood. However, following these tips provided by industry experts Dr Sophia Edwards and Dr Lee Fitzpatrick and experienced producers Kara Knudsen and Annie Donoghue, should help achieve higher pregnancy rates. (Read more about Lee and Annie in the next edition of *Feedback*)

At the start – planning

→ Identify your breeding objective.

→ Do your sums and don't overestimate your success rate – the industry average for *Bos indicus* cows in an FTAI program is 50% and only 40% for *Bos indicus* heifers.

→ Ensure cattle have had suitable vaccinations and check for the pestivirus antigen in the mob. Vaccinate if appropriate.

→ Use supplements 6–8 weeks prior to AI, if appropriate, to encourage a rising plane of nutrition.

→ Seek veterinary advice to decide on which AI protocol best suits your herd.

→ Keep semen costs realistic and make sure they reflect the genetic gains you expect from the bull.

→ Ensure suitable 'mop-up' bulls are fertility tested and available.

→ Any animals selected for an AI program should be familiar with the yards, being handled and reasonably docile.

→ For a program to achieve average results, females should be no less than body condition score 3 and putting on 0.2–0.3kg/day with plenty of available feed.

In the lead up – organising

→ Be well organised in advance. Make sure you have plenty of labour, and that everyone knows their job and how it fits into the entire process. This will ensure the yard work runs smoothly and quietly, and keeps stock as calm as possible.

→ Use a skilled AI technician.

→ Prepare your equipment and keep it clean and dust free.

→ Ensure you have a good shelter over the crush area (ultraviolet light is detrimental to semen).

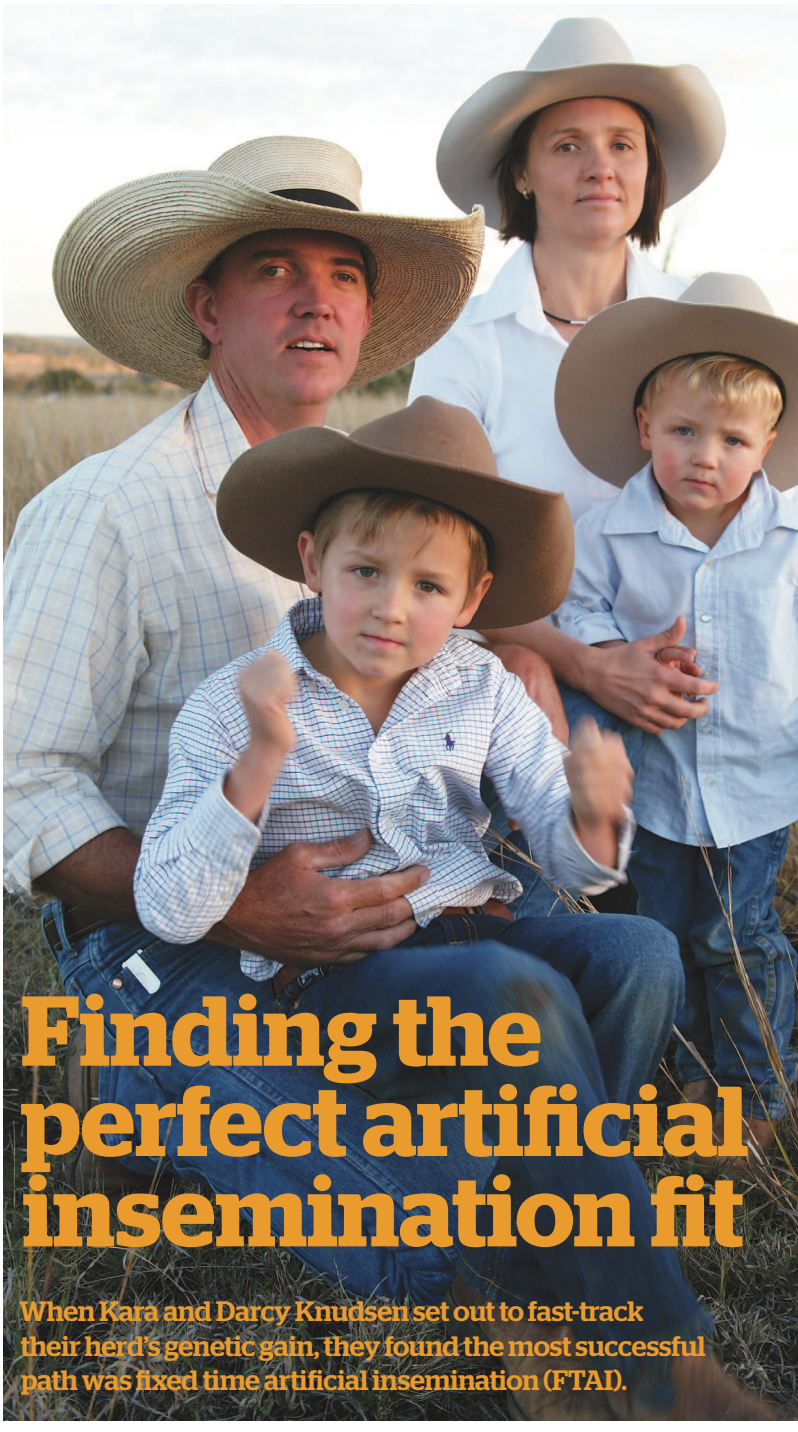
On the day – doing

→ Minimise stress on stock by letting them back with their mates and/or calves.

→ Don't take shortcuts.

For more practical tips on successful inseminating techniques : **www.brahman.com.au/technical_information/reproduction/artificialBreeding.html**

www.mla.com.au/mbfp/tool5.6-AI



Finding the perfect artificial insemination fit

When Kara and Darcy Knudsen set out to fast-track their herd's genetic gain, they found the most successful path was fixed time artificial insemination (FTAI).

For the Knudsens, who manage almost 40,000ha over properties up to 1,000km apart, fixed time artificial insemination (FTAI) was the only way to access superior genetics without stretching their limited labour resources.

"There was no practical way any other kind of artificial insemination (AI) program was going to work for us. We just didn't have the time or the skills for oestrus detection, which is a lot harder than you think, particularly with *Bos indicus* breeds. We also don't have the small holding paddocks required for heat observation," said Kara, MLA's 2013 Nuffield Australia Farming Scholar.

FTAI has been used in the north for more than 25 years but remains far from commonplace.

However, the couple were undaunted in their quest to improve fertility and carcase traits, and tighten up their calving interval.

With veterinary assistance and advice from reproduction consultant John Bertram, the Knudsens developed a plan and Kara brushed up on her artificial insemination skills to start with 280 Santa heifers.

Snapshot

Darcy and Kara Knudsen, Mundubbera and Hughenden, Qld.

Property: Mundubbera (7,300ha); Hughenden (33,000ha)

Enterprise: Beef production

Livestock: Mundubbera (600 to 1,000 breeders, mainly Santa Gertrudis); Hughenden (600 breeders, mainly Brahman – significantly destocked due to drought)

Pasture: Mundubbera – native forest, river flats on loam; Hughenden – Mitchell Downs country

Soil: Mundubbera – brown duplex/river loam and black self-mulching soils; Hughenden – black soil

Rainfall: Hughenden – 450mm; Mundubbera – 650mm

Kara and Darcy Knudsen with their sons, Tom and Jack.

"We did really well on our first attempt, achieving 65% in calf after the first cycle," Kara said.

"After a second cycle and putting in a mop-up bull, we ended up with 90% in calf."

The Knudsens have increased the program each year and last year inseminated 1,200 females, including 600 cows.

Choosing the right program

There are numerous AI programs, products and drugs on the market – of varying cost. For EU-accredited producers, a program based on using the hormone product GnRH as a treatment to bring cows into cycle together, instead of Estradiol benzoate (estrogen), is necessary and all producers are advised to consult a veterinarian for further advice on which program and products best suit their enterprise. The Knudsens use a Bosynch program, which takes 11 days from inserting the progesterone-releasing device to insemination.

Last year was the first time the Knudsens performed FTAI on their cows and Kara now prefers them to heifers, although she acknowledged planning was required to manage their movements with calves at foot.

"Cows are sexually mature, proven breeders, more likely to go in calf than heifers and to mother their calf," she said.

Every cow has an ID tag and is scanned for foetal ageing at branding. At weaning (calves are then 5–6 months old) the cows are drafted according to when they will calve. The earliest calvers are selected for the next AI program.

Kara's advice is to be realistic and not expect FTAI to be the silver bullet, particularly if there has been no previous selection pressure on the herd.

Tips and tricks

Keeping costs down is a challenge and Kara tries to be strategic about where she invests her money, particularly in semen.

The Knudsen's 14-month-old black heifers are the result of a successful FTAI program which has allowed them to infuse superior genetics into their breeding herd.

"Tropical breed semen, such as Brahman and Santa, accompanied by good genetic data is expensive and the choice is limited," she said.

"I buy a small selection each year from really good bulls I'd love to own but can't afford, about 10 straws for $60–$80 each and about 200 Angus straws for about $20 each for cross-breeding. For the quality of the EBVs, they're cheap.

"I usually buy two bulls each year for about $8,000–$9,000 and take semen from them. Those straws cost us $7–$8 each to process and freeze. In 2012, across the whole herd, including drugs and labour, our AI program cost us $27/female."

Kara said it didn't take a lot of money to get started – about $3,000 covered the cost of the nitrogen tank, guns, sheaths, etc.

"We keep our tank with a nitrogen supplier and only bring it to the property when we need it," she said. "That way it's guaranteed to be full and we don't have to worry about it."

Plan for success

Kara doesn't consider FTAI an annual event; if the conditions were not right they wouldn't waste the money.

"Nutrition is number one – if your animals aren't in condition score 3 and you haven't got the feed to achieve weight gains of 0.2–0.3kg/day, forget it," she said.

"Spike feeding six weeks before your program definitely helps but won't necessarily give you a quality egg; that's developed eight months beforehand. In a perfect world, you want good nutrition all the way through."

Other than animal nutrition, Kara said good organisation, calm yard handling techniques and cleanliness can have considerable bearing on success rates.

"My advice is plan ahead, down to the last detail. Everyone should know what they are doing and how it will work. This minimises mistakes and keeps the process calm and orderly which, in turn, keeps the cows calm. I can't do a good job if they're jumping around everywhere," she said.

"Sometimes we have results as low as 30% and look at what went wrong or what was different and try not to repeat that mistake. The more we do, the more consistent our results are becoming."

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Weed management

Erasing an invasive weed

MLA is funding research to better understand the invasiveness, spread and ecology of rubber bush (also known as calotrope), and to improve control options before the weed gets a bigger hold on northern Australia's rangelands.

It's estimated that rubber bush has spread over 1.8 to 3.7 million hectares in the Northern Territory, the Kimberley and north-west Queensland.

In some areas, such as in the Gulf of Carpentaria region in Queensland and the Barkly Tableland in the Northern Territory, it has formed large, dense infestations that appear to be reducing livestock carrying capacity and increasing control and mustering costs.

Shane Campbell, Principal Scientist from the Tropical Weeds Research Centre, is coordinating an MLA-funded research project into rubber bush control measures. The project draws together expertise from the Queensland Department of Agriculture, Fisheries and Forestry, Charles Darwin University and the Northern Territory Department of Land Resource Management.

An advisory panel of landowners and managers and a range of agencies has been established to oversee the research and ensure its relevance.

"Rubber bush has really taken off in the last five to six years (due to a run of wet seasons), but there has been a real lack of information about the weed, its impacts and its invasiveness," Shane said.

"There has been some conjecture about whether it's an opportunistic weed that will develop in pastures that are rundown and disturbed, or if it is highly competitive. That's one of the information gaps we're looking to fill."

The research project began in 2010 and is due to conclude in mid-2015.

Findings to date include:

- Pod production by plants can vary markedly between areas and appears to depend on the number of insects around to pollinate the flowers.
- The seed bank appears short-lived, averaging 12–24 months. This provides opportunities for effective control as long as new seedlings and regrowth can be treated before reaching reproductive maturity.
- Rubber bush can be controlled using basal bark, cut stump and foliar applications, but plants need to be treated thoroughly. A broader range of foliar herbicides will be available once field testing is completed.
- The residual herbicide tebuthiuron (Graslan™) is showing promise for controlling both original plants and subsequent seedlings, particularly on clay soil country when applied from the ground or air. Testing to refine rates is continuing.

When the project is complete, the findings will help to inform future weed risk assessment, management plans and policy across northern Australia, as well as improve the advice provided to land managers.

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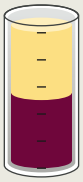
Download a fact sheet on calotrope control at **www.daff.qld.gov.au/plants/weeds-pest-animals-ants/weeds/a-z-listing-of-weeds/photo-guide-to-weeds/calotrope/?a=77303**

Close-up of a rubber bush plant showing the seed pod which can

Project dashboard: Rubber bush – distribution, invasiveness, biology and

Financial contributions to the project:
$620,000



MLA levies: **50%**

Government: **50%**

Length of project: 5 years
Completed: 3 ½ years
Finish: 15/05/2015

Table 1 Current control options

Plant stage	Chemical control options
Scattered plants or small patches	Access™ and diesel mix, rate 1:60, basal bark or cut stump technique. For basal bark, plant stems must be sprayed all the way around to point of run-off, from 40cm above ground to ground level. For cut stump, cut plants off as close to ground level as possible and apply chemical immediately. Metsulfuron methyl-based products (Brush-Off®, Associate®) applied at a rate of 20g per 100 litres plus a wetting agent, using foliar spray equipment. Thoroughly spray the whole plant, including stems, during the cooler parts of the day. Results can be variable and new options are being tested.
Large patches	Testing of Graslan™ in suitable situations is being undertaken. Consult Dow AgroSciences for the latest information.

1.8 to 3.7 million ha

is infested with rubber bush in the Northern Territory, the Kimberley and north-west Queensland.

contain up to 450 seeds.

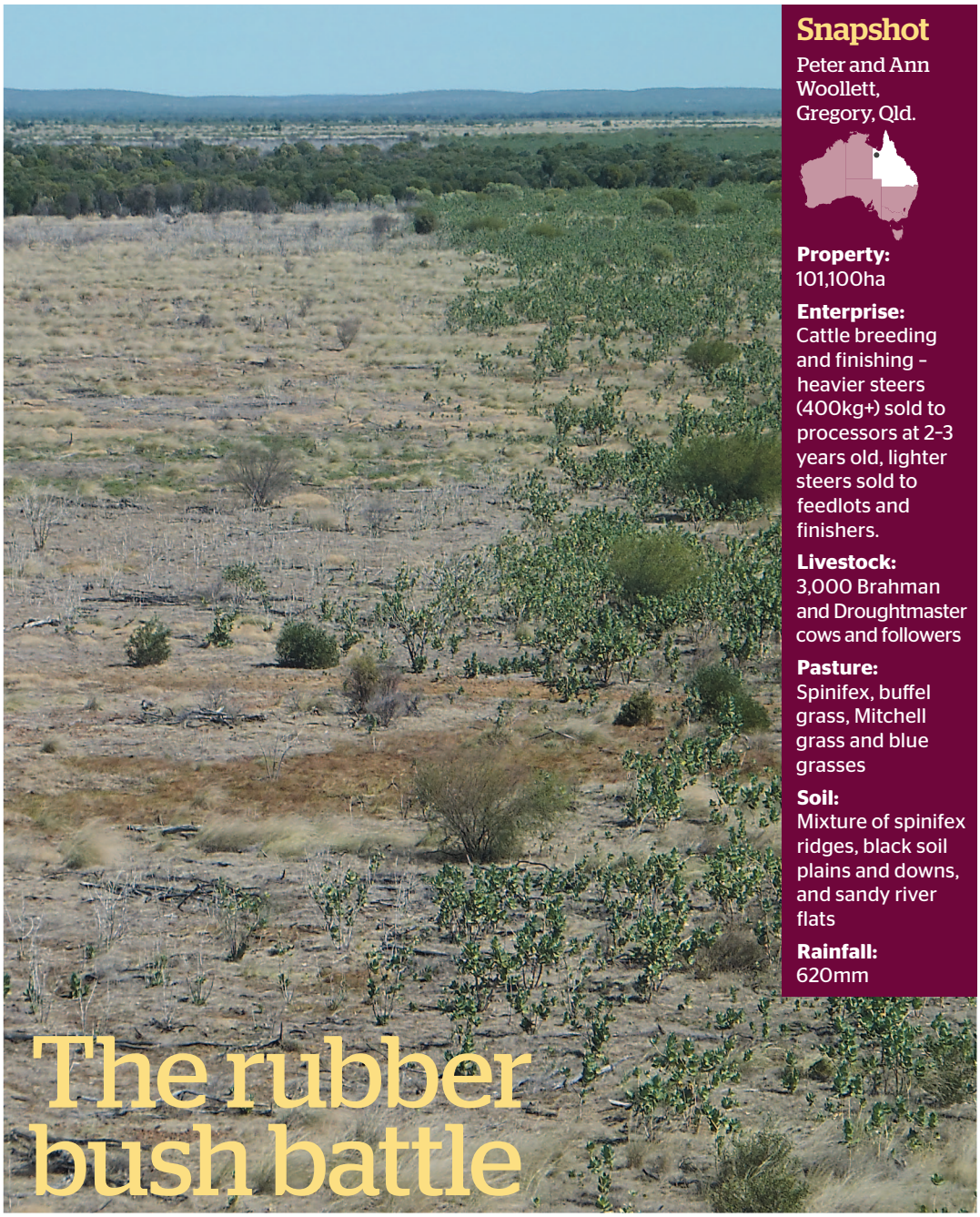
control

The project is part of MLA's objective to:

Create opportunities through genetic research and management practices to improve pasture and forage crop productivity, quality and persistence.

Mechanical control options

Grubbing, blade-ploughing or cutter-barring, but only if plants are cut off below the ground (ie 10 to 20cm). The disturbance may promote large-scale seedling regrowth.



The rubber bush battle

An aerial view showing an area treated with 12.5kg/ha of Graslan™ (left) compared with an untreated patch of rubber bush (right).

Snapshot

Peter and Ann Woollett, Gregory, Qld.

Property: 101,100ha

Enterprise: Cattle breeding and finishing – heavier steers (400kg+) sold to processors at 2–3 years old, lighter steers sold to feedlots and finishers.

Livestock: 3,000 Brahman and Droughtmaster cows and followers

Pasture: Spinifex, buffel grass, Mitchell grass and blue grasses

Soil: Mixture of spinifex ridges, black soil plains and downs, and sandy river flats

Rainfall: 620mm

Controlling rubber bush on their Gulf of Carpentaria property is proving a costly and time-consuming undertaking for Peter and Ann Woollett but it's essential to maintain their carrying capacity.

The Woolletts have been struggling to contain an ever-expanding rubber bush infestation on their Gulf of Carpentaria property, 'Nardoo Station'.

Recent control efforts have cost between $185 and $200/ha, but the couple feel an ongoing outlay is necessary to maintain carrying capacity.

"When we bought the property three-and-a-half years ago there was rubber bush scattered on pulled gidyea country," Peter said. (Gidyea is a shrub type tree that is a member of the acacia family.)

"To control these plants we tried foliage spraying, but six months later the rubber bush had re-shot and was thicker than ever.

→

Weed management

→

"We also tried basal bark spraying, with limited success. Even if you killed the original plants, a lot of new plants would come up right beside the treated ones."

A run of good wet seasons from 2010 to 2012 saw the rubber bush spread rapidly, forming dense infestations on up to 6,000ha.

The Woolletts then sought advice from Tropical Weeds Research Centre Principal Scientist Shane Campbell and representatives from Dow AgroSciences.

"We initially trialled spreading Graslan™ pellets by hand," Peter said.

"This was effective at killing plants that we treated, but it was too inefficient given the area infested, and many new plants came up in between the treated plants."

With Dow AgroSciences, they treated 295ha of Nardoo's gidyea regrowth with an aerial application of Graslan, while observing the chemical's effect on the rubber bush growing among it.

On farm trials

Dow AgroSciences applied the herbicide, taking the opportunity to trial a number of different application rates.

As part of his MLA-funded research project, Shane set up monitoring sites within the treated area to assess the chemical's effectiveness in controlling large, dense infestations of rubber bush.

The result was a 95–100% kill rate on the rubber bush, irrespective of the rate applied, with no flowering or pods produced and no new seedlings up to 15 months later.

In November 2012, a further 465ha of gidyea regrowth containing rubber bush was treated at a rate of 12.5kg/ha, with a small trial area treated at 10kg/ha.

"The second trial is testing whether the lower rate of 10kg/ha would give similarly high efficacy as 12.5kg/ha, which proved effective in the first trial," Shane said.

"The aim is to give producers and land managers another tool to use against rubber bush, and to make control as cost-effective as possible.

"Even though aerial application of Graslan is relatively expensive, it may provide an option for dealing with large, dense patches of rubber bush in some situations."

A granular spreader is being used with a quad bike and will be trialled as an option to treat patches not big enough to warrant treatment from the air.

"We're also cutting all the flowers off larger, individual plants so the seed pods don't develop and putting Graslan at the base by hand," Shane said.

The battle continues

The Woolletts' weed eradication program is part of a three-step plan that also includes aerial seeding with improved pastures and mopping up new rubber bush germinations in subsequent years.

"The aerial work cost about $185–198/ha, and I was recently asked at a field day if it was worth it," Peter said. "I don't think about whether it's worth it – I think about what would happen if I didn't do it."

The pulled gidyea country covers about 10,100ha of a 34,400ha paddock in which the Woolletts run 1,800–2,000 breeders.

"The way the rubber bush was taking over, I could see myself flat out running 1,000 cows in there," Peter said.

"Controlling the rubber bush is necessary to preserve our country and maintain our carrying capacity."

Lessons learned

- → Control rubber bush early – it is much harder once it is well established.
- → Aerial application of the granular herbicide Graslan™ is effective for large infestations in certain situations, however, it is not yet registered for aerial treatment of rubber bush – seek advice from Dow AgroSciences.
- → Treat isolated plants and remove any pods as they can contain up to 450 seeds.
- → Foliage spraying with Grazon™ proved ineffective on Nardoo Station.
- → Seek expert opinion to inform decisions and only use a chemical for its registered use.

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Shane Campbell and Peter Woollett inspect a rubber bush plant that had been treated a few months earlier.

Pasture management

Growing kilograms with legumes

Tasmanian cattle producers who don't capture the full potential of legume-based pastures to maximise kilograms of beef per hectare could be missing a golden opportunity.

Despite their production potential, perennial legumes only play a small part in Tasmania's feedbase. According to a recent Tasmanian Institute of Agriculture survey, they make up less than 12% of the state's total pasture composition.

Results from the recently concluded MLA-funded Winnaleah Towards 2000 With Legumes Producer Demonstration Site (PDS) showed perennial legumes such as red and white clover can significantly increase liveweight gains in Tasmania's high rainfall zones.

PDS project leader Peter Ball said the PDS, at its best, recorded a 40% liveweight gain/ha advantage for legume plots over grass-only pasture. This was measured in a high utilisation trial system where the stocking rate was based on feed supply.

"Over the two years of the trial - one a good season, the other poor - the average liveweight gain advantage for the legume plots/ha was 22%," Peter said.

"Pastures including red and white clover recorded a production advantage of 421kg of liveweight gain/ha above the grass-only pastures, equating to a potential economic advantage of up to $660/ha over the two years of the trial."

Modelling of the potential nitrogen response indicated that this production advantage would have been equivalent to, and marginally more profitable than, production achieved from applications of 84kg of nitrogen (at $1.34/kg) a year to the grass-only pastures.

Plotting it out

The trial was conducted from 2010 to 2013 by the Winnaleah Ringarooma Meat and Cropping Discussion Group on a property at Ringarooma in the state's north-east.

In 2010, the five trial plots of 1-2ha were:

- sprayed twice at the autumn break to limit weed competition
- direct drilled with Banquet® II ryegrass at a rate of 20kg/ha, Bounty white clover at 3kg/ha, Astred red clover at 6kg/ha and Stamina® GT6 lucerne at 6kg/ha during autumn into existing pasture
- fertilised at the same time with 100kg/ha of Diammonium phosphate (DAP)
- plots 1 and 5 were sprayed with dicamba to control volunteer white and sub-clover

From August 2011, the plots were stocked with 320kg trade steers and heifers (grown out to 450-500kg) grazing in 14 to 28-day rotations.

Peter said the percentage of clover composition was lower in 2012 than 2011 due to adverse seasonal conditions and the inadvertent application, across all plots, of an amicide weed spray to control corbie grub as part of the winter spray program.

Above: The difference between the lucerne-dominated pasture (right) and older ryegrass pastures (left) is clear on Peter Aldridge's King Island property.

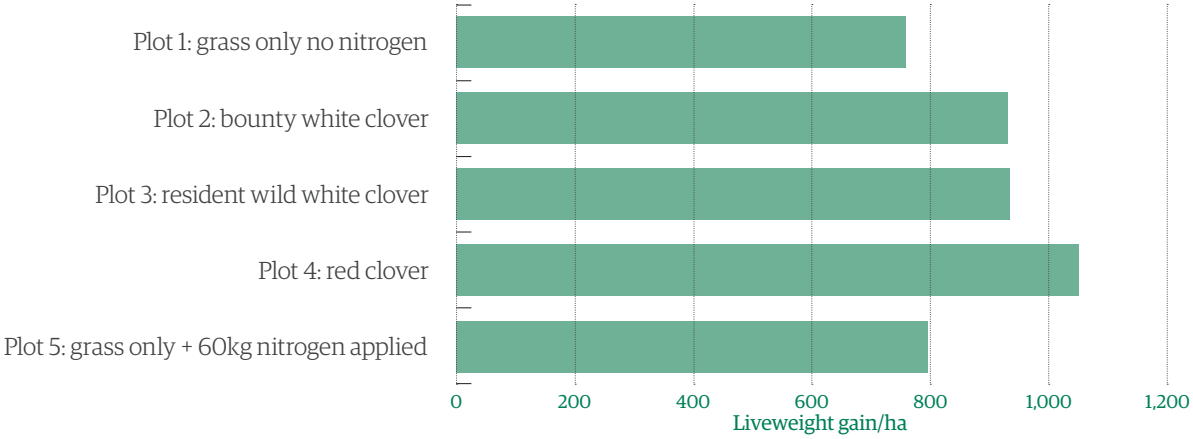
22%

average liveweight gain advantage on legumes in two-year trial

Table 1 **Composition of the five plots in 2010 and 2011**

Plot number	Plot design in 2010	Plot composition in spring 2011
1	• Banquet® II perennial ryegrass • No nitrogen	Volunteer white clover made up 3% of pasture
2	• Banquet® II perennial ryegrass • Bounty white clover	Clover made up 28% of pasture
3	• Banquet® II perennial rye grass • Stamina® GT6 lucerne	Lucerne outcompeted by ryegrass, wild white clover made up 26% of pasture
4	• Banquet® II perennial ryegrass • Astred red clover	Red and volunteer white clover made up 40% of pasture
5	• Banquet® II perennial ryegrass • Nitrogen fertiliser applied at 60kg/ha	Volunteer white clover made up 7% of pasture

Figure 2 Liveweight gain in 2011–12



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However, by 2013, following more favourable climatic conditions, the legume advantage was recovering.

In the first year of liveweight gain assessment, rapid 14-day rotations were needed initially to manage the feed on offer (FOO), with stocking rates of up to six to seven yearlings/ha. As the season progressed and FOO declined, the rotations were lengthened to 28 days and the stocking rate decreased.

"The 2011-12 data shows the biggest differences recorded so far between the grass only and grass-plus-legumes pastures. The legume pasture showed an advantage in liveweight of between 23% and 38% respectively, mirroring that percentage of legume composition," Peter said.

"The sown white clover and red clover plots (2 and 4) yielded an average advantage of 421kg of liveweight gain/ha above both the grass-only plots (1 and 5) for the two years of the trial. This was an average advantage of 22% across the two years."

Peter said the trial clearly showed managing perennial legume compositions could be a productive and profitable proposition for high-rainfall Tasmanian grazing systems.

"It can provide a foundation of value that can be supplemented by strategic nitrogen application if required," he said.

"I think another benefit of the trial was the experience participants gained in legume management, including seeing the lucerne fail against the ryegrass – highlighting the need to control grass competition, seeing the impact of poor spray decisions and setting up rotations, stocking rates and rest periods to meet pasture composition targets."

Chair of the Winnaleah Ringarooma Meat and Cropping Discussion Group, Leon Quilliam, said the producers involved learned a lot from the PDS.

"The exercise really brought home the value of legumes in pasture when you get the mix right," he said.

"If you can achieve 60% grass to 40% legumes, you've got a good pasture base and, during spring and summer, legumes will cover all your nitrogen needs. However, in late autumn and winter, when it's too cold for them to be active, we found we really needed to add nitrogen fertiliser."

Leon said producers also gained insights to successful legume establishment, particularly the time of planting (best in spring) and the importance of controlling competition.

"The failure of our lucerne reiterated the importance of sowing it as a stand-alone crop and waiting for it to be well established before introducing pasture," he said.

Project dashboard: Winnaleah Towards 2000 with legumes

Financial contributions to the project:
$43,858

MLA levies: **50%**

Government: **50%**

Length of project:
3 years

Completed

The project is part of MLA's objective to:

Create opportunities through genetic research and management practices to improve pasture and forage crop productivity, quality and persistence.

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Do you have an idea for a PDS? Contact southern PDS Coordinator **Gerald Martin** on T: 08 8556 2900 E: gerald@agresults.com.au

Download Tips & Tools: *Grazing management for mixed perennial-based pastures*
www.mla.com.au/perennialbasedpastures

King Island cattle producer Peter Aldridge's paddocks demonstrate the principles of the Winnaleah Towards 2000 with Legumes Producer Demonstration Site (PDS) at Ringarooma. Thirteen of the producers involved in the PDS visited his farm and were impressed by his approach.

Improved root mass of plants shows the positive impact growing perennial legumes is having on the whole pasture system.

In winter look for nodules on a young lucerne plant, checking for presence and pink colour. Those two p's indicate a promising start.

Pasture management

Lucerne finds an island home

Snapshot

Peter Aldridge, King Island, Tas.

Property: 1,600ha

Enterprise: Cattle production

Livestock: 1,000 Angus and Hereford breeders, 500–800 trade steers

Pasture: Ryegrass, cocksfoot, medic, clover, lucerne

Soil: Alkaline peat, sandy loam, sand

Rainfall: 950mm

Lucerne is green coloured gold for King Island's Peter Aldridge. In this unique environment, the nitrogen-rich legume delivers all the plant's benefits but few of its drawbacks.

What started out as a way to disprove a suggestion from his sons that lucerne could be a success in King Island pastures is still paying dividends to Peter 10 years down the track.

"I told them 'don't be stupid, it'll never grow' and I tried it just to prove my point. I sprayed out 5ha and drilled it in and, a decade later, it's still fantastic," he said.

"King Island is God's own country for lucerne – I think more people should get on board and plant it here."

There's no doubt lucerne has proved a boon for Peter. It is cost-effective to plant and has rejuvenated old pastures sown down to clover and ryegrass during the 1950s.

Peter's average stocking rate has lifted from 15–22 DSE during the past 10 years. On the very worst of his country, it has improved from seven DSE to 15 DSE.

The lucerne paddocks are used solely for finishing young stock and, during winter, the cattle achieve weight gains of 2kg/day.

"Its persistence is brilliant; the only problems we get occasionally are red legged earth mite infestations and regrowth of box thorn," Peter said.

"Our winter production of volunteer ryegrass has radically improved, clover has returned and country once dominated by spear grass and cape weed has become far more productive because of the free nitrogen in the soil."

The cattle graze the legume, growing on wind-swept sand dunes, year-round without any protection from bloat.

"We don't really understand why we're able to do it – obviously it's got something to do with the King Island environment," he said.

"Apparently about 1t/ha of salt drops on the ground/year here from the atmosphere, maybe that's why we can get away with it. We also have severe deficiencies of copper, cobalt and molybdenum (for which the cattle receive supplements)."

Whatever the reason, Peter is making the most of it, regularly turning off one to two truckloads of heavy, two-tooth steers (600–650kg) and sometimes heifers at 500kg when market opportunities arise.

"We sell to either Greenhams at Smithton or JBS Swift at Longford in Tasmania, with our product underpinning their King Island beef brands," he said.

To try and ensure a constant supply from his property on the northern tip of King Island, Peter runs a 1,000-cow Angus and Hereford herd with 60% calving in spring and the balance in autumn.

Bulls are joined to their own breed for the first three weeks of joining to ensure adequate numbers for replacements, and then swapped over for the next three weeks to produce terminal crosses – black baldies and even some Charolais.

Peter Aldridge in his lucerne paddock, which shows the benefits of increased nitrogen.

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Liveweight gain

Weighing in

Across northern Australia, post-weaning liveweight gain in cattle varies widely, even within individual herds managed under similar conditions. An MLA-funded study has found no single factor contributes to the number of 'poor doers' in a mob.

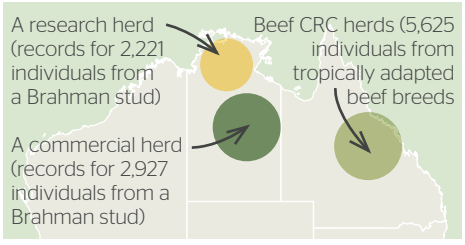
The Northern Territory Department of Primary Industry and Fisheries and AusVet Animal Health Services project aimed to identify reasons for variation in liveweight gains within herds.

In many cases, the growth rates of the best performing animals were limited by the digestibility of their base diet; but a major change to base diet is not feasible or economical when the enterprise is based on native pastures.

Stage one: number crunching

During the first stage of the project, data was examined from the cattle herds shown in figure 1.

Figure 1 Locations of the cattle herds involved in stage one



The data revealed a number of factors explaining variation in weaning weight and post-weaning weights (see figures 2 and 3).

** Near infrared spectroscopy*

Figure 2 Factors explaining variation in weaning weight – stage one findings

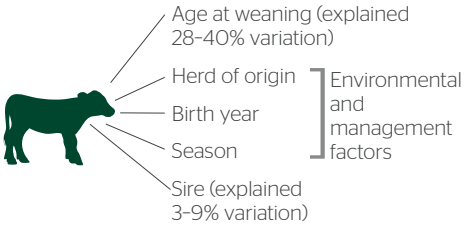
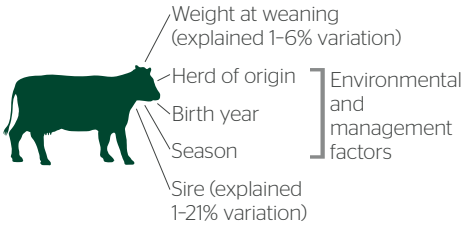


Figure 3 Factors explaining variation in post-weaning growth rates – stage one findings



Stage two: observation

The second stage of the project made observations on 11 commercial Northern Territory properties.

The study collected data on:

- → growth traits (liveweight, hip height and body condition score)
- → temperament traits
- → adaptive traits (tick score, buffalo fly count, lesion score for buffalo flies, HGP implant timing and status, faecal egg count, faecal oocysts count)
- → disease status (pestivirus, bovine ephemeral fever anaplasmosis); and
- → husbandry procedures

Additional small, nested studies (measurements for a subset of animals from some or all properties) included biochemistry and serology testing on serum samples, parasite testing on faecal samples and faecal NIRS* testing. Major findings from stage two are presented in table 1.

Table 1 Stage two findings

Characteristic	Findings
The best performers for the next year	Weaners that were heavier and taller than average (based on liveweight at the final observation) ie additional height at weaning provided a long-term weight benefit
The second best performers for the next year	Weaners that were heavier and shorter than average (based on liveweight at the final observation)
The worst performers for the next year	Weaners that were lighter and shorter than average

Project dashboard: Casual factors affecting liveweight gain

Financial contributions to the project:
$525,000

MLA levies: **50%**

Government: **50%**

Length of project:
5 years 10 months

Completed:
June 2013

The project is part of MLA's objective to:

Create opportunities through research and extension to improve reproduction efficiency in northern beef (by five percentage points).

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Groups of producers wanting to test research findings can apply to MLA for funding through the Producer Demonstration Sites (PDS) program at: **www.mla.com.au/funding-for-producers**

Gaining weight in the top end

Research findings from the liveweight gain project have aided productivity gains in the Venturin family's Northern Territory cattle business.

Robert Venturin, his brother Paul and father Leo own three Territory stations. 'Murranji Station' is a stand-alone enterprise running cattle for southern markets and live export. Their breeding station, 'West Elsey', is complemented by a finishing block, 'Finniss River', near Darwin. Steers and heifers from West Elsey go to Finniss River each September for export in May.

Snapshot

Robert and Fran Venturin, Finniss River station, Darwin; Murranji Station, North Tanami; West Elsey, Sturt Plateau, NT.

Property: Finniss River – 20,000ha; West Elsey – 70,000ha; Murranji 430,000ha

Enterprise: Breeding, finishing for export

Livestock: 4,000 Brahman/ Droughtmaster breeders, 2,000 head finished annually

Pasture: Native perennial tussock

Soil: Range from open woodland on Sturt Plateau to floodplains at Finniss River

Rainfall: Finniss River – 1,800mm, Murranji Station – 560mm, West Elsey – 800mm

Recently, they contributed 186 Finniss River steers to the liveweight trial run by the Northern Territory Department of Primary Industry and Fisheries and AusVet Animal Health Services (see story page 26). The study helped the Venturins identify pressure points that influence weight gains in their herd. These included:

- **Blood samples showed 30% of the Finniss River herd had a level of three-day-sickness.** The Venturins are considering running their own trial to assess weight gains of vaccinated stock.
- **DNA tests showed some bulls were out-performing others.** They are awaiting the final DNA results to identify which genetic lines are producing the highest and lowest performing progeny as a tool for bull selection.
- **Their HGP strategy is paying off.** Compared to other stations in the trial, which averaged 12% implant loss, the Venturins' steers had 2% HGP implant loss.

Administration of hormonal growth promotant (HGP) 400-day Compudose at weaning helps steers through their first wet season. The Venturins maximise the value of this expense by training staff to implant the HGP correctly and hygienically.

Robert said introducing buffalo fly ear tags also improved weight gains. Cattle receive a tag on arrival at Finniss River, and a second tag four months later (with a different active ingredient).

"Previously, cattle would sulk in mobs with a black cloud of flies about them but since we started using the tags they get on with the job of eating and are not as stressed," he said.

He credited the decision three years ago to transition from Droughtmasters to Brahmans as another parasite management strategy.

The Venturins regularly benchmark their business through programs like Cash Cow and are keen to participate in industry research.

Rotational response

Three years ago, the Venturins invested $120,000 at Finniss River to develop cell-grazing and install a Nutridose water medicator. Robert said these approaches, combined with strategies such as HGPs and buffalo fly eartags, had lifted turnoff weights by 15%.

"Rotational grazing has been our most effective management decision," Robert said.

"It has enhanced pasture quality and utilisation and improved our state of mind, as cattle are now very calm from regular handling."

Half the Finniss River station is flood plain, which serves up a smorgasbord of nutritious native grasses and is only grazed from September, to ensure livestock don't submerge pasture. In the wet, stock are moved to higher areas to graze on Tully grass.

Stock are run at a density of 50 head/ha and rotated every one to two days, with a full rotation taking about 30 days.

Stock are weighed to monitor performance – they gain 700-750g/day on the flood plain during the dry season and 280g/day during the wet.

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Robert and Fran Venturin with their children Thomas, Hunter and Olivia at Murranji Station.

Liveweight gain

Research has revealed cost-effective strategies to reduce cattle turnoff age in regions where growth rates are traditionally low.

A more profitable path

The MLA-funded project found that shrubs, such as leucaena, can be a profitable path for northern producers to increase growth rates to access premium markets like Meat Standards Australia (MSA).

Queensland Alliance for Agriculture and Food Innovation (QAAFI) Principal Research Fellow Dr Stuart McLennan led a team of scientists investigating the economics of increasing whole-of-life growth rates for livestock in tropical regions in 2009–2012 prior to the dry conditions.

"Increasing liveweight gains improves the chance of meeting the specifications of high-value markets and increases flexibility, so producers can take advantage of changing market opportunities," Stuart said.

Meat quality is closely aligned with age, as defined by dentition and ossification, especially in *Bos indicus* types. For example, to increase the likelihood of higher meat quality, a realistic target is a finished liveweight in excess of 500kg at about two-and-a-half years of age.

Low seasonal weight gains, escalating supplementation costs and limited access to improved forage systems and feedlots means northern producers can struggle to achieve the growth rates of about 180kg/year required for higher value domestic and export markets, or to reliably comply with MSA.

"In higher production regions of Queensland and southern Australia, producers can turn cattle off at a younger age, but this goal is not realistic for many northern producers who must manage extensive enterprises, low-fertility soils, pastures with low nutritive value, and a highly variable climate," Stuart said.

The grazing trial used Brahman crossbred steers (see 'The Nuts and bolts' article on page 29) and researched biological and economic responses from various strategies. It demonstrated that in the seasonally dry environment of northern Australia, feeding high-input supplements or specialised high-quality forages to steers can reduce the post-weaning time to slaughter by at least 12 months, compared to conventional practices.

The research also found:

- Finishing steers on leucaena produced the highest gross margin and reduced age at slaughter by at least 12 months compared to the low-input growth path of minimal intervention.
- The cost of supplement inputs can be reduced without affecting carcase weight/quality by restricting high-input feeding to just one dry season post-weaning, rather than two and exploiting compensatory growth to assist in meeting market targets.
- Seasonal conditions can have a profound impact on the outcomes of any nutritional intervention practices and it is important to have alternative 'bail-out' strategies available.
- Hormone growth promotants (HGPs) are a cost-effective treatment for increased weight gain; however, if they are used as the only strategy it is generally not enough to markedly reduce age at slaughter. Also, HGP use virtually precludes compliance with MSA.
- Other strategies – such as opportunity feeding – can be profitable, but there is a higher level of risk with feeding ventures that depend on future prices for success.

Stuart said the combined effects of high supplement cost, low conversion of supplement to liveweight gain and compensatory growth made it difficult to identify supplement strategies that would be profitable.

"The exception to this is perhaps when supplements are fed close to marketing, thereby eliminating compensatory growth, and where the cattle will be sold 'out-of-season' and attract a price premium."

He said an important consideration was the weight of the weaners selected for feeding. Heavier weaners required less overall weight gain to reach final weight targets and so took less supplementary feed.

Will it pay?

When assessing economic outcomes, factor in:

- **Productivity of the region:** soil fertility, pasture quality and environmental conditions affect annual growth rates.
- **Supplementation costs:** supplements may be too expensive to use at high levels for extended periods, especially in extensive northern grazing enterprises.
- **Market opportunity:** what is the likely price premium for producing heavier, younger carcases that comply with MSA or the Pasturefed Cattle Assurance System?
- **Opportunity cost:** could the grazing resource be used in another way?
- **Effects on herd structure:** a younger turn-off will increase the proportion of breeders, which have higher costs of survival in northern enterprises.

3½ months less

to reach target weight of 532kg when grazing leucaena, compared to high-input supplements.

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Learn more about meeting market specifications with MLA's Beef Specs Calculator at: **www.mla.com.au/beefspecs**

The nuts and bolts

Researchers trialled different growth paths in the northern speargrass region, with the target of finishing *Bos indicus* crossbred steers by two-and-a-half years, with four permanent teeth or less, weighing 540–620kg LW (280–320kg dressed), to meet MSA specifications.

Mobs of weaner steers (200–210kg) were either:

- Given a low-input treatment (salt/urea/sulphur dry lick as weaners only);
- Fed high input supplements (based on molasses/urea/protein meal) in either one or two dry seasons post-weaning; or
- Finished on leucaena/grass pasture over about eight months.

Half of each group were implanted with HGPs from weaning to slaughter.

Results:

The high-input supplement treatments increased growth rates markedly, even if they were only fed in one year, and allowed the steers to be slaughtered at about two-and-a-half years (12 months earlier than those on the low-input system).

However, in each case, the cost of feeding high-input, high-cost molasses-based supplements over several months was very high and reduced gross margins, despite increasing the compliance with MSA. Part of this lack of profitability from feeding was due to compensatory growth in the wet season eroding the response to feeding.

HGP use was a cost-effective growth strategy when combined with improved nutrition, despite only 4% of the carcases from HGP-implanted steers achieving MSA boning groups of 10 or less. In comparison, 75% of the non-implanted steers finished on leucaena or using the high-input supplements were MSA-compliant.

Shifting cattle to leucaena pasture in the finishing phase increased growth rates markedly, to 0.8 kg/day over 200 days, so cattle were slaughtered at 532kg – three-and-a-half months earlier than those fed high-input supplements. In contrast with supplement treatments, finishing on leucaena increased gross margins over those given the low input treatment.

The grazing trial was conducted at Swans Lagoon Research Station, Ayr, and Brian Pastures Research Station, Gayndah.

Fox with spots: *link to sheep measles*

An MLA-funded research project has proved, for the first time, that foxes are a host for the sheep measles tapeworm.

The project began in 2011 and was led by Charles Sturt University Senior Research Fellow Dr David Jenkins, with DNA analysis of fox carcases performed by Charles Sturt University (CSU) Animal Science honours student Thomas Williams.

"It was previously believed that foxes couldn't carry the sheep measles tapeworm," Thomas said.

"But after examining more than 500 foxes we found two that were carrying the parasite; one at Jugiong in NSW and one at Katanning in Western Australia.

"It doesn't sound like much, but with the enormous fox population we seem to have in Australia, even 0.4% is bound to be a lot of animals."

The research followed data collected by the National Sheep Health Monitoring Project which showed sheep measles was occurring much more commonly in sheep than previously realised, particularly in Western Australia.

While the disease has no impact on human or animal health, it can have a major economic impact on affected producers and processors due to rejection of infected carcases by buyers, and is a potential international trade impediment.

"The discovery that foxes appear to be acting as a transmission pathway means we have to revisit our sheep measles control strategy," David said.

"We certainly don't want people to stop their current control practices, so they need to continue regularly de-worming farm dogs and only feeding them safe food, such as dry biscuits, cooked or pre-frozen meat.

"However we also need to consider introducing a vaccine and we have started talking to a couple of vaccine companies about this."

4–8 foxes/km²
in Australia's farmland

Fast facts

- Foxes are found in all parts of Australia, except the tropical north.
- Sheep measles are small cysts in the muscles (especially the heart) of infected sheep which each contain a tapeworm head that, if eaten by a dog, can develop into a two-metre long tapeworm, *Taenia ovis*.
- Sheep measles infection occurs when sheep accidentally eat eggs passed in dog or fox faeces.
- It was previously believed that foxes did not carry *Taenia ovis*.

David said a highly effective sheep measles vaccine was developed in the late 1980s and registered in New Zealand, but never used.

He said the vaccine could potentially be registered for use in Australia within a few years, and combined with a clostridial vaccine to encourage adoption by producers.

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CSU Animal Science Honours student Thomas Williams, who worked with Dr David Jenkins on an MLA-funded research project which proved foxes do carry the sheep measles tapeworm. Thomas' poster detailing the findings won the Best Student Poster at the School of Animal and Veterinary Sciences 2013 Research Symposium and was also included in the poster session at the 24th International Conference of the World Association for the Advancement of Veterinary Parasitology.

Nutrition

Obesity and food security:

the wide ranging concerns in global nutrition

Veronique Droulez
MLA Nutrition Manager
Global Marketing

MLA Nutrition Manager Global Marketing Veronique Droulez recently attended international nutrition meetings in Europe and the Middle East, gaining valuable insights into future global food policy, emerging trends in nutrition and implications for MLA. Here she shares what she learned.

You are the nominated representative of The International Meat Secretariat at the International Conference on Nutrition. What does it involve?
An initiative of the United Nations, Food and Agriculture Organisation and the World Health Organisation, the International Conference on Nutrition, to be held this year, is one of several activities to inform global food and nutrition policy.

Attending a precursor meeting in November 2013 provided a unique opportunity to meet international nutrition experts, who will influence global food policy and regulations in the future.

Since global policy tends to influence domestic policy, these meetings are required to ensure the relevance of MLA's nutrition program, to ensure that beef and lamb is appropriately represented and continue to be recommended and enjoyed as part of a healthy, balanced diet.

As Australia was the first country to address sustainability in its dietary guidelines, MLA is taking the lead in building the case for meat including beef and lamb on a global level.

What is ahead for global food policy and how is it relevant to MLA?
Sustainable production and consumption are emerging as key concerns, particularly in relation to food and nutrition security, with calls for greater alignment between agriculture and nutrition policy.

With obesity levels rapidly increasing, the need to consider the nutritional quality of the food supply as part of food security, and not just the amount and cost of food, will be crucial. Policy directions being considered prevent all forms of malnutrition ie obesity, nutrient deficiencies and under-nutrition.

You had a media stopover in Dubai. How did you promote Australian beef and lamb?
I gave five media interviews in Dubai about how to lose weight and maintain a lower weight through a higher protein, low-GI diet. This resulted in articles being published based on MLA's *Live Well Plan* for healthy eating and weight loss (the plan recommends eating beef and lamb three to four times a week).

The interviews stemmed from a nutrition presentation to a group of eight Middle Eastern journalists in Australia in October which generated interest in 'diabesity' – the term used to describe the increasing prevalence of diabetes associated with increasing levels of obesity.

They were intrigued by the term as high obesity levels in the region combined with a genetic predisposition to type 2 diabetes means prevalence of diabesity is high in Middle Eastern populations.

We plan to follow up interest in our *Live Well Plan* and are developing a PR campaign built around MLA Middle East's Executive Chef Tarek Ibrahim who successfully lost weight following the *Live Well Plan*.

What are other emerging global nutrition trends?
The first 1,000 days, which is the period from conception to a child's first birthday, is considered the most crucial time for optimal nutrition for lasting benefits through life. There is an opportunity to promote the nutrient-rich content of beef and lamb, in particular iron, zinc, vitamin B12 and protein – nutrients which are critical for healthy growth and development.

At the other end of the life spectrum, healthy ageing is a big opportunity for our beef and lamb industries with increasing evidence of higher protein requirements in the elderly.

We are exploring the importance of zinc-rich protein dietary sources – a key point of differentiation for beef and lamb.

What's on the nutrition marketing agenda in 2014?
We plan to widen our audience and media reach, making our various brochures, diet plans and information resources available to dietitians and media in key global markets, such as South-East Asia.

Domestically, we are continuing to target other healthcare professionals, including GPs, practice and child health nurses; schools, through our relationship with the Home Economics Institute of Australia via our marketing campaigns and through targeted media.

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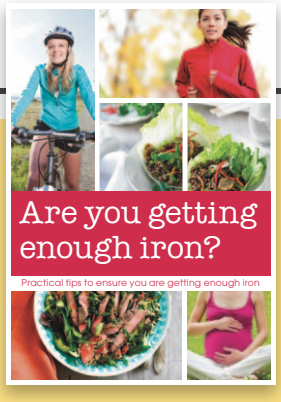


Ironing out the facts

Many young women mistake the subtle symptoms of iron deficiency such as tiredness, lack of energy and poor concentration for a busy lifestyle.

To help women achieve and maintain healthy iron levels, MLA has updated its *Are you getting enough iron?* brochure.

Last released in 2009, the resource targets women (18–40 years) who are at risk of deficiency and provides a practical guide to eating an iron-rich diet.

The best way to prevent iron deficiency and maintain healthy levels is to eat an iron-rich diet which includes foods high in well absorbed iron such as beef and lamb three to four times a week.

The brochure has been distributed to healthcare professionals including dietitians, general practitioners and practice nurses, to be promoted and used with their patients.

www.beefandlamb.com.au/iron

Lunch box inspiration

MLA's new lunch box plan is designed to help children perform in the classroom and learn to love a lunch box which includes beef and lamb.

To make it easier for children to get involved in their own lunch box preparation, MLA enlisted the help of Dietitian Kate Di Prima to devise a handy recess and lunch meal plan, lunch box portion template, recipes and lunch box tips.

"Packing a nutritious school lunch, which includes beef or lamb, wholegrain bread, vegetables, fruit and dairy foods, provides critical nutrients such as protein, carbohydrate, iron, zinc and B vitamins, which are important for energy and learning at school," Kate said.

The campaign stems from MLA-commissioned research which revealed only one third (33%) of 8-14 year olds pack a lunch box every day.

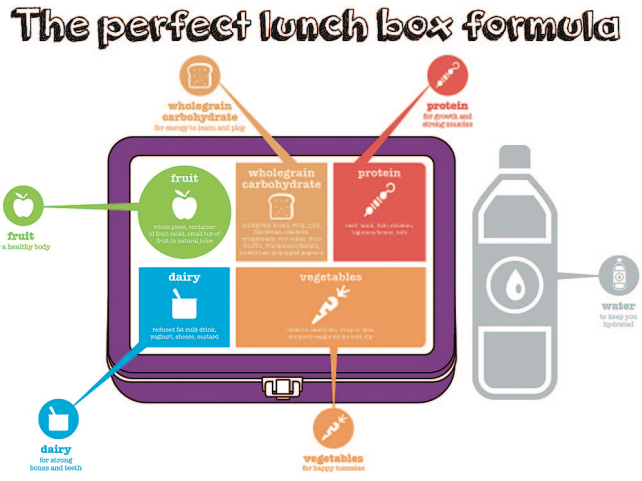
The study of more than 400 children showed that those who packed their lunch only occasionally were less likely to eat everything in their lunch box than those children who packed it every day.

"Including foods such as beef and lamb three to four times a week - such as that to fill a sandwich or wrap - provides iron required to support brain function and zinc for a healthy immune system," Kate said.

"This is especially important as low iron can contribute to tiredness and poor concentration in the classroom."

For easy sandwich and wrap fillings that kids can pack themselves, Kate encourages parents to plan dinner meals which can be used for lunch box leftovers the next day.

For the recess and lunch meal plan, lunch box portion template, top lunch box tips for parents and kids, and dinner and lunch recipes, visit **www.beefandlamb.com.au/lunchbox**



The lunch box template is an easy-to-use formula designed for school children to follow when packing their lunch.

Recipe

Planning ahead is key to ensuring kids get healthy and nutrient-rich meal options in their school lunch boxes. Leftovers like cold roast rump or rissoles provide the perfect fillings for sandwiches, wraps and pita bread.

Italian beef rissoles

with grilled eggplant, tomato and parmesan

Serves: 4 (plus leftovers)

Preparation time: 15 minutes

Cooking time: 35–40 minutes

Ingredients

800g lean beef mince

1 tbsp oregano, chopped

2 garlic cloves, crushed

3 tbsp extra virgin olive oil

1 large eggplant, cut into 1cm slices

500g jar tomato pasta sauce

50g parmesan cheese, grated

Steamed green beans, baby carrots and broccolini, to serve

Method

1. Preheat the oven to 180°C. Combine the mince with oregano and garlic. Form into 12 rissoles and chill for 30 minutes.
2. Preheat a chargrill to high. Brush the eggplant slices with 2 tbsp of the oil and cook, turning regularly for 2–3 minutes or until well coloured. Line the base of a large roasting dish with the grilled eggplant slices.
3. Brush the rissoles with the remaining oil and chargrill for a minute on each side or until well coloured (the rissoles don't need to be cooked through). Place the rissoles in the roasting dish on top of the grilled eggplant slices, cover with tomato pasta sauce and sprinkle with parmesan cheese.
4. Bake for 20 minutes or until the rissoles are cooked through and the cheese and sauce are bubbling. Serve with steamed green beans, baby carrots and broccolini.

Tips

Turn leftovers into lunch: Italian rissole *panini*

For a delicious and speedy lunch option, halve leftover cold beef rissoles and place in crusty Italian *panini* rolls with spinach leaves, tomato and cucumber slices.

For a more filling meal:

- → Try serving rissoles with polenta.
- → Turn the rissoles into spaghetti and meatballs by rolling the meat into smaller balls rather than rissoles. Bake as per the recipe and toss through cooked spaghetti.
- → Try substituting the parmesan cheese with pecorino, a hard Italian sheep's milk cheese.

Business development

Finding new customers – MLA's global

How to find new customers

- Be at the frontier. Be first in the market.
- Be aware of countries with gradually growing imports of high end meat cuts and middle class growth.
- Bang the drum so Australia's reputation is developed, even if there are trade barriers.
- Understand strengths and weaknesses – look at competitors, short and long term growth potential, risks and trade history and utilise networks to gather information.
- Work with networks in-market to advocate against barriers and speak to exporters to gain their understanding.
- Be on the ground – in-market visits, establish contacts and engage in active trade talks.

MLA's Global Marketing Business Manager Stephen Edwards said there's no set of procedures for exploring potential markets, as each one presents unique opportunities and challenges.

"The starting point is to thoroughly research the market and ascertain whether commercial entities are able to operate, or whether it is just too risky because of a range of trade impediments," he said.

"Factors like import specifications or restrictions, trade requirements, competitor activities, supply chain logistics and their potential impacts must all be analysed.

"Once the basic market fundamentals are understood, it can take years of building relationships and connections with local authorities and importers while factoring in different cultural, economic and regulatory expectations before trade volumes really take off.

"Commercial partners are essential in exploring the initial opportunities, while MLA provides market intelligence, assists with knowledge of import regimes and to establish brands through cooperative promotions."

Maximising value

While new trade destinations are important, so is growth within existing markets.

"Australia already has strong ties with its established markets and new niches within existing regions can be just as valuable," Stephen said.

"Ideally, we'd like as many markets as possible – established and new ones – competing for the available product.

"It's about maximising the value of the carcase. The more markets that are open and demanding Australian product, the more value we are likely to extract for all sectors of the industry."

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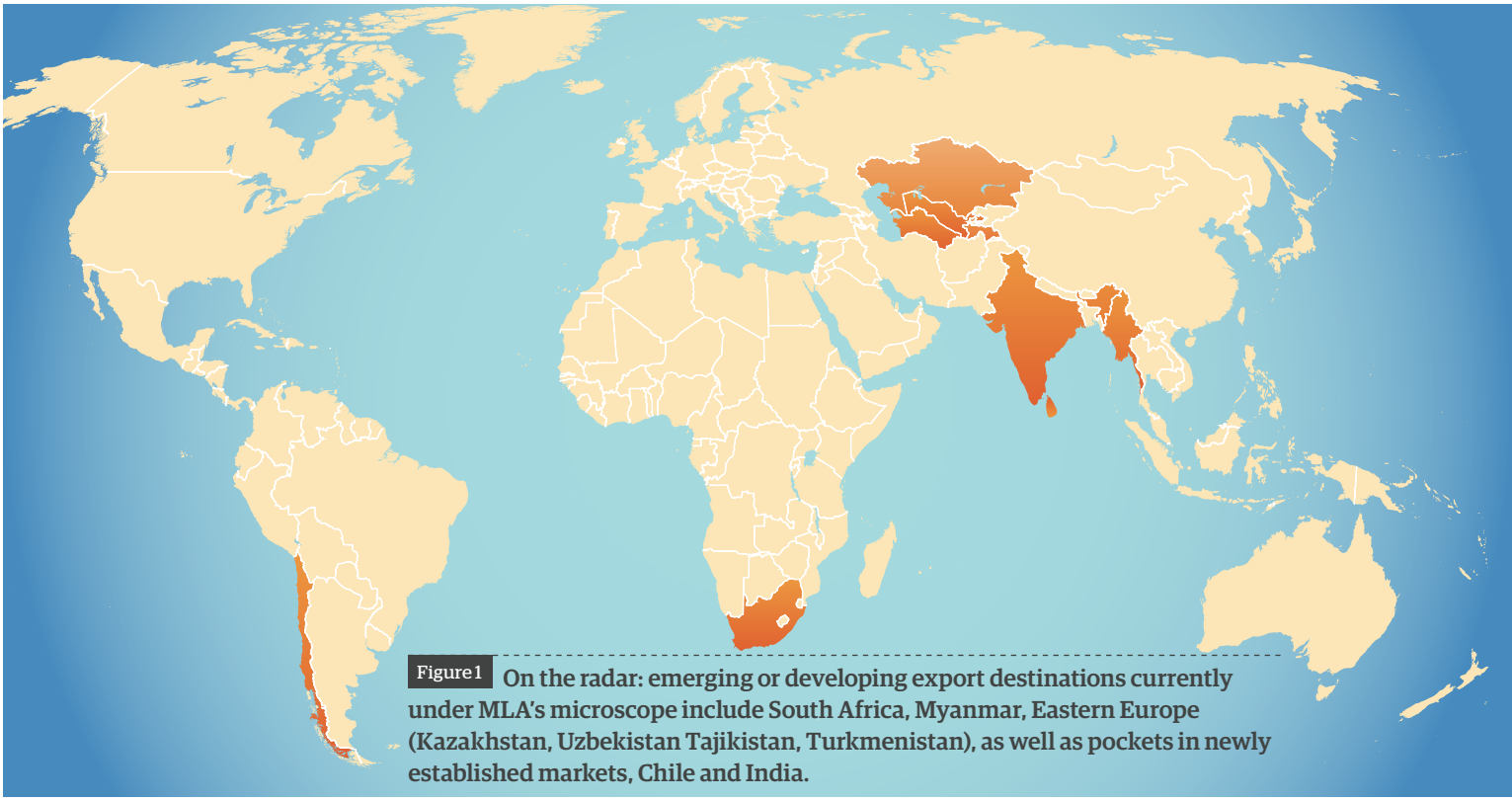


Figure 1 On the radar: emerging or developing export destinations currently under MLA's microscope include South Africa, Myanmar, Eastern Europe (Kazakhstan, Uzbekistan Tajikistan, Turkmenistan), as well as pockets in newly established markets, Chile and India.

mission Exploring opportunities to grow Australia's beef, sheep and goatmeat exports is an important task for MLA's global marketing and trade services teams.

The India story

Securing access to India as an export destination has been a long process.

Initial assessment a decade ago revealed opportunities to supply Australian lamb for the growing foodservice industry.

Exports of lamb began in 2001, but Indian import health certification arrangements were introduced which Australian authorities and exporters could not meet – effectively halting the trade.

MLA retained a presence, meeting with end-users, attending trade shows and building strong in-country contacts in an effort to work through the compliance issues.

In September 2012, the Australian Department of Agriculture, Forestry and Fisheries proposed revised certification arrangements to Indian authorities and both parties negotiated new conditions for the entry of lamb, sheep, goat, pork, uncooked meat products and edible offal.

Following this breakthrough, MLA has continued to facilitate relationships between exporters and Indian importers, resulting in six Australian exporters now exporting to India, Australian lamb being introduced into a major retail supermarket and being served in a five-star hotel chain, assisted by MLA's Industry Collaborative Agreement program.

Stephen said positioning Australian sheepmeat as a natural, clean and safe product appeals to the middle class Indian population with a taste for western flavours.

"The sector is increasing steadily in major cities like Mumbai, Delhi and Bangalore. They are intrinsic lamb eaters," he said.

"India was an obvious market to pursue, and its flexible, modernised and wealthy middle class population is a major source of demand."

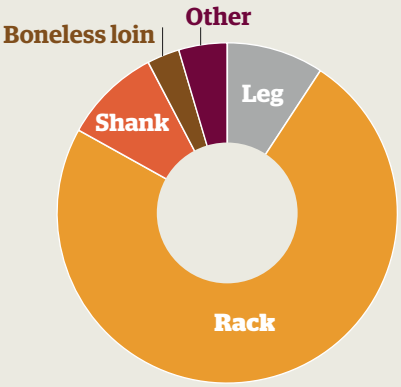
Economic and technical barriers are the two most obvious hurdles to establishing trade.

Despite overcoming certification issues, Australian lamb still incurs a 30% tariff on entry to India.

Recent detailed labelling requirements, compulsory on Australian lamb, are also an additional burden to Australian exporters.

One way to address this is via a bilateral trade agreement. Both the Australian and Indian Governments are negotiating a Comprehensive Economic Cooperation Agreement (launched in May 2011) to address tariff barriers and any additional 'behind the border' restrictions.

Figure 1 Australian lamb exports to India in 2013



65 tonnes
of Australian lamb exported to India in 2013

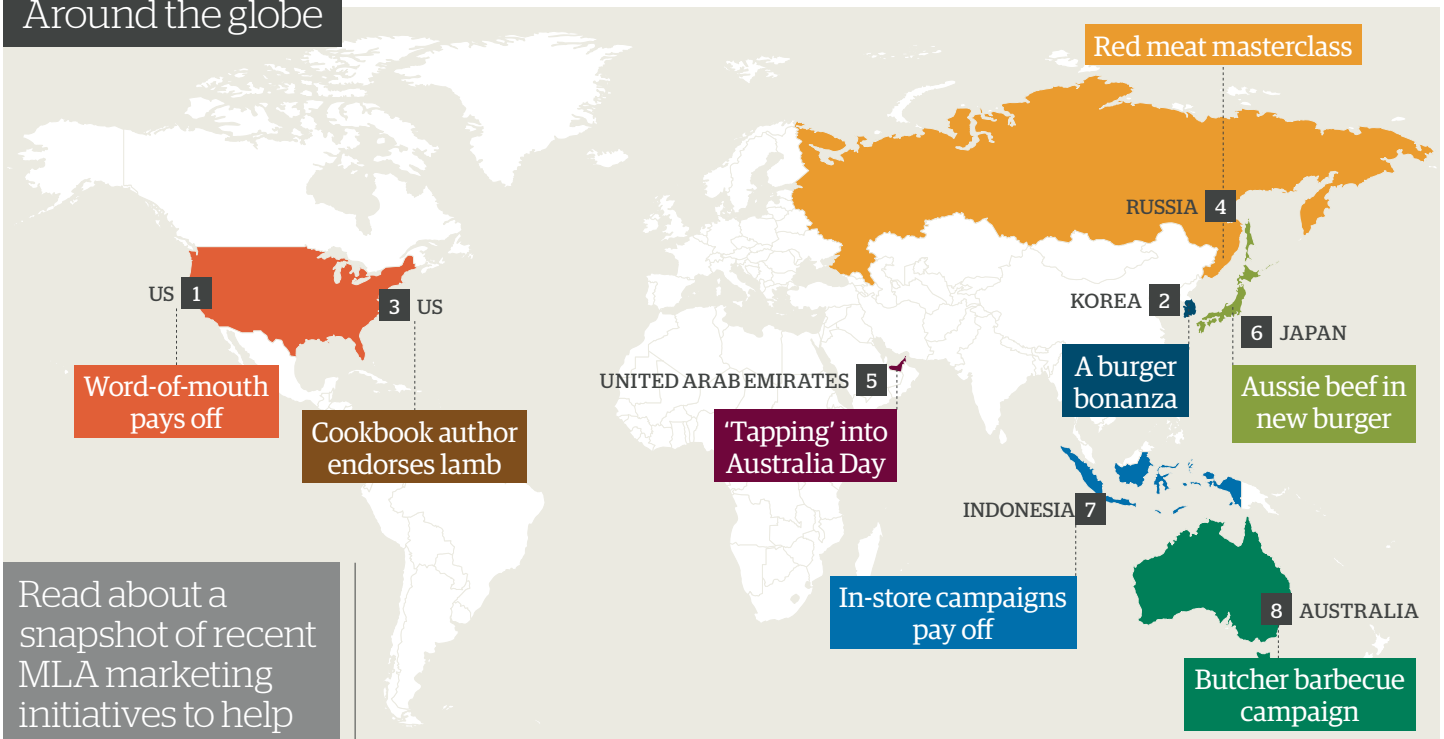
1.23 billion
people live in India

70%
Indian consumers eat meat

50%
Indian population under 25

264 million
middle class consumers in India

Around the globe



Read about a snapshot of recent MLA marketing initiatives to help boost demand for Australian beef and lamb both at home and in our global marketplace.

Chef Dirk Flanigan from Chicago (who is opening a new restaurant Il Coniglio) speaks with producer David de Pury, of Yerinberg Lamb, Yarra Valley, during the 2013 tour.

1 US

Chef tour inspires Aussie beef order

A US restaurant chain, with 399 outlets, began buying Australian beef after seeing videos and social media feeds of six influential US chefs who travelled to Australia on a sustainability-themed tour in February 2013. Coordinated by MLA, the tour demonstrated first-hand to chefs the commitment of producers to sustainable farming (see picture bottom left). The group visited properties, a feedlot, and processors in Queensland, NSW and Victoria. Another tour is now being planned in 2014.

Aussie beef to feature in another

399

US restaurant outlets

2 KOREA

One with the Lotz

MLA recently supported a two month promotion with Lotteria, the largest fast food chain in Korea, to celebrate its first anniversary of the 'Lotz Burger'. The Lotz Burger patty is made with Australian beef, and, after being launched a year ago, has become one of the chain's bestsellers. About 22 million Lotz burgers have been sold since it was launched and 3 million Lotz Burgers were sold during the two month promotion period. Lotteria customers enjoyed in-store sampling, lucky draw prizes, giveaways and meal size upgrades. The *Hoju Chungjung Woo* logo (clean and safe Australian beef) and nutritional information was printed on point-of-sale materials in all Lotteria's 1,090 stores nationally.

3 US

Selling lamb's value in the Big Apple

To bring to life the nutrition and health messages of lamb to a media and influencer audience, MLA was involved in the launch of a new cookbook, *Eating In Color: Delicious, Healthy Recipes for You and Your Family*. MLA enlisted the cookbook's author, Frances Largeman-Roth, to act as an endorser and supporter of lamb. The cocktail event in New York City was a unique opportunity to showcase lamb to a high-profile group of 24 editors and nutrition influencers from 15 media outlets.

4 RUSSIA

Far East gets a taste for Aussie product

A major Russian foodservice importer held three masterclasses for 160 chefs and retailers in the Russian Far East – Khabarovsk, Vladivostok and Yuzhno-Sakhalinsk. The classes included product usage demonstrations, recipe development, menu design, preparation and cooking tips, as well as product sampling in seven retail shops across the three areas. Attendees learnt about different cuts of Australian beef and lamb, with chilled lamb tenderloin and rack, veal rack, beef rib-eye, flank steak and rump featured in the product sampling. MLA shared costs with the importer and supplied point-of-sale material, take home packs and promotional videos for the events.

5 UNITED ARAB EMIRATES

Tarek, tongs and tap dancing

MLA Executive Chef Tarek Ibrahim with the Tap Dogs in Dubai.

To celebrate Australia Day, MLA held a barbecue as part of 'G'Day Dubai' with event partner Weber BBQ. Around 500 people attended, including the 'Tap Dogs', one of Australia's most successful theatrical groups. MLA's Executive Chef Tarek Ibrahim cooked around 500 lamb and rosemary sausages for the guests. Chef Tarek taught the 'Tap Dogs' some barbecue skills and Weber ran a competition to win a Weber 'Kettle' BBQ.

6 JAPAN

Australian beef in new burger

Lawson, the second largest convenience store chain in Japan with annual sales of around US$11 billion, has launched a new 'hamburg' beef burger made with 100% Australian beef. A media conference launched the new product at the Australian Embassy in Tokyo, attended by 30 media, generating media coverage in seven major newspapers with a cumulative circulation of over 10 million. For their new beef burger, Lawson chose Australian beef because of its safety, high quality and healthy attributes. Lawson is targeting sales of 20 million burgers a year, equivalent to 1,800 tonnes of Australian beef.

7 INDONESIA

Retail sampling success

To increase awareness of Australian beef and lamb among supermarket customers, MLA ran retail sampling programs and cooking demonstrations in various retail chains around Jakarta. The program aimed to entice more customers to buy Australian beef by promoting its practicality, ease of cooking and its rich source of nutrients. The program has already helped supermarkets increase their Australian beef sales by up to 14%.

8 AUSTRALIA

Winning the barbecue 'steaks'

To boost support for the "Throw another Steak on the Barbie" summer beef campaign MLA ran a consumer in-store competition among the 1,650 Australian Butchers' Guild members nationally. The competition promoted steak cuts ideal for barbecuing during summer. Butchers were supplied with point-of-sale materials and customers could enter a competition to win a Weber Summit BBQ or 100 Weber Q BBQ. The promotion attracted 3,475 online entries and sales of scotch fillet cuts were the best performer, increasing 3.8% during the promotion period, compared with the same period in 2012.

On the ground

Singapore

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Much has been said about the incredible growth in demand from China in the past 12 months, but our exports to smaller regions of South-East Asia are equally important.

Singapore, one of Asia's gastronomic gems, is where Australia retains more than a 90% share of the imported chilled beef and lamb market.

Traditionally, Singaporeans shop for their fresh produce, meats and fish in wet market stalls, but in the last decade, more households have turned to the many forms of almost 3,000 retail outlets for their fresh produce and meat requirements. Australian branded beef and lamb is stocked in the three major supermarket chains (with more than 250 retail outlets) dominating the Singapore retail industry, which all cater to high-end or mass-market customers.

Singapore is built around a strong economy and associated wealth of its 5.3 million inhabitants, multiplied by transient travellers dining across the 30-plus five star hotels and hundreds of fine dining restaurants within the city. Singaporeans spend more than A$5 billion annually eating out, of which restaurants account for 37%, fast food outlets 13%, and a further 12% attributed to food caterers (event functions/street stalls).

Buffet displays are becoming increasingly popular and MLA continues to support many hotel chains through butcher training, chef support and Australian-themed-fairs which cater to family dining demands.

To support growth and continued awareness among high-end foodservice cuisine chefs, MLA once again was a key sponsor of the recent World Gourmet Summit - a major annual event showcasing dining in Singapore. More than 700 of Singapore's top chefs descended on the week-long fair to share knowledge and ideas and MLA hosted and provided cooking and butchery demonstrations to more than 200 culinary school graduates.

Next month, 15 Australian exporters will jointly exhibit with MLA at the biannual Singapore Food Hotel Asia. The tradeshow remains a cornerstone to profile the best of Australian product and ensure our flag flies high in this small but significant market.

Market observations

Going into unchartered territory

Goatmeat production and exports reached record levels in 2013, buoyed by hot and dry conditions, strong export demand and a lower dollar.

Ben Thomas
MLA Market Analyst

Australian goat slaughter was estimated at 2.07 million head in 2013, up 12% year-on-year, and 29% on the five-year average, continuing what has been a decade of reasonably steady yearly increases.

Reflecting the rangeland population, and the hot and dry conditions, goat slaughter in Queensland is estimated to have finished the year up 17% year-on-year, at 763,884 head. Similarly, slaughter in Victoria and NSW was each up 19% year-on-year, at 827,239 head and 95,484 head, respectively. In contrast, slaughter in South Australia and Western Australia eased, at 358,693 head, and 27,200 head, respectively.

Underpinned by the surge in supply, the national over-the-hooks export prices in 2013 averaged 202¢/kg cwt across most categories (10.1–12kg cwt – 20.1kg+ cwt), a 6–7% year-on-year decline. The 2013 prices averaged 14–15% below the five-year average across most categories, despite strong international demand and the easing Australian dollar.

Goat production in 2013 was estimated at 31,525 tonnes cwt – the highest on record. In line with the increasing annual slaughter and the rising Boer goat population amongst the rangeland flock, production has steadily increased for a number of years. The 2013 volume was up 6% year-on-year, and 23% on the five-year average.

Underpinned by the high slaughter and production, Australian goatmeat exports during 2013 were 32,671 tonnes swt, up 12% year-on-year, and reached the highest volume on record.

Shipments to the US in 2013 accounted for nearly half Australia's total exports for the year, at 15,479 tonnes swt – down 4% on the previous year.

According to the Goat Industry Council of Australia, around 90% of goat production is generated from rangeland enterprises. However, going forward this is likely to decrease, as managed goat enterprises increase in popularity.

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Cattle projections

A brighter outlook for 2014 (if it rains)

Growing export demand, a lower Australian dollar and robust global prices should point to an improvement in cattle prices in 2014, following the lows of 2013, according to MLA's *Cattle industry projections 2014*.

However, the more positive outlook hinges on one crucial factor – substantial rainfall across the important cattle producing regions of eastern Australia.

The extent of the drought has not only pulled forward many cattle from early 2014 sales, but has increased mortality rates and reduced branding percentages which will reduce the available supply of cattle over the medium term.

With an underwhelming start to the year, if drought ravaged regions eventually register wet season falls this year, supplies are forecast to tighten almost immediately, leaving producers, processors, lot feeders and live exports competing fiercely for a significantly lower number of cattle throughout the year.

If northern areas fail to receive rainfall for a second consecutive wet season and the dry conditions across southern Queensland and NSW remain, cattle will continue to flow into the market, placing downward pressure on prices.

A shrinking herd

As at June 2014, the Australian cattle herd is forecast to be around 27.55 million head – a 2.5% decline from the preceding 12 months and almost 1.5 million head lower than the peak of 29 million in June 2012 (figure 1).

The tough breeding conditions throughout 2013 will impact the ability of the herd to rebuild over the medium term, with only small herd growth expected through to the end of the projected period, at 28 million head by 2018.

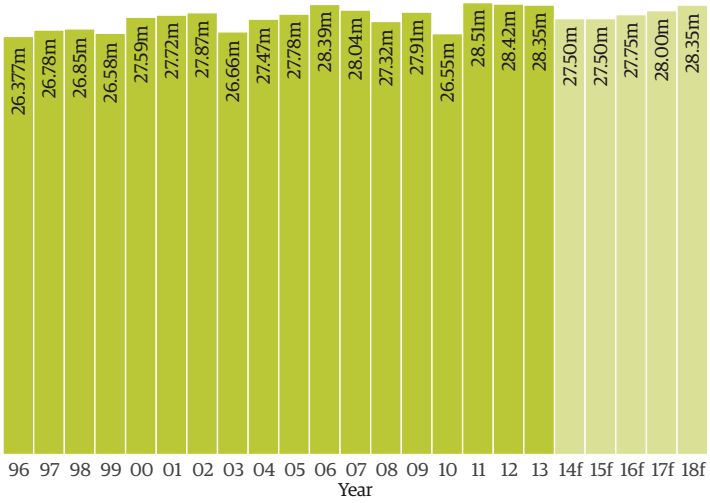
Beef supplies to tighten

The main contributor to the decline in the herd for 2013-14 was the highest adult cattle turnoff since 1978 – the end result of drought enforced reductions across regions of Queensland, the NT and northern and western NSW.

The slaughter level (figure 3), which reached 8.36 million head in 2013, was largely facilitated by a sustained surge of female cattle (up 23% in 2013) – exacerbated by the build-up of breeding cattle after 30 months of wet conditions. Forecasts are for slaughter to decline by 9.7% to 7.55 million this year. (Between 2000 and 2012, the annual adult cattle slaughter for Australia has averaged 7.7 million head.)

It's expected processors will be forced to locate slaughter-ready cattle from a much smaller national supply. The reduced branding

Figure 1 Australian cattle herd (million head)



Source: Australian Bureau of Statistics (ABS), MLA forecasts

f = forecast

Figure 2 Australian dollar in relation to the US dollar and the Japanese yen

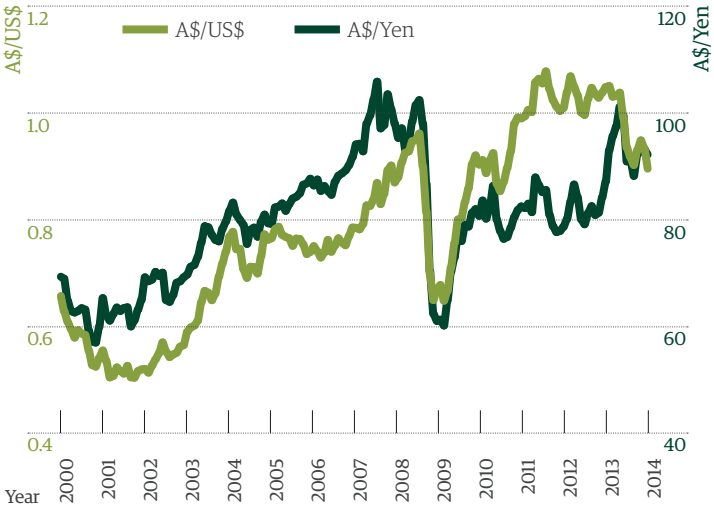
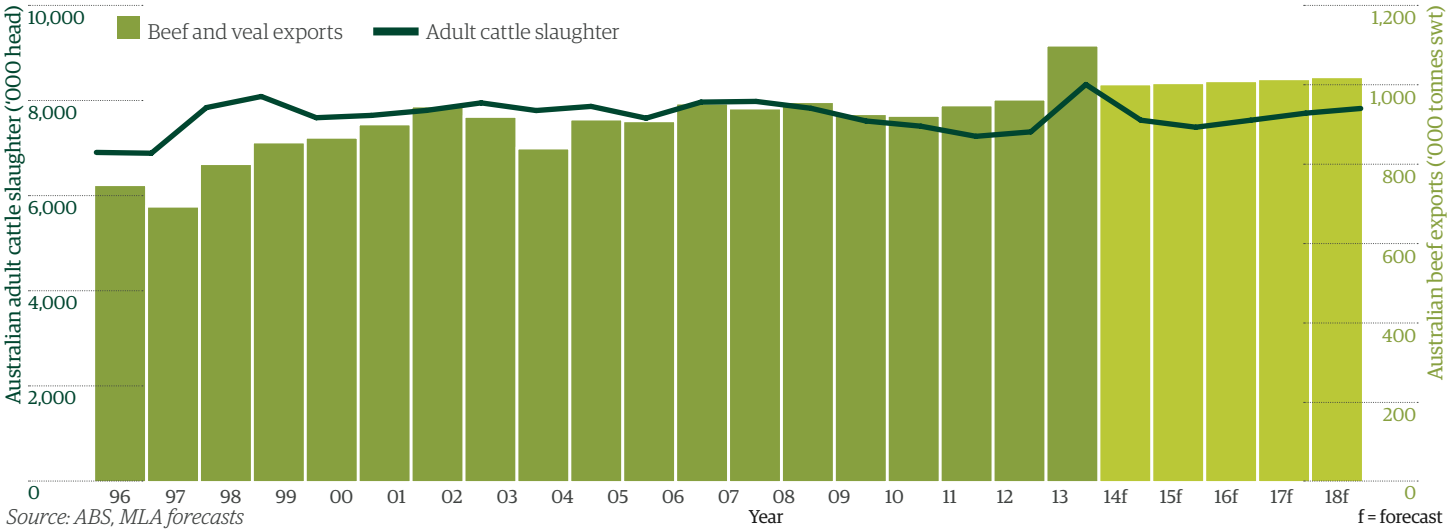


Figure 3 Australian adult cattle slaughter ('000 head) and beef and veal exports ('000 tonnes swt)



Source: ABS, MLA forecasts

f = forecast

rates for 2013, and into 2014, are expected to be felt most acutely in 2015, given the long-time lag required to finish cattle to suitable weights. Total adult cattle slaughter in 2015 is forecast to be 7.4 million head.

Demand to remain strong

Demand looks positive, primarily due to the combination of a lower Australian dollar (figure 2), recovering global economic conditions and the sustained purchasing from China.

After smashing the calendar year record in 2013, at 1.1 million tonnes swt, total Australian beef and veal exports for 2014 are forecast to decline 9%, to one million tonnes swt. The decline for 2014, however, is solely based upon the expectation of a sharp contraction in supply rather than waning demand.

Australian beef and veal exports are forecast to reach 1.02 million tonnes swt in 2014 (figure 3), with China and Indonesia increasing their share of Australian exports. Exports to Japan are forecast to decline 7% in 2014, to 270,000 tonnes swt, followed by the US (down 1%), at 210,000 tonnes swt, China (steady) at 155,000 tonnes swt and Korea (down 17%), to 120,000 tonnes swt.

Illustrating the expansion of markets, and the recent impact of China, Australian beef and veal exports to markets outside of the traditional "big three markets" of Japan, the US and Korea in 2014 are forecast to make up 41% of total exports – or an estimated 420,000 tonnes swt. This compares with an average of 21% (199,485 tonnes swt) since 2000 and a low point of 8.5% (77,230 tonnes swt) in 2004.

Livestock exports to continue recovery

Accentuating the anticipated increased competition for cattle in 2014 will be the sustained recovery in live cattle shipments, which after a 28% increase in 2013 are forecast to increase another 10% in 2014, to 900,000 head. Underpinning this increase will be the improved access conditions for cattle to Indonesia, forecast to receive 610,000 head (up 36% on the 2013 estimate).

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Read MLA's *Australian cattle industry projections 2014* at **www.mla.com.au/industryprojections**

Hamilton Meat Profit Day

Hamilton Meat Profit Day Committee Chair David Jenkin said the MLA-sponsored event on 19 February was a success for the region, attracting 420 visitors from across southern Australia.

He said the response was unprecedented, which he attributed to the high calibre line-up of speakers.

"It's inspiring to see that producers are still hungry for information, and a great event for the region," David said.

Last held in Hamilton in 2003, the day was a chance for attendees to gain valuable insights into succession planning, global markets and the future for technology, genetics and the viability of farm economics and ownership. It ended with a live Q&A session between some of MLA's Challenge participants. There was an inspirational speech from NSW cattle producer and quadriplegic Sam Bailey, followed by international beef, lamb and goat tasting plates and a barbecue dinner.

View webcasts from the event at **www.mla.com.au/hamiltonmpd**

Next month's *Feedback* will contain a succession planning feature including top tips from Isobel Knight who presented at the Hamilton Meat Profit Day.

Here are snapshots of what some producers took away from the event.

→ Colin Smith (left) and Roger Brown, Hamilton, Vic, both said the succession planning talk was one of the most interesting topics of the day.

Colin: "I've got three daughters, and I think it was a highly topical subject to cover. It's definitely an issue we need to work through and it was excellent to hear Isobel speak as it's often hard to find people with in-depth rural succession knowledge."

Roger: "I've got three sons, and I've learnt that we need to start the conversation on succession planning early. It was really worthwhile hearing about how important succession planning is to the business and it's made me more aware."

← Ros Alexander, Gorae, Vic:
Ros said she enjoyed Michael Edmonds' talk on global marketing and learnt about how 'brand Australia' is being positioned overseas, and insights into free trade agreements. She also gained a better understanding from Hassad Australia Operations Manager Peter Nilon about how they operate in Australia, and why foreign investment can be a good thing. Ros learnt that succession planning should become a priority for her family, and she wants to get onto it straight away.

Barb Jeffries, Heywood, Vic: →
Barb enjoyed the succession planning talk, saying it was realistic advice and the speaker talked common sense about its role in the business. She plans to change her communication methods in approaching succession planning.

She learnt that focusing on better genetics and pasture management will produce results, and would like to adopt more tools for this process. She also learnt from Stuart Kemp, director of PastureWise, to be aware of pasture marketing which could be misleading.

Upcoming events

Find more events and information at **www.mla.com.au/events**

WA Meat Profit Day and Beyond the gate tour

Network with fellow producers and learn about the range of activities your levies are funding to improve productivity, increase demand and position beef and lamb ahead of its competitors in domestic and international markets. If you are attending the WA Meat Profit Day, make the most of it and come to the Beyond the gate tour – a supply chain tour.

When and where: Beyond the gate tour – 2 April, Geraldton WA
Meat Profit Day – 3 April, Port Denison WA

Bookings and for more information:
Meat Profit Day – www.mla.com.au/MPD-WA
Beyond the gate – www.mla.com.au/BTG-Geraldton

Future Farm Live

An event showcasing seven years of agriculture research by the Future Farm Industries CRC.

When and where:
8 April, Canberra ACT

Bookings:
www.futurefarmonline.com.au/calendar.htm

LambEx Adelaide

A two-day conference for lamb and sheep producers, featuring speakers, an extensive trade exhibition, entertainment and an opportunity to communicate with all sectors of the lamb value chain.

When and where:
9–11 July 2014, Adelaide SA

Bookings and for more information:
www.lambex.com.au

CHALLENGER UPDATE

The six diverse livestock enterprises participating in the MLA Challenge have closely examined their business strengths and weaknesses and are putting in place strategies to improve their productivity and profitability. Here we talk to two MLA Challengers, Matthew Pearce and Marcus Sounness, about their learnings so far. To learn more about the Challengers go to: **www.mla.com.au/challenge**

Questions

'Muronga' quick facts

Adelong, NSW
Property size: 560ha
Herd / flock size: 300 breeder cattle
Breeds: Hereford/Angus
Rainfall: 865mm
Soil type: Granite based loams
Pasture type: Mainly improved perennial

'Paper Collar Gully' quick facts

Amelup, WA
Property size: 3,000ha
Herd / flock size: 3,000 breeding ewes
Breeds: Merino
Rainfall: 400mm
Soil type: Sandy gravel over clay and sandy loam
Pasture type: Sub-clover and lucerne based

By being involved in the MLA Challenge, what areas of your business have you identified as needing work?

The start of the Challenge coincided with the start of us farming as our own entity, so we didn't know what the limitations to the operation were. We had a good understanding of current management practices, but not the financial aspects.

At the whole farm level we really need to improve on succession planning, as my parents look to retiring, and we also need to clearly define everyone's working roles, particularly given that my wife Shannon is taking on more responsibility on the management side. In the livestock enterprise we need to upgrade our infrastructure for managing stock. We've set priorities, which include upgrading the laneway system and the sheep yards. We've also talked a lot with our mentor about how to attract and retain good labour because we need another full-time labour unit.

What strategies have you put in place already to improve this?

We've spent a lot of time on budgeting, as well as modelling cost of production using the MLA cost of production calculator. We have also used MLA's feed demand calculator to identify stocking rate opportunities. We've established that we can better utilise our feed supply, so we're doing some subdivision fencing to address this. Ground cover is one of our key performance indicators and we hope by better managing our feed supply, ground cover will improve too. Given that I also work off farm, we're trying to establish what is the optimum production level to compliment this.

One strategy that has been working well is Monday morning meetings, when we go over the plans for the week using Covey's time management grid (a system which helps users establish urgent versus important tasks). We've also used SWOT (strengths, weaknesses, opportunities and threats) analysis in our business planning, which has helped prioritise our infrastructure plans and identified the need for another labour unit. We've also started working more closely with the bank.

What's one key learning that has stood out for you so far?

The Challenge has made us think about why we're farming. It has always been a passion for me but I hadn't really thought about what I wanted to get out of it. We've spent quite a bit of time on goal setting and strategies.

We've been struck by the importance of planning around our key decisions in the sheep operation, and also how setting key performance indicators can identify not only how to get performance out of the livestock enterprise now, but also where to raise the bar when it comes to future improvements.

What are the seasonal issues you face in March and what actions do you take to respond to them?

March is generally a hot, dry month for us and usually when our feed base has run down. Two of our KPIs – ground cover and feed on offer (FOO) to late pregnant cows – have seen us change some management practices to try and meet these. We've weaned calves earlier to change the dry sheep equivalent (DSE) pressure on the property and we are running some larger mobs of cows to better utilise FOO. We're also resting country for cows to calve on in April with feed available and hopefully we won't have to provide supplementary feed.

With our 90% lambing target we'll be concentrating on managing the dry feed resource and working out the right amount of grain supplement to feed the pregnant ewes to keep them in condition score 3 for lambing.

Lambs will need to be separated and feed resources targeted to meet our turnoff targets of 100% lambs sold by the end of July.

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MEAT & LIVESTOCK AUSTRALIA

WA Meat Profit Day

Thursday 3 April 2014

'MEATING' EXPECTATIONS AND THRIVING

Irwin Recreation Centre, 1 Ridley St, Port Denison WA

The WA Meat Profit Day will have an extensive program of local and national speakers, demonstrations and displays covering topics to equip West Australian cattle and sheep producers with the tools they need to run productive, profitable and sustainable businesses.

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