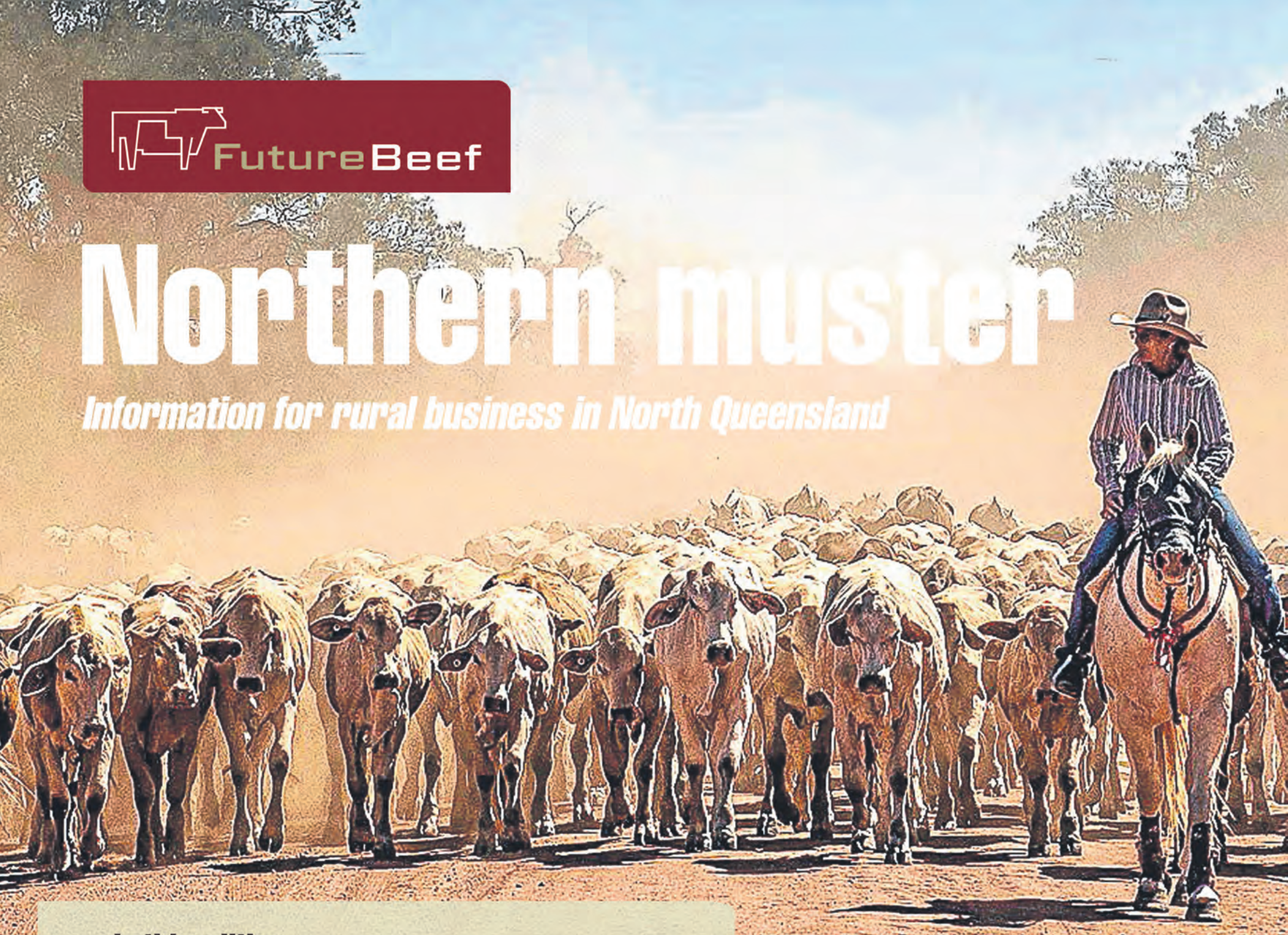
FutureBeef

Northern muster

Information for rural business in North Queensland



Picture: ALICE MABIN

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Issue 36 December 2014

Queensland Government

NORTH QUEENSLAND REGISTER

Market report

Boat, slaughter cattle enjoy surge in prices

THE GOOD news since our last report has been the rapid improvement in cattle prices for any classes of cattle that meet boat or slaughter specifications.

Best bullocks at JBS Townsville have reached $3.95 dressed weight and boat trade money is approximately $2.15/kg live for light cattle up to 350kg and $1.95/kg for heavier types up to 600kg.

Dry conditions are still being experienced over most of Queensland and as of early November, when this report was prepared, there has been a fair rush of good cattle into the marketplace and saleyard prices have started to ease. Large weekly kills have continued this year at near-record levels.

Exports to the US reached a record monthly total in September of 47,238 tonnes. The demand for lean manufacturing beef and good prices has driven this high monthly record.

By June 2014, at the close of the financial year, tonnage exported to all markets had reached a record 1.183 million tonnes. The recently finished Australian Agricultural Company (AACo) meatworks at Darwin has been commissioned and is planning to begin operations in March 2015.

Reports indicate that the plant will be processing approximately 520 head a day. As mentioned in the previous Northern muster market report, important factors need to stay in place for market strength in 2015. These include market access and demand in both boxed and live export destinations, as well as the value of the Australian dollar to remain close to the 90-cent mark or below.

Meteorologists are predicting a late and ordinary wet season across the North, however, they are not calling it an El Niño event just yet.

The best PCAS steers in Rockhampton reached $4.40 dressed and MSA grass steers $4.25, which is a record for both these classes.

Most producers are aware that a major review is under way on how the industry is being governed with Meat and Livestock Australia (MLA) and the Cattle Council under the spotlight.

Some facts and figures for our readers:

- MLA has 49 260 cattle, sheep and goat members.
- Income for 2013-2014 was $188.5 million. $85.2 million was spent on marketing and $95.8 million was spent on research and development.
- Contributions from grassfed cattle producers totalled $61.2 million, sheep $34.2 million, feedlot cattle $9.8 million, goats $0.8 million, processors $10.8 million, MLA donor company $12.9 million, government $46.7 million and other contributions $12.1 million.

The authors of this column were great supporters of the MSA concept many years ago and welcomed its introduction. Then there was the push to get a pasture certified product into the market. This has also eventuated after many years and as a result of some very dedicated producers. The next hurdle is to update the present Australian beef meat language used across our industry. The meat science technology has progressed well past the use of the present technology (dentition, butt shape, etc) which was introduced in the 1970s.

MLA general manager of livestock productivity, Dr Alex Ball, is overseeing the Australian Beef Language White Paper project. Many producers who attended any of the recent MLA forums across the state will have observed a presentation on possible future technology and its use for trading along the supply chain.

2013 World Cattle Numbers	
Country(s)	No. head (millions)
India*	327
Brazil	203
China	104
USA	90
EU	85.7
Argentina	51
Colombia	31
Australia	29
Russia	19
Mexico	18
*Cattle and Buffalo	

MSA

MSA cattle numbers graded across Australia for 2013-14 was up to a record 3,036,192 head. Queensland led the way with 1.2 million carcases graded successfully, at a compliance rate of 92.6 per cent. The main reasons for failure were dark cutters, poor meat colour and high pH. Failure to meet the 3mm fat at the rib requirement was also mentioned. There are now 37,600 producers across Australia registered as MSA suppliers.

WORLD CATTLE NUMBERS 2013

Live export

The live cattle trade has had a bumper 2013-2014 year with numbers shipped totalling 1.13 million head, valued at over $1 billion dollars. With the continued dry conditions across the Northern Dry Tropics the ability to again achieve these numbers and value will be under pressure next year. Darwin was again the largest live export port for the previous financial year with 415,427 head shipped, followed by Townsville, 203,824 head and Fremantle, 140,932 head.

China

Beef exports to China for 2013-2014 were valued at $788 million. China officially imported about 294,000 tonnes in 2013 and Australia accounted for 53 per cent of this. New Zealand and Uruguay were the other major players. There is always full of reports from various analysts on the untapped potential in China for boxed beef and/or live cattle. If this market does continue to grow there will be stiff competition from all the major players on the world meat export scene and it may not be an easy market to access.

Argentina

The US Department of Agriculture (USDA) foreign agricultural service has concluded that Argentina will remain a small supplier in international beef exports during 2015. The USDA forecasts about 210,000t will be traded, which is considered a fairly low volume. The present Argentinian government continues to restrict export activity in an effort to keep domestic meat prices reasonable. An election is due at the end of 2015 and many leading beef producers in Argentina believe a change of government and policies will enable exports to again play a major role in their industry.

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As of early November, when this report was prepared, there has been a fair rush of good cattle into the marketplace and saleyard prices had started to ease.

Tips on managing short-term carrying capacity

THERE are three broad approaches to managing variation in short-term carrying capacity:

- Conservative – plans on having little variation in stock numbers over time (set stocking).
- Opportunistic – a base number of animals that changes little over time but uses temporary stocking 'up' to take advantage of runs of wetter years and stock 'down' when conditions are poor.
- Trading – stock numbers are adjusted frequently (at least once a year) in line with short term carrying capacity. You become more responsive to seasonal conditions, and take full advantage of good seasons, and protect land condition during poor seasons.

All of the management approaches mentioned above require careful monitoring of land condition, animal condition, forage supply and markets.

Forage budgeting is a useful tool that allows you to determine the number of stock a paddock can support for a given period of time by balancing forage supply with livestock demand.

FORAGE BUDGETS

Forage budgets are most important in dry years when forage supply is limited and when restocking a paddock that has been spelled over the wet season.

A forage budget will help you decide on a safe stocking rate. It may indicate that the paddock can carry an increased number of head for the same period of time. Or, the paddock can carry the original number of head for a longer period of time.

Alternatively, the forage budget results may suggest it is time to consider lightening the stocking rate to maintain pasture condition, avoid unnecessary feeding costs and preserve land condition.

It can also assist in the development of a targeted sell-off plan in poorer years when de-stocking needs to occur.

A forage budget also enables producers to set ground cover and residual pasture yield targets for the end of the dry season. It can also assist in planning for wet season rest to improve land condition.

The ideal time to undertake forage budgets is at the end of the growing season (April or May for northern Australia) or each time livestock are moved between paddocks.

Forage budgets can be based on grazing periods of days, weeks, months or a season. A dry season forage budget is usually from the end of the pasture growing season (May) to a date when it is likely there will be a bulk of fresh growth (late December).

START PLANNING

So why start planning for forage budgeting now? As with all tools, forage budgets are best combined with your experience and should be viewed in light of historical stocking rates.

A forage budget requires a set of calculations and as such, the answer is only as good as the quality of data entered.

Early planning assists in getting the best possible results from your forage budget. Things to consider and begin planning include:

- Mapping paddocks and knowing paddock sizes
- Determining how paddocks are being utilised by stock
- Considering water distribution and the impact on livestock grazing
- Identifying land type differences affecting stock grazing patterns
- Deciding what paddocks or areas are priorities for forage budgeting

The Stocktake Plus app is available from either the App Store (iOS users) or Google play store (Android users). The free app has an inbuilt forage budget component which allows users to calculate forage budgets out in the paddock.

To register and find out more about the Stocktake Plus app, visit the website: www.stocktakeplus.com.au

For more information or to express an interest in attending a Stocktake workshop to learn more about forage budgeting and how to use the app, contact:

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Beef Producers Expo for Charters Towers

A COMMITTEE consisting of local beef producers and DAFF extension staff are organising the first ever Beef Producers Expo to be held in Charters Towers.

The event will take place in March, 2015, with organisation already well under way.

The expo will showcase the application of new and emerging technology within agriculture with a particular focus on the beef industry.

The program will include several keynote speakers, practical and interactive information sessions and a trade display – all demonstrating innovation and technology within the beef industry.

It will also provide beef producers and industry stakeholders the opportunity to access all the latest beef business information and see new emerging technologies in action.

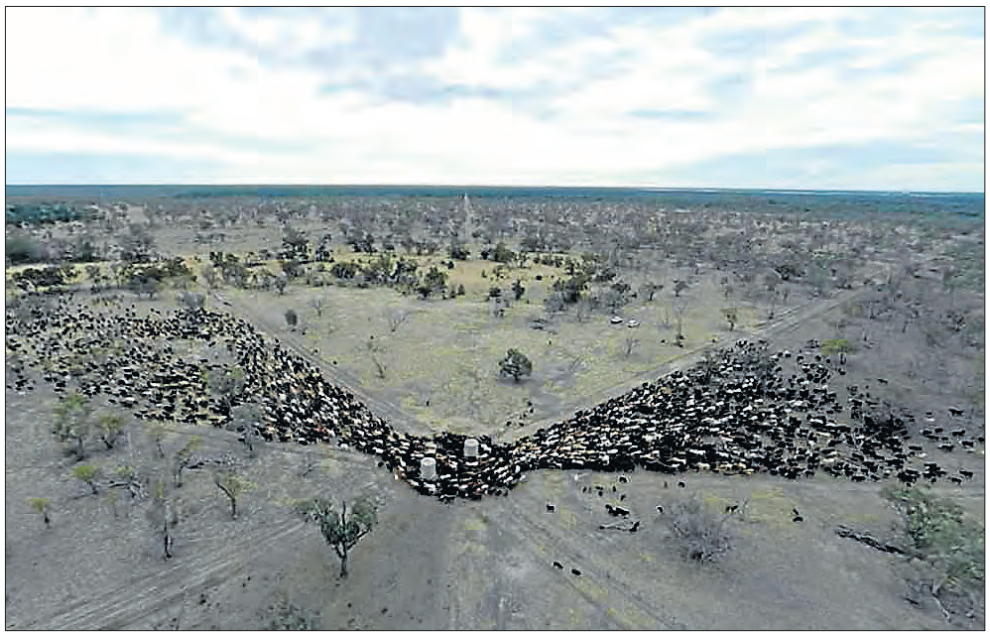
The event will incorporate industry representatives across all areas of the beef business including beef production, livestock health and welfare, grazing land management, business and financial management.

This will encompass best management practices across the whole of the beef business.

A social barbecue dinner will conclude the event, giving participants an opportunity to continue networking with like-minded people over a steak and cold beverage.

Registrations for the 2015 Beef Producers Expo will open early in 2015, with more information to be made available soon.

For more information about this event please contact the DAFF Charters Towers FutureBeef Team on (07) 4761 5150.



The expo will showcase the application of new and emerging technology within agriculture with a particular focus on the beef industry.

● To keep up to date with the latest on the Beef Producers Expo visit the Burdekin Beef Team Facebook page: www.facebook.com/burdekin.beefteam

Spyglass facility welcomes two new technical officers

CHARTERS Towers Spyglass Beef Research Facility welcomes two new technical officers.

Originally from the suburbs of Brisbane, Nicholas Brazier moved to Charters Towers at the end of October as the replacement for Nichole Limburg, who is currently on maternity leave. Nicholas has arrived in time for this season's Spyglass Beef Research Facility calving period and will be providing technical assistance measuring and recording reproductive traits.

Nicholas is in the final stages of completing his Bachelor of Agricultural Science at University of Queensland (UQ), Gatton. He started his degree in 2011 after having worked on Floraville Station, near Burketown.

While at UQ, Nicholas was the recipient of a 2014 Winter Research Scholarship, which enabled him to secure a placement working for Queensland Alliance for Agriculture and Food Innovation (QAAFI) at DAFF's Brian Pastures Research Facility near Gayndah. During 2014, Nicholas was also the recipient of a UQ Advantage Grant allowing him to compete at the 2014 Australian Inter-Collegiate Meat Judging Competition in Wagga Wagga, NSW.

Anna McCown may be well-known to many Northern muster readers from western and north-western Queensland and the Northern Territory.

Anna McCown's role at Spyglass will be developing and improving the feed base for native and improved pastures as well as providing technical support for the beef genetics research.

Anna has spent the last few years working as the Animal Health Specialist for Landmark based in Cloncurry. Anna is replacing Kirsty McBryde who has been seconded to Resource Consulting Services, Yeppoon, as an extension and support officer.

Anna's role at Spyglass will be developing and improving the feed base for native and improved pastures as well as providing technical support for the beef genetics research. Anna has a Bachelor of Animal Science and Management majoring in Livestock Production from University of Melbourne.

Nicholas Brazier has arrived in time for this season's Spyglass Beef Research Facility calving period and will be providing technical assistance measuring and recording reproductive traits.

Although a Carlton AFL supporter, she saw the light and moved to Queensland, working as a station hand in south-west Queensland for three years before joining Landmark.

Anna is qualified in pregnancy diagnosis and artificial insemination, which will be an asset to the beef research program at Spyglass. Anna has already bought a Broncos cap, which is at least a step towards supporting the Cowboys!

Northern cattle prices improve

IT'S been another tough year for the beef industry in 2014. Since the last issue of the Northern muster, there has been a major improvement in cattle prices received across the north. However, the price improvement has been significant only to those classes of cattle that meet live export or slaughter specifications.

A hot topic in beef industry news at the moment is the proposed export of live cattle to China. While details are still yet to be confirmed at the time of writing, emerging reports indicate this potential market could have a major effect on all aspects of Australia's beef industry. This news wraps up what has been a massive year for live cattle exports out of Australia.

With Christmas and the end of the year fast approaching, it is a timely reminder again for those in drought declared regions that all fodder freight and emergency water infrastructure rebate claim forms must be submitted within six months of the date of purchase. Assistance for drought-hit producers is still available under the Drought Relief Assistance Scheme. Contact your local DAFF officer or 13 25 23 for further information.

For information on the latest events and projects, research-based information, and practical tips and tools, visit www.futurebeef.com.au

Lastly, we would like to share some exciting news with our Northern muster readers. DAFF Cloncurry extension officer and Northern muster editor Rebecca Gunther and husband Tyson, welcomed the arrival of their first son, Brendan, on October 23, 2014. We wish Rebecca, Tyson and baby Brendan all the very best.

Wishing all our readers a safe, merry 'wet' Christmas and a fresh, green 2015.

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FutureBeef: Your link with innovation

THE FutureBeef website is home to a suite of more than 150 projects. From cutting-edge research to innovative extension, you will find the FutureBeef team in the thick of it! Working with producers, the FutureBeef team is supporting sustainable and profitable productivity gain through collaborative projects including:
Climate Clever Beef-to deal with the impact of climate change and manage greenhouse gas emissions while improving business resilience.

Grazing BMP program – to improve the economic and environmental performance of beef enterprises.

Next Gen Beef Breeding Strategies – investigating genetic and genomic strategies to increase beef reproductive efficiency in northern Australia.

● Join the other 87,000 people who visit our website each year and check out more of the FutureBeef projects on our website http://futurebeef.com.au/resources/projects/

Update on Spyglass nutritional status

CHARTERS Towers FutureBeef extension officers have continued to monitor pasture diet quality at Spyglass Beef Research Facility through the use of faecal Near Infrared Reflectance Spectroscopy (NIRS) technology. Faecal NIRS technology provides information on the current nutritional status of pastures being grazed and critical elements of ruminant nutrition-protein and energy.

This article provides Northern muster readers with an update on the changes in the nutritional status of pastures being grazed at Spyglass from April to September 2014. Refer back to Northern muster issue 35 for previous results – this is available from the FutureBeef website www.futurebeef.com.au (under newsletters).

RAINFALL UPDATE

As of November 1, 2014, Spyglass had received 324mm of rainfall to date for the current calendar year. Much of this rain was received in February, with little follow up rain recorded throughout March and April. The only significant dry season rainfall received was 33mm in the middle of June.

For this article, the dry matter digestibility (DMD) and dietary crude protein (CP) results have been taken from a mob of cattle grazing between two paddocks throughout the year.

The major land type across both paddocks is narrow-leaved ironbark, consisting of mostly native grass pastures. The predominant pasture species are blackspear grass, bluegrass species, aristida or wiregrass species and Indian couch. Both paddocks have a moderate to high presence of browse or top feed species, such as quinine, and a lesser presence of improved pastures such as seca stylos.

DRY MATTER DIGESTIBILITY (DMD)

The dry matter digestibility of pastures is an important consideration as it is an indicator of the energy in a diet. DMD is expressed as the percentage of feed consumed that is digested by the animal.

Digestibility influences the rate at which feed passes through the digestive tract. Therefore, digestibility has a direct impact on feed intake. The more digestive the feed is the quicker it will pass through the animal. This means more feed can be consumed so more nutrients can be made available.

Energy is used by cattle for maintenance, growth, pregnancy and lactation. When energy does not meet the requirements for maintenance the animal will not gain weight. Instead they will lose weight, using the available energy to maintain only.

In the breeder herd energy requirements are more complex. For example, if energy becomes inadequate during pregnancy or lactation the breeder does not end pregnancy or lactation to reduce energy requirements. Instead the energy available for both these functions will be reduced.

The cow will begin to lose weight as she uses what energy is available for foetus development and/or the production of milk. When energy is limiting during both pregnancy and lactation the cow will continue to lose weight until either the pregnancy or lactation is ended or the deficiency is corrected through supplementing the diet.

Figure 1 demonstrates a steady decline in the DMD of pastures at Spyglass from April through to August 2014. There was a slight increase in the DMD in September at the time of sampling. This may be attributed to the installation of additional watering points throughout the paddocks during August. This allowed the cattle to spread out across the entire paddock and more selective grazing to take place.

As a rough guide we have used 55 per cent DMD to indicate adequate energy for a lactating breeder to maintain condition. DMD results above this line should be adequate, and below the line energy will most likely be deficient.

The results indicate that a lactating breeder would have been deficient in energy and unable to meet her requirements and, therefore, would have been most likely losing weight from June through to September.

Correcting energy deficiencies through supplementation is typically expensive and only carried out when survival becomes an issue. An effective method of reducing energy requirements and, therefore, the nutritional deficiency experienced by a lactating breeder is weaning. Weaning management should be focused on available nutrition and cow body condition.

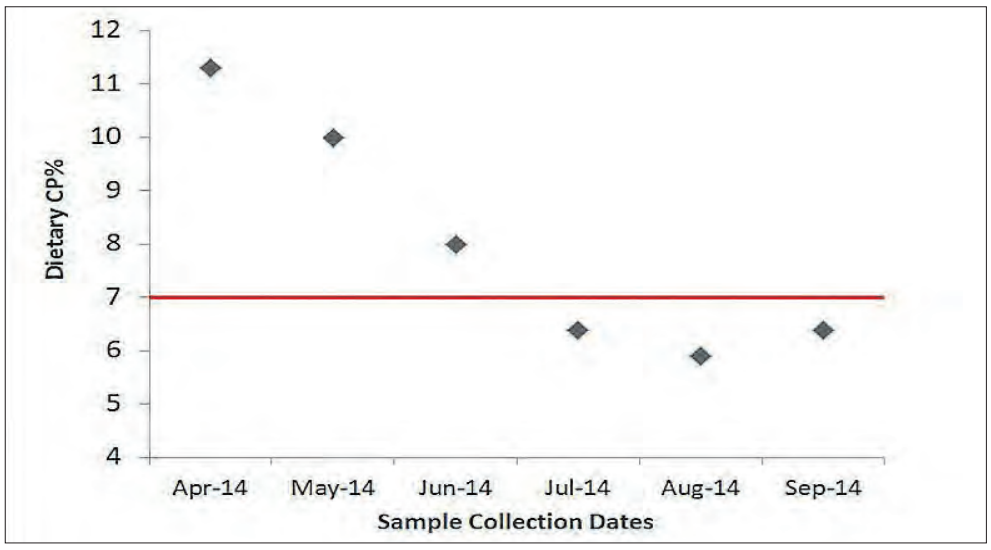

Figure 1: Dry matter digestibility results from faecal NIRS sampling at Spyglass from April to September 2014. The line is a rough guide of 55pc DMD to indicate adequate energy for a lactating breeder for maintenance.

Figure 2: Dietary crude protein results from faecal NIRS sampling at Spyglass from April to September 2014. The line is an approximate threshold figure of 7pc dietary CP required by a lactating breeder for maintenance.

DIETARY CRUDE PROTEIN (CP)

As with energy, protein is also required by cattle for almost all body functions. Protein is also an important component of milk. Therefore, lactating cows have a much higher protein requirement compared to dry cows in order to meet the demand of milk production.

Figure 2 provides results for dietary CP at Spyglass from April to September 2014. As with energy, the ability of cattle on pasture to source sufficient amounts of protein for maintenance is influenced by overall intake and the digestibility of the pasture.

The dietary CP results from the faecal NIRS sampling at Spyglass represent a typical pattern for the north. As the pasture matures and plant condition deteriorates throughout the dry season, there is a decline in the available CP.

As with DMD, there was a slight increase in the dietary CP in September at the time of sampling. Again, this may be attributed to a reduction in distance to water, allowing cattle to utilise a greater area of the paddocks. An approximate threshold figure of 7pc is used as a guide for the required dietary CP for the maintenance of a lactating breeder. The Spyglass results indicate that from July through to September protein was inadequate to meet the maintenance requirements of a lactating breeder.

DIETARY NON-GRASS PROPORTIONS

Faecal NIRS technology also provides an estimate for the dietary non-grass proportions, or, how much of the diet is not grass. The faecal NIRS predicted levels of non-grass within the diet were around 22pc in April, peaking at around 47pc in June before declining steadily back to 25pc in September. This indicates that at different times throughout the dry season almost half the diet selected was not grass.

Faecal NIRS technology is a tool that can be used by producers to make informed, timely decisions about livestock management. Management decisions, such as when to begin supplementation and optimum calving and weaning times, can be supported by an understanding of the nutritional potential of the pastures grazed.

If you are interested in carrying out sampling on your property contact commercial faecal NIRS provider Symbio Alliance on (07) 3340 5700 to receive a kit and get started. If you would like further information about faecal NIRS technology contact your local DAFF beef extension officer.

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Bring WHS policies to front of graziers' minds

WORKPLACE Health and Safety (WHS) obligations are probably not the first thing to come to mind when thinking about best management practices (BMP) for your grazing business.

The reality is WHS has a huge impact on the people part of the beef business. The Grazing BMP program is being piloted in the Burdekin Catchment.

During its first year the Grazing BMP program has already highlighted that the issue of WHS is often in the back of graziers' minds; however, it is an important aspect of business management.

Of the more than 100 businesses that have completed Grazing BMP self-assessments in the Burdekin Catchment, 18 per cent considered their business to be below industry standard in regards to workplace health and safety.

Facilitated group discussion and feedback collected also indicated that the majority of businesses attending workshops now considered workplace health and safety to be one of the main areas that they needed to be better informed about.

WHS is incorporated in the Grazing BMP assessment process in the People and Business module. Safe workplaces feature awareness and communication and are places where both workers and employers share responsibility for safety.

WHS legislation recognises that actions taken to protect people from risk need to be 'reasonably practicable'.

As WHS obligations are legislated most criteria in the Grazing BMP assessment only have two options-below or at industry standard. By completing the People and Business module of the Grazing BMP graziers can improve their awareness of what they need to consider in regards to WHS.

Completing the Grazing BMP self-assessment provides an opportunity for businesses to identify areas that may require change to more effectively achieve their business goals.

In many cases participants request advice and assistance to develop safe work procedures such as employee and visitor inductions and emergency response plans. There is also some confusion on what is required in small family businesses.

A common situation in the beef industry is where the business is run by a husband and wife team or immediate family. In these circumstances there can be uncertainty around the required legal workplace procedures. Regardless of who is working on the property, a safe workplace is paramount.

As a response to the increased need for improved understanding of WHS requirements in grazing businesses the Department of Agriculture, Fisheries and Forestry (DAFF) are working closely with inspectors from Workplace Health & Safety Queensland and the Department of Justice and Attorney-General, to deliver interactive practical workshops.

After attending a workshop, participants will have access to the recently launched Serious about Farm Safety resources.

They will also have the opportunity to develop items such as inductions and safe work procedures at the workshop.

It is recommended that graziers complete the People and Business Module of the Grazing BMP self-assessment before registering to attend a WHS workshop.

Completing the People and Business module prior to attending a WHS workshop will allow participants to consider what they require for their business.

WHS workshops have been run by DAFF in Charters Towers and Greenvale in early December 2014.

Further WHS workshops are scheduled to take place across the Burdekin catchment early in 2015.

For further information about the Grazing BMP program or upcoming WHS workshops contact Megan Willis, DAFF Charters Towers.

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Urea supplements a cost-effective solution

UREA supplements are a cost-effective means of reducing weight loss of both growing and breeder cattle grazing poor quality dry season pastures low in crude protein.

Breeders in better body condition have lower mortalities and better pregnancy rates.

Protein intake of northern beef cattle, even when fed high urea supplements, is very low compared to the protein intake of dairy cows grazing high quality temperate pastures. There is no scientific evidence that high urea supplements reduce reproductive rates in northern beef breeders. Urea supplements with higher levels of urea generally reduce the supplementation costs per breeder.

For decades, the purpose of dry season urea supplementation has been to reduce weight loss of cattle during the dry season. However, there have been debates about whether urea feeding can reduce fertility and pregnancy rates. In order to get the best perspective on this, it is essential to understand both the science and practical application of urea supplementation.

Research on dry season urea supplementation commenced at the Department of Agriculture, Fisheries and Forestry's Swans Lagoon Research Station in the mid-1960s. This work clearly demonstrated the major benefits of urea supplementation for growing cattle and led to the development of supplementation systems with roller drums, blocks and dry licks. Later research at Swans Lagoon, along with research conducted in other locations in the 1990s, showed that the benefit of dry season urea supplementation also applies to breeders.

Urea supplements can reduce weight loss in the dry season by up to 40 kilograms. In breeders with a lower body condition at mating, this can mean an increase in pregnancy rates by up to 14 per cent (from 50pc up to 64pc). Mortalities are lower in breeders in better body condition.

Reduce weight loss across the growing and breeder cattle herd

THE ROLE OF UREA IN RUMINANTS

Urea is not a foreign compound in ruminants. It is an integral part of protein metabolism in all ruminants and is normally present in blood irrespective of any supplements. Cattle urine usually contains urea as this is the way cattle excrete excess nitrogen not required for protein production.

Ruminants have the ability to utilise two types of protein: rumen degradable protein (RDP) and rumen un-degradable protein (RUP). Rumen fermentation breaks the RDP in the diet into ammonia, and this ammonia is used by rumen bacteria to form microbial protein.

Rumen microbes are digested in the abomasum (true stomach) and small intestine and the resulting amino acids are absorbed from the small intestine into the blood. In a grazing situation, most protein consumed in forage is broken down in the rumen and used by rumen microbes producing microbial protein.

Consequently, microbial protein is the animal's principal source of protein excluding any RUP present in the diet. Ammonia not incorporated into microbial protein enters the blood and is converted to urea in the liver, and most of this urea is excreted in urine.

Amino acids not utilised in body processes are converted in the liver to urea for excretion in the urine and energy substrates.

RUP in the diet is digested in the abomasum and small intestine and the resulting amino acids absorbed from the small intestine contribute to the pool of amino acids in the blood. Cattle saliva normally contains urea at 2-8mg per 100mL. The 100-200L of saliva produced daily by cows equates to about 5-10g of urea entering the rumen daily in the absence of any urea supplementation.

Lick blocks are just one method of feeding urea to cattle.

Salivary urea plays an important role in maintaining rumen function.

As grasses mature and the protein content declines less RDP is available to rumen microbes. This results in a lower microbe population and less microbial protein production to provide the animal's protein intake.

The situation is compounded by lower feed intake due to the lower rumen microbial densities and activity and lower digestibility of the mature feed.

When urea and sulphate of ammonia are fed in supplements they are broken down in the rumen and supply ammonia to the microbes. With an increased microbe population, microbial protein production and feed intake increase.

UREA TOXICITY

Urea supplementation increases both rumen and blood ammonia levels. However, this only becomes a problem when the liver cannot convert the blood ammonia to urea quickly enough. If this happens, the high blood ammonia levels cause toxicity. This situation most commonly occurs when animals eat a large amount of urea quickly i.e. this can occur when cattle are naïve to supplements or have a deprived appetites due to lack of feed and/or are deficient in protein, phosphorus or salt.

	Beef cow on dry season pastures with no supplement	Beef cow on dry season pastures supplemented with 30% urea dry lick	Dairy cow on improved pastures and grain ration
Cow liveweight (kg)	420	420	600
Pasture crude protein (%)	4	4	22
Pasture intake (% of liveweight)	1.5	1.88	1.7
Pasture intake (kg/day)	6	8	10
Supplementary feed crude protein (%)	nil	96.7	14
Supplementary feed intake (kg/day)	nil	0.16	7
Protein intake from pasture (g/day)	252	316	2,244
Protein intake from supplementary feed (g/day)	nil	155	980
Total protein intake (g/day)	252	471	3,224

TABLE 1 (left): Comparison of pasture and supplement crude protein levels, pasture and protein intakes for beef and dairy cows.

Supplement	Cost GST exc ($/t)	Protein (%)	Protein cost ($/kg protein)	Intake to supply 150g protein/day (g/hd/day)	Urea intake (g/hd/day)	Feeding cost ($/hd/month)
Cottonseeed meal	$850	43.0	$1.98	349	nil	8.90
15% Urea lick	$591	52.7	$1.12	285	43	5.05
30% Urea lick	$622	96.7	$0.64	155	47	2.89

TABLE 2 (below): Comparison of intakes and feeding costs for cottonseed meal, 15pc and 30pc urea dry licks.

HOW MUCH PROTEIN ARE WE FEEDING IN UREA SUPPLEMENTS?

The theories about high-protein feeds like urea (but also other feed sources such as nitrogen-fertilised pastures) affecting the female reproductive tract and reproductive processes, have arisen from overseas work on dairy cows grazing high-quality improved pastures and being fed large amounts of concentrate.

The diet and metabolism of dairy cows grazing temperate improved pastures (especially in Europe and North America) is vastly different to that of beef cattle grazing poor quality dry season pastures in northern Australia. While dairy pastures will commonly have 18-25pc crude protein, dry season pastures in northern Australia are usually 4-6pc crude protein.

Table 1 shows the very low protein intakes typical of beef cows grazing poor-quality dry season pastures. Feeding a 30pc urea lick at 160g/head/day does substantially increase protein intake, but this intake is still only 15pc of the protein intake of a dairy cow grazing high quality temperate pastures and also being fed dairy supplements. Hence, it is extremely unlikely that feeding beef breeder cattle high urea supplements causes reproductive problems or affects pregnancy rates.

SUPPLEMENT COSTS AND PALATABILITY

The reason to use urea as the primary source of protein instead of a protein meal such as cottonseed meal in dry season supplements is about cost. The lower protein content of low urea supplements results in higher cost per unit of protein and higher feeding costs (Table 2).

Because urea is an intake limiter, reducing the urea content invariably leads to higher supplement intakes and feeding costs. The situation is commonly compounded by urea being replaced with protein meal and/or grain which add to supplement palatability.

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Stocktake Plus app a free support tool

THE FUTUREBEEF Stocktake Plus app is a free grazing monitoring and management decision support tool for graziers and advisors predominantly located in northern Australia. It has partial functionality for producers in other regions. It is a mobile tool assisting grazing best management practices by helping users to monitor land condition, stock numbers and rainfall.

It includes a forage budgeting tool for calculating the appropriate balance of stock to available pasture. After users set up their properties and paddocks, the app can then produce reports, including land condition monitoring and long term benchmark carrying capacities.

The app's mobility allows users to capture data whilst in the paddock directly onto their device. This data is then later secured by syncing the device (via Wi-Fi or 3G access) and uploading the data to a private account. This allows users to: Capture important production data for analysis; manage property resources; understand their property environment over time; and view and export their data through a personal and secure portal.

Since the app's launch its adoption has exceeded expectations, with favourable feedback on its functionality and user friendliness. Valuable feedback has also led to some recent enhancements. As a result of user feedback, a new iOS version 1.1 is now available to download and a new Android version will also be available soon. You can download the app for free from either the App Store (iOS users) or Google play store (Android users).

The FutureBeef Stocktake Plus team continues to work closely with users and developers to deliver a quality product with enhanced user experience. They always appreciate your feedback.

● To find out more, register an account and download the app visit the Stocktake Plus website: www.stocktakeplus.com.au

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P8's place explained

ANYONE involved in beef production will have come across the term P8 fat site. But how many of you actually know where the term 'P8' came from? Here is a short history on the advancement of beef carcase classification and how the P8 fat site came about.

In the mid-1970s there were only two carcase grading systems in use in Queensland, one for the domestic market, the other for the export market.

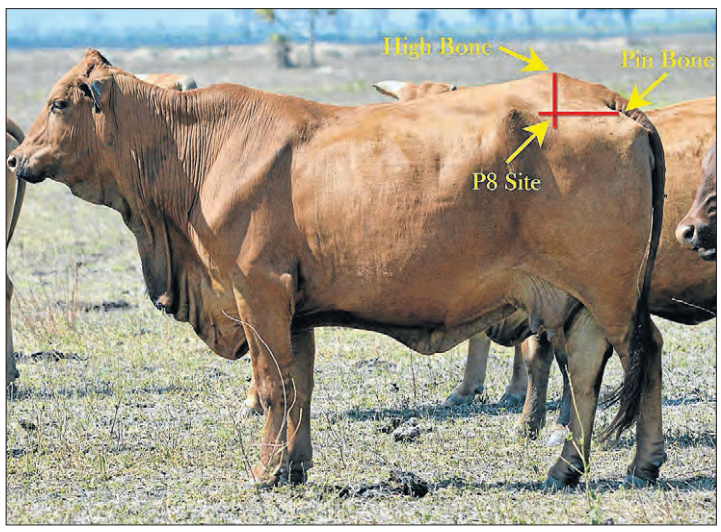
These early carcase grading schemes were based solely on subjective assessment of the carcase, which used factors such as age, sex, conformation and fat cover. These factors were then used to determine the 'grade' of the carcase as 'prime', 'choice' or 'good'. Unfortunately, the variation in standards led to much criticism of these schemes.

John Moon, a district meat inspector for the former Queensland Department Primary Industries based at Cannon Hill, undertook research to find a way to classify carcases, rather than grade them.

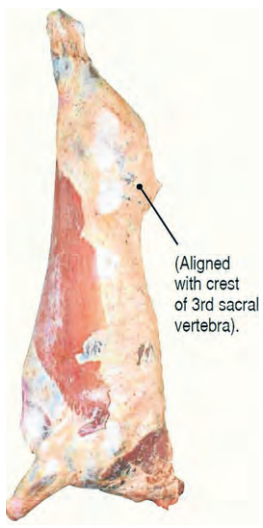
Mr Moon said "classification does not impose our own or other peoples likes or dislikes on the product". He also noted that "classification is different from, and should not be confused with grading, which says one is better or best".

Part of Mr Moon's research looked at possible alternative sites to measure fat depth. The work looked at the suitability of eight positions (P1 to P8) on the beef carcase. In one part of the research, 550 carcases were measured on one side only (right or left depending which side had fat intact on all measuring sites).

This proved difficult with sites being damaged by hide pullers, sawing or due to removal for some other reason. In other research 1000 carcases were examined for damage at the Cannon Hill Abattoir, Brisbane. The fat on the P8 site was found intact on 89 per cent of carcases on both sides and 98.5pc of carcases on at least one side. This meant the P8 site measurement could be taken on at least one side of each carcase for



The location of the P8 site.



P8 site location on a carcase hung by the achilles tendon.

all but 1.5pc of carcases. Many of the other sites were deemed unsuitable due to time taken to locate sites. This could hurt production chain efficiency. Other sites also potentially suffered damage during quartering or high levels of damage from the hide puller.

John Moon's recommendation was that the P8 site should be used as the designated site in classification. Thus the term 'P8' was borne from the selection of 'position 8' from John Moon's research. The P8 site is located over the rump at the point of intersection of a vertical line from the pin bone and a horizontal line from the high bone (third sacral vertebrae).

The P8 site is used to assess fat in both live animal assessment and carcase assessment. The P8 site is correlated with percentage of fat in the carcase and therefore the likely yield of saleable meat.

Fat depth and cover is also important for meat quality. Fat cover acts as insulation for the carcase from the cold air in the chillers.

If a carcase is cooled too quickly it can result in cold shortening. This occurs when the temperature of the meat drops below 10-12C while the pH of the carcase is still above 6. It has a negative effect on eating quality, often resulting in a tough steak.

Alternatively, if a carcase is over fat it can take a longer period of time to cool down which can result in heat shortening. As with cold shortening, heat shortening also has a negative effect on eating quality. Therefore, the P8 fat depth measurement is often used as one of the specifications for target markets.

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Top tips to boost reproduction rates

FOR COMMERCIAL PRODUCERS:

Buy replacement bulls with better than breed (or herd) average estimated breeding values (EBVs) for days-to-calving.

Don't retain replacement heifers or bulls from cows that missed calving as a maiden heifer, a first calver or that have bottle teats.

Over-mate replacement heifers and select those that conceive earlier in the joining period.

FOR STUD OPERATORS:

The benefits of the CRC findings can be captured by recording male and female reproductive performance in the herd. Start by recording the reproductive performance of maiden heifers and first-calf heifers and cull empty cows in these age groups.

Use stud sires with better-than-average EBVs for days-to-calving and scrotal circumference. Also use polled if available.

Utilise all genetic information with visual appraisal to select young replacement bulls and heifers.

Brahman breeders should record scrotal circumference at 12 months of age. Tropical composite breeders should collect data on percentage of normal sperm for bulls at 12 months of age.

RESOURCES

THE Breeding EDGE course is designed to help northern producers develop a breeding program or improve the existing one.

It uses reproductive and genetic knowledge and technologies to achieve production targets.

Go to www.futurebeef.com.au for event details.

Heifer management in northern beef herds manual
www.mla.com.au/heifermanual

Weaner management in northern beef herds manual
www.mla.com.au/weanermanual

Managing the breeder herd – Practical steps to breeding livestock in northern Australia
www.mla.com.au/breederherd

Tips & Tools – The accuracy and success of EBVs
www.mla.com.au/EBVaccuracy

Study reveals physical and mental advantages from moderate red meat diet

THERE are many mixed messages about the pros and cons of red meat in the diet. Unfortunately, many of the messages use the terms 'red meat' and 'processed meat' interchangeably.

The following are two examples of findings on fresh red meat in the diet of women based on research done by Deakin University (Melbourne) since 2009.

The first finding relates to red meat and exercise and its effect on muscle mass and strength in women over 60 years of age. Retaining or increasing muscle mass as people age is an important contributor to keeping the body in good order. This work was conducted by Professor Robin Daly (professor of exercise and ageing) at the university's Centre for Physical Activity and Nutrition Research.

The four month trial compared two groups of women aged 60-90 years. One group of 53 women had strength training and a protein rich diet of six servings, totalling 960 grams of lean red meat per week. The second group of 47 women had the strength training and a diet of pasta or rice. Both groups received vitamin supplements and were then assessed for strength, muscle mass and blood biochemistry. The results showed that the women with strength training and a protein-rich, lean red meat diet had:

- An 18 per cent greater increase in muscle strength.
- Gained an additional 0.5kg of muscle mass.
- 10pc greater increase in a hormone central to muscle growth.
- 16pc reduction in a pro-inflammatory marker linked to muscle loss and other chronic diseases.

The results were published in the externally refereed American Journal of Clinical Nutrition. R&D was part-funded by graziers' MLA transaction levees.

The second finding related to red meat consumption and the incidence of depression and anxiety disorders in women. This work was conducted by associate Professor Felice Jacka at the university's Barwon Psychiatric Research Unit.

The diets of a group of 1046 women aged 20-93 were assessed by questionnaire and their incidence of chronic depression or anxiety disorder determined by a structured clinical interview.

The results showed that 140 women (13pc) were found to have one of these mental conditions. When diet was considered it was found that women consuming less than the recommended intake of red meat (up to 400g of beef and lamb per week) had more than double the chance of suffering from chronic depression and nearly that of an anxiety disorder.


Red meat seems to be the only form of protein that delivers the goods, as the study found that chicken, pork, fish and plant-based proteins had no effect on mental wellbeing.

This was irrespective of socioeconomic status, educational level, physical activity, alcohol consumption, smoking, overall energy intake, and body mass index (human indicator of body condition score). But more is not better, as higher than recommended red meat consumption was related to an increase in depression and anxiety disorders.

Red meat seems to be the only form of protein that delivers the goods, as the study found that chicken, pork, fish and plant-based proteins had no effect on mental wellbeing. The results were published in the journal *Psychotherapy and Psychosomatics*.

To read more go to the Deakin University website: http://www.deakin.edu.au/news/latest-media-releases/2014/red-meat-and-exercise-could-be-the-key-to-keeping-body-and-mind-in-peak-condition-as-we-age http://www.deakin.edu.au/research/stories/2012/03/20/women-should-eat-red-meat

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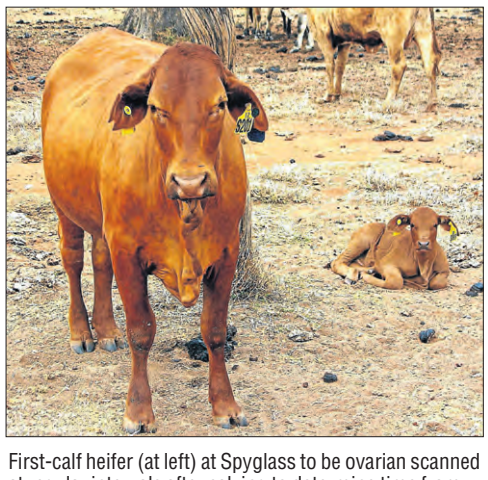
First-calf heifer (at left) at Spyglass to be ovarian scanned at regular intervals after calving to determine time from calving until cycling. The heifer calf (at right) will be ovarian scanned in years to come, to determine her age at puberty and also time from first calving until cycling.

MLA project: Shorter time to cycle may mean more calves

THE BEEF CRC project has shown that during lactation some cows are genetically predisposed to cycle early. As a consequence these cows also become pregnant and calve earlier than their herd mates.

A shorter time to cycle may allow cows to produce more calves in their lifetime, particularly under controlled mating. The Beef CRC project also showed that heifers reaching puberty earlier and then cycled earlier as first lactation heifers had the highest reproductive performance over their lifetime.

The current Meat & Livestock Australia (MLA) genetics of female reproduction research is being run across research facilities in northern Queensland (Spyglass), central Queensland (Brian Pastures) and the Northern Territory (Douglas Daly).

In this research maiden heifers (two years of age) will be measured for age at puberty (first cycle) and first calf heifers (three years of age) will be measured for post-partum anoestrus interval (time from calving until cycling).

The genetics of influential Brahman, Droughtmaster and Santa Gertrudis industry sires will be tested by assessing the reproductive performance of their daughters. This research will identify the sires that produce daughters with younger age at puberty and shorter post-partum anoestrus interval. This project also plays a role in the development of genomic-driven estimated breeding values (EBVs), whereby the goal is to know the genetic value of a bull, for the previously mentioned reproduction traits, by simply plucking tail hair for a DNA sample (genotyping).

Genotyping, once developed, could revolutionise genetic selection. It would allow the selection and culling of animals at a very young age based on fertility traits. Genotyping relies on having a large bank of reproduction data available on each breed.

The overarching goal of this research is to know which bulls to select to produce high fertility females.

This project will add significant knowledge in this area by increasing the accuracy of EBVs and contributing to the development of genomic EBVs. The project has been funded for five years to allow time for the heifers produced through artificial insemination (AI) to be followed through to their first re-breed.

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Managing profitability in times of drought difficulty

MLA grazing trial coming up with answers to climate challenge

THE CURRENT drought affecting much of Queensland highlights a recurring challenge to the grazing industry: 'How do you manage sustainably and profitably when rainfall can vary so much between years?'

In an attempt to answer this question the Department of Agriculture, Fisheries and Forestry (DAFF) started a long-term grazing trial in 1997 on the Lyons family property Wambiana, near Charters Towers.

Phase 1 of this Meat and Livestock Australia (MLA) funded trial (1998-2011) looked at five grazing strategies: Heavy stocking (HSR) at 4ha/animal equivalent (AE = 450kg beast); moderate stocking (MSR) at the calculated long term carrying capacity of 8ha/AE; rotational wet season spelling (R/Spell) in a three-paddock system (8ha/AE); and two variable strategies, with stocking rates varied based on either available forage (VAR) or available forage and a climate forecast (SOI).

Because of the similar response of these two strategies, results will only be discussed from the VAR.

In Phase 2 of the trial (2012 onwards) some of the treatments were adjusted to apply learnings from Phase 1; ie, both the 'variable' strategies were changed to 'flexible' stocking and then applied as either flexible stocking with wet season spelling or flexible stocking without wet season spelling. As these changes were made only recently, data from the new 'flexible' treatment is included with the original VAR data.

There are two experimental paddocks (replicates) for each strategy. Paddocks are about 100ha and contain a mixture of box, silver leaved ironbark and brigalow land types. The cattle are 1.5 and 2.5-year-old Brahman-cross steers, supplemented with wet season phosphorus and dry season urea. Cattle stay on the trial for two years before going to the meatworks.

RAINFALL AND STOCKING RATES

Rainfall varied considerably over the length of the trial; beginning with four good years followed by six dry years in the early 2000s. However, over the past seven years (2007-2014) the seasons have ranged from average to very good (see Figure 1).

Stocking rates in the VAR were increased to very high levels (up to 3ha/AE) in the early wet years leading to overgrazing in the following dry year (2001-2002).

However, stocking rates in the VAR were cut sharply thereafter to about 9 ha/AE and since then have been adjusted far more conservatively in this strategy.

While the HSR coped well in wet years, drought feeding with M8U was required in four of the dry years. Stocking rates in the HSR also had to be reduced from 4-6 ha/AE between 2005 and 2009 due to the ongoing shortage of feed. One HSR paddock also had to be destocked for three months in late 2004.

In contrast to the HSR, the 8ha/AE stocking rate in the MSR was sustained in all years without drought feeding or destocking being required (see Figure 1).

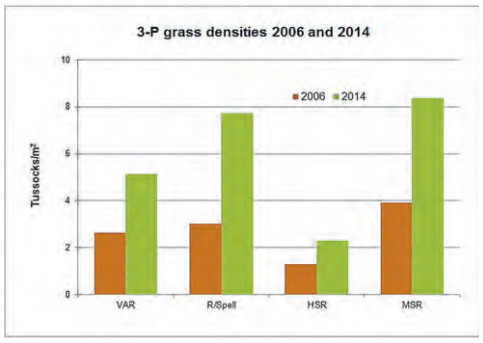

Figure 1: The density of 3-P (palatable, perennial, productive) grass species in 2006 (after six poor years) and in 2014 (after seven average-good years).

PASTURE PRODUCTION AND COMPOSITION

The grazing strategy applied had a major impact on pasture condition; thus, in 2014, after 17 years, the density of 3-P (perennial, palatable and productive) grasses is highest in the MSR and R/Spell but by far the lowest in the HSR (see Figure 2).

Importantly, despite seven recent favourable seasons, in the HSR there has been little or no recovery in the population of 3-P grasses since the end of the drought in 2006. The slightly lower 3-P density in the VAR in 2014 compared to the MSR and R/Spell is a direct result of the heavy stocking rates applied in the VAR leading into the drought of the early 2000s. This shows how long the ill-effects of a period of poor management on pasture condition can take to recover.

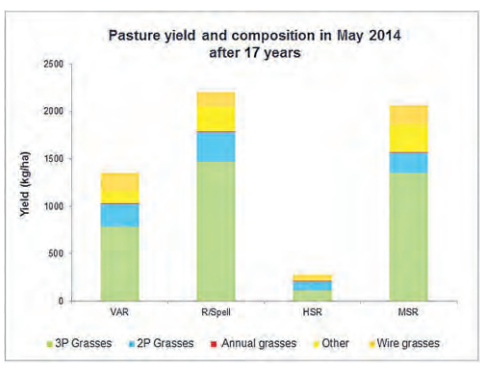

Figure 2: Pasture yield and species composition after 16 years in different grazing strategies.

These differences in 3-P density have also had major impacts on pasture production and composition. In 2014, which had reasonable rainfall (517mm), the end of wet season pasture mass was 10 times greater and the proportion of 3-P grass many times higher in the R/Spell and MSR than in the HSR (see Figure 3). Currently (November 2014) there is less than 100kg/ha of forage in the HSR; ie, almost bare ground.

There has also been a massive increase in Bothriochloa pertusa (Indian couch) across the trial

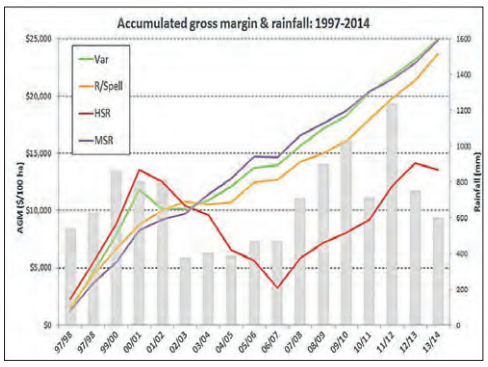

Figure 3: Accumulated gross margin for each of the treatments after 17 years of the grazing trial.

since 2006, with by far the greatest increase in the HSR. With an inevitable return to drier years the loss of 3-P grasses in the HSR will undoubtedly reduce animal production and carrying capacity further.

ANIMAL PRODUCTION

Over all years, the average annual liveweight gain (LWG) per head was highest in the MSR (119kg) and lowest in the HSR (98kg), with the R/Spell and VAR averaging 114kg/head/year. After two years on the trial steers in lighter stocked treatments finished 30-60kg heavier and in better condition than those in the HSR. As a result these steers received a price premium of between $0.07-$0.20/kg more at the meatworks than heavily stocked steers. In contrast to individual animal production, average annual LWG/ha over 17 years was highest in the HSR (23kg/ha), followed by the VAR (18kg/ha) and lowest in the MSR and R/Spell (15kg/ha). Note, however, that the high LWG/ha in the HSR came with the expense of drought feeding in drier years.

After 17 years, accumulated gross margin (AGM) in the HSR is some $10,000/100ha less than in the other strategies. Although the HSR was very profitable in the early wet years of the trial, in the dry years it lost money due to the cost of drought feeding, reduced LWG/ha and the price penalty for poorer condition animals. In contrast to the HSR, in the MSR and R/Spell AGMs grew steadily over all years. Hence, after 17 years, AGMs in the MSR and R/Spell are far higher than in the HSR, despite running only half the number of cattle.

Although the VAR strategy was also heavily stocked in early years the sharp cut in stocking rates going into the dry years avoided the penalties incurred in the HSR. Consequently, AGM in the VAR was far better than in the HSR (see Figure 4).

WHAT WOULD HAPPEN WITH BREEDERS?

Would these outcomes also hold with breeders at a property level? Our colleague Joe Scanlan attempted to answer this question using the trial data to model the outcomes of different strategies for a 23,000ha property over 30-year sequences of rainfall data for Charters

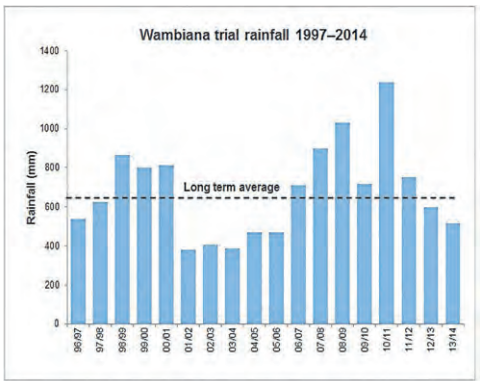

Figure 4: Annual rainfall at the Wambiana grazing trial.

Towers. Modelling results clearly showed that both breeder profitability and pasture condition were maximised at moderate stocking rates. However, the actual 'optimum' stocking rate varied with rainfall, reinforcing the need to adjust stocking rates as seasons vary.

GENERAL STRATEGY PERFORMANCE:

Heavy stocking was ultimately unprofitable due to poor individual animal performance and high costs. The strategy was also unsustainable, caused pasture degradation and a long-term loss of productive capacity. Importantly, this degradation was not reversed, despite a run of recent good years. Further pasture deterioration with an associated decline in animal production can be expected when the inevitable dry years return.

Moderate stocking at long-term carrying capacity was far more profitable than the HSR due to good individual animal production, meatworks price premiums and low costs. The MSR also maintained the density of 3-P grasses and, with the R/Spell, had the best pasture condition. Our experiences at the trial nevertheless indicate that the MSR would benefit from wet season spelling as well as some form of stocking rate flexibility as seasonal conditions changed.

Experience also suggests some reduction in stocking rates will be important in drier years.

These long-term results indicate that the most profitable and sustainable strategy for managing climate variability will involve flexible stocking around long-term carrying capacity, with stocking rates changed in a risk averse manner as rainfall varies. Periodic wet season spelling is also essential to maintain land condition. Different combinations of these strategies are currently being tested in Phase 2 of the Wambiana trial. We look forward to sharing these results with you in future *Northern muster* articles and would welcome enquiries from producers wishing to visit the trial.

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Deer under Spyglass in Towers pilot study

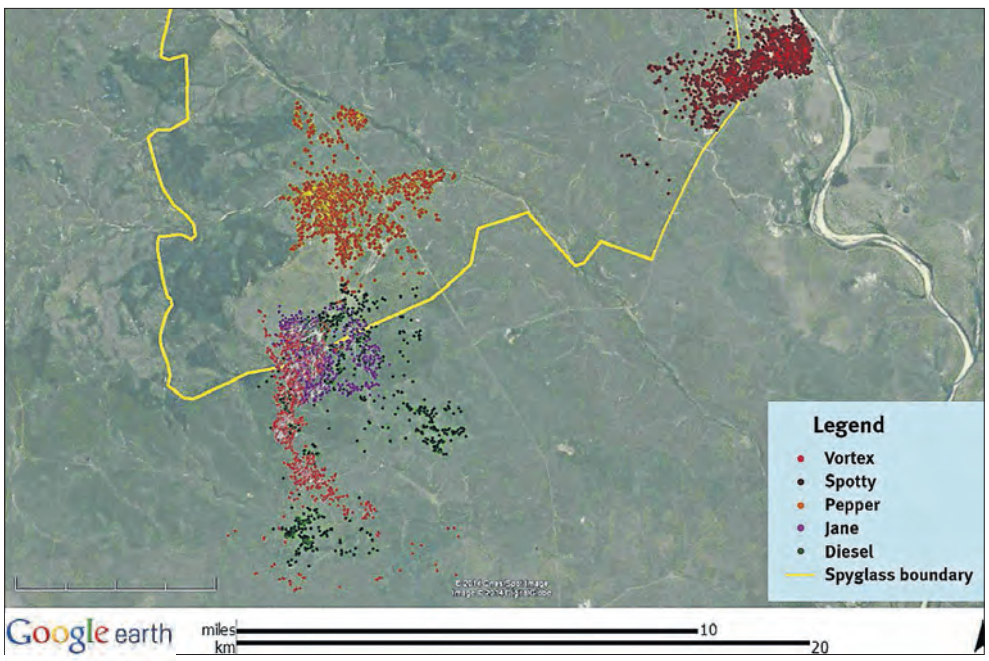
Collars transmit location data to research team

THE Department of Agriculture, Fisheries and Forestry's Biosecurity Queensland (BQ) section has completed a small pilot study to measure movement patterns and habitat use of chital deer on Spyglass Beef Research Facility.

Five animals were successfully collared with GPS loggers and VHF transmitters for retrieval. Their locations were recorded every 90 minutes between August 2013 and February 2014. Figure 1 (top) shows the locations of each animal. The data from these collars gives an important insight into the habitat requirements of these animals, which have not previously been examined in great depth in Australia.

Early results show that chital hinds (females) had a home range over six months of about 800 to 1200 hectares. The mature stag had a home range of almost 1500ha while the younger stags ranged over 2000 to 4500ha. Each colour represents a different deer.

The yellow and blue dots are the two younger stags, which had the largest home ranges of the five animals. Note the scale at the bottom of figure 1 – most animals were not moving more than 10 kilometres in any one direction.



AERIAL SURVEYS OF DEER POPULATIONS

In July 2014 staff from BQ and the Department of Environment and Heritage Protection (DEHP) conducted aerial surveys of chital deer and other wildlife north of Charters Towers. Nine survey lines (50-70km in length) were flown in a helicopter with the aim of establishing some estimates of deer numbers and where the animals were concentrated.

Deer were not in high numbers across the whole landscape; however, where they were present they were in very high densities. One creek line that was flown had a density of about 146 deer per square kilometre.

Deer appear to be concentrating in areas not far from permanent water, and tend to also be close to homesteads. This is consistent with what landholders in the area are telling us.

The counts were done in the dry season and it is not known if they spread further out across the landscape during periods of higher rainfall. Deer were also counted from the ground along shorter 5km walked lines. Pictured (above) is a group of deer counted on a property north west of Charters Towers.

ABOVE: Aerial surveys of deer populations.

LEFT: From initial observations the deer appear to be in relatively good condition, despite the lack of sufficient feed and water for cattle in many areas.

DIET STUDY

Another component of the northern chital research is determining their seasonal diet. In October 2014 a number of animals were submitted for necropsy across two properties with a range of data and samples collected, including samples of rumen contents.

If we can determine the quantity and composition of what is being eaten we can estimate the likely impact on cattle production. Ideally, we would like to know exactly what species of grass and browse (forbs, shrubs and trees) are being eaten by chital and how selective they are being from what is available.

From initial observations the deer appear to be in relatively good condition despite the lack of sufficient feed and water for cattle in many areas. Chital are also browsers, which is an obvious advantage during the dry season. For more information contact:

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Spatial hub at the centre of land-management project

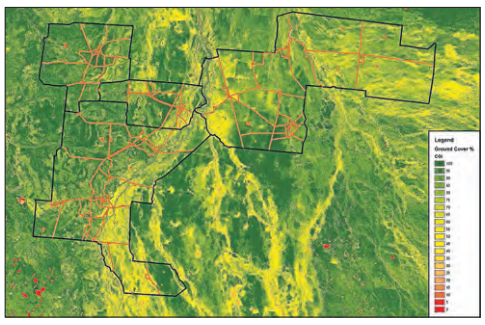
THE NRM Spatial Hub is a central element of the 15-year Blueprint of the Australian Rangelands Initiative, which provides guidance for ongoing management and protection of the natural resources of Australia's rangelands.

The stage 1 development and demonstration of the hub is part of a $1.6 million investment over two years from Caring for Country and Meat & Livestock Australia (MLA).

The hub will give land managers systems, tools, data and skills to improve access to property scale information and knowledge. These improved capabilities will underpin better management decisions and lead to improved productivity, land condition and conservation.

A small team from NRM Spatial Hub, NRM rangeland regional bodies and DAFF have identified Queensland land managers interested in participating in the project. There will be at least four properties in each of the seven NRM rangeland-based regions (Cape York, Northern and Southern Gulf, Desert Channels, NQ Dry Tropics, Fitzroy and South-west) committed to the project.

Queensland's participating land managers will use the hub's online property planning and information system to get data and mapping tools. This will help them develop and maintain comprehensive digital property plans, infrastructure maps and data necessary to help develop grazing plans. Hub users will have secure online access to the latest spatial data. This will include high resolution and time-series satellite imagery, land condition products, and tools that manage and process property information. They will also be able to capture information in the paddock using hand held devices such as GPS or Smartphones.



Land managers will be given simple tools for analysing land condition over months, years and decades. These maps show ground cover estimates from satellite data in May 2009 after the Queensland Gulf floods, and the average ground cover for each paddock.

DAFF grazing specialists will provide land managers with paddock and property carrying-capacity information for different developments (for example, watered area), land condition and woody cover scenarios. This carrying capacity information, combined with remote sensing products that provide direct measures of woody vegetation extent, ground cover and estimates of pasture biomass, will help land managers to develop grazing plans to achieve sustainable production.

Following the property demonstrations, a series of workshops will be held around Queensland in 2015.

These workshops will show producers how to access and use the online property planning and information system, tools and products.

If you are interested in finding out more about the NRM Spatial Hub project and future workshops contact:

Australian Rangeland NRM Alliance
0428 611 599
rmsc@northerngulf.com.au

Technology to help in wild dog control

AUSTRALIA'S wild dog control is becoming more effective, targeted and humane with the development of better strategies and tools to minimise stock attacks.

National Wild Dog Facilitator Greg Mifsud of the Invasive Animals CRC (part-funded by MLA), said producers were gaining ground. Greg said this was due to more communities embracing broad-scale control strategies hinging on how dogs used the environment, rather than on who owned the land or whose stock were being attacked.

"The 'nil tenure' message is spreading and more farm communities are using control strategies that embrace larger areas – reflecting the distances dogs can travel – that involve state and private landholders and utilise the most effective tools for the situation," he said. "Experience has taught us there is no point one producer trying to act in isolation. All that does is drive the problem somewhere else, often temporarily. In some instances under-resourced and poorly co-ordinated control programs have actually increased stock attacks."

Greg said successful broad-scale programs included the South Australian pastoral zone's Biteback and Wild Dog Watch in western Queensland with a full-time, funded co-ordinator who oversaw and integrated control programs in shires covering almost two-thirds of Queensland.

Simon Humphrys, Invasive Animals CRC project leader said most communities affected by wild dogs were getting better at working together and choosing the right tools to achieve the best control outcomes, while minimising effects on non-target species.

He said a range of new tools would improve those outcomes even more, but registration requirements had to be addressed before products could be commercialised.

IN THE PIPELINE

PAPP (para-aminopropiophenone): A new toxin with an antidote for use where domestic dogs are at risk. Like 1080, PAPP is more toxic to some species than others and, importantly, the two poisons affect native species differently so control programs can be tailored for minimal risk to non-target species. PAPP is not yet approved by the Australian Pesticides and Veterinary Medicines Authority (APVMA). Once approved, PAPP baits should be considerably more expensive than 1080 baits as the poison is more expensive and more of it is required for a lethal dose.

Blue Healer: An intravenous injectable, this antidote to PAPP is already available but only to veterinary surgeons. CRC and ABARES are developing another product, most likely a suppository, for dog owners to treat accidently poisoned animals. It will be released at the same time as PAPP poison and baits.

Canid Pest Ejector (CPE): Successfully used in the US for 60 years on coyotes, the CPE device delivers liquid 1080 when a dog or fox bites or pulls on the bait head. Ejectors are considered safe for most non-target species because a certain pull force is required to activate them and their immobility makes them suitable for use in populated areas and national parks. The poison is protected from the weather so baits remain active for longer. Animal Control Technologies could have APVMA registration as early as next year.

Lethal trap devices: Developed by the CRC and its partners Connovation in New Zealand and the NSW Department of Primary Industries (DPI), this product improves the humaneness of leg-hold traps. The device is essentially a bubble of PAPP, fixed to the trap jaws. As the animal chews at the jaws, the nipple is punctured and the animal quickly becomes unconscious and death occurs within 60 minutes.

Computer-assisted technologies: CRC, NSW DPI and the University of New England are working on electronic ways to automate real-time detection and monitoring of wild dogs, including individuals, from facial features. In the future, automated bait delivery could be possible from a device that recognises the target pest. Smartphone technology could also be applied to warn producers of troublesome dogs on their perimeter.

More information: Simon Humphrys, simon.humphrys@invasiveanimals.com; Greg Mifsud, greg.mifsud@invasiveanimals.com; APVMA: www.apvma.com.au

For wild dog information and resources see PestSmart, www.feral.org.au/pestsmart/wild-dogs

To record wild dog activity visit WildDogScan, www.feralscan.org.au/wilddogscan

Digital Homestead project could boost beef dollars

Five major outcomes already delivered

THE Digital Homestead project evaluated how modern information and communication technology (ICT) –such as wireless sensor networks (WSNs), data analytics and rural connectivity – could support greater profitability for beef producers.

The project focused on the northern cattle grazing industry as a partnership between the Commonwealth Scientific and Industrial Research Organisation (CSIRO), James Cook University (JCU), the Queensland Department of Agriculture, Fisheries and Forestry (DAFF) and Queensland University of Technology (QUT).

This project was funded by the project partners with assistance from a Co-investment Fund grant from the Queensland Department of Science, Innovation, Technology and the Arts (DSITIA).

Elements of the project system have been brought together by the development of a browser-based 'data dashboard'. The data dashboard combines on-farm sensors and external data sources (including weather forecasts and live market pricing) in one user-friendly interface.

Sensors used at the research sites measure air temperature, rainfall, wind speed, wind direction, tank levels and cattle location, as well as animal activity and weight. In addition, methods have been produced that use WorldView-2 satellite imagery to assess pasture condition and predict growth and grazing impacts.

Initial trials of the project were conducted at CSIRO's Lansdown Research Station near Townsville. A commercial scale trial is ongoing at DAFF's Spyglass Beef Research Facility near Charters Towers. Early results from sensor networks show clear labour-saving and management streamlining opportunities.

Data will be collected over the next 12 months across the full system at Spyglass, gathering information for detailed cost benefit analyses to demonstrate the value proposition for producers.

The project has had five major outcomes to date:

1. Development of new livestock monitoring solutions
2. Development of pasture monitoring solutions
3. Understanding cattle and environment interactions
4. Dashboard development
5. Industry engagement and design input

The digital homestead project has successfully demonstrated improved on-farm management of animals through gathering data via a wireless sensor network. This data is synthesised and presented in a user-friendly format so that the information-such as knowing the number of animals that meet market specifications-can be used to improve beef herd management.

The ultimate success of the project will be dependent upon further development in close collaboration with producers. It is likely some of this work will be done as a project through the growNORTH collaborative research and development proposal (http://www.grownorth.com.au)-watch this space for further collaborative activities and information.

Low to medium cost sensor technology is developing rapidly and during the project there have been significant advances in the actual technology that is commercially available.

However, the slower than expected roll-out of the National Broadband Network (NBN) satellite service into rural regions has resulted in challenges. The NBN was to be the backbone needed to deliver the project. This situation may not be fully resolved until the NBN satellite service is available in late 2015 or early 2016.

The data dashboard is the unique feature of this project. Once the dashboard system is refined and commercialised the remote sensor technologies being integrated into the dashboard will reduce daily labour costs.

It will also improve record keeping, improve management of animal welfare, and allow for more accurate and timely decision making. Improved decision making will assist producers in ensuring animals meet market specifications, reproductive strategies are effective, and better managing drought. All of which will drive up producer profits as well as productivity.

Using the CSIRO dashboard farm managers can see real-time statistics of their property and livestock 'at a glance'. They can know where cattle are, explore trends in cattle weight, see how much water is in tanks, and browse climate variables from on-farm sensors. It is a truly flexible system that has been created to allow for the addition of new data streams as they are developed and become commercially available.

Set-up is simple and follows a 'drag and drop' approach, whereby users can select and display just the data feeds they want.

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Leucaena varieties show promise at field days

PRODUCERS at two recent field days (Whitewater and Lanes Creek Stations) were presented with information on the value of improving current feed base systems with improved pastures such as leucaena.

Successful establishment of leucaena can potentially double annual liveweight gains, giving the producer increased herd management and marketing options.

The Producer Demonstration Site (PDS) at Whitewater Station, Mount Surprise, is aimed at improving industry understanding of establishment methods, costs and management requirements of leucaena.

The PDS will also showcase the potential productivity and profitability gains associated with improving the feed base with leucaena.

Refer back to Northern muster issue 35 for further information on the establishment of the Whitewater Station Leucaena PDS.

A 40- hectare site will be planted this coming wet season to Wondergraze, a current industry cultivar.

The aim is to establish leucaena into an area with minimal disturbance of the existing woody vegetation.

During this process a 'Tips and Tools' guide will be developed for local graziers.

The project will also include a detailed economic analysis of leucaena production systems and will include experiences from both northern and central Queensland.

During the grazing trial no apparent difference in palatability was evident, with all lines being freely grazed and little preference shown to a particular variety.

The economic analysis will enable producers to make informed decisions about leucaena establishment through using sensitivity analysis and various cattle price scenarios.

The 1-hectare grazing trial established on Whitewater – with four promising lines showing good psyllid tolerance – has been progressing well.

Psyllid tolerance has been measured using current industry cultivars of Wondergraze and Cunningham as comparators.

The PDS will also showcase the potential productivity and profitability gains associated with improving the feed base with leucaena.

Results to date indicate that the four new breeding lines suffered only a minor setback in growth, with minimal damage.

In comparison, both Cunningham and Wondergraze suffered extensive damage with leaf production almost completely stopping.

Given the success of the new lines, seed production blocks have been set up to enable a cultivar release in the future once grazing trials have been completed.

A preliminary grazing trial was completed in September on Whitewater. The graze trial incorporated weaners freely grazing the 1ha site for four days.

No apparent difference in palatability was evident, with all lines being freely grazed and little preference shown to a particular variety.

A replicated grazing trial is about to commence, measuring and comparing the palatability preference of the new Psyllid tolerant lines with the two commercial cultivars – Wondergraze and Cunningham.

A pre-wet season measurement took place in November, with no grass yet established in between the rows. Grasses will be established between the rows and post-wet season palatability trials will begin in April 2015.

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Stock do deed for seed

THERE are many ways to establish pastures. Typically the more energy that is invested in cultivation, the better the chances are of creating a good seedbed for seed soil contact.

This is a key criterion for successful germination and establishment, along with adequate soil moisture, nutrients and appropriate rainfall.

Full cultivation and precision planting, minimum tillage, strip planting, use of crocodile planters, blade ploughing and drum seeders, clearing/chaining with seed boxes attached to dozers, the use of fire (ash as a seed bed), and broadcasting and aerial seeding are some of the methods used for planting and establishing pastures.

Faecal seeding is also a method that can be used to spread the seeds of desirable pastures species. Faecal seeding is the use of livestock to ingest and spread seeds of desirable pasture species via their dung.

Legume species are particularly suitable for this type of dispersal. In nature it is common for animals to disperse seeds in this manner and is termed endozoochory – that is, the ingestion and passing of viable seeds in the dung of animals.

Another way animals are involved in seed dispersal is where seeds adhere to the outside of animals and hitch a ride on fur or hooves and later drop off. This is called epizoochory.

Legume species with hard seed coats are well known to survive digestion and be dispersed by ruminants. The portions of seeds that are digested provide valuable nutrition because of their high protein content.

There is evidence, particularly with the stylos in northern Australia, that grazing stylo with mature seed pods or incorporating stylo seed into dry season supplements is a means of spreading this valuable legume through paddocks.

It is known that some stockfeed companies regularly get requests from their clients to include stylo seed into supplements for cattle. There are also examples of other pasture legumes being successfully spread by cattle.

Progardes desmanthus germinating in a dung pat.

For example, Harry Bishop (former Queensland Department Primary Industries) was very successful in using cattle to graze, harvest and disperse glen jointvetch (*Aeschynomene americana*) seed. The seed was transferred by cattle from a 2.5 hectare 'protein bank' to an adjacent 120ha paddock over a two-year period. This resulted in legume frequency up to 91 per cent, while conventional sown stylos was only 21pc. Using the legume desmanthus, US researchers recovered 75pc of seed fed to cattle and suggested that desmanthus was a candidate for faecal seeding.

At James Cook University, Progardes desmanthus seed fed in molasses as part of a regular dry season supplementation program to a mixed herd of cows was noted to be abundant in cow pats two days after feeding. Hundreds of seeds were found per cow pat and the seed recovered from these had a 72pc germination. This suggested that desmanthus was readily consumed in supplements and that a considerable amount of seed passed through the cattle in a viable state.

As Progardes desmanthus had a hard seed coat it not only survived the passage through the digestive tract but would also survive sitting in the cow pat for extended dry periods before the wet season arrived.

Dung beetles were noted to be active in these cow pats but with no apparent adverse effect on seed viability or germination in the field. Progardes desmanthus (www.progardes.com.au) is a legume that has been released for use on the heavier textured soils (clays) of the region; stylos are adapted to the light textured soils. Recently Agrimix Pty Ltd has supplied Progardes seed to graziers for faecal seeding as well as more conventional seeding.

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Women of north share business experiences

Debbie Nucifora, from Zingo 100% Pure Mango, talks about the challenges of starting a new business with fellow panellists (from left) Franziska Inderbitzen, Fiona George, Michelle Bell Turner and facilitator Julia Telford.

EIGHTY women from across North Queensland travelled to Mareeba to celebrate the International Day of Rural Women in October 2014.

Northern Gulf Resource Management Group (NGRMG) and Cape York Natural Resource Management (CYNRM) partnered to bring together women from across the region for the Resourcing Women of the North event.

This event is an opportunity for rural women to connect and learn about natural resource management and opportunities in business. A theme that came out of the day was the inspiration women drew from each other's stories. Keynote speaker Karen Brook from KBS&Co, spoke on the challenges of running a business and the secret to bringing your ideas to life.

This was followed by a panel session with four women from the region – Michelle Bell-Turner, Debbie Nucifora, Fiona George and Franziska Inderbitzen – sharing their journeys in business. The event enabled women to learn from each other's experiences and connect with and support each other.

In the afternoon participants broke off into small groups to get practical tips. Topic areas included the Beef$ense project, innovative agriculture, holistic management, marketing using the web and grant writing.

A highlight of the event was the Rural Women's Dinner, which included writer, presenter and producer Anna Daniels talking on her journey in the media. Ms Daniels spoke to the participants about being yourself, and how to showcase rural and regional Australia.

The event was facilitated by Julia Telford from Engage and Create Consulting and made possible through funding from NGRMG, CYNRM, Caring for our Country, Mareeba Community Bank Branch – Bendigo Bank, David Kempton and the Foundation for Rural and Regional Renewal.

This was the third Resourcing Women of the North event held this year. Resourcing Women of the North is proving to be a popular way for women to engage with each other on the issues and challenges they and their families face on their properties. Highlights can be seen on www.facebook.com/northerngulf/events or contact Erica Blumson for more information.

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NGRMG targets youth to drive sustainable agriculture

NORTHERN Gulf Resource Management Group (NGRMG) has initiated a new project to support youth from the region considering careers in sustainable agriculture.

NGRMG is aiming to engage youth aged 15 to 18 years, who are interested in agriculture and natural resource management, with a tool kit of resources showcasing pathways to careers in this field.

The project has launched a Gulf Youth in Ag Facebook page with plans for a Youth in Sustainable Ag Camp in 2015. The Gulf Youth in Ag Facebook page has regular posts on courses, scholarship opportunities, career days, YouTube clips, links to camps at Ag Colleges. There are also links to universities offering sustainable agriculture courses and some exciting competitions coming up over the wet season. The project was developed as part of the National Rural Women's Coalition leadership program that NGRMG education officer Erica Blumson took part in this year.

"As part of the e-leaders Women Towards Sustainability Program, we worked on a project that involved raising awareness in the community about natural resource management.

"I took this opportunity to engage youth in upper high school who are mostly living outside of the region during the term at boarding school. The Gulf Youth in Ag Facebook page is a way to keep students connected with career opportunities in agriculture that are relevant to where they are from," Ms Blumson said.

Find the Gulf Youth in Ag Facebook page at www.facebook.com/gulfyouthinag.

For more information on Engaging Youth in Sustainable Agriculture contact:

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RIGHT: NGRMG has initiated a new project to support youth from the region considering careers in sustainable agriculture.

Collaboration works to rehabilitate former mine tailings site

A COLLABORATION between All Souls St Gabriels School (pre-Prep to Year 12, Charters Towers) and Dalrymple Landcare – with advice and assistance from the Charters Towers Department of Agriculture, Fisheries and Forestry team – is under way to rehabilitate a severely degraded, 3-hectare former mine tailings site.

The site, within the school's paddocks, has been excluded from grazing for a number of years. Salts and heavy metals have inhibited plant growth.

Past students of All Souls de-silted a dam on the school grounds and this spoil has been be used to cap the degraded area.

The school's green waste is being spread across the bare areas to reduce water run-off, retain soil moisture and build organic matter.

Salt-tolerant pasture species have been sown across the site and some areas have already germinated, while other patches are yet to establish.

It is hoped that this collaboration will be a successful demonstration of how inexpensive, low-input methods can be used to restore ecological health to a degraded area. This site will be used as a demonstration, with plans to host field days for the wider community to attend.

During the project, All Souls students were involved in the setting up, monitoring and analysis of data gathered at the site. The data collected and continuous monitoring will allow changes to be tracked in the plant species and landscape function at the site.

Pasture-monitoring sites have also been established in other paddocks at All Souls.

Dalrymple Landcare and DAFF staff have worked with the students and staff to set up both 'StockTake' and 'Grass Check' monitoring sites. These monitoring methods and collection of data will provide important information about the botanical composition and ecological health of the areas.

This activity has provided invaluable experience for students, as it has increased their knowledge and awareness of agriculture, grazing, environment and the dynamics of rangeland ecosystems. Continued monitoring of the site will provide valuable data and experiences for future students of the school.

All Souls school currently has 80 acres under grazing in the town area. Students and the wider community, through the collaboration between All Souls, Dalrymple Landcare and DAFF, have been given a great opportunity to influence land management well beyond the school gate.

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All Souls former mine tailings site on November 14, 2013. Silt from a dam was used to cap the site before salt-tolerant pasture species were sown.

Monitoring of the site on January 16, 2014, showed some pasture germination had already taken place.

Team comes to aid with viability services

Infrastructure mapping and $avannaPlan-Beef$ense

THE current seasonal, debt and cost/price pressures across the northern beef industry are overwhelming for many families.

However, the resilience of beef producers is shining through in their enthusiasm to identify and overcome key financial, herd and grazing management constraints.

Northern Gulf Resource Management Group (NGRMG) staff, the Department of Agriculture, Fisheries and Forestry Far North FutureBeef Team and agribusiness consultant Alison Larard offer a range of services to help beef producers address their sustainability and viability issues.

PROPERTY INFRASTRUCTURE MAPPING

The demand to map paddocks, water points, land types and infrastructure is increasing. Ricky Archer (NGRMG) is receiving several calls on a weekly basis from producers requesting property infrastructure mapping.

Once the mapping is complete Ricky is also busy updating property maps so new waters and fencing can be included. These property maps greatly assist with decision making, including land management, carrying capacity, stocking rates, property layout and infrastructure development. Producer feedback in relation

Ricky Archer (NGRMG) helping Luke Kingsley map paddocks and water points on Mount Mulgrave near the Mitchell River.

to the value of property mapping is very encouraging and details:

- how measuring paddock areas and detailing land types improves both understanding and management of stocking rates.
- how grazing circles from water points clearly identify ungrazed areas and assist in planning the placement of additional waters.
- how various formats of the property map can be used, including wall maps for planning, A4 glovebox versions to help new staff on the property, and as inserts in funding or bank applications.

Ricky Archer can be contacted at NGRMG on mobile 0498 814 105.

$AVANNAPLAN-BEEF$ENSE

This is delivered on-property by a team who understands all aspects of running a profitable beef business; from breeder productivity and stocking rates, through to cash flow budgeting, debt management and marketing.

Team members work with producers to help them better understand the financial and economic aspects to their business. The team help producers gauge the implications of making significant changes to their production systems, and move towards securing a better future. Attuned to the sensitivities of people's lives and businesses, a 'Service Agreement' is used to outline the program and cover confidentiality issues.

More than 20 beef businesses, including 35 Gulf properties, are participating in $avannaPlan-Beef$ense to better understand their business position and identify ways to move forward financially and sustainably.

Successful beef producers concentrate on managing grass through wet season spelling, wise stocking rate decisions and maintaining good break-of-season ground cover. These management practices maintain the health of our northern Gulf landscapes and the productivity of our native pasture systems. Several producers participating in $avannaPlan-Beef$ense have managed to unload cattle in response to the challenging seasonal pressures.

Through our on-property contact the following financial constraints continue to emerge:

- Business equity remains critical for some producers with the fall in property prices (30 per cent plus since 2008) and regular transferral or 'rolling over' of operating facilities (overdrafts) into term loan facilities.
- Poor communication with lenders can result in high interest rates and, in extreme cases, 'frozen accounts' and referral to Asset Management sections within the banking sector.
- Profits are rarely seen when analysing the last five years of financials.
- Few businesses can afford to pay a base-line wage to the owner(s) and principal repayments are very rare.

However, in light of these pressures there are several positives emerging from $avannaPlan-Beef$ense, including knowledge that the top producers clearly model 'what' and 'how' to communicate effectively with their lenders.

The team offers support and acts as a 'sounding board' for families facing the 'hard decisions', such as selling assets (land and/or cattle) or staying on in tough circumstances to see out a specific business strategy.

Four businesses are refinancing with a new lender or are negotiating improved interest rates and terms with existing lenders. The team conduct detailed business analysis, including financial and herd productivity benchmarks over the past five years. Producers are using this information to identify and implement options to improve the production and financial performance of the business.

Families are improving their understanding of the 'people' issues in their business (roles and responsibilities; succession; asset transfer) and taking positive steps to meet these challenges (family meetings; employing communication and succession experts).

A methodical cost/benefit analysis of pasture improvement, infrastructure development and cattle marketing strategies is also completed with producers.

Producers find getting a better grip on their finances empowers them and supports decision making. There is some peace of mind in acknowledging what is likely to lie ahead and making plans accordingly. Putting numbers to likely business activities reduces uncertainty and keeps you 'on top of things'. One producer said, "I now have a sense of control and better understand what I think is going to happen."

If you are interested in being involved in $avannaPlan-Beef$ense, contact Alison Larard (0458 007 999), Bernie English (0427 146 063), Tim McGrath (0427 405 011), Joe Rolfe (0427 378 412) or Andrew Taylor (0499 059 907).

Joe Rolfe
DAFF Beef Team
Mareeba

Making sense of beef profitability plan

THROUGH the DAFF/NGRMG on-property $avannaPlan-Beef$ense program it is common to see extensive breeding enterprises with branding rates below 50 per cent.

Put simply, the breeder herd gives you a calf this year and then takes the following year off. Profits are also rare when we examine the 2008/13 'Profit & Loss' sheets on most properties.

Many businesses carry significant debt and in most cases struggle to meet interest payments. Throw in a couple of failed wet seasons and poor prices and it is fair to say times are tough for the beef industry.

Given this situation, it is common for producers to lock in to weaner sales each year to meet loan commitments or manage overdrafts. These young cattle are often sold into the autumn/early winter falling market.

Table 1 includes a typical Gulf breeding enterprise with sub-50 per cent branding rates. It compares the gross margins per adult equivalent (AE) of various marketing strategies including weaner, 18-month and 30-month turnoff. The breeder and male death rates are 3.5pc and 2pc respectively, while liveweight gain in growing cattle is 100kg/head/year.

Based on agistment rates, the cost of carrying the breeder while she has a year off is at least $78 ($1.50/breeder/week). In general terms the benefit of holding over a weaner for that period is $150. Maintaining operating funds while holding over weaner sales can be achieved by extending overdrafts or term loans or by selling down aged cows, PTIC females, or cows and calves. Gross margins also increase from $40/AE with weaner sales to $54.51/AE when sale age is pushed out to 30 months.

Greenhouse gas (GHG) emissions have also been estimated through the DAFF/NGRMG Climate Clever Beef project. In summary, the gross GHG emissions (tonnes of carbon dioxide equivalent per year) increase as age of turnoff increases; however, emission efficiency per tonne of liveweight sold improves with older turnoff. This demonstrates that producers can take steps to improve both profitability and environmental emissions. These emission calculations could also be used to determine potential industry income or liabilities in any future carbon trading schemes.

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Table 1: Age of turnoff and impact on herd gross margins

Description	Weaner turnoff	18 month turnoff	30 month turnoff
Head	3397	3695	3740
Branding rate	43%	43%	43%
Male sales	547	502	439
Male value	$306	$459	$629
Female sales	414	388	346
Female value	$465	$465	$465
Herd Gross Margin	$206,287	$240,818	$271,172
Gross Margin/AE	$68	$80	$90

Chopper hits weed

Herbicide pellets rain down on prickly acacia

PRICKLY acacia (*Acacia nilotica subsp. Indica*) has become a widespread weed throughout north-west Queensland since it was introduced in the 1890s.

There are currently a variety of mechanical and chemical control options available for prickly acacia. However, in many cases, the extent and density of prickly acacia mean that control costs become prohibitively expensive. Therefore, the continued development of more efficient and cost-effective options for control of prickly acacia is important.

A granular pelleted herbicide with the active ingredient tebuthiuron was initially developed by Dow Agrosciences and called Graslan (other generic versions are available). It is normally applied by hand to the soil around the prickly acacia plant.

A new tool for the application of Graslan has recently been developed to help control prickly acacia. The weed sniper is a single, variable-dose pellet dispenser applied to each tree from a helicopter. The pilot identifies the target plant, determines the size and dose required according to manufacturer recommendations, and then hovers over the tree and applies the single dose.

Herbicide application is via a tube directed to the centre of the tree mass, allowing the pellets to follow the natural rain collecting structure, which results in an ideal spread of the pellets around the base of the tree. When carried out in calm to light wind conditions, downwash from the helicopter appears to have minimal effect on the dispensed pellets as they fall. This application takes very little time as the dose is pre-set by the pilot on approach to the target weed.

In late 2013 a trial of the weed sniper was initiated by the Carpentaria Land Council Aboriginal Corporation with assistance from Department of Agriculture, Fisheries and Forestry agency Biosecurity Queensland, DAFF's Tropical Weeds Research Centre and Southern Gulf Catchments Limited.

The weed sniper is a single, variable-dose pellet dispenser applied to each tree from a helicopter.

Within the treatment zone there was a mixture of scattered, low-density prickly acacia, as well as higher density areas associated with cattle pads and fence lines. The number of treated plants was recorded using a manual counting device and an aeronautical GPS unit. The pilot recorded 4260 treated plants, but the actual number killed was 4548.

The difference between the two numbers is likely to be due to collateral damage, where smaller prickly acacia plants within the drip line of larger dead trees were killed by the Graslan dose to the larger tree.

A higher mortality was achieved for taller plants. The plants over four metres tall (only 10 per cent of total treated) recorded a mortality rate of 96pc. For plants 2 to 4 metres tall there was a kill rate of 88pc.

However, mortality rates were much lower for smaller plants under two metres.

A comparative trial using on-ground application of Graslan by foot and by quad bike was carried out on May 8, 2014. However, no results will be available until sufficient rain falls to activate the herbicide.

Assessment of the mortality rates by these two methods will take place in early 2015.

The benefits of the weed sniper are expected to be evident when used over vast areas where large prickly acacia trees are scattered and at relatively low densities, which is the case on a number of lower Gulf properties. Where there is a moderate density of prickly acacia, on-ground application of pelleted herbicide may be the more cost-effective option.

This project is supported by Southern Gulf Catchments Limited through funding from the Queensland government.

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PIAG keen to see MLA push northern R&D

THE Pastoral Industry Advisory Group (PIAG) for the Southern Gulf NRM region has discussed the need for transformational change with Meat & Livestock Australia (MLA) managing director Richard Norton.

PIAG chairman Charlie Hawkins said PIAG members discussed how MLA could help move the industry forward with strong representation for the north. He said the group also spoke about using northern levy funds and were encouraged that action was already under way through MLA's new consultation model, to ensure levy payers had more say on R&D spent in the north.

Mr Norton said MLA had run projects such as CashCow, looking at key husbandry practices associated with improved reproductive performance and investigation into different feedbase options, which directly benefited northern levy payers.

The group also discussed, at length, MLA's price transparency project, to analyse options for increasing price transparency in the beef supply chain. Benefits of price discovery, risks of price disclosure and potential benefits at the farm gate were all debated and PIAG requested continuous updates on the project.

PIAG also discussed debt issues and opportunities in northern Queensland. One of the options put on the table was a tax loss credit swap scheme to transfer previously accrued tax losses into interest credits.

Mr Hawkins also said PIAG believed the northern beef industry would be open to investors who may be able to help the industry take advantage of opportunities currently out of reach of the average producer.

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