In this edition

- Breeding workshops help deliver the edge 24
- Graeme Elphinstone set to retire after half-century 24
- Grazing BMP drives success 25
- What is my green day? 26
- Focus on selection is key to better breeding 27
- SELM symposium dedicated to precision management 28
- Breeding EDGE workshop information 29
- Spelling strategies for recovering pasture condition 30 & 31
- Breaking the big challenges into more achievable goals 32 & 33
- FutureBeef workshops 34
Breeding workshops help deliver the edge

Producers given the tools to help them meet their objectives

FOLLOWING the success of our Emerald Breeding EDGE workshop we will be offering workshops in Tiaro, Brilliant and Emerald in February-March 2014. See page 29 for details and who to contact to register.

The Emerald participants now possess information and tools that will help them meet their breeding objectives. Green dates and the best time for our calves to drop were much discussed topics at the workshop. We have followed up with an article on green dates and the best time for our calves to drop. If there is a topic you would like covered in the next edition of CQ BEEF, please complete a feedback sheet (found on the back page of CQ BEEF) and fax, post or email it back as directed on the form.

The past six months has seen a large number of Grazing BMP project activities across the Fitzroy and Burdekin regions. DAFF, FBA and AgForce thank producers for the strong support for this program. Grazing BMP has generated tremendous interest in further activities that can help producers develop their businesses. A recent example is the cattle nutrition day run at Calliope on December 9. It is important to acknowledge the enormous effort put in by staff from FBA and its sub-regions, DAFF, AgForce and NQDT in delivering such a large number and range of activities. If you want to keep ahead of our field days, workshops and activities, there is no better way to do it than to sign up for the online version of CQ BEEF and for our free eBulletins or by checking out our online calendar. You can do so by visiting our website, www.futurebeef.com.au/resources/newsletters/

This is the 19th issue of CQ BEEF. We hope you enjoy the read and we wish our readers a very happy New Year with green pastures, fat cattle and improved prices.


Half-century of beef industry service comes to a close

HE IS a legend in south-east Queensland beef circles, but when Graeme Elphinstone officially retired his beef extension officer position in November, he ensured his legacy continues. Not only is Graeme (pictured) a well-known and respected beef extension officer, he is also an inspirational figure to younger colleagues. Over a long and distinguished career, he always made the effort to mentor the up-and-coming beef extension officers, ensuring they benefit from his decades of experience.

The early years of Graeme’s career were spent in Toowoomba where he started with DPI in 1962 as a cadet/field assistant (apronomy) before going on to Brisbane. Beaudesert and Miles, finally landing in Gympie in 1976 – where he stayed. He has worked in pastures and cropping, with the beef industry and sustainable production systems being very strong themes.

“Graeme has worked tirelessly all his life to assist, inspire and coach the south-east Queensland beef industry to develop best practice land and production management systems to ensure sustainable production and profitability. From his base in Gympie he has worked with producers from the border to Rockhampton,” Department of Agriculture, Fisheries and Forestry Animal Science general manager Peter Johnston said.

Major projects have included giant rats tail grass management, buffalo fly management, trapping and dung beetles, and grazing land management structured learning workshops. His passion for sustainability of agricultural production and his commitment to his clients is unwavering and total.

“He is an acknowledged expert and somewhat of a legend in his profession and his community. Graeme is a smart worker who constantly upgraded his knowledge through continuous learning habits and encouraged his clients to do the same. He is a very positive and friendly person with a can-do attitude to providing solutions to industry problems.

In recent years he was heavily involved in Reef Rescue projects, working in partnership with the Mary River Catchment Coordinating Committee (MRCCC), assisting producers with on-ground projects to improve land management practices and enterprise sustainability. We wish Graeme all the very best in his retirement and thank him for a remarkable 51-year commitment to the beef industry and the impact he made across Queensland and in particular in south-east Queensland.
Improving productivity, profitability and sustainability in the grazing industry

The key driver of productivity within a breeding operation is herd performance. Improving herd performance relies on effective genetic selection, coupled with sound breeder management and maintenance of breeder body condition. Participation in the Grazing BMP program provided the motivation for one central Queensland breeding operation to seek further skills and training in order to improve their herd performance.

George and Kim Sypher manage Karamarra, a 7230ha property north east of Dingo on the Mackenzie River. Owned by Charlie and Kaye Wilson, Karamarra is a mixed farming (both dryland and irrigation) and pastoral operation. Running a herd of Brahman/Santa cross cows, joined to Droughtmaster and Brangus bulls. The business turns off finished animals, and forage crops are used to finish and fatten, helping the business meet market specifications at an early age.

Self-assessment of their production practices through the Grazing BMP program prompted George and Kim to seek opportunities for further training, in the area of herd performance. Similar interest from other producers in their district resulted in the delivery of a Breeding EDGE Workshop in Emerald. Run over three days at the end of October, the workshop was delivered by John Bertram and Alan Laing. The Breeding EDGE workshop has been designed to assist producers to develop a breeding program, or improve their existing one. It uses reproductive and genetic knowledge and technologies to help grazing businesses achieve desired production targets.

The Breeding EDGE package is customised for producers in northern Australia and comprises six modules:

- Examining your current operation.
- Reproduction issues.
- Selection.
- Breeding objectives.
- Production – an introduction to EDGE.
- Breeder body condition

George and Kim felt the workshop was an excellent training opportunity, providing them with the knowledge, skills and motivation to make worthwhile changes to their management practices.

“It was an invaluable three-day workshop which provided key information and effective tools for us to question and evaluate our current breeding performance, more confidently – which in turn will allow us to implement efficient changes.”

The most immediate change the Syphers will begin implementing is adjusting their breeding calendar to tighten up their calving window. The long-term goal is to improve the probability of achieving sufficient breeder body score condition for the joining period. The planned follow-up meeting for next year is a vital aspect of the Breeding EDGE package.

“Planned follow up is important, because it encourages you to commit to action,” says Kim Sypher.

“I’m looking forward to seeing how we all went in implementing the changes to our breeding programs – it will be good to share what worked and what didn’t.”

Directing producers into training opportunities that will be beneficial to their business, (such as Breeding EDGE) is a planned outcome of Grazing BMP.

Through the process of self-assessment, graziers identify areas in their business that may be improved through the change of practice. Having been exposed to both the Cotton and Grazing BMP programs, George saw Grazing BMP as a logical benchmarking tool for their beef enterprise.

“The strength of BMP is that it highlights facets of the operation that aren’t necessarily in the forefront of daily business activities,” George said.

The Syphers are not the only producers to identify a need for further training as a result of attending a Grazing BMP workshop.

Across the Fitzroy, 57 businesses have expressed an interest in Breeding EDGE.

As a result, there are three workshops planned for the Fitzroy catchment in the new year:

- February 4-6, Wandoan – contact Tim Emery 0408 707 159.
- March 4-6, Biloela – contact Jo Gangemi 0477 345 848.
- March 18-20, Emerald – contact Laura Devlin 0467 801 673.

Please contact the above if you are interested in attending.

Jo Gangemi, beef extension officer, DAFF, 0477 345 848.

The association also has input into issues such as:

- Rest areas and truck parking
- National Heavy Vehicle Regulator
- NTC and many other matters that influence all transport operators.
- Many other transport related issues as they arise
- The TruckCare animal welfare Accreditation System

For membership details contact the LRTAQ Secretariat on 1800 079 513

LRTAQ
485a Stuart Drive, Stuart, QLD 4811
Phone: 07 4778 4046 Fax: 07 4778 4046
email: ltaq@ltaq.com
Free call: 1800 079 513
ABN: 64 252 478 543

FutureBeef.com.au

George Sypher and daughters Grace, Laura and Gabby.
What is my ‘green day’?

Timing depends on location and realistic expectations of ‘normal’ rainfall

**EXPECTED GREEN DAY BASED ON WHAT OCCURS IN 70 PERCENT OF YEARS**

<table>
<thead>
<tr>
<th>Location</th>
<th>Median Date</th>
<th>Range (January)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emerald</td>
<td>15 December</td>
<td>10-20 December</td>
</tr>
<tr>
<td>Alpha</td>
<td>25 December</td>
<td>15-30 December</td>
</tr>
<tr>
<td>Duaringa</td>
<td>1 December</td>
<td>15 November</td>
</tr>
<tr>
<td>Blackwater</td>
<td>1 December</td>
<td>15 November</td>
</tr>
<tr>
<td>Calliope</td>
<td>1 December</td>
<td>15 November</td>
</tr>
<tr>
<td>St Lawrence</td>
<td>1 December</td>
<td>15 November</td>
</tr>
<tr>
<td>Clermont</td>
<td>16 December</td>
<td>15-20 December</td>
</tr>
<tr>
<td>Mackay</td>
<td>1 December</td>
<td>15 November</td>
</tr>
<tr>
<td>Springnur</td>
<td>15 December</td>
<td>15 November</td>
</tr>
<tr>
<td>Sarina</td>
<td>1 January</td>
<td>1-20 January</td>
</tr>
</tbody>
</table>

Therefore, in around six years out of 10 they will get lower rainfall than expected. The same applies when determining your green day.

For example, using 50mm of rainfall within a consecutive three-day period as your definition of a green day will give you a lower green day than using 30mm within a consecutive three-day period. At Emerald, for example, the median date of a 50mm rainfall event during October to March within a consecutive three-day period is December 28. This compares to a median date of November 15 for a 30mm rainfall event.

For producers trying to reduce their rainfall risk, it is worth considering selecting a green day based on what occurs in seven years out of 10. Using this as a benchmark, for Emerald it is not until mid-January that it is realistic to expect a 50mm rainfall event. This compares to mid-December for a 30mm rainfall event.

What you select as your definition of a green day will depend on a number of factors including the type of country, its ability to respond to rainfall and existing pasture condition.

Grazing land in a good condition (pasture score A or B) responds to less rainfall more quickly than heavily grazed pasture with limited ground cover (for example, less than 150kg/ha dry matter). The table left highlights the green day for a number of central Queensland locations.

The dates are based on what occurs in seven years out of 10 during October to April for both a 30mm and a 50mm rainfall event within a consecutive three-day period.

**Dave McRae, DSITIA, Toowoomba, (07) 4529 1343, david.mcrce@dsitia.dit.qld.gov.au**

---

**Is your supplement putting your cattle at risk of sulphur toxicity?**

**Sulphur** is a component of essential amino acids such as methionine and cysteine and is involved in protein synthesis and metabolism, and fat and carbohydrate metabolism.

The ideal nitrogen:sulphur (N:S) ratio is 10:1 although slightly lower levels are quite acceptable. To achieve this ratio, the general rule of thumb is to use urea and sulphate of ammonium at a ratio of 5:1. This means that as urea is increased in a lick, the level of sulphur should also be increased.

Sulphate ammonium has the added benefit of being quite bitter, therefore it is often included in licks at higher levels to assist with controlling intake. When are cattle at risk of sulphur toxicity? When urea-based dry lick intakes are high, the level of sulphate of ammonium is often increased to reduce palatability and hence, intake. Sulphate of ammonium levels of 10-20pc are not uncommon and these result in a significant decrease in the N:S ratio, down from the ideal ratio of 10:1 to as low as 3:1.

Feeding high levels of sulphur in supplements can result in sulphur toxicity, particularly if the overall sulphur level in the diet (that is, the total sulphur consumed from pasture, lick and drinking water) exceeds the maximum tolerable level of 0.4pc.

Furthermore, where sulphur in the form of sulphates (for example, sulphate of ammonium), is combined with highly fermentable feeds, the amount of sulphur required to cause toxicity is reduced.

There have been documented incidences of cattle deaths resulting from sulphate of ammonium being fed in fortified molasses mixes in an attempt to reduce intake of molasses. This is a very dangerous combination because molasses is rich in sulphur so the overall sulphur content of the mix is high, and when fortified molasses is fed, animals consume large quantities so the molasses mix makes up a large proportion of the overall diet.

High sulphur intake has been associated with a reduced dry matter intake as well as decreased milk production. High sulphur levels in the diet also interfere with copper and selenium absorption, as well as affecting the metabolism of other minerals. Very high levels of sulphur intake can cause polioencephalomacia.

For further information and advice, contact your local beef extension officer.

---

**FibrePro**...Protected Animal Performance

- **Highly WeatherProof**
- **Complete Supplement**: Protein, Mineral & Vitamin
- **Stimulate Microbial Fermentation**
- **Increase Dry Matter Intake**

Contact Performance Feeds today to learn more about our FibrePro® Range. FibrePro™ is also available for Sheep.

**For more information contact:**

**Peter Cush**
National Sales Manager
Rangeland Program
0408 607 558

---

**FutureBeef.com.au**
Focus on selection is key to better breeding

Variation in lactation anoestrus in first calf cows of tropical cattle

A MAJOR research project in the Cooperative Research Centre for Beef Genetic Technologies (Beef CRC) has provided very useful information about lifetime production in Brahman and Tropical Composites in northern Australia.

One of the primary objectives of this Beef CRC project was to investigate what effect genetics had on post-partum anoestrus (period between calving and a return to cycling) in first-calf cows and consequently what opportunities may exist to improve fertility rates in northern Australia through genetic improvement.

PROJECT DESIGN

A total of 2137 cows were involved in the project (1020 Brahman and 1117 Tropical Composites (TC)). The cows (also used in the age of puberty studies) were bred on seven cooperating properties (four Brahmans and three TC) and at Belmont Research Station, which breeds both Brahmans and TC.

Genetic linkage (across property of origin, and year within genotype) was generated using artificial insemination (AI).

The cows were generated over four and three years for Brahmans and TC respectively.

At weaning the cows were allocated according to genotype, property of origin and sire to one of four properties – Toorak (Julia Creek), Belmont (Rockhampton), Swans Lagoon (Ayr) and Brian Pastures (Gayndah). Belmont and Toorak ran Brahman and TC, Brian Pastures had TC and Swans Lagoon with the harsher environment had Brahman.

The project continued until all the cows were about seven months of age. The cows were scanned a further four times during the calving and weaning period and were ovarian/pregnancy scanned at four-week intervals for management reasons (for example, temperament, fertility, to wean a calf in two consecutive years or were culled)

The cows were scanned a further four times during the calving and weaning period and were ovarian/pregnancy scanned at four-week intervals for management reasons (for example, temperament, fertility, to wean a calf in two consecutive years or were culled)

RESULTS

The research showed that 52pc of the Brahman cows had cycled by weaning compared to 80pc of the Brahman cows that did not cycle before weaning, most had cycled within 100 days post weaning.

Other data collected at each scan included liveweight, condition score and a P8 fat depth.

CONCLUSION

These results emphasise the substantial opportunity that exists to improve conception rates in tropical beef breeds by focusing recording and selection on “early in life” female reproductive traits, particularly in the Brahman breed for traits associated with lactation anoestrus.

Significant improvement can also be made by including selection for improved reproduction into a breeding program.

The results show these cows are more likely to produce progeny that will not conceive as first calf cows as well.

Significant improvement can also be made by including selection for improved reproduction into a breeding program.

This can be best achieved by recording female reproductive performance information with BREEDPLAN for the calculation of Days to Calving EBV (particularly reproductive information for maiden heifers and first calf cows), and careful consideration of the Days to Calving EBV when selecting sires and dams to use in a breeding program.

Paul Williams, technical officer, Tropical Beef Technology Services, Rockhampton, paul@tbts.une.edu.au, (07) 4927 6066

Published: February 6th

LEFT: Figure 1 – Resumption of cycling in wean first-calf CRC Brahman cows.

ABOVE: Table 1 – Difference in lactation anoestrus between top and bottom Brahman sires in months.

Genetic effects:

• Heritability estimates for lactation anoestrus interval in three-year-old first-calf cows were 0.51 for Brahman and 0.26 for TC.

• Further analysis revealed there was a difference due to genetics of 4.4 months in lactation anoestrus interval in three-year-old first-calf cows included in the research trial (Table 1).

• Although not as high, there was a 2.8 month difference in lactation anoestrus between the top and bottom Brahman sire included in the research trial (Table 1).

• This had a major effect on the ability of daughters from bulls with the increased post-partum anoestrus to conceive during the joining period as first-calf cows.

• This was illustrated with only five out of 37 daughters of the top Brahman sire conceived as first-calf cows.

Culling first-calf cows that do not conceive or not retaining replacement progeny from those animals will have a positive impact in the improvement of conception rates.

The results show these cows are more likely to produce progeny that will not conceive as first-calf cows as well.

Significant improvement can also be made by including selection for improved reproduction into a breeding program.

This can be best achieved by recording female reproductive performance information with BREEDPLAN for the calculation of Days to Calving EBV (particularly reproductive information for maiden heifers and first calf cows), and careful consideration of the Days to Calving EBV when selecting sires and dams to use in a breeding program.
Spatially enabled stock management

SEL M dedicated to precision management in livestock

THE Spatially Enabled Livestock Management (SELM) symposium is the sole conference in Australia dedicated to precision management in the livestock industries. SELM 2013 was held in September in Camden, NSW. The symposium attracted representatives from agriculture departments, research organisations, universities, private organisations and livestock producers from Australia, New Zealand, the US, Canada, Argentina, Uruguay and Ireland.

The conference delivered outcomes from 25 recently completed, or near-completed, research projects. Almost half (43 percent) of the presented research has been conducted in the dairy industry, one quarter (24pc) in the beef industry, 16pc in the sheep industries and 15pc across grazing industries.

KEY MESSAGE

A key learning I took away from SELM 2013 is that most technologies currently used in livestock industries have been developed in other industries for different purposes. For example, dairy researchers are currently developing robots to perform farm duties such as milking and herding. The first commercial robot was developed in 1961 to handle hot metal in a car manufacturing plant. Similarly, beef researchers are using Global Positioning System (GPS) to autonomously monitor livestock behaviour. GPS was originally developed in the 1970s for US defence navigation during the Cold War.

Today, many industries, including defence, transport, manufacturing and mining make substantial investments into research and development of technologies that can save time, reduce labour, cut costs and improve production efficiency for these industries. Researchers, funders and producers need to look to other industries, including other livestock industry to identify practicable technologies that can be adapted for on-farm use to provide livestock industries with similar benefits.

DAIRY RESEARCH

In 2009 and 2010, FutureDairy co-developed the world’s first robotic rotary, which is now available as a commercial unit under the name of Automated Milking Rotary (AMR). The AMR has the capability to robotically perform all milking duties including teat washing and drying, applying the milking cups, cup removal, teat disinfectant and cup flushing. The AMR can conduct 1500-1600 milkings/day and allows farmers to reduce the time spent milking and the cost of milk production.

A video demonstration of the AMR can be viewed at the following link: www.youtube.com/watch?v=4ALlslSGvNA

Recently, researchers have been trialling ways to automate the rest of the milking process including fetching cows to and from the milking unit. The University of Sydney has successfully developed and trialled a remote controlled unmanned ground vehicle (UGV) for this purpose.

The UGV, ‘Shrimp’, is able to fetch cows from a grazing allocation and manoeuvre them through a gate without human intervention.

A video demonstration of ‘Shrimp’ herding can be viewed at the following link: www.youtube.com/watch?v=4ALlslSGvNA

BEEF RESEARCH

A joint project between CSIRO, QDAFF and James Cook University is currently collecting data from a number of technologies installed on a property north of Charters Towers, Qld.

Technologies being used include walk over weigh scales, remote weather stations, water telemetry system, soil moisture probes, Active Optical Sensors (AOS) and GPS cattle collars. This project aims to determine the benefits of the collaborative information collected by these technologies to inform management decisions and improve enterprise efficiency.

The University of New England (UNE) is conducting a similar project at its farm in Armidale, NSW. A description of the technology they have installed can be viewed at the following link: www.youtube.com/watch?v=A1X09RWxwM.

SHEEP RESEARCH

The University of Sydney is currently trialling the use of GPS devices to develop an alert system for sheep producers.

Current projects are analysing the behaviour of animals during period of dystocia during lambing, predation and oestrus in ewes.

Charles Sturt University is using proximity logger technology to better understand resource use by sheep and implications on their welfare. The use of water and shade by sheep is being monitored as well as factors that may influence resource use such as weather conditions and age of the sheep.

GRAZING RESEARCH

NSW DPI researchers are currently using ADS to better understand the spatial and temporal variability of grazing land. They are identifying pasture species measuring pasture quality, predicting pasture biomass and measuring changes over time. For producers, this information has enormous benefit to inform forage budgeting decisions and pasture management. A number of private organisations are in the early stages of developing a variable rate fertiliser applicator (VRA) suitable for use on heterogeneous grass paddocks. A VRA for paddocks will improve pasture production, reduce input costs and reduce environmental impact.


Laurie Williams

Beef Extension Officer (FutureDairy)

GERFF Mackay

(07) 4923 6237

TImely tips for summer stock

- Bulls should be out with the breeders at this time, so minimising disturbances is recommended. When this cannot be avoided, eg, branding musters, allow plenty of time for animals to settle throughout the activity.
- Every effort should be made to reduce stress to animals and people. Shady and watered yards can help.
- Branding, dehorning and castration are best done in the cooler parts of the day to reduce the stress on calves.
- Remember to keep vaccines out of the sun and in an esky with cooler bricks. Vaccines that get hot are simply a waste of money, as they will be ineffective.

Ken Murphy

Senior Beef Extension Officer (FutureBeef)

GERFF Rockhampton

(07) 4923 6237

‘Big head’ grazing tropical grasses

Big head is a calcium deficiency of horses and donkeys grazing introduced tropical grass pastures. It is caused by soluble oxalates in the leaf combining with calcium to form insoluble oxalate crystals. This prevents the horse from absorbing enough calcium. To compensate for low blood calcium levels, bone calcium is mobilised. Over time, the bones lose so much calcium that they become soft and misshapen.

The disease can develop within two months of horses being put on hazardous pastures, but commonly takes six to eight months. Cattle and sheep are not normally affected as rumen bacteria break down oxalates. Horses are most at risk if the dominant pasture species are introduced tropical grasses. It is seen mostly in horses grazing pasture buffel grass in Western Queensland, and is less common where a wider range of pasture species is available.

Remember to keep vaccines out of the sun and in an esky with cooler bricks. Vaccines that get hot are simply a waste of money, as they will be ineffective.

TImely tips for summer stock

- Bulls should be out with the breeders at this time, so minimising disturbances is recommended. When this cannot be avoided, eg, branding musters, allow plenty of time for animals to settle throughout the activity.
- Every effort should be made to reduce stress to animals and people. Shady and watered yards can help.
- Branding, dehorning and castration are best done in the cooler parts of the day to reduce the stress on calves.
- Remember to keep vaccines out of the sun and in an esky with cooler bricks. Vaccines that get hot are simply a waste of money, as they will be ineffective.

Ken Murphy

Senior Beef Extension Officer (FutureBeef)

GERFF Rockhampton

(07) 4923 6237

‘Big head’ grazing tropical grasses

Big head is a calcium deficiency of horses and donkeys grazing introduced tropical grass pastures. It is caused by soluble oxalates in the leaf combining with calcium to form insoluble oxalate crystals. This prevents the horse from absorbing enough calcium. To compensate for low blood calcium levels, bone calcium is mobilised. Over time, the bones lose so much calcium that they become soft and misshapen.

The disease can develop within two months of horses being put on hazardous pastures, but commonly takes six to eight months. Cattle and sheep are not normally affected as rumen bacteria break down oxalates. Horses are most at risk if the dominant pasture species are introduced tropical grasses. It is seen mostly in horses grazing pasture buffel grass in Western Queensland, and is less common where a wider range of pasture species is available.
Algae control crucial to health

ALGAE can build up in troughs, tanks and dams. It can affect the taste and smell of water, block pipes and corrode metal. Heavy infestations can de-oxygenate water and kill fish, while some algae produce toxins during decomposition which are poisonous to stock.

Algal growth is promoted by light, nutrients and warmth. The three major types of algae are: free floating single celled; filamentous which may be either free floating or attached; and bottom attached types. The bottom attached types are generally short and cause little trouble if left alone.

Some species of algae are poisonous to animals and humans. The most poisonous species are the blue-green algae which form toxic blooms.

PREVENTION

Eliminating sunlight will reduce algal growth though is impractical in most cases.

Nutrients such as nitrogen and phosphorus which are present in fertilisers and manure will promote growth of algae and should be kept out of the catchment area.

If possible, fence stock and divert stockyard runoff away from dams. Reducing the nutrient and organic matter input into the dam is the long term key to control of algae.

If the nutrient level of water remains high, algae will continue to be a problem in spite of other control methods. In tanks, cleaning out as much algae as possible and covering the surface will solve the problem. Algae cannot grow without sunlight. Covering a tank also prevents water pollution, reduces the need to clean the tank and prevents evaporation.

CONTROL

For an existing algae problem, chemical control is often the most practical and effective method. Before you treat algae, make sure you know what type it is. Treating blue-green algae with chemicals may cause a sudden release of toxin which can be dangerous for up to two weeks. The least expensive and most widely used chemical is copper sulphate (bluestone).

COPPER SULPHATE (BLUESTONE)

Copper sulphate can be applied at any stage of algal growth but is most effective at an early stage. To treat the water, you need to work out the volume. Recommended rates range from 0.5 to 4g of copper sulphate per 1000L. Four grams per 1000L is the maximum where the water is for human and stock consumption. Up to 8g of copper sulphate per 1000L of water may be applied to water which is to be used solely for irrigation.

Generally, 2g of copper sulphate per 1000L should work. At this rate, an 800L trough needs 1.6g of copper sulphate. A 1ML dam needs 1kg (costing several dollars per dose). The volume to be treated should be calculated on the basis of the top 2m of storage since algae generally do not grow at depths greater than 2m. Mix the copper sulphate in a small amount of water and then sprinkle or spray it evenly over the water surface.

This Shifts Everything

Stock Prod Professional

Minimising stress is important when transporting stock. This is why the Gallagher Stock Prod range includes the NEW Professional model with Ramp Up power that delivers the right amount of shock necessary to move the animal. Coupled with a flexible yet strong aluminium and spring steel shaft it is a must for professional users in the animal supply chain.

To find out more about our range of Stock Pros call us on 1800 425 524 or visit www.gallagher.com.au
SUMMARY

THE spelling strategies research project now has three years of information from the Monteagle site, and 12 months from the Wambiana site. Despite two years of very good rainfall at Monteagle and then a very dry year, key pasture parameters have not been improved by spelling, when compared to continuous grazing at a moderate stocking rate. Monitoring on a commercial rotation at Monteagle, and a demonstration site at Oaklands, Duaringa, have given a similar result.

The Monteagle site was destocked over the 2012-13 summer following a wildfire through the trial paddock in November 2012 and very dry conditions. At Wambiana, the research is conducted under a moderate or a high stocking rate, and there are no significant spelling effects as yet. Improvement in land condition can take many years and/or be episodic and difficult to detect because of a large natural variation.

BACKGROUND

Wet season spelling of grazing land is a key recommendation for improving land condition. However, there is little reliable and relevant information on which to guide the design of cost-effective and practical regimes of wet season spelling. This project is improving the evidence base and modelling capacity underpinning recommendations for use of wet season spelling to recover poor condition grazing land and design more reliable and cost-effective spelling options for producers. On-property research at Monteagle generating important pasture data to drive these outcomes include small plots treated with a range of spelling strategies – early wet season and full wet season spelling annually or biennially, one-off spells to determine the impacts of seasons, and continuous grazing.

At Wambiana, similar treatments are applied under a moderate or high stocking rate. Funding is acknowledged from MLA and DAFF.

RESULTS SO FAR

MONTEAGLE

Monteagle has had variable rainfall over the previous decade with predominantly dry or very dry conditions. Good growing conditions, prior to and during the first summer, and for the second summer of recordings resulted in high pasture yields and crown cover. The third year of the trial was very dry with a wildfire in November 2012 and subsequent destocking of the trial site.

The pasture yield increased across all treatments through the first two wet years of the trial (Figure 1a). The increase was driven by growth of the key plants desert bluegrass (Bothriochloa ewartiana) and wiregrass (Aristida spp.). The burn and dry summer of 2012-13 significantly reduced standing pasture yield. Spelling strategies have not affected pasture yield. Overall, pasture composition has not varied greatly with treatments or recording dates; however, desert bluegrass
The effect of spelling strategies at Wambiana under moderate or high stocking rate on (a) and (b) Pasture yield, and (c) and (d) Total crown cover.

Figure 2. The effect of spelling strategies at Wambiana under moderate or high stocking rate on (a) and (b) Pasture yield, and (c) and (d) Total crown cover.

The wiregrass while the desert bluegrass crown cover was the highest. WAMBIANA

The 14 years prior to trial establishment in 2012 included runs of very wet years and very dry years. The three years immediately prior to trial establishment (2009-10, 2010-11 and 2011-12) had well above average rainfall and good growing conditions. The 2012-13 year had an average rainfall and growing conditions for a wet July.

Total pasture yields were relatively low and there has been a small overall increase over time at both the moderate and high stocking rates. Desert bluegrass effects are not apparent under moderate stocking rate, however, the full wet season spell appears to have significantly increased pasture yield in the high stocking rate paddock (Figure 2a and b). Total crown cover has increased under the moderate stocking rate and has been stable under high stocking rate. Spelling treatments have not affected total crown cover (Figure 2c and d). Similarly, desert bluegrass and wiregrass species crown cover has been stable regardless of spelling treatment.

**DISCUSSION**

Seasonal conditions appear to have had the overriding influence on pasture parameters for the first three years of the spelling strategies trial at Montage. Good seasonal conditions for the first two years combined with a conservative stocking rate ensured utilisation levels were very low whether grazed or not. Land condition has improved slightly across all treatments during this period and has not been affected by wet season spelling.

The first two years of the trial were exceedingly wet. Quite likely the pasture growth has been more limited by soil nutrition than by soil moisture and thereby limited the potential of the desert bluegrass to demonstrate enhanced growth compared to the wiregrass. The third year of the trial included a wildfire and dry conditions so that any potential lag effects of the spelling were not likely to be recognised. Total crown cover was reduced by the burn and dry conditions in 2012-13, however, the contribution from desert bluegrass to crown cover and pasture composition may have improved by a small amount over that contributed by wiregrass. Desert bluegrass has been observed as being slow to improve pasture composition under favourable management and good growing conditions. Its expansion appears to be restricted by a small, viable seedbank and therefore slow to change density. However, it will be interesting to watch the changes as the trial progresses, particularly the effect of the burn on the apparent improved contribution to crown cover and composition of desert bluegrass. The wiregrasses are known to decrease in density during dry periods. The longer-lived desert bluegrass may then be able to improve its level of contribution to the pasture.

**DISCUSSION**

Seasonal conditions appear to have had the overriding influence on pasture parameters for the first three years of the spelling strategies trial at Montage. Good seasonal conditions for the first two years combined with a conservative stocking rate ensured utilisation levels were very low whether grazed or not. Land condition has improved slightly across all treatments during this period and has not been affected by wet season spelling.

The first two years of the trial were exceedingly wet. Quite likely the pasture growth has been more limited by soil nutrition than by soil moisture and thereby limited the potential of the desert bluegrass to demonstrate enhanced growth compared to the wiregrass. The third year of the trial included a wildfire and dry conditions so that any potential lag effects of the spelling were not likely to be recognised. Total crown cover was reduced by the burn and dry conditions in 2012-13, however, the contribution from desert bluegrass to crown cover and pasture composition may have improved by a small amount over that contributed by wiregrass. Desert bluegrass has been observed as being slow to improve pasture composition under favourable management and good growing conditions. Its expansion appears to be restricted by a small, viable seedbank and therefore slow to change density. However, it will be interesting to watch the changes as the trial progresses, particularly the effect of the burn on the apparent improved contribution to crown cover and composition of desert bluegrass. The wiregrasses are known to decrease in density during dry periods. The longer-lived desert bluegrass may then be able to improve its level of contribution to the pasture.

Desert bluegrass and wiregrass make a significant contribution to composition at both sites. Land condition ratings are very similar at both sites. At Wambiana, the spelling treatments have not affected pasture parameters at either moderate or high stocking rate after one summer. There was a management burn in November 2011, which does not appear to have affected perennial grass density or crown cover.

Many ecological studies have shown a sensitivity of perennial grasses to grazing during the early wet season growth period. There is still much to learn about the interactions of seasonal conditions, land condition improvement and grazing management.

Improvement in land condition can take many years and/or be episodic and difficult to detect because of a large natural variation. It may be more affected by seasonal conditions than grazing management and dependent on the amount of patches with bare ground compared to those with a presence of 3P grasses. The Tomal grazing study at Julia Creek showed Mitchell grass recovery of crown cover following high grazing pressure was dependent on good summer rainfall more than the number of years spelling. However, low stocking rates (no spelling) were very important for crown cover increase following good seasons. For each study, seven years was necessary for a significant improvement in crown cover.

The Pigeon Hole and MT Sanford grazing study in the Victoria River District (NT) recorded no improvement in land condition from any of the grazing pressures or methods, or over time, for the four years of the project. The Pigeon Hole site was predominantly C land condition, and remained that way despite average to above average rainfall. Similarly, the MT Sanford site was predominantly B land condition, and stayed that way through the trial.

A recovery study at the Gallaway Plains grazing trial at Calliope studied pastures under four years of exclosure following a high stocking rate treatment. Even with some good seasons, pasture composition and yield did not recover to the same level as the light stocking rate treatment. Exclusions were established at six sites throughout central Queensland following severe drought in 2002, and monitored for up to 21 months. There was little recovery of the pastures and the authors concluded that pasture condition will not improve following drought simply by excluding livestock for short periods, especially during winter, and particularly when rainfall is only average or below.

The Virginia Park water cycle study at Charter’s Towers documented an improvement from B to E land condition over 10 years with improving seasonal conditions and annual wet season spelling. The Ecoprose study at Charters Towers demonstrated an improvement in land condition over eight years with low utilisation, or medium utilisation with early wet season spelling on native pasture sites with low fertility, that started with either good or poor land condition.

The study was conducted through four years of severe drought and then four years of above average rainfall. Both of these studies concluded that patches with good ground cover and proportion of desirable perennial grasses have the best regeneration potential, especially with good growing conditions.

Pastures with a high proportion of bare ground have the highest risk of continuing to degrade and the crown cover of perennial grasses has been found to be a useful predictor of future pasture performance. Previous research on spelling or exclosure from grazing has given inconsistent results and there are no clear trends to explain the lack of response to spelling at Montage and Wambiana. Seasonal conditions appear to have had the overriding influence on pasture parameters for the first three years at Montage.

Desert bluegrass is the key 3P grass at both sites. Its expansion appears to be limited by a small, viable seedbank and is therefore slow to change density. Land condition improvement at Montage and Wambiana may well take a number of years and will be affected by either, or a combination of soil fertility, current land condition, past grazing history, crown cover and seasonal conditions.

**KEY POINTS**

- Land condition and pasture composition have been stable whether spelled or grazed so far.
- There has been very little effect of spelling under moderate or high stocking rate.
- Land condition change can take several years and be affected by, or a combination of factors.

---

**Figure 2.** The effect of spelling strategies at Wambiana under moderate or high stocking rate on (a) and (b) Pasture yield, and (c) and (d) Total crown cover.

---

**Tilly’s CRAWLER PARTS PTY LTD DURBAN, 1946**

**Tilly’s Crawler Parts Pty Ltd, Toowoomba QLD 4350**

P: (07) 4633 6000 F: (07) 4633 6001 E: mail@tillys.com.au

**FREECALL 1800 076 280 OR 1800 TILLYS**

**www.tilys.com.au**

---

26 December 2013 | CQ BEEF | QUEENSLAND COUNTRY LIFE 31
THERE is no denying that making a buck in the grazing game is getting more and more difficult. Low returns and high input costs leave little room for error. One program that is helping graziers refocus their efforts on the things within their control is Grazing Best Management Practice—a joint initiative of the Queensland Government, AgForce and the Fitzroy Basin Association (FBA).

Funding support from the Department of Environment and Heritage Protection (DEHP) has seen the program go from strength to strength over the last six months. Since July 1 this year, 59 workshops have been delivered across the Fitzroy to 529 participants. The feedback collated from these workshops has been very positive. When asked to rate the usefulness of the workshops out of seven (with seven being the highest score), over 90pc of workshop participants gave a rating of five or above.

Grazing BMP is designed to help graziers identify areas within their business where a change of practice may be beneficial for productivity, profitability and long-term sustainability. This change of practice may be as simple as accessing information to allow more informed decisions to be made. More than 80pc of participants indicated that attending a BMP workshop had helped them to identify areas in their business where improvements could be made.

Efforts by field officers from FBA’s sub-regional groups have been instrumental in achieving the high levels of participation at the various workshops. Being closely connected to the communities in which they work, the field officers have a unique opportunity to provide tailored support to the graziers in their area.

One such novel example is that of field officer Sara Cue, from the Dawson Catchment Coordinating Association Inc (DCCA). Sara was keen to involve a group of switched-on young mums, who would normally find attending a training day difficult. By combining the delivery of a BMP workshop with a regular playgroup day, Sara was able to provide the opportunity, even though it took her a few days to recover!

Field officers have a unique opportunity to provide tailored support to the graziers in their area.

"Sara had the initiative to invite the playgroup ladies to attend a Grazing BMP workshop. Although I am lucky to be hands-on in our business, it was a great opportunity to attend an industry workshop. The workshop was very informative and interesting and I really enjoyed the open discussions around the room regarding current practices and why we do what we do. I enjoyed the presentation and discussion on the sometimes tender or controversial topics of pain and cruelty in the treatment of our animals and what that means for practices such as dehorning, castration and branding. It was food for thought. Sara organised a safe and secure environment to play, eat and entertain our kids. I really enjoyed the workshop."

"SOME OF THE COMMENTS FROM THOSE THAT ATTENDED THE DAY"

"I am lucky to be hands-on in our business, it was a great opportunity to attend an industry workshop. The workshop was very informative and interesting and I really enjoyed the open discussions around the room regarding current practices and why we do what we do. I enjoyed the presentation and discussion on the sometimes tender or controversial topics of pain and cruelty in the treatment of our animals and what that means for practices such as dehorning, castration and branding. It was food for thought. "

You can’t control the weather. But you can make the most of every season with Compudose®, the proven way to maximise growth rates in grassfed cattle. Its 15.8% average liveweight gain advantage allows you to increase total production or achieve market specifications sooner, regardless of the season. Find out how Compudose® can be the difference between a good season and an ordinary season—contact your Elanco Animal Health representative on 1800 226 324.

The difference between a good season and an ordinary season is this much.
Dry weather plus introduced feeds equals weeds

ALL beef producers will be counting on a decent wet season for relief after this dry period. With rain the pasture will grow, but so will the weeds—including new weeds that may have been introduced with drought feed.

To minimise potential weed problems:
1. Try to feed stock in designated areas away from watercourses.
2. Quarantine introduced stock in yards for 5 to 6 days to reduce the possibility of weed seeds spreading through the paddocks in their dung.
3. Monitor areas where fodder has been fed and inspect for weeds.
4. Ask feed suppliers for information on the source of fodder.
6. Keep records of purchased fodder, including origin.
7. Keep a lookout on local roadsides for weeds that may have been dropped by traffic.

You may be able to identify your weed by visiting online weed identification tools or weed photo guides that are available on the DAFF website.

Self-assessment by participants... has helped increase awareness of key management issues.

Dry weather plus introduced feeds equals weeds

The use of Near Infrared Reflectance Spectroscopy (NIRS), commonly known as faecal or dung sampling, to determine pasture quality and possible nutritional deficiencies has been widely discussed at workshops. Participants at the Dingo and Comet workshops on October 24 and 25, appreciated the step-by-step sample preparation demonstration as Jim Fletcher (extension officer, FutureBeef) discussed the pros and cons of dung sampling.

A key outcome of the Grazing BMP program is the provision of targeted extension for workshop participants who identify that training or the acquisition of new skills as beneficial to their business. As a result, regional weed spotter coordinators have already been delivered within the Fitzroy, including soil field days, nutrition days, breeder management days and the MLA Breeding EDGE package.

Grazing BMP gives agencies such as FBA and FutureBeef (through Queensland’s Department of Agriculture and Fisheries and Forestry – DAFF) the ability to respond to producers’ self-identified needs, making the program extremely valuable for the grazing industry.

A sample being sent to the herbarium should be dried under a weight between sheets of newspaper over several days. The paper will need changing to prevent mould. Once dried the sample can be sent to the herbarium. Plastic bags should not be used. Potential problem weeds identified in small numbers are far easier and cheaper to control than weeds rampaging over large areas.

Damien O’Sullivan, DAFF, Kingaroy Phone: (07) 4160 0717 Email: damien.osullivan@dpi.qld.gov.au
Algae control vital to livestock health

Algaeicide chemicals are available to help solve the problem

- From page 29

IT is important to mix it well into the treated water to avoid concentrated pockets. In dams, this can be done by dragging a branch through the water or putting the undissolved copper sulphate in a hessian bag which is tied to a central float in the storage or towed through the water.

Frequency of treatment depends on the conditions for algae growth and on water hardness. In hard water the copper sulphate becomes bound to minerals so more frequent treatments may be necessary. Sometimes treatment needs to be repeated every two weeks.

Alternatively, slowly dissolving copper sulphate blocks are available for troughs. You simply place them in the water and they last for about two to three weeks (in an 800L trough).

PRECAUTIONS

- Use gloves to handle the copper sulphate concentrate as it may damage skin. The concentrated copper sulphate is corrosive to galvanised iron and aluminium, but is relatively non-corrosive to metals in water at the recommended concentrations. It is safe to use with brass.
- Although copper sulphate applied at rates of up to 4g per 1000L of water is safe for drinking purposes, treatments should not be continued for long periods because prolonged exposure to low doses may be injurious.
- If you are growing fish or crustaceans in your dam check with a fisheries advisor before undertaking treatment since some species may be affected by copper sulphate treatment.
- Copper toxicity should not be a risk for cattle unless they are already suffering from liver damage or receiving supplementary copper. Sheep, under some circumstances are particularly susceptible.
- For non-toxic algae, it is best to withhold water from stock use - provided the algae is not blue-green algae.

Use the recommended rate for the particular product. Chelated copper should be diluted in a small amount of water and sprayed evenly over the affected storage (as for copper sulphate).

OTHER CHEMICALS

Other algaeicide chemicals include simazine, calcium hypochlorite and ferric alum blocks. These products are marketed at various strengths and under a variety of trade names. Not all algaeicides are safe for human or stock consumption or for aquatic life. Some are very corrosive to metals. If you decide to use an algacide, be sure the product you choose is safe. Read the label and follow the directions carefully.

REFERENCES


Hopper Brook, DPIE, Toowoomba. Phone: (07) 4688 1244
Email: (07) copper.south@daff.qld.gov.au

Better decisions in the business of beef: Breed Cow & Dynamo (DAFF) – comprehensive analysis of herd structure and performance to develop and test management strategies

ON DEMAND

Beyond the Gate Tour (MLA) – educational tour through the local meat supply chain MSA and EU Market Access (MLA) – how to supply MSA/EU cattle and optimise consignments

ONE ON ONE ENGAGEMENT

BREEDPLAN (DAFF) - genetic evaluation system for breeders to produce Estimated Breeding Values (EBVs) of recorded cattle for a range of important production traits (e.g. weight, carcass, fertility)

Please return to Lauren Williams at Lauren.Williams@daff.qld.gov.au or fax (07) 4961 4599.

NOMINATE YOUR OWN IDEA

NAME: ..............................................................................................................................................

PROPERTY NAME: .............................................................................................................................

PHONE NUMBER: ...............................................................................................................................

EMAIL ADDRESS (WE WILL USE THIS TO NOTIFY YOU OF UPCOMING EVENTS):

 Tick fever centre Christmas closure

THE Tick Fever Centre will be closed from Wednesday 25 December 2013 to Wednesday 1 January 2014. Please note that:

- The last vaccine despatch will be on Thursday 19 December 2013.
- The first vaccine despatch for 2014 will be on Tuesday 7 January, with orders required by 4pm Monday 6 January.

All the staff at the Tick Fever Centre wish all our clients a happy and safe Christmas/New Year period and look forward to supplying you again in 2014. Client’s Name: .................................................................................................................................

Property Name: ..............................................................................................................................

Nominated by: .................................................................................................................................

Phone: .................................................... Email: .................................................................