



Future Beef

Beeftalk

Taking stock of your future

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ISSUE 37 SUMMER 2013/2014



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Drought a key focus as Qld waits for rain

WITH so much of Queensland in drought this year, this edition has a considerable drought focus.

Rain will bring much-needed relief, opportunity and some risks.

Some things to consider are cattle losing condition chasing watery green pick, spread of new weeds including toxic weeds, and management to help 3P (palatable, productive, perennial) pastures to regenerate. If cow condition is compromised, then consider early weaning as a powerful management tool to help breeders restore condition while feed quality is good enough.

Time will tell if we have a proper break to the drought. It is easy in hindsight to see what could have been done differently; however, it is not easy at the time. Certainly making mistakes is what we humans do and it is how we learn. An important learning process is to do a drought debrief.

Together with others in the business, write three columns on a page and record objectively, with an open mind and without blame, what worked well, what didn't, and what could have been done differently.

Another valuable exercise is to list all the things you would like to avoid in drought, plus a vision of what your business would ideally look like in handling a drought.

For each point on the list record how you can achieve these things. Then record who would do what and most importantly when. This is your drought plan.



Are you looking for training in beef cattle breeding and genetics?

Breeding EDGE workshops will run in:
Wandoan, February 4-6
Biloela, March 4-6
Emerald, March 18-20.

Register your interest with Tim Emery,
0408 707 155, or Kiri Broad, (07) 4622 9999
at DAFF Roma.

The winner of the BeefTalk 36 edition Grazon prize was Shane Francis from Toogoolawah.

Please provide ideas for coming issues by completing the quick survey at:
www.surveymonkey.com/s/beefTalk37.

At the same time, you can enter the draw for the Grazon feedback prize, kindly supplied by Nick Koch of Dow AgroSciences Australia Ltd.

Wishing you a good season!

— The BeefTalk team.



Rainman rainfall analysis tool ready to download

THOSE interested in rainfall data for your location and variability due to El Niño Southern Oscillation (ENSO) may have used or heard of a program called Rainman.

It was first developed in the 1990s and the last version was released in 2003.

Since then, those with the software have been able to update data online and complete analysis of monthly and daily data.

Work is also under way to make the data and analysis tools available live on the web. This should be ready by early 2014.

There are 3800 locations in Australia, most with more than 100 years of data.

The data can be analysed in many ways to improve understanding of rainfall variability, forecasts using ENSO indicators, start of wet season, timing and duration of droughts and floods, periods of forecast skill, moving averages and more.

Results are shown as graphs, tables or maps.

The software version of Rainman is downloadable at www.daff.qld.gov.au/plants/field-crops-and-pastures/broadacre-field-crops/cropping-efficiency/rainman.

Work is also under way to make the data and analysis tools available live on the web. This should be ready by early 2014.

David Cobon, DSITIA, Toowoomba

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What is my 'green day'?

MANY producers like to use their 'green day' for the timing of husbandry practices such as introducing bulls to a herd in a controlled mating system or for weaning. However, it is important to recognise that the timing of your green day depends on both your definition of what a green day is and your location.

When defining your green day, it is also important to have a realistic expectation of what your 'normal' rainfall is. For example, Gympie has an average spring/summer rainfall (October to March) of 775mm.

However, the median rainfall for those months (that is, what happens 50 percent of the time) is lower at 715mm.

Therefore, those producers using the long-

term spring/summer average of 775mm as a benchmark figure for setting long-term stocking rates and feed budgeting have an unrealistic expectation of their rainfall.

In this case, they will only get their average spring/summer rainfall in about four years out of 10.

Therefore, in about 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 later green day than using 30mm within a consecutive three-day period.

At Dulacca, for example, the median date of

a 50mm rainfall event during October to March within a consecutive three-day period is January 4. This compares to a median date of November 8 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, at Dulacca it is not until mid-February that it is realistic to expect a 50mm rainfall event. This compares to mid-December for a 30mm rainfall event.

The following table highlights the green day for a number of southern Queensland locations. The dates are based on what occurs in seven years out of 10 during October to March for both a 30mm and a

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

Location	30mm rainfall event	50mm rainfall event
Toowoomba	15 November	1 January
Gympie	15 November	1 January
Kingaroy	15 November	1 January
Boonah	20 November	1 January
Warwick	20 November	1 February
Goondiwindi	15 December	7 February
Dulacca	15 December	15 February
St George	1 January	30 March
Charleville	1 January	1 March

- Source: Rainman

50mm rainfall event within a consecutive three-day period.

For more information please email

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BeefTalk feedback ... 'we want you to have your say'

Please spend a minute to let us know your thoughts on BeefTalk as a way of keeping you up to date on current beef industry issues.

Do you find BeefTalk useful? ☐ Yes ☐ No

Your comments

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We use your feedback ideas and suggestions when planning the articles for BeefTalk. If you have any questions about beef production or pasture management, suggestions for topics you would like covered or novel ideas you'd like to see investigated, please list them below and we will endeavour to cover them in future editions of BeefTalk.

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Please send your replies to:
BeefTalk, DAFF, PO Box 23, Kingaroy Qld 4610 or
Fax to 07 4162 3238 or

email your comments to lyndel.bryant@daff.qld.gov.au

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Managing for land condition

Producer profile: John and Jan Burnett, Bendemeer, Clermont

BACKGROUND

THE Burnetts own and manage several properties in the Fitzroy and Burdekin catchments. The properties are mainly scrub, forest and downs land types with significant areas cleared with buffel grass established.

The herds are mainly self-replacing and turnoff is EU and Jap steers, domestic and EU females, and cull cows. Most of the properties are developed so that cattle are not walking more than 3km to water, and paddocks are sized to carry fewer than 600 head for ease of management.

Managing for good land condition and animal performance is a key business priority for the properties to ensure future viability. This is achieved through conservative stocking, adjusting stock numbers to seasonal conditions, wet season spelling and burning.

MANAGING FOR LAND CONDITION

John is quite passionate about land condition and the benefits it brings economically, ecologically and to the management of the business. Good land condition enables the maintenance of carrying capacity and gives a good body of feed as a buffer for dry times.

John believes that subtle changes to pasture management can have a major impact on productivity.

"A two-month wet season spell is not hard to manage and gives a big improvement. With good land condition and ground cover we can get a pasture growth response to almost any fall of rain, and at any time of the year (except on the very heavy clay soils)."

It also gives the ecological resilience needed in pastures, when adjusting stocking rates for spelling and burning. Some paddocks may end up with a higher than desirable stocking rate for short periods and this is quite acceptable when you have good land condition.

"Subtle changes to pasture management can have a major positive impact on productivity."

John uses a number of strategies to maintain and improve land condition. Firstly, the property stocking rates are aimed to be lower than long-term carrying capacity by 25 percent. This conservative strategy ensures not only good ground cover and a good bulk of feed, but also that 25pc of the property can be spelled. Spelling may be for generating a fuel load for burning,



John Burnett. Photo courtesy of Paula Heelan, freelance writer and photographer.

or to regenerate the vigour of a pasture to improve land condition. Burning is conducted to rejuvenate pastures and control tree and shrub thickening. Burning is managed in conjunction with spelling. Regrowth is controlled through a multifaceted approach using burning, chaining, chemicals and blade ploughing.

STOCKING RATE MANAGEMENT

The overall stocking rate is constantly monitored via a comprehensive system where all paddocks are assessed annually. Pasture information and levels of woody regrowth are considered when estimating the long and short-term carrying capacities of each paddock.

The aim is to stock at 75pc of long-term carrying capacity for each property. This allows a large buffer of feed on hand for dry conditions. During dry conditions the stock numbers can be reduced through more stringent culling of the breeder herd, or earlier sales of the dry cattle.

The numbers of cattle which are normally purchased onto the properties will also be reduced. Cattle numbers are then built up gradually after a drought, as pasture resilience allows. Good distribution of water points assists with an even grazing distribution and effective infrastructure allows regular spelling.

KEY POINTS

- Managing for good land condition and animal performance is a key business priority.
- Monitoring pastures and stocking rates at a paddock level every year.
- 25 percent of the property area is available for spelling, burning or as a feed reserve.

"We could run more stock, but prefer to ensure our future viability by conservatively managing our cash flow and equity."

INTEGRATED MANAGEMENT

John believes the benefits of a planned stocking rate and rotational grazing have synergy with the practicalities of property management and stock husbandry. For example, where a paddock is to be burnt, adjoining paddocks will be run at a higher stocking rate for fire-hazard reduction.

Breeder herds can be rotated to another paddock after processing at branding or weaning for ease of management. Turnoff cattle will be moved closer to trucking yards as they approach weights for their target markets. "We always have 25pc of our property area available for spelling, burning or as a feed reserve."

John has cell systems in place which are used on some of the properties. Although originally installed in the early 1990s to manage pasture degradation while retaining carrying capacity, these systems are now mainly used to educate young cattle. These small paddocks receive short grazes and long spells.

Spelling regimes for most of the properties are dependent on paddock and herd size. Smaller paddocks are rotated more regularly, while the more extensive paddocks carrying 300 to 600 head are given a wet-season spell at least every five years.

LOOKING BACK, LOOKING FORWARD

A critical time in John's career was when his father fed survival rations to their cattle in 1969 and he experienced the worst aspects of a drought. He has never repeated this practice, but supplements with a mineral/protein mix as required.

Following on to the wet years of the early 1970s and further property development, John believes that we all had high (and false) expectations of carrying capacity and pasture resilience due to the abundant growing conditions and recovery of the country.

"The result was we were very vulnerable to parthenium weed invasion into large areas of clay soils, and consequently the drought years in the early

1990s. We soon understood the competition characteristics between parthenium and perennial grasses.

"However, we also realised that there was a whole host of management complexities to achieve viability, while still managing for the health and vigour of perennial grasses to outcompete parthenium. It is important that the beef industry (and related sectors) do not make the same mistakes following this run of exceptional seasons. Global warming may have changed our climate forever, but my bet is there are more dry years just ahead somewhere! We will continue to manage our pastures for the season we see at the time."

John is very positive about the landscape management of the grazing industry and believes a large portion of beef businesses are now managing stocking rates according to the seasonal conditions being received.

"The satellite ground-cover data that government departments have from the Grazing Systems Project has shown that a number of properties across Queensland have improved over the past 20 years.

"This is particularly noticeable through the droughts of the early 1990s and 2000s. There has been a dramatic improvement that shows as an industry we have demonstrated our improved management. This deserves public recognition."

John believes that financial systems can still be improved to better work in synergy with the grazing industry to achieve profitability and sustainability.

"Mortgagees should not be encouraged to run high stocking rates to maximise short-term cash flow.

"Conservative stocking rates should be encouraged to ensure future viability."

SUMMARY

Well-established infrastructure, together with a conservative stocking rate policy, reducing numbers during dry periods, wet-season spelling, burning and a flexible rotational grazing system that works in synergy with the practicalities of management, contributes to good land condition. This management system has enabled John to be in the position he wants, and expand the enterprise.

Source: CQ BEEF Issue December 16, 2012, pages 14-15.

Read more at <http://bit.ly/17prWnG>

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What to do when the drought breaks

'WHEN the rain comes, all our troubles will be over!' That's what we like to think, especially when we are in the middle of drought with animals losing weight, stock to be sold and dust blowing.

However, the hard work of managing a drought continues after we have received rain. So what are the issues we need to consider while we sit on the verandah watching the rain gauge overflow?

PASTURE GROWTH

Depending on the management strategy employed, most pastures will be eaten down when the rain comes.

The worse the condition of the pasture, the longer it will take to respond to the rain.

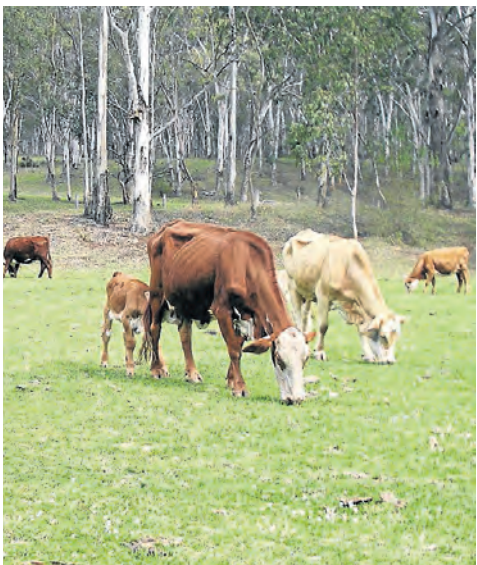
Sometimes pastures have to be given the opportunity to come back from seed. This requires giving the pasture time to grow with minimal grazing pressure.

So don't feel compelled to buy at the very next sale or bring cattle home straight away.

CONTINUE TO FEED

The slower response of droughted pastures and the tendency for cattle to chase watery green pick and go backwards in condition means you should contain your animals as best you can.

This will enable you to continue to feed them while allowing the grass to grow to a height that will provide useful feed.



RESTOCKING

This can mean bringing cattle home or buying replacement animals from other areas. Be aware that these purchased animals may not be adapted to your conditions. For example, they may need to be vaccinated for tick fever, botulism or vibrio. Be careful you don't bring home unwanted diseases or weeds such as parthenium.

Take care to purchase animals that will perform for you. If the market is strong when you buy, you must make sure the animals you buy will pay their way.

There is often a trade-off.

Younger animals may cost less to buy and grow faster and more efficiently, but they will take longer to produce a cash flow.

Older animals may come into production faster, but you must take care to ensure they will reach your target market – for example, steers that will grow fast enough to make Jap ox or cows that are already pregnant.

Don't buy because you can't stand seeing grass. Look to take on some agistment cattle because often droughts only break over certain areas and others will still be looking for grass.

This will provide you with some cash flow and you will avoid having to pay the high prices that inevitably follow a dry spell like this.

CONTROL WEED GROWTH

During the drought, feed sources will have come from many areas and may have been contaminated with weed seeds. Be vigilant to identify weed species early and control them before they become a problem.

REVIEW THE DROUGHT

Just like death and tax, it is inevitable we will face another drought. Have a think about the things you can control (energy is wasted on things you cannot control).

What worked well and what didn't? With the benefit of hindsight, what would you have done?

What action could you take to improve your situation next time, i.e. better water supplies? Write these ideas down and work them into future management plans.

CONSIDER THE DOLLARS

Talk to your accountant and/or bank manager about your proposed recovery program and how you will manage cash flow and income through this often difficult time.

It is also worth considering what the drought-management program cost and what sort of position it has left you in. This could impact on future programs.

HAVE A BREAK

Don't feel guilty about having some time off. You and your family's health is the most important part of your responsibilities.

Running yourself down increases the risk of accidents. Abundant green feed will allow you the chance to have a short break and recharge the batteries.

A break can allow you to step back from the business and make better strategic decisions for the future.

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Pasture spelling strategies

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 bush fire 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 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 includes 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, before 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 bushfire 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 has increased noticeably since the fire.

Crown cover has varied with seasonal conditions across all treatments (**Figure 1b**). Desert bluegrass and wiregrass contribute equally and make up the majority of the crown cover. The burn and dry summer in 2012/13 decreased total crown cover due to a decrease in the wiregrass while the desert bluegrass crown cover was stable.

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 after a wet July.

Total pasture yields were relatively low and there has been a small overall increase over time at both the moderate

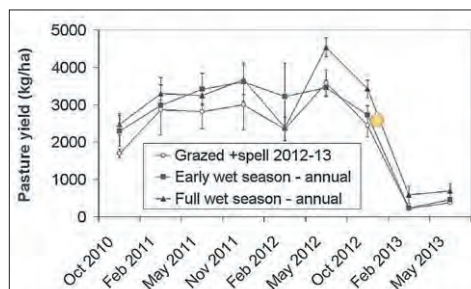


Figure 1a

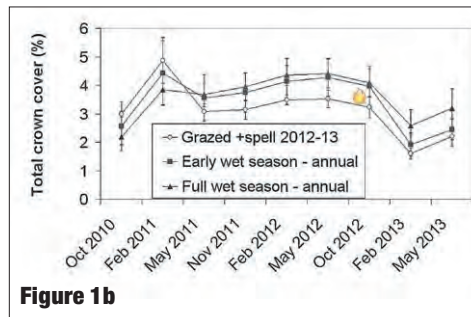


Figure 1b

Figure 1: The effect of spelling strategies at Monteagle on (a) Pasture yield, and (b) Total crown cover. The site was destocked in November 2012 for six months following a bushfire (orange flame).

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 any, or a combination of factors.

and high stocking rates. Treatment 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 Monteagle. Good seasonal conditions for the first two years, combined with a conservative stocking rate, ensured that 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. It is 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 bushfire 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 of 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

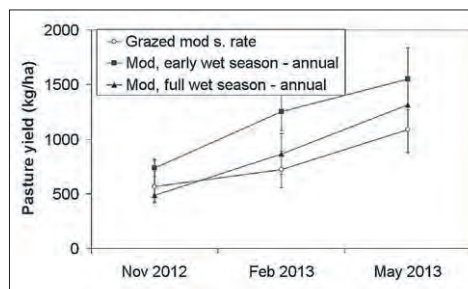


Figure 2a

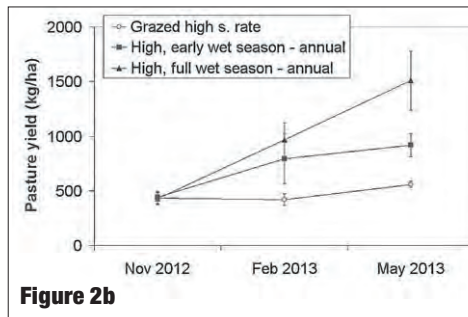


Figure 2b

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.

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 number of patches with bare ground compared to those with a presence of 3P grasses. The Toorak grazing study at Julia Creek (Qld) showed that recovery of Mitchell grass crown cover following high grazing pressure was dependent on good summer rainfall rather 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 Galloway Plains grazing trial at Calliope (Qld) studied pastures under four years of

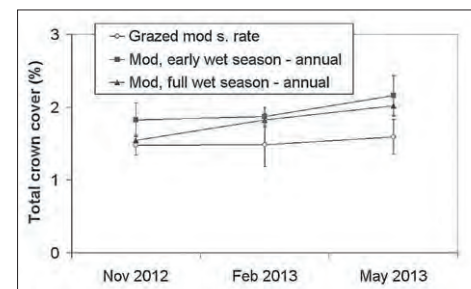


Figure 2c

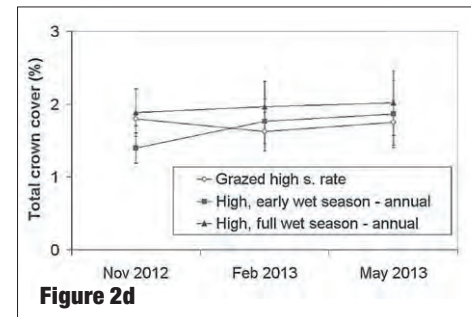


Figure 2d

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.

Exclosures 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 it was concluded that pasture condition will not improve following drought simply by excluding livestock for short periods of time, especially during winter, and particularly when rainfall is only average or below.

The Virginia Park water cycle study at Charters Towers (Qld) documented an improvement from C to B land condition over 10 years with improving seasonal conditions and annual wet season spelling. The Ecograzing 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. Patches 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 exclusion from grazing has given inconsistent results and there are no clear trends to explain the lack of response to spelling at Monteagle and Wambiana. Seasonal conditions appear to have had the overriding influence on pasture parameters for the first three years at Monteagle.

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 Monteagle and Wambiana may well take a number of years and will be affected by either soil fertility, current land condition, past grazing history, crown cover and seasonal conditions or a combination of these.

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Preserving pasture after drought

PROLONGED periods of drought, such as we have had, make our pastures very susceptible to degradation.

During the drought many plants of favourable grass species will die, often leaving a much reduced number of desirable plants.

After a drought, the most important time for these grasses is immediately following the first good grass-growing rain. A stressed plant that puts out green shoots in an effort to go to seed, but is continually eaten off, will eventually lose all its root reserves and die. You can be sure that the most desirable grass species will be eaten first. The other grasses such as wiregrass will have been

under less stress during the drought and will often go to seed quickly as stock eat the more palatable species.

The following management practices can help ensure that grasses are preserved after prolonged drought.

Not all these practices will be achievable, but they are something to aim for.

SPELLING PADDOCKS IS IMPORTANT

Let grasses get to a height where they are less susceptible to grazing and can later go to seed. Allowing grasses to seed is vital for increasing the plant population of drought-affected grasses. Spelling of paddocks is always difficult, but after drought, stocking rates are at their lowest level

and spelling is achievable for some paddocks. Hand-feeding of stock should continue for as long as possible.

Hand-feeding will keep pressure off the pasture.

A 'sacrifice' paddock where most stock are kept while other paddocks are spelled after rain is an option.

In many cases this will also benefit the stock that tend to chase the short green pick and lose condition.

Another alternative is the planting of forage crops to keep pressure off pastures for as long as possible.

Sown pastures are often high in quality, but they also need to be allowed to set seed.

After a drought, new growth is high in quality due to

increased nitrogen availability, but they also need to be allowed to set seed so new plants can emerge next season. Pastures may benefit from renovation in the following spring to increase production and provide a better seed bed for seed from the previous season.

This is also the time to consider introducing legumes to grass dominant pasture. Remember, pastures must go to seed if they are going to continue to produce beef and dollars (rain helps, too!).

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Toxic plant hazards when drought breaks



POISONING from toxic plant growth poses a real threat after rain.

Certain plants can be especially toxic when eaten at a young stage of growth by hungry or starved stock.

Small falls of rain that don't produce significant

grass growth are often enough for weeds to germinate or other annual plants to produce green shoots, increasing the risk of poisoning as hungry cattle chase the green pick. Some plants that can cause problems in this situation are listed below:

Common name	Scientific name	Problem areas
Button grass	<i>Dactyloctenium radulans</i>	stock yards
Liverseed grass	<i>Urochloa panicoides</i>	stock yards
Mint weed	<i>Salvia reflexa</i>	stock yards
Pig weed	<i>Portulaca oleracea</i>	stock yards
Ellangowan poison bush	<i>Myoporum deserti</i>	stock routes
Darling pea	<i>Swainsona spp.</i>	young shoots from rootstock
Fuchsia bush	<i>Eremophila maculata</i>	young shoots
Lantana	<i>Lantana camara</i>	young shoots
Green cestrum	<i>Cestrum parqui</i>	creek banks
Noogoora burr	<i>Xanthium pungens</i>	creek flats
Mulga fern	<i>Cheilanthes sieberi</i>	paddock
Sorghum regrowth	<i>Sorghum spp.</i>	stressed crops

Further reading

Poisonous Plants: A field guide, R. Dowling and R. McKenzie, 1993.

Australia's Poisonous Plants, Fungi and Cyanobacteria: A guide to species of medical and veterinary importance, R. McKenzie, 2012.



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 five to eight 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.
 5. Consider using and asking for a weed hygiene declaration which covers feed, animals and machinery.
- More details at <http://bit.ly/17mwdpQ>.

6. Keep records of purchased fodder, including origin.
7. Keep a lookout on local roadsides for weeds that may have been dropped by traffic.

Identifying weeds early is important to help stop their spread. 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.

If you still can't find the weed you're looking for, you can submit a good-quality photograph through DAFF's identify plant pests form that can be found at: <http://bit.ly/19EKbQP>.

Regional weed spotter coordinators can also help identify weeds. Visit <http://bit.ly/13Mx5Rt> to contact your local coordinator. Alternatively, any unusual or unknown plants can be left at your local DAFF office for identification or sent to the Queensland Herbarium for positive identification.

To help identify a plant you'll need to supply sufficient material. This includes leaves and stems, and

whenever possible, flowers, fruit and/or seeds.

Also describe the environment and soil type where the plant was growing, and how large the plant is (if it's too large to bring in a complete sample).

If you suspect it is a declared plant, secure the sample carefully in a bag to prevent seed spread.

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.

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Co-existence: a landholder checklist



Principles for Negotiating
Appropriate Co-existence
Arrangements for
Agricultural Landholders



A PRACTICAL checklist has been developed to help landowners negotiate co-existence agreements with mining companies and other third parties.

The checklist is part of a Rural Industries Research and Development Corporation (RIRDC) research report titled Principles for Negotiating Appropriate Co-existence Arrangements for Agricultural Landholders, which was commissioned by industry peak bodies and co-funded by Meat & Livestock Australia (MLA).

The checklist provides a practical starting point and includes key questions agricultural landholders should address when negotiating with a new land use proponent. The checklist was drawn from the lessons learned in the report's case study analysis of real co-existence examples, along with best practice and online tools. It is divided into 'negotiation processes', 'conduct on-farm', 'compensation payable' and 'principles applicable to landholders'.

MLA chose to co-fund the research after consultation with industry peak bodies identified an increasing need for producers to co-exist with other sectors, such as mining, and energy generation and transmission.

The industry bodies included the National Farmers Federation, Cattle Council of Australia, Sheepmeat Council of Australia, Australian Lot Feeders Association and the Red Meat Advisory Council. They provided evidence suggesting the compensation received by agricultural landholders for this co-existence was widely variable.

Landholders were being required to take into consideration the costs, benefits, disturbances and inconveniences they could experience in the short, medium and long terms, but there were few, if any, guidelines or tools available to assist them in undertaking these negotiations. Landholders can download the new report, Principles for Negotiating Appropriate Co-existence Arrangements for Agricultural Landholders, from the MLA website:

www.mla.com.au/industryissuesresearch.

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This article was run in MLA's Feedback magazine October 2013. Feedback magazine is free to MLA members or \$100 for an annual subscription for non-members. Contact MLA on free call 1800 023 100 or email info@mla.com.au.



LOTFEEDING

The official journal of the Australian Lot Feeders Association

ALFA Lotfeeding magazine is a specialist technical publication for people involved in intensive feeding of cattle. The bi-monthly magazine covers the feeding, stock management, technology, design and equipment used in modern lotfeeding operations across Australia. It is also used by the Australian Lot Feeders Association, the organisation representing most intensive cattle feeders, for communication of industry developments, training workshops and conferences and market trends. Stock, health, backgrounding, foodstuff processing, manure management, yard design and equipment are regularly covered in the magazine.

Production Deadlines

January 7, 2014

Bookings and Deadline **Dec 16, 2013**
Copy Deadline **Dec 18, 2013**

May 6, 2014

Bookings and Deadline **Apr 22, 2014**
Copy Deadline **Apr 24, 2014**

September 9, 2014

Bookings and Deadline **Aug 26, 2014**
Copy Deadline **Aug 28, 2014**

March 5, 2014

Bookings and Deadline **Feb 18, 2014**
Copy Deadline **Feb 20, 2014**

July 8, 2014

Bookings and Deadline **June 24, 2014**
Copy Deadline **June 26, 2014**

November 4, 2014

Bookings and Deadline **Oct 21, 2014**
Copy Deadline **Oct 23, 2014**

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Reflections of drought

PRODUCERS of the north-west slopes of NSW undertook a review of their drought preparation and business strategies for 2003. Graziers came together to evaluate the various ways by which different operators manage – before, during and after the event.

Certainly each business responds individually to changing seasonal conditions depending on attitudes and circumstances, however in terms of the many decisions taken during the drought, producers nominated their best decision as 'destocking to critical dates', and their worst decision as 'not acting early enough'. Overall, the key messages focused on forward planning: 'Know what you are going to do and when' as the key to staying in control.

By way of definition, it was agreed that successful drought management is about staying in control of the aspects of the business highlighted in the table at right.

Financial:	Limit equity loss. Maintain cash flow as much as possible.
People:	Stay positive and in control. Be an opportunist. Maintain harmonious communications with business and family. Ensure networking and educational needs are met.
Landscape:	Monitor soil moisture. Maintain target ground cover. Maintain pasture species for best resilience.
Production:	Maintain the strength of the business. Make use of off-farm investments, farm management deposits, grass in the paddock, or fodder in storage.

OF CRUCIAL IMPORTANCE IS TO:

- Have a plan
- Set critical dates
- Progress personal educational needs
- Have a strategy for recovery.

THIRTEEN KEY LESSONS LEARNT

1. Drought occurs when stocking rate

exceeds carrying capacity (i.e. drought is not only rainfall-induced).

2. Humans control stocking rate.
3. Nature controls carrying capacity.
4. Success in drought is achieved in the same way as at other times (e.g. using sound business

management principles).

5. We should start with goals, and write and communicate the plan, including the recovery plan. (Plan now for next time, write the plan down. Have the plan in the folder. Don't lose the folder.)
6. Fine tune the plan regularly once it is put into place.
7. Move early.
8. Remain positive – keep in touch with positive people.
9. Set critical dates.
10. Beware the emotional load! Share the responsibility with family members. Don't be afraid to seek help.
11. Watch out for unmanageable equity losses.
12. Look on mistakes as just learning opportunities.
13. Preserve the pasture base for financial recovery and future generations.

Read the full report at:
<http://bit.ly/1aiQ6ja>.



New pasture management book for SE Queensland

A NEW booklet for coastal south-east Queensland land managers is now available.

This booklet aims to help grazing property managers, from those on small grazing blocks to properties of 10,000ha or more, to establish and maintain healthy, productive and sustainable pastures.

It was compiled by Damien O'Sullivan of DAFF Kingaroy and supported by SEQ Catchments through funding from the Federal Government's Caring for Our Country – Achieving groundcover targets in South East Queensland project.

Topics covered include:

- Managing pasture condition
- Grazing to suit your situation
- Using legumes to increase carrying capacity
- Establishing sown pastures
- Selecting the best pasture mix
- Legume descriptions and planting rates
- Grass descriptions and planting rates
- Contacts and other information sources.

Download your free copy of *Pasture management for South East Queensland* from FutureBeef at <http://bit.ly/1i7J1EU> or contact Damien for a hardcopy on phone (07) 4160 0717 or email damien.o'sullivan@daff.qld.gov.au



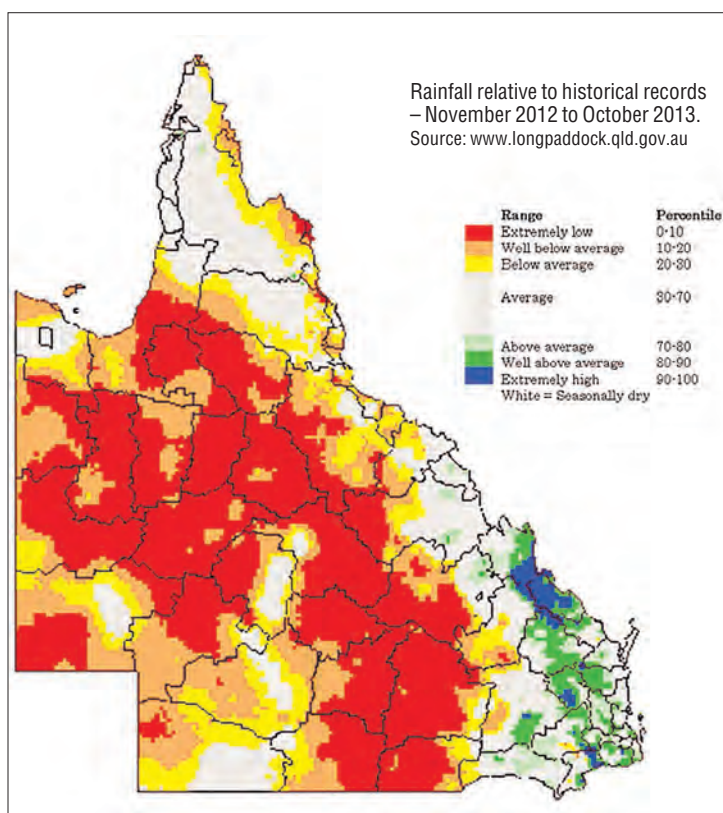
Drought declaration processes for Queensland primary producers

THE current dry conditions across the state are prompting many producers to ask how the drought declaration process operates. There are two types of declaration, an individually drought declared property (IDP) and an area or shire declaration.

INDIVIDUALLY DROUGHT DECLARED PROPERTIES (IDP)

IDP declarations are available to all drought-declared primary producers operating enterprises involved in primary production. This does not include hobby farmers, but does include share-farmers and lessees. Eligibility for an IDP declaration is based on:

- The property being in a one in 10 to 15-year rainfall deficiency timeframe. For example, areas of the state that are in one in 10 rainfall deficiency are shown in red on the map (at right) and may be eligible for declaration.
- Stocking rates for the property are acceptable for the type and class of land.
- There is a demonstrated drought management plan in place, e.g. stocking rates have been reduced, drought feeding has already commenced.
- Normal winter supplementation of stock is not classed as drought feeding.



A local drought committee made up of local industry representatives may be asked to help determine if a property meets the criteria for a declaration.

AREA DECLARATION

In this case the local drought committee considers whether a shire or part shire meets the criteria of being declared.

The Drought Relief Assistance Scheme has five types of assistance available. These subsidies are for:

1. Transport of fodder freight subsidy.
2. Transport of water for livestock freight subsidy.
3. Transport of livestock returning from agistment freight subsidy.
4. Transport of animals purchased for restocking after the drought, freight subsidy; and

5. Emergency water infrastructure rebate.

You could be eligible for financial assistance for any or all of these.

There are special conditions for each type of assistance.

● For more information and to determine your eligibility please contact the Drought Hotline on 1800 025 656 (free call) from Monday to Friday, 8 am to 6 pm (excluding public holidays).

IDP application guidelines are also available on the DAFF website at <http://bit.ly/1cT7LRy>.

There is a list of drought-declared shires and dates available at www.longpaddock.qld.gov.au under the heading drought.

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TICK FEVER CENTRE CHRISTMAS CLOSURE

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

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

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.

Phone: 13 25 23 (local call) or (07) 3898 9655. Website: <http://bit.ly/1wglA9>

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Early weaning: useful management tool

TO MAINTAIN high future fertility breeders must go into winter in good condition. If cow condition has been compromised, for instance due to drought, then early weaning is a powerful management tool to help cows hold or improve condition.

Feeding the cow and calf together doesn't help cow condition because the feed goes into milk for the calf. Lactation increases the cow's energy and protein requirements by 30 to 40 percent – equivalent to needing to feed two to 3kg of grain.

Weaned cows require much less supplementing. Some of these cost savings need to be invested in keeping the calf growing.

Early weaning trials during dry times and drought show that weaned cows have better condition scores and considerably higher pregnancy rates than those with sucking calves. Weaned, supplemented calves performed just as well as those left on the cow.

WEANER GROWTH RATES

Calves under six months old can be weaned successfully and suffer no ill effects provided they are fed and managed well. Weaners not adequately supplemented fail to thrive and may be poor doers all their lives. For a feeding program to be successful draft calves by weight into the following groups:

- 60 to 100kg
- 100 to 150kg
- over 150kg.

Only wean calves less than 60kg in extreme drought conditions to stop cows dying. These very young calves need special attention and it may be easier to feed the cow and calf until the calf reaches 60kg. The following minimum growth rates are recommended for weaners of various weights and/or ages:

- Under 100kg (three months) should grow at a minimum rate of 400g per day (12kg per month).
- 100 to 150kg (three to six months of age) should grow at a minimum of 200g per day (6kg per month).
- Over 150kg (six months of age) should grow at a minimum of 100g per day (3kg per month).

If weaners are to graze pasture only once the drought breaks it is better to grow them at moderate rates (< 0.5kg per day) during the dry season/drought.

All weaners lose weight when they go on to green feed.

Weaners on high-gain supplements (growing at up to 1kg per day) lose so much weight when the wet season starts that by the end of it, they are not as well

Early weaning trials during dry times show that weaned cows have better condition scores and considerably higher pregnancy rates than those with sucking calves.

grown as weaners that were gaining at a moderate rate during the dry season/drought.

Reduce weight loss in weaners going onto green pick by continuing to feed a supplement with high levels of true protein (protein meal) until there is plenty of green feed.

FEEDING

It is important that all calves start feeding as soon as possible after weaning. Have the feed prepared before weaning. It is essential to train calves to eat supplement in the yards while they're being weaned.

Putting a couple of older cattle in with them may assist in the initial stages of training by teaching them to go to a trough for feed. Draft shy feeders out for special training. The feeding rates below should hold weight or give slight weight gains but are a guide only. How the calves perform is the best indication of how much supplement they need and you'll need to adjust intakes accordingly.

Whole cottonseed contains gossypol, which can cause digestive problems and in extreme cases kill young calves. Therefore don't feed more than the level indicated. If more supplement is required combine whole cottonseed with one of the other supplements.

Adding a coccidiostat such as Rumensin or Bovatec may benefit all calves.

Use according to manufacturer recommendations. Some commercial feeds include a coccidiostat in the mix. Draft calves that reach the threshold weight for a higher weight group into that group. This will reduce competition in the lower weight group and may reduce the cost of feeding.

Feeding rate for calves 60 to 100kg

Feed unlimited pasture if available or 0.25 to 0.5kg of grassy lucerne, good quality grass or good quality forage hay per head per day. Beware of scouring,

particularly when feeding lucerne hay.

Plus one of the following supplements:

- 0.5 to 1kg/head/day grain mix (3 parts crushed grain to 1 part protein meal).
- 0.25 to 0.5kg/head/day protein meal.
- Calf pellets, crumbles or meals fed as per manufacturers recommendations.
- Free access to molasses plus 12 to 15pc protein meal (beware of scouring).

Weigh calves in this group regularly and move those over 120kg to the heavier group.

Feeding rates for calves 100 to 150kg

Feed unlimited pasture or hay plus one of the following supplements:

- 1kg/head/day grain mix.
- 0.5kg/head/day protein meal.
- Calf pellets/crumbles fed as per manufacturers recommendations.
- Free access to molasses plus 12 to 15pc protein meal.
- 0.5kg/head/day whole cottonseed.

Feeding rate for calves over 150kg

Feed unlimited pasture or hay plus one of the following supplements:

- 0.5kg/head/day protein meal.
- 1kg/head/day of molasses plus 3% urea and 5 to 10% protein meal.
- 0.5kg/head/day whole cottonseed.

PARASITES

Treat all calves for internal and external parasites four to six weeks after weaning. Young calves are particularly susceptible to parasites. A few parasites that cause no problem when calves are suckling, can become a major problem when they're stressed.

Feed hay in racks to avoid dirt and dung contamination which may contain parasite eggs. Stress is a major cause of disease and dusty conditions are particularly stressful. Try to minimise stress where possible with good handling, food, water and shelter.

WATER

A supply of good clean water is essential. Troughs need to be cleaned regularly when feeding calves in yards, especially when feeding grain.

Extract from Dry season management of a beef business: A guide to planning, managing and supplementary feeding (Third edition, June 2008), available to download from www.futurebeef.com.au or by phoning Ken Murphy, DAFF Rockhampton, on 07 4923 6237.



Lessons learned from 2002 drought



LIKE most of Queensland, the border region around Goondiwindi went into the 2002 summer with limited paddock feed and a very poor outlook for drought-breaking rain. By the time cows had calved (July to September) paddock feed was very limited in both quantity (approximately 600kg dry matter/ha) and quality – much below that required to maintain a lactating cow. Cows were progressively losing liveweight and this was accentuated after calving.

In September, one producer weaned 50 calves that were from one to three months of age, weighing as little as 55kg (the weight range of the group was 55 to 109kg). This relieved the cows of the high nutritional demand of lactation. With minimal additional supplementation, the cows were able to access sufficient forage through 'top feed' (trees plus grass) to meet their daily requirements.

Calves were held in the yards and fed a mix of rolled grain, sodium bicarbonate and a commercial feedlot premix containing Rumensin (to help prevent coccidiosis). The grain was a combination of sorghum, corn, barley and faba bean.

The mixed ration was 17.3 percent crude protein and 12.3 megajoules of energy per kilogram and was fed at 1kg per calf per day. All calves were allowed free access to sorghum stubble hay (pictured above).

After two to three weeks in the yard, all calves had gained 10 to 15kg liveweight and had learnt to eat from a trough. After three weeks the calves fed from a self-feeder in the paddock.

Giving the calves access to a high-quality grain ration in the self-feeder reduced demand on the available pasture. This allowed the pasture to respond to the small falls of rain that were received. Subsequently the calves continued to increase in liveweight in the paddock with gains in the order of 0.3 to 0.6kg per day.

The very youngest calves did not gain liveweight in the paddock as readily as the older calves in the group. This may be due partly to the absence of any subsequent rain and pasture response in December-January.

However all calves were healthy and weaning reduced demands on the cows that gained weight with re-mating and conceptions in the order of 80 to 90pc.

The cost of feeding these calves was \$0.80 per head per day (including the hay). Due to the potential of calves to grow, this was a more efficient use of the feed resource than feeding the cow-calf unit. These calves were targeted towards a light export market. The oldest calves (8 months old) were only 50kg short of the target specification.

For more information about early weaning contact your local FutureBeef officer, phone 13 25 23.



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Buyer beware alternative feed

THE greatest risk with using alternative stock feeds, such as cane tops and grape marc, come from chemical residues and their potential impact on food safety and Australia's beef market access.

Further risks include potential weeds, variable nutrient value and toxins.

To minimise chemical residue risk, producers should request a relevant vendor declaration from feed suppliers. There are five stock feed and fodder vendor declarations which help underpin Australia's food safety record and reputation globally:

- two commodity vendor declarations
- two by-product vendor declarations
- one fodder vendor declaration.

These declarations help producers have confidence that they are meeting the requirements of element 3 of the Livestock Production Assurance (LPA) program by ensuring that livestock are not provided feeds containing unacceptable animal products, and that appropriate withholding periods, export slaughter intervals and grazing intervals are observed to manage risks from unacceptable chemical residues. The declarations are valuable records for producers to substantiate claims made on an LPA National Vendor Declaration and Waybill (LPA NVD/Waybill), which may be checked under the random audit process of

the LPA program.

The declarations are available in an electronic program which is free to download. If producers are already using the electronic National Vendor Declaration and Waybill computer program (eDEC), existing login details can be used. Otherwise, registering is a simple and well-guided process – email lpa@mla.com.au for more details.

Be aware of the possibility of importing weed seeds, particularly in hay and grain.

Ask for a weed hygiene declaration. Feed hay and grain at designated feed-out points and check these areas regularly for weeds.

The nutritional value of many by-product feeds can also be highly variable. It is best to ask for a nutrient analysis to understand the quality of feed being bought. Beware potential toxins – for example, mycotoxins from mould and sometimes prussic acid or nitrate in forage sorghum hay, to name a few.

Remember too that it is illegal to feed food or food scraps containing animal matter to livestock (i.e. pigs, poultry, ruminants).

For more information about stockfeed risk assessments, feed and fodder declarations, visit Meat & Livestock Australia's website: <http://bit.ly/HT61t0>

Or visit the SAFEMEAT website: <http://bit.ly/1c7RjZ4>.



COMMODITY VENDOR DECLARATION (CVD)

Two CVDs exist and these relate specifically to commodities that are bought or sold as stock feed:

1. Grain and oilseed grower/trader (no blending has occurred).
2. Multi-vendor storage declaration (blending has occurred).

BY-PRODUCT VENDOR DECLARATION (BVD)

Livestock producers should take particular care when sourcing stock feed in times of drought. To check the chemical residue risk profile of various alternative fodders, producers can refer to the risk assessment documents, available through SAFEMEAT. Two BVDs are available:

1. Ex-grower/by-product trader (by-product is supplied directly by a grower or by-product trader).
2. Ex-food processor/manufacture (by-product is supplied directly by a food processor or manufacturer).

FODDER VENDOR DECLARATION (FVD)

The Australian Fodder Industry Association has developed a FVD for use by its members that covers hay, silage, straw and stubble feeds.

To minimise the risks of buying feed contaminated with chemical residues, follow these seven steps:

1. When negotiating the purchase of stock feed direct from the grower, request a commodity vendor declaration as a condition of purchase. Inspect the vendor declaration before you finalise the deal and make sure the details are complete.
2. Make sure you inform the seller of how you intend to use the feed and the type of animal it will be fed to. Stress the importance of your knowing the chemical history of the stock feeds you buy.
3. Check the label or invoice to ensure you are purchasing an appropriate product. Stock feed bought from manufacturers must have a label or invoice that clearly states the intended purpose of the stock feed.
4. Keep clear records of the above.
5. Store a sample of the stock feed on-farm so if problems do occur, further testing can be done.
6. Keep a record that includes details of stock feed, feeding dates, manner of feeding, amount fed and the paddocks in which the stock were fed.
7. **Do not** buy or use unusual feeds unless you are satisfied they do not present a residue risk.

Depression – more than just feeling down

ALL of us at one time or another has felt the pressure of outside events impacting on our mood, our family lives, our sense of well-being.

In rural communities, it seems those events are all too often outside our control.

The weather frames farm-management decisions, reducing the best farming practices to failure if conditions are tough enough. Prices for farm produce are volatile, such that even good seasons may fail to reward hard effort. Economic restructuring decisions made by government may have little regard for human impacts.

How individual people react to these outside events varies. Personality traits that encourage high achievement and careful attention to detail also tend to mean that people with these traits feel real or perceived failure more intensely.

Sometimes emotional reactions go from being normal to being abnormally severe. Stress levels rise, people feel under pressure, and they may feel they are not coping with the pressure. Physical and psychological symptoms may develop. Constant physical and mental demands wear a person down.

In other words, depression may occur. Depression is more than just feeling down. It is an illness, and a surprisingly common one at that. Moreover, it is very



treatable, with most people having a full recovery.

Think about this: one-in-20 of the people you know will be experiencing depression right now. (Some of them are pretty good at hiding it.) One-in-five people experience depression at some stage in their lives.

Sometimes people feel frankly sad, 'blue', maybe tearful. Other times people report feeling flat and emotionless, or negative and angry. Feelings of being no good or worthless can occur.

These negative feelings are persistent – present most or all of the time for at least two weeks.

Sometimes the person concerned is aware enough

to realise their reactions are out of proportion, but can't seem to snap out of their poor mood.

It sometimes happens that people start to feel like life is not worth living, and then that they may as well be dead. Sometimes people start to plan their own deaths. Unfortunately, all too often in rural communities people find the means at hand to act on thoughts of death. It is a fact that rural suicide rates are higher, and that many of the social supports available in urban settings are not available.

It is important to realise that there are chemical changes in the brain that make people feel this way.

It is almost as though after repeated stresses, the brain says, 'That's enough; I can't cope with this any more', and starts shutting down.

Chemical changes occur in brain nerve cells in the emotion centres of the brain. Good emotions reduce and leave the negative feeling dominating. Soon, related sections of the brain start to malfunction, so that people start to report changes in basic body functions like sleep patterns, appetite and sexual function. Even memory and decision-making may be affected.

If you recognise these feelings in yourself or in someone close to you, then help is no further away than your doctor. Almost all people can be helped by a

combination of medication and psychological help.

They report feeling more like their old selves again, or that they can cope again. The medications are not habit-forming, and do not change your personality.

Your local doctor is a trained and experienced individual with the knowledge and skills to help.

People often come back feeling improved in as little as one or two weeks. Treatment has to be individualised and it may take a little longer in some people, but mostly it works.

There is a good website for depression-related information, with checklists to assess your own feelings, and support and education services. It is www.beyondblue.org.au – give it a look. Valuable information is also available in 'The Glovebox Guide to Mental Health', published in *Queensland Country Life* on October 10, 2013. It can be viewed online at www.queenslandcountrylife.com.au/specialfeatures. Places to go for help are listed on page 68.

In summary, stresses in a person's life may cause brain chemical changes to occur, leading to the negative emotions of depression. Treatment is safe and effective. Don't let depression win – fight back, with help from your doctor.

Dr J F Outridge, past president of the Rural Doctors Association of Queensland



Rural Financial Counselling Service Qld South Western Region

What Can A Rural Financial Counsellor Help You With?

- Help clients identify financial and business options
- Help clients negotiate with their lenders
- Help clients develop an action plan
- Help clients meet their mutual obligations under the Transitional Farm Family Payment
- Give clients information about government and other assistance schemes
- Refer clients to accountants, agricultural advisers and educational services
- Refer clients to Centrelink and to professionals for succession planning and family mediation

Rural Financial Counsellors do not provide family, emotional or social counselling or financial advice – but they can provide referrals and information.



If you are affected by drought contact one of our rural financial consellers for information on assistance programs.

The Rural Financial Counselling Service Program is supported by the Australian Government and Queensland Government.

1641805



What is the Rural Financial Counselling Service Program?

The purpose of the Rural Financial Counselling Service Program is to provide FREE support to primary producers, fishers and small rural businesses who are suffering financial hardship, and who have no alternative sources of impartial assistance, to manage the challenges of change and adjustment.

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Phosphorus deficiency: how widespread is it?

IT is well established that vast parts of Queensland are phosphorus (P) deficient. While brigalow country is known for its fertility, could it be that pastures on some old cropping country are now low enough in P to limit livestock performance during the wet season or on oats?

The typical time for minerals to become a limiting nutrient to performance is when feed is at its best, such as during the wet season or on forage crops such as oats. Conversely, during the dry season the low protein and energy value of pastures limit performance, not minerals.

There have been reports in southern Queensland of low liveweight gains on summer pastures with significant responses when supplemented with P. There have also been reports of bone chewing on oats crops.

Gavin Peck of DAFF Toowoomba and his team are currently reviewing the P requirements for sown pastures and forage crops in the Brigalow belt. The impact of P deficiency is reduced pasture intake and correspondingly reduced weight gains and fertility.

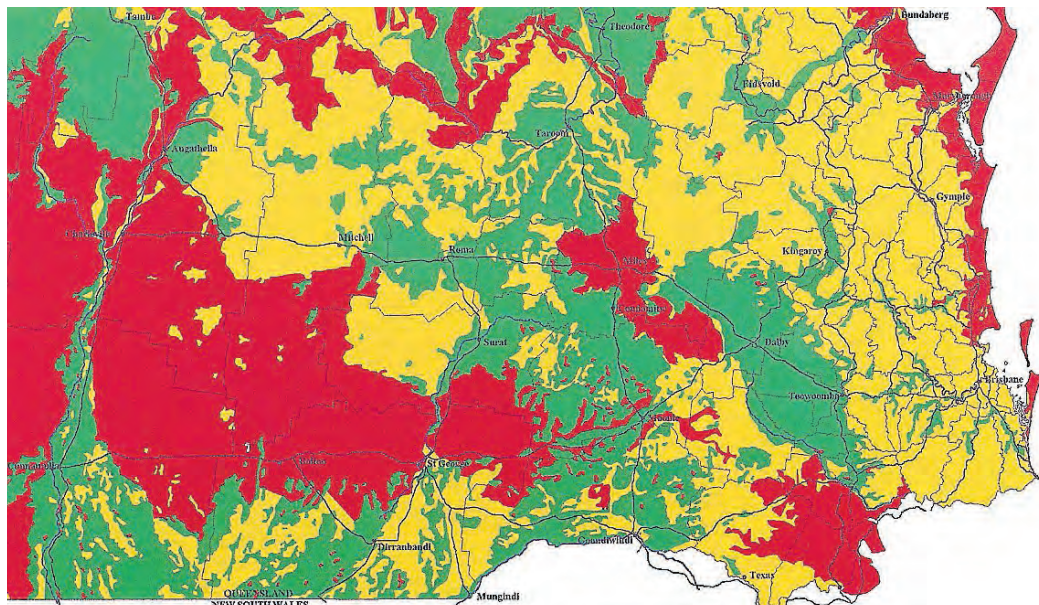
The cattle most affected are those with the highest nutrient demands such as lactating breeders and young, fast-growing stock.

First-calf heifers are an indicator animal with high P demands trying to grow, produce a calf and lactate. Requirements for P (and other nutrients) go up and down with performance. For instance animals gaining well on summer pastures or oats have correspondingly higher P requirements.

There can be many reasons why cattle might not perform as well as expected during the wet season, such as high rainfall leading to taller, more fibrous grass, nitrogen (and therefore protein) dilution, wet, boggy, uncomfortable conditions, heat, midge, three-day and so on.

However, could P also be part of the problem for some paddocks?

Tests and indicators for P deficiency include soil, land-type, blood, dung, animal performance, clinical signs and trial feeding or fertilising. Soils with bicarbonate extractable P (also known as Colwell P) less than 10mg/kg are marginal to deficient for cattle. Higher levels such as 15 to



The P status of land in southern Queensland as it relates to animal performance Source: Phosphorus nutrition of beef cattle in northern Australia, McCosker and Winks (1994).

Phosphorus status
 ■ 'Acute' + 'deficient'
 ■ 'Marginal' or mixed
 ■ 'Adequate' P levels

30mg/kg, are required, depending on species, to maximize growth of several of the pasture legumes and forage crops like oats. Some land types typically low in P in southern Queensland include, wallum, traprock, poplar box woodlands, mulga, cypress pine-bull oak, spotted gum ridges, sandy duplex and shallow, hard-setting clay loams.

Brigalow and belah soils have normally been considered to have adequate levels of P for cattle and pastures, and appear green on the map above. However some of these soils were naturally low or marginal in P, and P has been removed in grain and fodder from paddocks with long cropping histories.

Partly due to long cropping histories there are now increasing areas where P may be marginal on these clay soils for pasture and animal production.

To test for P deficiency in stock, blood samples taken at the end of the wet season from non-lactating animals are the most accurate. Dung samples are an option for cattle not receiving a P supplement.

This P dung sample test is additional to the faecal NIRS test for feed quality (digestibility, protein, non grass intake).

Signs of severe P deficiency include bone

chewing, broken bones, peg-leg, depraved appetite, poor breeder body condition and botulism. The signs of less severe P deficiency are likely to be simply reduced liveweight gain. Trial feeding during the wet season of a group of potentially responsive cattle (e.g. first-calf heifers, wet cows, young fast-growing stock) and comparing their performance against a similar unsupplemented group can help diagnose P deficiency.

Target intakes are up to 5g P for dry stock and up to 10g P for lactating stock. Phosphorus is typically supplemented as a dry lick or in drinking water when cattle are on good quality feed and would be performing even better if they were not deficient in P.

For more information about P deficiency download a free copy of Phosphorus Management of Beef Cattle in Northern Australia, from MLA at www.mla.com.au/Publications-tools-and-events/Publications or order a free hardcopy by phoning the MLA membership services hotline on 1800 675 717 or emailing publications@mla.com.au.

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Graeme marks his half-century in beef industry service

HE is a legend in south-east Queensland beef circles, but when Graeme Elphinstone retired his beef extension officer position in November he ensured his legacy would continue.

Not only is Graeme 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 benefited 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 (Agronomy) before going to Brisbane, Beaudesert and Miles, finally landing in Gympie in 1976 where he stayed. He has mainly worked in pastures and cropping, with the beef industry and sustainable production systems being very strong themes.

Department of Agriculture, Fisheries and Forestry Animal Science general manager Peter Johnston said Graeme had 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.

From his base in Gympie he has worked with producers from the border to Rockhampton.

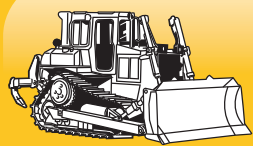
"Major projects have included giant rat's tail grass management, buffalo fly management, trapping and dung beetles, and grazing land management structured learning workshops. His passion is for sustainability of agricultural production and his commitment to his clients is unwavering and total," Mr Johnston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

"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. He has also been on countless local industry committees and drought and disaster management groups, providing invaluable technical expertise and experience.

"The Queensland beef industry and the department have been very fortunate to have had decades of dedication from Graeme, resulting in many project collaborations with local natural resource management organisations and industry groups like the Gympie District Beef Liaison Group."

Graeme also supported the Gympie Carcase Classic, husbandry practices, pasture management, and soil health field days. He was there to guide the next generation of beef producers through the Beef Industry High School Incentive Awards and state school agriculture programs. We wish Graeme all the 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.



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Keeping it simple: how much do cattle eat?

PEOPLE often ask how much cattle eat. To keep it simple cattle eat around two percent of their liveweight in dry matter per day – less on poor feed and more on good feed. For example, 2pc x 400kg liveweight = 8kg of dry matter daily.

MOISTURE IMPACTS ON FEED QUANTITIES

Most feeds contain moisture and in nutrition terms, feed with its moisture included is described as 'as fed' or 'fresh' or 'wet'. Dry matter (DM) is the weight of feed remaining if all the moisture is removed. Grain, hay and plant meals (as fed, fresh or wet) are usually around 90pc DM and 10pc water. One kilogram 'as fed' grain therefore contains 900g DM and 100g water. Pit silage is often about 30pc DM (ie. 300g DM and 700g water/kg).

Therefore, cattle need to eat about three times as much silage as grain for the same DM intake. Table 1 (below) shows how 30pc DM silage at \$100/t has the same dry matter cost as grain at \$300/t. Each feed supplies different amounts of energy, protein and minerals. For how to cost supplements, visit: FutureBeef at <http://bit.ly/1bjjXEy>

Do your sums carefully if buying high-moisture



feeds, otherwise a lot of money can be spent buying and freighting water.

FEED INTAKE CONTINUED

Highly digestible feed passes quickly through the rumen and so cattle can eat more, e.g. 2.5pc or even

higher for young cattle and milking cows. Fibrous feed takes longer to digest and so cattle eat less. On pasture with very low digestibility (<50pc), cattle may only be able to eat about 1.2pc to 1.5pc of liveweight and will be losing considerable weight due to the combined effects of low intake and the low quality of the ingested forage. In Table 2 (bottom left), the higher intakes and performances are only possible with more digestible feeds while the lower intakes and performance are with less digestible feeds. Not only can cattle eat more of higher digestible feeds but they also obtain more energy per kilogram of DM eaten. Nutrient imbalances such as low protein or phosphorus will also reduce intakes. Correcting imbalances with supplements can increase pasture intakes up to 30pc, sometimes necessitating reduced stock numbers.

Table 3 (below) is a guide to full hand-feeding

Table 1 Impact of moisture on feed levels and price

	DM%	WATER %	KG DM	KG WET	\$/T WET	\$/T DM
GRAIN	90	10	8	8.9	300	333
MOLASSES	75	25	8	10.7	200	267
SILAGE	30	70	8	26.7	100	333

Table 2 Approximate daily dry matter intakes (kg DM and % liveweight) for given liveweights and weight gains – Source: Adapted from Minson and McDonald (1987)

AV DAILY GAIN (KG/DAY)	0.25		0		0.5		1	
Liveweight (LW) kg	kg DM	% LW	kg DM	% LW	kg DM	% LW	kg DM	% LW
100	2.3	2.3%	2.6	2.6%	3.1	3.1%	3.7	3.7%
150	2.9	1.9%	3.3	2.2%	3.9	2.6%	4.5	3.0%
200	3.6	1.8%	4.0	2.0%	4.6	2.3%	5.3	2.7%
250	4.3	1.7%	4.7	1.9%	5.4	2.2%	6.1	2.4%
350	5.6	1.6%	6.0	1.7%	6.8	1.9%	7.7	2.2%
400	6.3	1.6%	6.7	1.7%	7.5	1.9%	8.4	2.1%
450	6.9	1.5%	7.3	1.6%	8.2	1.8%	9.1	2.0%
500	7.4	1.5%	7.9	1.6%	8.8	1.8%	9.9	2.0%

Trough talk: how much do cattle drink?

CATTLE water intakes vary greatly due to temperature, climatic conditions, moisture content of the feed, cattle (size, lactation, weight gain, and maturity), distance to water and water quality.

A quick water intake estimate is 10 percent of cattle liveweight – more when hot and less when cold. For example, 40 litres for a 400kg steer.

Good water quality is very important. Poor water quality can reduce water and feed intakes as well as health and performance. For better pasture utilisation it is also good if cattle do not have to walk more than 2-3km to water. A guide to cattle daily water requirements for cool and hot conditions:

LIVEWEIGHT (KG)	COOL CONDITIONS (5C) (L)	HOT CONDITIONS (32C) (L)
100	9	25
270	20-22*	48-54*
360	24-28*	57-66*
450	33	78
400 cow (8L milk/day)	43	68
600-700 mature bull	30-33	72-78

* Range for growing versus finishing cattle

Source: NRC Nutrient Requirements of Beef Cattle (1984). Visit FutureBeef at <http://bit.ly/16U7V6i> for more information about the water requirements of cattle.

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levels (as fed) for cattle maintenance. During periods of cold weather, these levels should be increased by 20pc, using hay if possible.

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Table 3 Maintenance feed requirements (as fed) for full hand-feeding of cattle

CLASS OF STOCK AND BODYWEIGHT	GRAIN (12MJ ME*) OR	HAY (8.5 MJ ME) OR	50:50 GRAIN:HAY MIX OR	80:20 GRAIN:HAY MIX OR	SILAGE (30% DRY MATTER AND 9 MJ ME)	EXPECTED WEIGHT GAIN/DAY
Weaners (200kg)	2.5	3.5	3.0	2.5	12.0	0.2kg
Yearlings (250kg)	3.0	4.0	3.5	3.0	15.0	0.1kg
Adult dry stock (400kg)	4.0	6.0	5.0	4.5	20.0	nil
Breeders, late pregnancy (425kg)	5.0	8.5	7.0	6.5	27.0	nil
Breeders, lactating (425kg)	-	10.5	9.0	8.0	30.0	nil

* MJ ME is megajoules of metabolisable energy

Craig Hurford
'Belgaum'
St George, Qld

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Do cattle need salt?

WHETHER cattle will eat salt varies from property to property. The sodium and chloride levels in bore water may also affect the amount of interest that cattle have in eating salt. The amount of sodium in pasture can also vary markedly.

Salt is sodium and chloride, which are considered to be macro or major minerals in the body. The role of these two minerals is shown in Table 1.

Intakes for sodium and chloride vary depending on the growth status of the cattle and whether they are lactating or not. Sodium requirements range from 0.04 percent of diet for young cattle to 0.25pc for lactating cows. In dairy cows the level of chloride required has been estimated at 0.10pc and 0.20pc of diet.

Research during the 1970s in the Pilton area south of Toowoomba found a sodium deficiency in cows and calves grazing native pastures. Nine of the 11 native pastures sampled had low sodium content. The cows from the salt-supplemented group gained 0.35kg/day compared to cows from the unsupplemented group which gained 0.14kg/day. Samples taken from cattle in north Queensland on red basalt country had low sodium and sulphur levels and responded to salt and sulphur supplementation. Trials in north Queensland found that cattle on speargrass pastures were deficient in sodium but feeding salt gave no gains in weight.

Sodium or chloride deficiency in cattle is usually demonstrated by the licking of wood, soil and the sweat from other animals. Licking of soil can be confused with phosphorus deficiency, which is a far more prevalent problem. Saliva tests have been used to determine sodium deficiency, but these tests are not routinely offered by laboratories. Recommendations for salt intake are shown in Table 2.

Table 1: Sodium and chloride and their roles in the body.

SODIUM					
Major function	Absorption	Excretion	Storage	Sources	Toxicity
Cation in the extracellular fluid, involved in osmotic pressure and acid-base balance and transmission of nerve impulses. Helps maintain rumen pH.	Taken up in small intestine and rumen	Lost in urine, faeces, sweat and milk	Most fluids, tissue and bone	Pasture, water and salt licks	Only toxic if water is restricted or salty
CHLORIDE					
Essential electrolyte located in all body fluids responsible for maintaining acid/base balance, transmitting nerve impulses, and regulating fluid in and out of cells. Forms gastric hydrochloric acid.	Total digestive tract and rumen	Lost in urine, faeces, sweat and milk	Body fluids and and high levels in gastric juice	Pasture, water and salt licks	Not likely

— Adapted from *Minerals for Grazing Ruminants in Tropical Regions*, by L.R. McDowell and J.D. Arthington, 2005, Centre for Tropical Agriculture, University of Florida, US.

Sodium requirements may also be determined by the predominant pasture that the cattle are grazing, as some grasses and particularly legumes are low in sodium, as shown in Table 3.

Soil sodium levels will also affect the amount of sodium in the grass. Grain is also deficient in sodium, with levels about 0.02pc of dry matter.

Overall, it is apparent that in many cases feeding salt to beef cattle may not give a conclusive gain in production. If sodium is not the primary limiting nutrient, there will be no response to feeding it. In some cases, like humans cattle will eat it just because they like the taste of it, not necessarily because they have a deficiency.

It is up to individual landholders to determine if their pasture and soil type, and lack of salt in bores or surface waters could contribute to lowered production.

It is worth determining whether your stock will eat salt or not and whether any benefit is noticed. Salt can be a very good attractant to help get cattle eating other mineral and dietary supplements. It can also be used as an attractant to encourage cattle to graze areas in a paddock that they would not normally frequent.

Acknowledgements: Stuart McLennan (principal research fellow, QAAFI, Dutton Park) and Brian Burren (senior scientist, DAFF, Coopers Plains).

Damien O'Sullivan, DAFF, Kingaroy
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Table 2: The total sodium requirements, expressed as the amount of salt, for various classes of cattle.

SODIUM REQUIREMENTS	GRAMS/SALT/HD/DAY
Steer gaining 0.45kg/head/day	5g
Cow 0-6 months pregnant	25g
Cow 6-9 months pregnant	40g
Lactating cows	55g

— From *Mineral and Vitamin Nutrition of Queensland Beef Cattle Excluding Phosphorus*, by A.W. Plasto, 1994, Queensland Department of Primary Industries.

Table 3: Sodium content of some common grasses and legumes.

PASTURE PLANT	% OF PLANT DRY MATTER
Pioneer Rhodes grass	1.61
Buffel grass	1.53
Green panic	1.00
Callide Rhodes grass	0.44
Sabi grass	0.27
Stylo	0.06
Siratro	0.02
Black speargrass	0.02
Kikuyu	0.02-0.05%

— Adapted from *The Sodium Concentration in Some Tropical Pasture Species with References to Animal Requirements*, by M.J. Payne, 1970, *Australian Journal of Experimental Agriculture and Animal Husbandry*, and Pasture Picker, www.pasturepicker.com.au.

Castrating using the Burdizzo

THE Burdizzo is a specialised castrating tool that comes in a range of sizes to suit a variety of animal species and sizes. The tool has a clamping action which crushes the blood vessels that supply the testes. This causes the testes to atrophy (wither) and they cease to produce sperm.

The operation is bloodless, does not damage the scrotum, and is less painful for the animal than other methods of castration.

Despite these advantages, there have been many failures in the use of Burdizzos, mainly because people were not aware of how to correctly operate this tool.

Before using a Burdizzo, check it is working properly. Place a piece of string between two layers of paper and close the instrument over the string. If the tool is in good working condition, the string will be cut but the paper will remain intact. When not in use, leave the Burdizzo open and well oiled.

USING A BURDIZZO

1. Restrain the animal, preferably in a standing

position. The tool is designed to be used from behind the animal while it is standing. If you are using a branding cradle with the calf lying down, be sure to pull the scrotum up and clamp carefully. Clamping too close to the neck of the scrotum can cause a rupture and a hernia of the groin.

2. Clamp each of the spermatic cords separately. Locate one of the spermatic cords and move it to the nearest edge of the scrotum. If you are right-handed, use your left hand to hold the cord and your right hand to operate the Burdizzo.

3. Note the Burdizzo has projections at each end of one of the jaws to keep the cord from slipping out of the jaws. Place the jaw that has the projections on the front side of the scrotum, with the projections pointing toward the operator.

4. Avoid crushing the centreline of the scrotum, which carries the scrotal blood supply. Place the jaws just above (1cm-1.5cm) the top of the testicle.

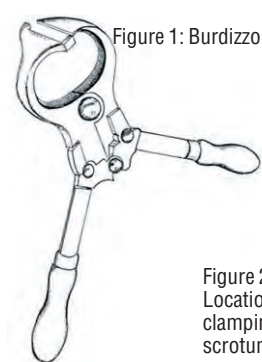


Figure 1: Burdizzo.

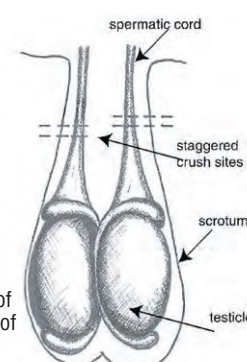


Figure 2: Location of clamping of scrotum.

— Source: *Castration of calves factsheet*, Ontario Ministry of Agriculture and Food.

5. Close the Burdizzo firmly and hold in place at least 10 to 20 seconds, ensuring the cord is between the jaws. Open the jaws and reapply 1cm below the original clamping location for another 10 seconds.

6. Repeat the procedure on the other spermatic cord at a different height on the scrotum. The crush lines

should not line up across the scrotum.

7. Check calves four to six weeks later to verify the testes have shrivelled. The testes swell initially and then degenerate and shrink in size.

ADVANTAGES AND DISADVANTAGES

- bloodless
- calves can remain in yards without fear of infection
- calves recover quickly and travel better
- less impact on weight gain compared to castration by rubber rings or surgery
- process is slow to perform and requires expertise
- if not done correctly, results will be unreliable and can lead to stag development

The Burdizzo is a safe and effective castrating tool, but must be used carefully to achieve successful results.

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Timely tips for summer: December to February

BREEDING

- Mate heifers with young bulls earlier than rest of herd.
- Try to mate your maiden heifers at least a month ahead of the main herd so that they have longer to get in calf the following year.
- Heifers should be well grown and in strong condition and only join the heifers you really want in your breeding program. Fatten and sell the cull heifers.
- Don't let maiden heifers get too fat as this can lead to calving problems.
- Treat all cows for buffalo fly if they are bad this season.

CALVES

- Brand, dehorn, castrate, tag and vaccinate (5-in-1 or 7-in-1).
- Enter new calves into herd performance recording program.
- Enter new calves into NLIS database.

BULLS

- Observe bulls in mating paddocks. Are they all working?
- When mating multiple bulls with a group of cows, try to use bulls that are the same age and weight to avoid dominant behaviour by bigger, older bulls.
- With single sire groups keep a close eye on the bull working, each time note the tag number of a cow he is with and check that she does not come back in season in three weeks. If a number do return, get another bull into that paddock noting that not every cycle does end in a pregnancy.

YOUNG CATTLE

- Weigh, assess individually rather than on average. This is also useful when drenching the mob as you know the range of weights in that paddock.
- Assess performance against required target. Do they need some form of supplementation to get to the target weight in time?
- Check whether poor calves come from one bull, if

you tag all calves you will know the paddock they came from. If so, cull the bull and calves.

- Treat cattle for buffalo fly if bad this season.
- Consider HGP implants for steer calves for non-EU sale, remembering it can also affect MSA grading.
- Evaluate markets and plan sales. Do you have to book cattle into meatworks or feedlots?

NUTRITION

- Start phosphorus supplementation program in deficient areas. Continue until end of the growing season.
- Make sure you have correctly estimated the amount of hay needed for weaning and any other supplementary feeding and fill your hay shed while hay is cheaper.

Evaluate post-dry season pasture management.

PASTURES

- Evaluate post-dry season pasture management.
- Spell leucaena for at least two months.
- Consider applying maintenance fertiliser to sown pastures.
- Lock up paddocks to build up pasture grass seedbanks in soil if you can do so without attracting feral pests and kangaroos to that spelled country.
- Consider growing a summer forage crop to carry cattle while pasture paddocks are being spelled.
- Consider setting areas aside for reforestation.

PARASITES AND DISEASES

- Continue tick control program.
- Check young cattle for worms. Treat if necessary. Send faecal samples for worm egg counts two weeks after treatment to check for worm drench resistance. Get samples from smallest animals.

- Control buffalo fly where applicable with correct sprays, insecticidal ear tags and buffalo fly traps.
- Make sure all chemical treatments used are entered into correct files for traceback and observe the withholding periods for all chemicals used on farm.
- Make sure you record all cattle treatments against each paddock so you know at a glance that all the stock in a particular paddock are out of the withholding period for a drench or treatment and can be sold.

BUSINESS

- Have annual health check.
- Have a break with family over Christmas.
- Evaluate markets and plan sales for coming year.
- Review marketing options.
- Update NLIS database regarding all cattle born, purchased, sold or died during the year.
- Check all permits and registrations are up-to-date.

PROPERTY MAINTENANCE

- While water is in dams and creeks, carry out annual maintenance on windmills, pumps and watering points.
- Carry out a workplace health and safety audit across property.
- Do annual electrical safety check on all equipment.
- Consider attending Chemical Accreditation Program through AgForce SMART Train.
- Look out for field days and training days relating to your business as not only do you learn plenty at them, you also get a chance to meet other landowners. You can learn as much around the smoko table as at the lectures and they can be an enjoyable social outlet.
- Carry out vehicle and machinery maintenance during "wet season" break; especially look after dry-season supplement feed-out trailers so they are ready for the next dry.

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Fighting feedlot flies with fungus: a natural solution



House fly infected with the fungus *Metarhizium*.

CATTLE feedlots in the south east and coastal areas of Queensland are at full capacity with cattle shipped in from drought-ravaged regions to the west and north. Summer in cattle feedlots usually heralds the perennial problem of irritating populations of house flies, which breed in the cattle manure. With large numbers of cattle now in the feedlots, this problem is expected to be far worse this season, especially once summer rains begin.

While manure management helps limit fly breeding, rain from summer storms will limit the efficacy of manure management and the use of chemicals to control flies is neither desirable nor sustainable. Therefore a team of scientists from the Department of Agriculture, Fisheries and Forestry and the University of Queensland with funding from Meat & Livestock Australia (MLA) are developing an integrated fly management strategy based on the use of a naturally occurring fungal disease of flies.

This project builds on previous MLA-funded research, which suggested the use of the fungus *Metarhizium anisopliae* against house flies could be a viable alternative to chemicals. *Metarhizium* is a naturally occurring fungus usually found in the soil or causing disease in insects. Different strains of this fungus target different insects. The *Metarhizium* used in this research was either isolated from soil in southeast Queensland or flies collected in feedlots. Dried *Metarhizium* spores can be formulated either as bait or a spray.

The aim of the current project is to improve both the bait and spray formulations from the previous project and develop an application strategy for their targeted use in cattle feedlots. Extensive monitoring of flies in the feedlots will be undertaken to evaluate the efficacy of the new fungal formulations for fly control with a view to future commercial development.

Currently the project team are concentrating on developing suitable fly monitoring techniques to ensure reliable measures of fly densities and to establish the best areas in a feedlot to target for spray application and bait deployment. The team hopes to begin spray trials early in the new year.

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Science webinars relevant to agricultural production

THE Department of Science, Information Technology, Innovation and the Arts (DSITIA) run a monthly webinar to showcase some of the science and products produced by the Science Delivery Division.

So far the topics have included remote sensing and ground cover, scientific capability in grazing land

systems, a national grass production model (AussieGRASS), climate risk assessment and forecasting, learning from history in climate and grazing management, accessing climate data (SILO), soils food security and environment, and more.

The live webinars are recorded and placed on the

LongPaddock website:
<http://www.longpaddock.qld.gov.au/products/webinars.html>

If you would like to go on the email list to get invites to the webinars (one per month), please contact David Cobon on (07) 4529 1240 or david.cobon@science.dsita.qld.gov.au



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