futurebeef

Department of **Employment, Economic Development and Innovation**

CQ BEEF

Better Economic and Environmental Futures

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Lessons learnt soil testing

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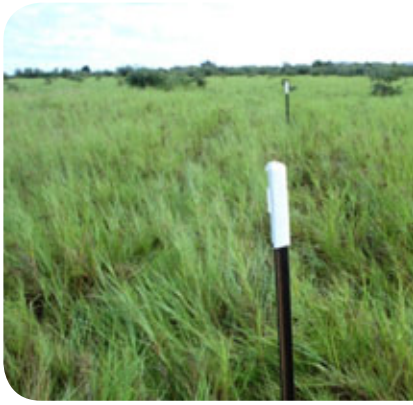
Seven grazing business from the Clarke Creek district have been working with DEEDI staff in the Climate Clever Beef Project.

The group's objectives were to investigate the impact of past management practices on soil carbon and microbiology. Nineteen monitoring sites were set up across the seven properties in March 2011. As most differences are found in the top soil, samples were taken to a depth of 10 cm using a soil corer to ensure a uniform sample from the target depth. Soil cores were taken every 1.5 m along 45 m transects. Samples were sent to the DERM Ecoscience laboratory in Brisbane for analysis and microbiological testing was undertaken by the Creation Innovation Agriculture and Forestry laboratory in Adelaide.

Each business involved chose comparisons to test. Comparisons had to be on the same land type to attempt to rule out land type differences. On *Clarkwood* grazed buffel pasture was compared with a remnant brigalow scrub nature strip. The two sites had similar surface soil carbon levels with 4.01% in the nature strip and 4.24% in the buffel pasture, indicating that good grazing practices can maintain soil health. Microbial activity (based on soil microbe respiration) was similar for the grazed buffel pasture and remnant brigalow scrub.

The nature strip neighbouring *Clarkwood*

On *Yarrandoo* grain sorghum cultivation, buffel grass with suckers and a leucaena–grass pasture planted 10 years previously into old cultivation were compared. Soil carbon in the top 10 cm was 1.4% for the cultivation and 1.5% for the leucaena pasture, while the buffel grass pasture was much higher at 2.5%. There appears to have been little improvement in soil carbon levels in the leucaena pasture. The buffel pasture had a microbial index of 78 (scale 1–100), which is considered good, while the cultivation was poor with 27. The leucaena pasture was in between with 60, indicating some improvement in microbial activity.



The buffel pasture comparison on *Clarkwood*

We consulted DEEDI pasture agronomist Stuart Buck about the soil fertility in the leucaena pasture. Like all legumes, leucaena produces nitrogen through the nodules on the roots, however most of the nitrogen benefit occurs from the leaf drop. Nitrogen is also distributed via urine and dung. While growing more leucaena increases the nitrogen contribution, an actively growing companion grass is needed to keep leucaena producing nitrogen.

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Please use the feedback sheet provided to let us know of any topics you would like covered in the newsletter. If you know of anybody who would like to receive the newsletter, ask them to fill out their details and return the feedback sheet.

Editorial

Welcome to our Christmas 2011 issue of the CQ BEEF. The Climate Q project is sponsoring a Climate Watch segment written by Dave McRae of the Queensland Climate Change Centre of Excellence. Dave has listed years with similar SOI patterns to this year, which you can use to match up to your rainfall records to provide some very local climate information. Senior Beef Extension Officer Ken Murphy's article gives some management considerations for the wet season.

As promised in our last issue we feature an article from the soil testing work the Clarke Creek Climate Clever Beef Group has done. This work was showcased at a field day at *Jimarndy*, Clarke Creek on 29 November. Members of the Climate Clever Beef Project team also presented their economic and greenhouse gas emission modelling work at the field day. The Pasture Rundown team also featured at the field day and they have made plans with some of the producers present to set up on-farm trials.

Ross and Christine Rolfe feature as this edition's producer profile. The Rolfes hosted a water telemetry field day in October this year and beef extension officer Laura Devlin has interviewed them to share more of their story with a wider audience.

The DEEDI Beef Extension team would like to wish you all a very Merry Christmas and happy reading of our Newsletter.

Byrony Daniels, CQ *BEEF editor*

From page 1

Nitrogen levels were moderate to good with a total nitrogen of 0.13% for the leucaena pasture compared to 0.22% for the buffel pasture. Stuart considered that after ten years we should expect greater improvement in soil nitrogen levels in a leucaena pasture. However, improvements might have been restricted by a lack of growth in the dry early 2000s.

Phosphorous is important for leucaena growth and nitrogen fixation, so a low phosphorous result of 6.3 mg/kg would not be helping. In this situation, Stuart recommends direct drilling a phosphorus fertiliser into the soil close to the leucaena plants. Fertiliser is also likely to increase the grass growth.

Yarrandoo, *Clarkwood* and *Clive* had sites where the soil phosphorus levels were less than 8 mg/kg indicating that phosphorus was marginal for beef production. Soil phosphorus tests on several other properties in the district were also close to 8 mg/kg. Generally brigalow country is considered to have good phosphorus levels so these results were unexpected. However a problem with interpreting these results is that cattle are very good at selecting the highest possible quality diet from all the pastures in the paddock, so they could be obtaining enough phosphorous from small areas of higher phosphorus soils in the paddock. Likewise in a rotational grazing they may pick up enough phosphorus from better country to cover the time spent in low phosphorus paddocks.

The group participated in a teleconference with QAAFI beef nutritionist Rob Dixon. Rob outlined the difficulties in testing for phosphorus and interpreting the results, particularly in marginal situations where there may be few physical signs of phosphorus deficiency. Even when there are no obvious signs of phosphorus deficiency there could be a sub-clinical deficiency. In these situations cattle could gain up to an extra 20 kg liveweight over the wet season if a deficiency is corrected.

To try and understand what these results might mean for cattle production, some properties will be undertaking testing towards the end of the 2011–12 growing season. Initially a series of NIRS faecal tests will be undertaken in the target paddocks. Blood sampling may also be undertaken. No 1 steers have been placed in the paddocks to provide suitable animals for testing. The No 1 steers are being used because breeder test results are more difficult to interpret due to mobilisation of phosphorus from bone reserves. Older fat cattle are less suitable as their phosphorus requirements are relatively lower than young growing cattle.

As part of the Clarke Creek group's on-going activities further soil samples were taken in November 2011. These new comparisons include country recently burnt against country not burnt. Results from this work will be presented in 2012.

Climate Watch

Given the well above average seasonal conditions experienced throughout much of Queensland last summer it is timely to review the seasonal climate outlook.

The first point to consider is that the Pacific is now in the early stages of a late forming La Niña event. This is reflected by the ongoing cooling of ocean temperatures throughout the central Pacific Ocean, persistently positive Southern Oscillation Index (SOI) values and stronger than normal trade winds.

Interestingly there have been a number of occasions over the last 100 years where a La Niña event has been followed another La Niña event. These include 1998 to 2000, 1973 to 1976, 1954 to 57, 1916 to 1918 and 1909 to 1911. For more information try www.bom.gov.au/climate/enso or www.cpc.ncep.noaa.gov

The second point is that the SOI was in a 'Consistently Positive' phase at the end of October. Analysis of historical rainfall records and this SOI phase indicates a 60 to 70% chance of getting above median rainfall during the three months of November to January throughout most of Queensland.

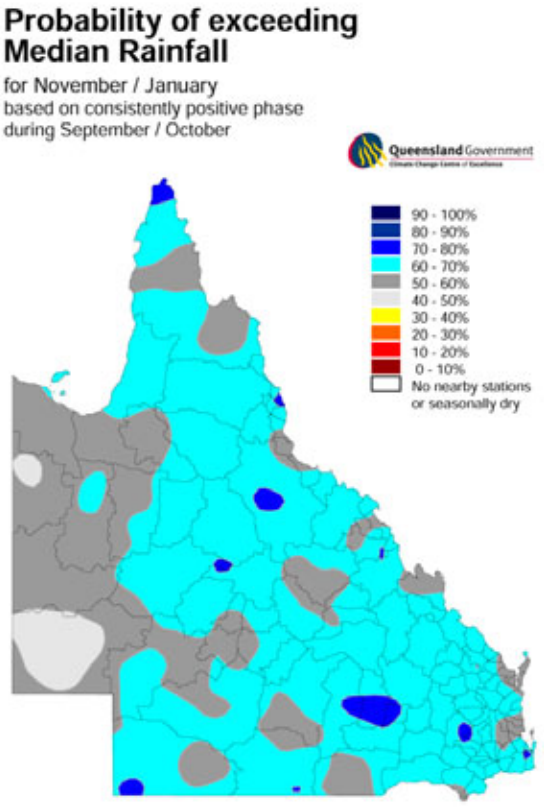
The last time there was a consistently positive SOI phase at the end of October was in 2010. Other years since 1950 that have had the same SOI phase at the end of October include: 1955, 1962, 1964, 1970, 1971, 1973, 1974, 1975, 1983, 1988, 1989, 1996, 1998, 2000 and 2008.

It may be useful to find out what rainfall and/or farming conditions where like in your area during November to January in those years. See how many times rainfall was well below, well above or close to average during November to January in the listed years.

For example, Springsure has a long-term average rainfall of 265 mm for November to January. Looking only at those years with a consistently positive SOI phase at the end of October, the median rainfall for November to January at Springsure rises to 325 mm. If the SOI were in a consistently negative phase this would fall to 202 mm. For more information on historical rainfall figures for your region try Rainman Streamflow. To order the Rainman Streamflow CD ph 07 4688 1200 or search on the Queensland Government Bookshop website: www.bookshop.qld.gov.au

When using a climate forecast it should be remembered that the probability, or percent chance, of something occurring is just that—a probability. For example, if there is a 70 per cent probability of above-median rainfall, then there is also a 30 per cent chance of below-median rainfall. It does not mean that rainfall will be 70 per cent more than the median.

In summary, from a risk management point of view, the current outlook highlights the potential for significant rainfall over the coming summer rainfall period. While this does not necessarily equate to flooding, it is a risk that should be monitored. For more information, updates on SOI values, the latest outlook map or information on the SPOTA-1 experimental system go to www.longpaddock.qld.gov.au



Dave McRae

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Considerations for the coming wet season

Everyone can remember well what happened to them during last year's wet summer and with indications again pointing to a wetter-than-average summer, it is time to think about management options to assist your business cope better this time.

Wet summers are an excellent time to tidy up pastures. Country that for some reason has been overgrazed can be spelled to encourage 3P (productive, perennial and palatable) grasses without the pressures of grazing. Fire may also be part of this process. Some species of grasses such as wiregrasses do not like being burned but black speargrass responds well to burning. This means that fire can reduce the proportion of wiregrasses and increase the proportion of black speargrass in the pasture.

Fire can also reduce the effects of woody weed regrowth. But, if the pastures have very few woody weeds and a strong component of 3P grasses then burning may not be a good management option.

To burn a paddock well, it is better to burn the entire paddock and then restrict all grazing until after the preferred 3P grasses have seeded.

Mosaic or partial paddock burns cause patch grazing and, without complete spelling after the fire, further pasture deterioration can occur.

Summer forages can allow you to spell pastures for most of the summer growing season. With a good chance of a wet season there should be every opportunity to grow good forage crops. Large numbers of stock can then be put onto the crop to spell other country.

Put stock that are almost ready for market into paddocks where they can be easily mustered and trucked to meatworks. Getting stock to meatworks when many other producers can't often gives a premium return.

It goes without saying that stock should be removed from low lying and flood-prone country. This is especially important for breeders that will calve over summer or have a calf at foot.

In phosphorus-deficient country it is wise to have an adequate supply of wet season supplements ready to feed to stock. This may require storage sheds to be built or shipping containers positioned near the deficient country. Small lick sheds are a good idea to reduce the chance of rain spoiling the supplements.

Now is also a good time to treat stock with HGPs. Stock that will finish in the next season will get maximum benefit if implanted now. It may also be a good idea to vaccinate these same animals for ephemeral fever (three-day sickness) as biting insects can spread the disease during a wet summer.

Last year many producers were unable to keep up with branding and ended up branding large weaners. This is hard for man and beast so it is wise to make the extra effort to keep branding up-to-date.

While there are several tasks to consider because of a wet summer, I am sure everyone would prefer wet to dry.

Enjoy!

Ken Murphy
Senior Beef Extension Officer
DEEDI, Rockhampton
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Staff Profile

Matt Brown
AusGraze Extension Officer
DEEDI Rockhampton
07 4936 0291

Childhood: Grew up near Toogoolawah on a cattle place with a feedlot.

Career: Completed a Bachelor of Environmental Management–Rural Systems. Moved to Longreach and taught at the AACC Longreach campus for six years. Moved to Rockhampton in 2007 and worked with Rabobank for 12 months before joining DERM as a Natural Resource Officer. Currently on secondment with DEEDI to work on the Grazing BMP project until June 2012. Heavily involved in the family grazing property based at Roma and previously Longreach.

Interests: Campdrafting and breeding horses

Spelling strategies for recovery of pasture condition

Wet season spelling of grazing land is a key recommendation for improving land condition. However, there is little reliable and relevant information available to guide the design of cost-effective and practical regimes of wet season spelling. This project seeks to improve the evidence base and modelling capacity underpinning recommendations for use of wet season spelling to recover poor condition grazing land. It will help design more reliable and cost-effective spelling options for producers. Funding from MLA and DEEDI is acknowledged.

Sites and treatments

Site 1 north of Clermont looks at the combination of different timing, duration and frequency of spelling within a 'C' land condition grazed paddock over a five year period.

Site 1—north of Clermont

Treatments on Site 1

Grazed		Spelling	
Continuous	Commercial rotation	Early Wet Annual Biennial	Full Wet Annual Biennial Year 1 Year 2 Year 3 Year 4 Year 5

Site 2 will be established in the second year of the project at the *Wambiana* grazing trial near Charters Towers. A smaller combination of spelling strategies will be tested on 'C' land condition sites subject to moderate and heavy stocking rate.

Site 2—near Charters Towers

Treatments on Site 2

Grazed		Spelling			
		High SR		Moderate SR	
High stocking rate	Moderate stocking rate	Early Wet Annual Year 1 & 3	Full Wet Annual Year 1 & 3	Early Wet Annual Year 1 & 3	Full Wet Annual Year 1 & 3

On-ground assessments

Pasture yield and composition, ground cover and soil surface condition will be recorded to document treatment responses. Key pasture species such as desert bluegrass and wiregrasses will be mapped on permanent quadrats to measure their persistence, recruitment, mortality and basal area. Soil cores will be taken to determine seed reserves of pasture species. Plots are photographed at each recording. Land condition, nutrient cycling, stability and infiltration indices are calculated to better understand changes in the ecosystem.

Results so far...

Site 1 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 of recordings, have resulted in high pasture yields and crown cover.

The treatment plots for Site 1 are located in an area that was a very large paddock with poor water distribution, which contributed to poor land condition. The current owners (since 2001) have gone on to improve infrastructure and grazing management of the area. The paddock has been stocked at long-term carrying capacity for most of the recording period.

The spelling treatments have not impacted on the pasture dynamics due to well above-

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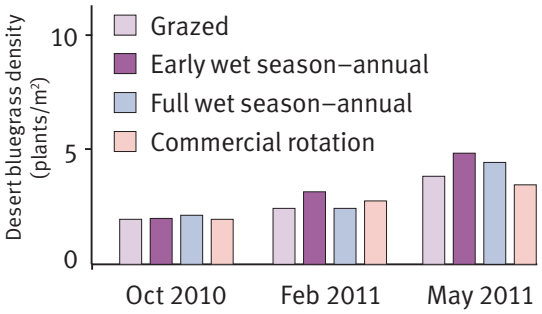
average growing conditions and the resultant low grazing pressure.

Pasture yields, land condition and crown cover have increased across all treatments. Desert bluegrass, wiregrasses and hairy panic plants recruited during the mid and late wet season with most mid wet season recruits surviving until the end of the wet season. Wiregrasses and hairy panic have maintained a constant density.



The effect of spelling strategies on desert bluegrass density

The increase in density of desert bluegrass has been a very encouraging result. It will be interesting to see if the spelling treatments affect the survival of these seedlings.

What does it all mean?

A significant reduction in the contribution of wiregrass species to the pasture composition and crown cover is a key desired outcome of this study. At Site 1, the lack of early change in pasture parameters with spelling treatments and good growing conditions, highlights the significant problem that land managers face when dealing with poor pasture condition. The short-lived nature of the desert bluegrass seedlings is a concern, in terms of the ability of the pasture to change composition and thus land condition. It will be interesting to see how spelling impacts the survival of these seedlings. Good growing conditions, rather than the treatments, appear to have had an overriding effect on the pasture parameters recorded. This is expected to change in the longer term.

NLIS technology Q&A

Don Menzies
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There is no doubt the introduction of mandatory NLIS in Queensland on 1 July 2005 caused some headaches for beef producers. As with any new system there were a number of teething problems and it has taken some time for all parties in the beef supply chain to understand the requirements. Six years on most people would be familiar with the correct procedure for tagging cattle, either own or have used an NLIS reader and have interacted with the NLIS database. Travelling around northern Australia I get a number of questions on NLIS technology and I have been asked to provide some solutions to common problems for *CQ Beef* newsletter readers. This issue I will cover NLIS readers recording double-ups.

NLIS Reader tag buffer—tag double-ups

Recently I was scanning close to 3000 head and found the NLIS reader was recording double-ups. When we scanned a race with approximately 12 head in it and then rescanned a particular tag to confirm we had it, the reader would show 13 on the counter rather than 12. In this instance we were using the NLIS wand as a stand-alone device and therefore relying on its memory.

This double-up problem can occur due to the duplicate tag buffer. This buffer is the number of intervening tags that have to be read before the same tag will be recorded twice. The wand I was using had the tag buffer set at ten tags. So if tag 'A' is rescanned more than ten tags after the first scan of tag 'A' then the tag number would be recorded twice.

It is a good idea to check the settings on your scanner and, if possible, increase the buffer setting.

These duplicates are not a problem when uploading into the NLIS database because the duplicate tags would be removed prior to creating the file to be uploaded. However, it can be an issue because the scanned number may not be an accurate count.

If you have any burning questions on NLIS technology please send them to me or Byrony and I will see if we can provide an answer.

New way to order the leucaena rumen inoculum

Orders from 9 January 2012

From this date, the leucaena rumen inoculum (the leucaena 'bug') will be dispatched from the Tick Fever Centre at Wacol in Brisbane's south-west instead of Brian Pastures Research Station at Gayndah.

The price of the rumen inoculum will not increase as a result of this change but there may be some change in freight charges.

To order, telephone 07 3898 9655 or fax 07 3898 9685. The option of ordering by email will no longer be available from 9 January 2012.

Office hours at the Tick Fever Centre are 8 am to 4 pm Monday to Friday.

Benefits of the rumen inoculum

The leucaena rumen inoculum is a mixed bacterial culture that contains the rumen bacteria *Synergistes jonesii* that can specifically break down mimosine, a toxic amino acid found in the fodder tree *Leucaena leucocephala*.

More than 200 000 hectares of leucuaena-based pasture is grazed by cattle in Queensland and the leaves, pods and seeds of leucaena all contain mimosine.

The bacteria present in the inoculum break down mimosine to harmless by-products. Without the inoculum, mimosine can significantly limit animal liveweight gain and, in severe instances, the animal will die.

It is recommended that 10 per cent of the cattle herd grazing leucaena be drenched with a 100 ml per animal oral dose of the rumen inoculum.

Each bottle will dose five head.

More information

For more information on leucaena grazing production systems, telephone Stuart Buck on 07 4992 9187 or email Stuart.Buck@deedi.qld.gov.au

Release of a new leucaena variety for beef producers

Stuart Buck
Senior Agronomist (Pastures)
DEEDI Biloela
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Leucaena is a highly productive perennial legume used extensively in long-term grass pastures across central Queensland. A number of varieties are currently available and another, called *Wondergraze*, has just been released.

Wondergraze is a hybrid between *K584* and *Tarramba* and has *Tarramba's* attributes of good seedling vigour, better psyllid tolerance and cool-season growth. However *Wondergraze* has the benefit of a shorter and bushier growth habit compared to *Tarramba*, making height management easier. Trial work in southeast Queensland indicates *Wondergraze* consistently outperforms older varieties for forage yield, particularly under heavy psyllid pressure.

Wondergraze is protected by plant breeders rights (PBR) and is solely marketed by LeucSeeds Pty Ltd based near Banana.

For further information on leucaena grazing systems please contact Stuart Buck, DEEDI Biloela 4992 9187.

Wondergraze at Banana December 2011

Heifer puberty and pregnancy in the tropics

Geoffry Fordyce
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Recently, on a north Queensland property I was pregnancy testing a group of Brahman cows as part of a research project. Pregnancy rate was well over 90% for these mostly score 3 cows in a herd where emphasis is placed on selecting females for reproductive performance. The owner asked me to assess some 2.5-year-old heifers that were non-pregnant after mating a few months earlier. The number of non-pregnants (40%) was much higher than expected.

These heifers looked impressive with average weight about 400 kg. They would have gained some weight since pregnancy testing, being fairly-well managed.

My approach was to differentiate infectious and non-infectious causes by scanning ovaries in non-pregnants, and then if necessary, checking for evidence of reproductive disease. About two-thirds had not reached puberty—no need for disease investigation.

The heifers were sired by large-mature size bulls that had been purchased with no fertility information. There's nothing wrong with big heifers and cows, but they won't make much money unless they're fertile.

This experience emphasises the consequences of not including female and male reproductive traits in selection, especially of bulls. Beef producers can select for traits like growth and temperament as well as fertility if they use available strategies.

Improving fertility in tropical breed females

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Research into fertility traits has been carried out by the CRC for Beef Genetic Technologies (Beef CRC) over the last 12 years. The research involved 1027 Brahman heifers by 54 sires and 1132 tropical composite heifers by 51 sires. The heifers were studied from weaning through to weaning of their sixth calf. The outcomes of the Beef CRC can be divided into phenotypic or physical measures of performance and genotypic revealing the genetic measure for various traits. The following findings will first be presented as the phenotypic measures of various traits and subsequently the genetic differences.

Heifer puberty

The heifers's ovaries were regularly scanned with ultrasound and puberty was defined as the presence of a corpus luteum.

There was huge variation in age and weight at puberty among the research heifers (Table 1). Animals that take a long time, or require a high live weight, to reach puberty are obviously less desirable.

A critical finding was the large influence of sires on heifer age at puberty. Brahman sires differed by up to 5.6 months in the average age at puberty of their daughters.

Table 1. Age and weight at puberty for CRC Brahman and tropical composite heaifers

Age at puberty	
Mean (months)	23
Range (months)	11–40
Weight at puberty	
Mean (kg)	332
Range (kg)	196–485

Age and weight at puberty were found to be highly heritable (Table 2).

Table 2. Heritability of heifer age and weight at puberty for CRC Brahmans and tropical composites (TC)

Trait	Brahman	TC
Age at puberty	0.57	0.52
Weight at puberty	0.56	0.46

Scrotal size

Male scrotal size at 12 months was found to highly heritable in Brahmans and moderately so in Tropical Composites. Critically there was a moderate desirable correlation with heifer age at puberty for both breed types. This provides the opportunity to select bulls that will improve female fertility.

Scrotal size Estimated Breeding Value (EBV) is superior to the actual scrotal size measure and a valuable tool for identifying bulls that will produce daughters which reach puberty earlier.

The actual scrotal size data can also be used in bull selection provided the animals being compared are from a contemporary group i.e. similar age and same management group. Ideally bulls will have above average scrotal size at 12 months and at the two year old pre-mating BBSE.

Per cent normal sperm

Within the Beef CRC, bulls were evaluated using the Australian Veterinary Association's Bull Breeding Soundness Evaluation (BBSE) Standards. These standards use 34 cm at two year old as the base measure which is similar to that found in the Beef CRC bulls at two year old.

Scrotal circumference and the output of the testicles as measured by the percent normal spermatozoa are independent yet valuable traits. The threshold indicated by the ACV is ›70% normal for bulls used in single sire mating or for Artificial Breeding and ›50% normal for bulls used in multiple sire mating. In the Beef CRC, bulls were evaluated for semen production and quality to indicate changes in testicular growth and production (Table 3).

Table 3. Scrotal circumference and percentage normal spermatozoa by breed and age

Trait and age	Brahman	TC
12 months		
Scrotal size (cm)	21	23
Liveweight (kg)	247	275
% normal sperm	23	55
18 months		
Scrotal size (cm)	26	30
Liveweight (kg)	353	369
% normal sperm	49	67
24 months		
Scrotal size (cm)	30	32
Liveweight (kg)	384	392
% normal sperm	72	75

Key points

- **Use a balance of traits in selection (fertility, growth and carcase)**
- **Selection for these traits will not compromise tropical adaption**
- **Female fertility can be improved through genetics from the sires selected**
- **Scrotal size EBVs (larger, more positive) and Days to Calving EBVs (some breeds) (shorter, more negative) are available for identifying superior genetics for fertility**
- **Phenotypically, bulls should have above average scrotal size at 12 months and again at pre-mating Bull Breeding Soundness Evaluation (BBSE)**
- **Use bulls with higher per cent normal sperm at 24 months**
-

The CRC research found that percent morphologically normal sperm is heritable and genetically correlated with the interval from calving to first oestrus cycle after calving. Females sired by bulls with higher levels of percent normal sperm will tend to return to cycling sooner after calving.

Per cent normal sperm

The Beef CRC found a large genetic variation between sires in the interval between calving and the first oestrus cycle after calving of their daughters. That is, sires have a large effect on the time taken to return to cycling after calving.

In the Beef CRC Brahman sires, this difference was 4.4 months. This can equate to a 40% difference in calving rate.

Days to Calving EBVs (available for some breeds) are an indicator and selection tool to address this trait. Select bulls with negative DTC figures—the more negative the better.

Further information

www.beefcrc.com.au

Do your own field trials

Every day rural producers are bombarded with material promoting new fertilisers or biological treatments that promise to increase crop production or pasture growth or improve the health of your stock. As governments cut back on funding for independent research, it is often difficult to find unbiased information on products being sold. Many of the claims may be justified, but how can you know whether you will see these benefits on your property after spending your hard-earned money to buy the products?

To determine how these products perform on your property, you could conduct your own simple field trials.

Pasture and crop trials

1. Include an untreated control site. The area selected needs to be as similar as possible to the treated site and must be managed in the same way. Select an adjacent area with the same soil, aspect and ground cover.
2. Use several trial blocks. A single trial block is easy to set up and manage but for a more accurate picture of what is happening, several trial and control blocks are better. A suggested layout is shown in the diagram on the left.

   The treatment and control areas need to be well marked. Stakes will work, but if stock are to be grazing the area the stakes may need to be hammered down to ground level. Another way to mark plots is to bury short lengths of garden hose on end.
3. Decide what you are going to measure and be prepared to measure it accurately. Are you looking for an increase in plant density or kilograms of dry matter per hectare, greener pasture, improved palatability for stock, or increased crop yield? Relying solely on a visual assessment can be misleading.
4. Accurate record-keeping is a must. Records should include dates and rates of application as well as comments on weather, rainfall and temperature as these conditions can affect the outcomes of the trial.

Trials with animals

Similarly, trials can be done with animal treatments, such as for internal parasites, by comparing treated animals with untreated animals. It is important to apply the treatment to a range of animals, not just the best or worst in a mob. Treating every second animal as they move through a crush is an effective way of randomising the treated animals.

As with pasture and crop trials, accurate records must be kept. For livestock this will often be liveweight change, so accurate weights must be taken at least at the beginning and at the end of the trial.

Improving accuracy and benefit

Trials carried out over a number of years will cover a range of seasonal conditions and provide more reliable information.

Working together with other interested producers to conduct trials across a number of properties can make the process more interesting and accurate as well as providing benefit to more people.

When assessing the outcomes of your trials, take into account the total cost of the new treatment or management procedure. An increase in liveweight gain may not be sufficient to cover the costs incurred.

There are still funds available from MLA for groups to carry out property trials under the MLA's Producer Demonstration Sites initiative. Contact your local DEEDI beef officer with your ideas.

More ideas:

www.new.dpi.vic.gov.au/notes/crops-and-pasture/fertilisers-for-pastures/ag0204-using-fertiliser-test-strips-on-pasture

www.dpi.nsw.gov.au/__data/assets/pdf_file/0020/41636/Field_trials.pdf

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Grazing Industry Surveys for Reef Regions

In October DEEDI grazing extension officers started contacting 400 graziers across the reef regions as part of the annual industry benchmarking process for Reef Plan. They are asking a series of questions to understand the grazing practices commonly used and how these relate to grazing land condition. All gathered benchmarking information from producers will remain confidential. It's important to note that this is not an action associated with the reef protection legislation.

Reef Plan aims to have 50% of graziers practicing improving land management by 2013 and at least 50% ground cover at the end of the dry season. Kevin McCosker, DEEDI Management Practice Adoption Manager says this target is achievable considering the 2009 baseline report card indicated 50% of Burdekin and Fitzroy graziers are already adopting practices that maintain land in good (A and B) condition. The benchmarking process DEEDI staff use will help bridge the gap until the voluntary industry and NRM-led Grazing BMP benchmarking process is rolled out in 2012/13.

The Australian and Queensland governments have collectively invested $375 million in Reef Plan, seeking to improve land condition and water quality. Government requires feedback on the effectiveness of this investment in achieving Reef Plan targets including adoption trends in land management practices that minimise erosion and nutrient run-off.

Marie Vitelli, AgForce Reef Project Officer says this survey is a critical opportunity for industry to demonstrate to government and the wider community that graziers are very good land stewards and that the majority are already adopting best management practices.

DEEDI will also be asking questions about beef cattle production in order to better inform future research and extension work. "We hope that graziers will welcome the opportunity to share their knowledge about effective grazing practices with the local DEEDI grazing extension staff," says Marie.

The objectives of this survey are:

- To document the state of the cattle industry, which will enable industry and government to better monitor the performance of research and development through time.
- To collect information to better allow the needs of the industry to be addressed by AgForce, NRM groups and research and extension providers.
- To determine the most effective ways of providing extension information to producers and improve communication between cattle producers and DEEDI.
- To give the industry an up-to-date picture of management practices to better tailor future directions for research.

Graziers living in reef catchments in North Queensland may be contacted to undertake this survey, which will also be used to plan extension activities into the future.

If you have any further questions please call:

Laura Devlin

Beef Extension Officer
DEEDI, Emerald
07 4983 7419

Producer Profile
Ross and Chris Rolfe

Ross and Chris Rolfe are the owner-managers of a heifer backgrounding business spread across three separate properties south of Springsure. *Birrong* (2125 ha) is the home block and was passed on from Ross's parents, who acquired the block in 1966. *Derrillo* (1012 ha) was bought by Ross and Chris and is situated approximately 50 km from *Birrong*. *Kelvin Downs* (2833 ha) is a lease block located between the other two blocks.

Birrong and approximately two-thirds of *Derrillo* are developed for cell grazing and *Kelvin Downs* and the rest of *Derrillo* are run in a rotational grazing system. The Rolfes run a backgrounding operation where they buy weaner heifers and sell them at 350 kg. Recently the Rolfes have started trading cull cows. Their total number of cattle currently sits around 2200 head, however this number varies with the season and the availability and price of cattle.

Originally the Rolfes primarily farmed *Birrong*, however due to a number of reasons, including the cost of new technology and equipment, it was decided to phase out their farming activities and go entirely into grazing.

With the decision to stop farming and go into cell grazing, the Rolfes had to re-develop their country, adding a large amount of infrastructure. This included the redevelopment of an old bore and the drilling of a second one. Along with the bore on *Derrillo*, they placed Sun-Sub solar pumps on all the bores and used pressure sensors to control the bores. However they were not completely satisfied with this system and researched some alternatives. One option was to remotely monitor the water system using telemetry technology. After some investigation a telemetry company, Observant, was consulted and came up with a water management solution that was specifically designed to suit the Rolfe's needs and incorporated the Sun-Sub solar system.

The decision to implement telemetry technology was made very simple by the approval of a one-off State Government funding application, which covered the full initial set-up cost of the Observant equipment. So in March 2006 the technology was put in place. The system includes a level sensor and flow meter on all the bores and storage tanks. A real-time reading of these sensors can be accessed on a computer at the *Birrong* house. The bore pumps run automatically, switching on and off according to the level sensors. However the pumps can also be switched on and off 'manually' from the computer at the house. This system uses a UHF signal to relay the information from the units to the home computer.

Ross and Chris estimate the initial set-up costs of the equipment to be approximately $25 000 and after doing some conservative sums believe that removing one water run per week saves them $14 500 per year.

The Rolfes saw the implementation of the remote water monitoring technology as an ideal opportunity to introduce a water medication system. With relatively accurate water consumption per live stock unit (LSU) information they can accurately supplement their cattle, reducing costs and risk. They use a mobile medicator that attaches to the pipeline approximately 50 metres from the trough. They find that having a mobile system close to the trough means they can quickly remove the urea from the watering system if a problem arises.

As with any technology there have been some problems, including the need to replace four level sensors and a software change in the Sun-Sub solar system that caused it to not respond to the Observant units. However, the problems were easily fixed and Observant currently offer reliable, free-of-charge technical support.

The Rolfe's advice to other producers:

- Don't buy a system just because you have been told it is good. Do the sums and decide if it is going to be the right decision for you.
- There is a certain level of technology involved, so if you don't feel comfortable dealing with it then it's not worth it.
- If you are going to set it up, make sure it is done correctly either by yourself or by a professional.

Not only do Ross and Chris run a successful grazing business they are, and have always been, heavily involved in the local community. While the children were still at school Chris was involved with the P&C and sporting groups including Pony Club and the local football club. She is also on the committee for the local aged care. Both she and Ross are involved in the gun club, campdraft society and cutting. Ross is also a Councillor on the local shire council and Chris is the Vice-president Treasurer for Ag-Force Queensland.