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— COVER IMAGE by SARAH COULTON. Photos were taken at the McCamley family’s Red and Grey Brahman stud at Palmali Brahman, Dingo.
Foetal ageing: A tool in variable seasons

Getting ready for another season of management

AS the wet season fades many operations are gearing up for another season of management – for some that has already started.

One thing is for sure, the beef game is busier than it has ever been and in the face of variable seasons, management of breeders in the extensive parts of Queensland needs to be well-planned and precise.

In this article we discuss foetal ageing as a useful tool, providing information producers need to manage cattle in variable years.

PREGNANCY DIAGNOSIS - A BENCHMARK OF PERFORMANCE

The utilisation of a foetal age provides a reasonably accurate description of the productivity of the mob by identifying the proportion of cows which can be expected to achieve a ‘return’ pregnancy within four months of calving. This measure is variable across businesses and significant to business performance. It can also identify peak calving periods in relation to seasonal conditions and how this may be affecting rebreed rate.

Monitoring of pregnancy to calving rates can also identify where losses may be occurring.

This information is of particular use in continuously mated systems where there is a continuous flow of calves.

MANAGING NUTRITION FOR LACTATION

At the onset of the dry season, breeders that have been segregated by foetal age can be better managed for nutrition. Cows calving in optimal periods can be segregated by foetal age they can be assigned to a paddock that is more secure.

INFLUENCING THE MATING PERIOD

In extensive grazing situations, one of the largest barriers to uptake of control mating is keeping bulls away from calving to weaning.

Late calving cows have a reduced level of nutrition. Cows grouped traditionally by age groups to their breeding groups is not easy, as it changes the dynamic of cows grouped traditionally by age groups to their time of calf drop. This can be a management conundrum in the first few years when smaller groups may need to be held nearby until additional numbers are identified to fill a paddock.

The ease of management of bulls generally varies by paddock on-property. Once early calves are identified through a foetal age they can be assigned to a paddock that is more secure.

SOME REALITIES TO USING FOETAL AGEING

Integration of foetal ageing into the management of breeding groups is not easy, as it changes the dynamic of cova groups grouped traditionally by age groups to their time of calf drop. This can be a management conundrum in the first few years when smaller groups may need to be held nearby until additional numbers are identified to fill a paddock.

As well as this, segregation of late calves by foetal age can be a headache for mothering up, although the number of pregnant from this group is normally limited. Weaning lighter calves can reduce this number to mother up further and in most years is advisable.

The utilisation of foetal age provides a reasonably accurate description of the productivity of the mob by identifying the proportion of cows which can be expected to achieve a ‘return’ pregnancy within four months of calving.

This information is of particular use in continuously mated systems where there is a continuous flow of calves.

MANAGING NUTRITION FOR LACTATION

At the onset of the dry season, breeders that have been segregated by foetal age can be better managed for nutrition. Cows calving in optimal periods can be identified and managed to reduce their weight loss from calving to weaning.

Later calving cows have a reduced level of nutrition. Cows grouped traditionally by age groups to their breeding groups is not easy, as it changes the dynamic of cows grouped traditionally by age groups to their time of calf drop. This can be a management conundrum in the first few years when smaller groups may need to be held nearby until additional numbers are identified to fill a paddock.

These additions to management certainly don’t work without some smaller management paddocks nearby and plenty of grass.

The underlying premise to using foetal ageing will always be a tool to better manage nutrition and lactation. The alignment of precautions to correlate calving with criteria of better pasture quality and stringent weaning policies help to maximise cow body condition.

This in turn creates a cycle of faster recuperation. As stated previously this concept of measuring recuperation efficiency is the litmus test to profitability in a beef business because like all things unless we measure it we can’t manage it.

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Breedcow workshop learning experience for Fitzroy growers

Breedcow Dynama analyses economics of livestock management strategies

A GROUP of producers from throughout the Fitzroy basin attended Breedcow Dynama training in Rockhampton 21-22 January.

The group consisted of 10 participants from six businesses. Participants came from Wandoan, St Lawrence and Marburg. The workshop was developed through interest generated from the Grazing BMP People and Business module.

Breedcow Dynama is a decision management tool to analyse the economics of livestock management strategies. It was developed in 1988 by Townsville-based Queensland Government economist Bill Holmes.

The program was developed to improve an individual’s beef business. Economic scenarios are able to be addressed within the program that enables the participants to ask themselves the following questions:

- Are we heading down the ‘right track’?
- Is there a more profitable way to manage the herd?
- What happens if I run less?
- Change as an investment - is it profitable?
- Forced sales and opportunity trading - what is the best decision?

There is a suite of programs within the Breedcow Dynama model. Breedcowplus and DYNAMAPlus have the following functions:

- Adult Equivalent calculation
- Prices received for cattle that are sold off the property
- Husbandry costs involved in the production of live-stock on the property
- Breedcow Dynama summary, analysis of the data that has been inputted into the program
- Other programs include:
  - Bullocks - Trading cattle
  - Cowtrade - Trading cows and calves, PTIC cows
  - Investan: Investment analysis for property purchase and development

Evaluating research outcomes and management strategies

Breedcowplus enables the participant to analyze the most profitable age of male turn off, which enables them to review alternative markets. It also enables them to look at their female culling strategies (something that has been lacking within the beef industry). Changes in management practices such as supplementation programs can be costed in the program.

Cattle trading and forced sales can be economically analyzed in Bullocks and Cowtrade sections of the program.

These spreadsheets enable the participant to determine the prices and classes of cattle that they can buy and the margin that they need to achieve to make it economically viable.

Forced sales of stock can also be analyzed, with the economic implications of raising cash by selling the stock or reducing numbers and subsequent cash flow outcomes.

Dynamapix enables the participant to plan herd structure, sales, cash-flow, net income, assets and liabilities for a 10 year projection. This enables participants to analyze property purchase, business restructuring and drought recovery. Investan enables the participant to analyze the implications of property purchasing or the expected return on a property development investment.

Breedcow Dynama can be used as a tool for evaluating change as it analyzes a producers current herd and financial situation (this is classed as Year 1). It then can map pathways into the future by implementing improved management for up to 10 years, or predicting the future situation of the property with no management change for up to 10 years.

There are a number of figures that are needed for the Breedcow Dynama interpretation, these include:

- Stock numbers by sex and age, for example No 3 heifers, No 2 steers
- Live weights of animals by sex and age class
- Sale weights, prices, freight and selling costs
- Weaning/branding rates
- Husbandry costs i.e. vaccines, supplements, drenches
- In addition Dynama requires extra figures such as:
  - Overheads i.e. power, fuel, rates, labour etc
  - Borrowings
  - Finance costs
  - Asset values

Overall, Breedcow Dynama has the potential to provide economic pathways for cattle producers looking to explore marketing alternatives for their stock. The participants at the workshop commented that they found the workshop useful and a catch up workshop was proposed for later on in the year.

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The group who did the sums at the Rockhampton Breedcow Dynama workshop.

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Now’s the time to plan for the dry season – Stocktake Plus is just the tool to use

"If you put your land first, your animals will come first." That's what a landholder told me when I first started out as an extension officer and I’ve never forgotten it.

Having a plan at the end of the growing season about your pastures and cattle management for the coming dry season, will allow you to take advantage of opportunities for adjusting your stocking rates, while maintaining or improving your land condition for long-term sustainability – thus putting your land and your cattle first.

One way to do this is to draw up a forage budget, and one tool to use is the Stocktake Plus app. Forage budgeting is a process for objectively estimating safe stocking rates based on available pasture and animal intake over a period of days, weeks or months.

It lets you balance forage supply (existing and anticipated pasture yield) and forage demand (the amount the animals will consume) over a defined period.

Stocktake Plus represents the next generation in FutureBeef decision support tools. It is based on the previous, well-respected Queensland Government Stocktake monitoring software but allows users to complete their monitoring and calculations in the paddock on their mobile device for an immediate response.

Most importantly, Stocktake Plus will work without the need for mobile phone reception. You can store information and get results while you are in the paddock.

This means your monitoring and feed budget data as well as your stock and rainfall records are with you at all times.

All the reports on your device can be printed and/or backed up when you return to your office.

The app was designed to be visual, logical and prompt for ease of use, and importantly to work in remote areas without 3G/4G phone reception.

Stocktake Plus:

- Assists in monitoring grazing land condition by logically guiding the user through the process.
- Stores monitoring information and produces reports, including long-term carrying capacity calculations, based on user input.
- Guides the user through a basic or detailed forage budget.
- Stores rainfall records.
- Stores stock numbers (converts to Adult Equivalents, displays current stock on Land Condition report, and can import figures to demand section of a forage budget).
- Directs users to their monitoring sites using GPS functions.
- Helps the user identify their land type(s), using the land type mapping of Queensland.
- Backs up all information securely on the internet, only accessible by the user.
- The app is more than a digital log, it has many in-built support tools including:
  - Land type fact sheets
  - Pasture growth tables
  - Ground cover photo standards
  - Accessible yield calculation sheets
  - Pasture photo standards
  - Dendrometer for measuring tree densities.

Everything you need to do your monitoring in the paddock is now within your device. There’s no more need for you to track your pasture photo standards, your GPS, or camera to compile your assessment.

The app can be downloaded and installed on multiple devices and is compatible with Apple and Android.

If you would like someone else to help with your Stocktake Plus monitoring, calculations and reports, such as a family or staff member, they can access and add to the property information from their own device using the same username and password.

Stocktake Plus is the first production decision support app for FutureBeef and Meat & Livestock Australia (MLA), developed using funding from MLA and the Department of Agriculture and Fisheries (Qld), Queensland.

For more information, support and resources please visit the website – www.stocktakeplus.com.au.

In preparation for the coming dry season, the Flinfty Basin Association is running a series of workshops across the region.

The normal workshop cost is $330, but with generous funding provided by the FBA, we are able to offer the workshop free of charge.

For information on the Stocktake Plus app or an upcoming Stocktake workshop near you, contact Bronwyn Roberts, WorkCover Queensland 0429 992 810.

How can worker’s compensation insurance help you?

IF you own a business in Queensland you’re responsible for keeping a safe workplace and if you employ workers and one of them is injured at work, they can apply for workers’ compensation.

In Queensland, workers’ compensation insurance is compulsory if you employ workers who meet the definition of ‘a worker’.

Holding an accident insurance policy gives the employer peace of mind knowing their business will be covered should a worker sustain a work-related injury and require medical treatment or time off work.

Employers may not be aware of their obligations to insure or they may not realise that not only full-time workers on average or casually need to be covered, but also part-time, casual, seasonal and in some cases, contractors and sub-contractors, may require coverage.

In 2013-2014 WorkCover received 500 claims for the beef industry, amounting to approximately $7.6 million in statutory costs.

Serious injuries can result in claims costing hundreds of thousands of dollars and significant premium increases, and being uninsured or under insured exposes both the employer and worker to unnecessary risk.

With more than 42 per cent of injuries in the beef industry sustained by 20-30 year olds, employers face a significant challenge to comply with workers’ compensation obligations given the large number of seasonal and overseas workers engaged under a variety of employment conditions.

YOU’RE COVERED

A WorkCover accident insurance policy covers your business against the cost of work-related injuries including weekly compensation and rehabilitation costs.

If in any doubt about your obligations, or understanding of who is defined as a worker, please phone 1300 362 128 or visit the website worksafe.qld.gov.au.

On the website you can apply for a policy online, or read more about your rights and responsibilities and further details on who you should cover for workers’ compensation. You can also check if your contractors are ‘workers’ and should be covered by their WorkCover policy by using the ATIO employee/contractor decision tool.

HEALTH BENEFITS OF WORK AND MINIMISING YOUR PREMIUM

Improving workplace safety and having good injury management processes that help injured workers rehabilitate and get back into their jobs quickly and safely, is not only good for business but has positive effects for the worker too.

A research paper from the Australasian Faculty of Occupational and Environmental Medicine and the Royal Australasian College of Physicians, ‘Realising the health benefits of work’, indicates that if a person is off work for 20 days the likelihood of returning back to work is 70 per cent, reducing to 50 per cent at 45 days and at 70 days off work the chance of ever getting back to work is 35 per cent.

Work is an important part of the worker’s rehabilitation process because ‘doing’ promotes recovery. Being off work for long periods of time can significantly reduce the likelihood of the worker ever returning to their original job and have a negative effect on the worker, their family and disruption to the business.

The average number of days off work due to a work-related injury in the beef industry was over 43 days during 2013-2014.

Injury management in the workplace does not have to be complex. By focusing on early reporting of workplace injuries, seeking early medical attention and encouraging injured workers to participate in work-related rehabilitation, employers not only help their injured workers make an early and safe return to work, they also help reduce the cost of the claim thereby minimising the impact on the employer’s premium.
THEORIES AND REALITIES

FOR decades dry-season urea supplementation has been used to reduce weight loss in cattle during the dry season. However, there have been debates about whether feeding urea 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 began at the Queensland Department of Agriculture and Fisheries’ 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 at other locations in the 1990s, showed that the benefit of dry-season urea supplementation also applied 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.

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 use two types of protein: rumin-degradable protein (RDP) and rumen undegradable 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 bloodstream.

In a grazing situation, most protein consumed in forage is broken down in the rumen and used by rumen microbes producing microbial protein. So, 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 cattle equals to about 5-10g of urea entering the rumen daily in the absence of any urea supplementation.

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 rumen microbial 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 microbial 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. it can occur when cattle are new to supplements or have a deprived appetite due to lack of feed and/or are deficient in protein, phosphorus or salt. How much protein are we feeding in urea supplements?

The theories about high-protein feeds such as urea (but also other feed sources such as nitrogen-based 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 4-8pc crude protein. Table 1 shows the very low protein intakes typical of beef cows grazing poor quality dry-season pastures.

The reason to use urea as the primary source of protein instead of a protein meal such as cottonseed meal (40pc) is to reduce the cost of the feed. The lower protein content of low-urea supplements results in cheaper protein meal instead of a protein meal such as cottonseed meal and feeding costs. The situation is commonly compounded by urea being replaced with protein meal and/or grain, which adds to supplement palatability.

KEY POINTS

- Urea supplements are a cost-effective means of reducing weight loss in both growing and breeder cattle grazing poor quality dry-season pastures low in crude protein.
- Breeders in better body condition have lower mortality and better pregnancy rates.
- Protein intake of northern beef cattle, even when fed high urea supplements, is very low compared with 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.

SLOW RELEASE UREA

1800 804 096
RECOMMENDATIONS from a coronial inquest into recent quad bike fatalities are due to be released later this year. A similar inquest is also being carried out in New South Wales.

Quad bike use is addressed in the new Serious about Farm Safety guide published by Workplace Health and Safety Queensland in collaboration with industry groups.

Quad bikes are responsible for the largest proportion of fatalities and serious injuries on rural properties. Their short wheelbase and high centre of gravity increase the potential for a roll-over or collision when manoeuvring on slopes or rough terrain.

Quad bikes are not all terrain vehicles. They should only be used by trained operators within the scope of the manufacturer’s recommendations.

These factors increase the risks:
- insufficient rider training
- children riding adult-sized quad bikes
- excessive speed
- rough terrain, steep slopes and unseen obstacles in long grass
- overloading with after-market attachments or fitting inappropriate accessories
- carrying passengers on bikes that are not designed for them.

Workplace Health and Safety Queensland has a range of short safety films which can be found at worksafe.qld.gov.au. You can also view ‘A rush of blood: The Miles Patterson story’ about his personal quad bike incident. A list of training providers to help you get the right training for using a quad bike is also available.

For information to help minimise risk of a quad bike fatality or injury visit the QuadWatch webpage at safeworkaustralia.gov.au or visit worksafe.qld.gov.au.