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NORTHERN MUSTER

Information for rural business in North Queensland

**Preserving pasture
species for the future**

**It's time to talk
about succession**

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Welcome to Northern muster 42

Welcome to the summer edition of the *Northern muster!*

Throughout the second half of 2016 the beef industry has received a much needed tail lift with good cattle prices and some reasonable falls of rain. With the prospect of decent summer rainfall ahead, some may get the chance to breathe a sigh of relief, sit back, relax and forget about the last few hectic years.

It is important though to reflect and not forget the experiences and lessons learnt from this drought. Shortly after your much needed break is the time to sit down and make a thorough assessment of how the drought was managed. Reflect back on your drought plan and record important points that you can refer to in the future. Consider the following:

- what worked well
- what could be improved
- what would you like to do differently next time
- involve the younger generation—they are likely to be at the helm next time

Other points to note might be around sending cattle on agistment – was it worth it? Your destocking or selling strategy – did you reduce numbers early enough? Drought feeding - would you feed M8U to breeders again or could you wean earlier next time and maintain breeder condition for longer.

How did your pastures fair and what condition is the country in? There are some great articles in this issue on pasture recovery post drought.

Unfortunately, drought is part of the production cycle in Queensland. It is important to learn from this one to improve management and infrastructure during the good years to be better prepared for the next.

We also need to be mindful that in most parts, the drought is still not broken. As you begin to restock and bring cattle home, be aware of the implications to your drought declaration status, and claiming freight

subsidies. Restocking a drought declared property will suspend that property from accessing assistance for the transport of fodder and water and the Emergency Water Infrastructure Rebate through the Drought Relief Assistance Scheme (DRAS).

Local Drought Committees will be reviewing the drought status of shires in early 2017. Until that time, most areas will remain drought declared. Primary producers seeking to restock or return stock from agistment need to consider their options if they want to continue to access drought assistance.

One option is for producers to individually revoke their drought status. Once a property is revoked producers may be eligible to receive freight subsidies for stock returning from agistment or stock purchased for restocking. If you are considering this option or face any other circumstance whereby you need to return stock onto your property, contact your local Drought Coordinator and seek advice before moving the livestock.

If you are experiencing financial difficulty contact the Rural Financial Counselling Service North Queensland (RFCSNQ) and they may be able to help. The RFCSNQ delivers the Australian and Queensland Government's rural financial counselling service program in the Northern Queensland region. Your local Rural Financial Counsellors are mobile and will come to you. Client's information is treated in the strictest confidence and services are free and independent of financial institutions, welfare agencies and government. Contact Lynette McGuffie – Atherton 0429 231 793 or Nick Birchley – Innisfail 0448 460 309 or visit www.rfcsnq.com.au.

We hope you enjoy this issue of the Northern muster. Please contact the editorial team with any inquiries or feedback. To register to receive the online version of the Northern muster, subscribe on the FutureBeef website (www.futurebeef.com.au/resources/newsletters/) or email northernmuster@daf.qld.gov.au

Melissa Holzgart, Rebecca Gunther, Jo Miller, Alice Bambling and Melissa Frazer

November 2016 market update

The cattle market has continued to rise to record levels since our last report in mid-2016. Continued wide spread rain and flooding across Eastern Australia has resulted in enough pasture growth to allow many producers to begin restocking.

North Queensland meatworks grids have consistently been around the \$5.40 to \$5.50/kg dressed weight for best bullocks. Southern markets, which are driven more by domestic demand, are well ahead of North Queensland prices.

The supply of cattle to our abattoirs has quickly fallen over the last few months and all Eastern seaboard meatworks have been dropping shifts and processing days because of the shortage of cattle. After more widespread rain and flooding in September, weekly kill figures have fallen further, to under 110 000 head. Northern forest country producers have weathered the drought with reasonable cattle numbers and are in a good position to take advantage of the present boom cattle prices.

Domestic market prices for all restocker descriptions have reached extraordinary levels in all saleyards and online selling markets. At Charters Towers light steers around 200kg live mid-November have gone to \$4.46/kg live for the top pen, and averaged \$4.02/kg. Slaughterer cattle reached a top of \$2.74/kg and averaged \$2.46 to \$2.62/kg live. Good conditioned cows and calves have sold around the \$2000 mark.

The Australian domestic market has continued to be our most important meat market with MLA estimating that domestic expenditure on beef for 2015–16 approximately \$7.8 billion. It seems that the Australian shopper has spent the same amount of the weekly budget on beef, but has taken home fewer kilograms of beef, with very high retail prices. The re-stocker demand is driving the record prices in Australia at present. If we receive a reasonable summer rainfall season, domestic cattle prices will eventually come under downward pressure. Predicting the time frame for the downward price correction will depend on numerous factors. Hopefully prices will bottom out at a level which will be above the cost of production and allow producers to

improve infrastructure, afford development that will increase productivity, and also manage financial commitments.

Live export prices ex Townsville end of November for 280 to 400 kg type steers is on \$3.30 per kg, and heifers \$3.05 per kg live weight delivered Townsville.

A major concern for the live export trade is that again there has been a holdup in the last quarter permit allocation from Indonesia. There have been whispers that the permit system is out, and importers will have to supply breeding stock as well as steers to receive permission to import cattle.

The export demand for our beef is all changing back to a more normal market place. Overseas demand for Australian beef, which has been dominated over the last few years by the USA, with its product shortage due to drought, has returned to good seasonal conditions and lower cattle prices. In the first 8.5 months of 2015, we exported approximately 418 000 tonnes beef to the USA. This year, the figure is approximately 219 000 tonnes.

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It's time to talk about succession

Succession has become a topic of popular interest, with many primary production families falling afoul of the process. With the progression from the current generation of graziers to the next, we find ourselves looking for a structured way of addressing succession. A new structured approach will hopefully see more families undertaking successful succession, and avoiding the sometimes destructive nature of handing over the family property.

A recent report produced by Chapman Eastway and Charles Sturt University, titled *Australian farming families: Succession and inheritance* looks at the current and changing dynamics of succession planning in Australian farming families and the potential impact these changes will have on regional communities. Major findings of the report included:

- Succession in Australian farming is under-developed. Many of the existing methods for transferring assets fail to manage complex family circumstances. A quarter of the survey respondents stated that the succession process was traumatic. A fifth stated that

there are still unresolved family issues due to lack of communication, which have led to misunderstandings and mistaken expectations

- Changing preferences for ownership and organisation. This study found that the traditional passing of property ownership to the eldest is becoming less popular
- Changing preferences for communication. This study found that younger generations (under 55) prefer open communication and collective decision making. Three-quarters of respondents in this study believed all family members should be involved in discussions regarding succession
- The exclusion of women from both management decisions and inheritance of land. Although this is still prevalent in farming families, attitudes towards gender are changing. The report noted 50 per cent of families experience no difference in treatment of daughters and sons in the succession process
- Ageing workforce and changing patterns of retirement. This study found that most Australian farmers prefer semi-retirement.



Generations passing on knowledge of the importance of healthy landscapes

- Farmers choose to remain on-farm contributing to decision making and management, often until they die. This leads to an increase in financial dependence on the farming asset. Some are often reluctant to transfer responsibility over to successor until death
- Education and off farm employment. Younger generations are returning to the family farm at a later age, with most working off farm or gaining tertiary or trade qualifications before returning. Parents are encouraging their children to pursue further education and/or alternative employment mainly due

to economic necessity. The study found that nearly two-thirds of identified successors are expected to work off-farm to supplement on-farm income.

The full report can be found by following this link: www.chapmaneastway.com.au/wp-content/uploads/2016/09/25thAugReportEdit.pdf

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QRAA opens doors to rural succession

Rural succession is often seen as one of the most complex challenges faced by graziers - but with recent changes to QRAA's productivity loans, Queensland producers can do more to secure the future of their family business for years to come.

On October 7, the maximum amount available under QRAA's First Start Loans increased to \$2 million, while Sustainability Loans have increased to \$1.3 million. Previously, the limit for both loans was \$650,000. These increases follow the Queensland State Government's removal of stamp duty on family farm transfers and the drop in QRAA's productivity loan interest rates to as low as 3.11 per cent.

QRAA CEO Cameron MacMillan is thrilled by these changes and what they mean for farming succession.

"We can all agree that keeping our young people on the land is important for the future of the beef industry as well as our regional

economies, but the reality is that with land and stock prices being as high as they are, it's hard for the next generation to come up with the money needed to buy an operating beef property – and for most families, having mum and dad just step aside to let the next generation take over isn't financially viable," he said.

"The stamp duty concessions made in July have meant tens of thousands in savings for many graziers, and the new changes to our loans have opened the doors even further - making succession simpler for more farming families."

First Start Loans, designed to assist the next generation of Queenslanders enter primary production, are already a popular choice for beef producers with more than \$58 million approved to the industry in the past three years alone. The new limit of \$2 million will allow even more emerging graziers to

seize opportunities to buy their first farm, or purchase a stake in the family farm. These loans allow for a staged entry into full-time primary production giving young farmers the best of both worlds.

"This gradual handing over of the reins means a more seamless transition for all involved – it's just one of the reasons why our First Start Loans have been invaluable in succession planning," said Mr MacMillan.

Mr MacMillan also highlights how QRAA's Sustainability Loans can be used to improve the overall profitability and longevity of primary production businesses and support succession.

"Sustainability Loans can be used to purchase additional parcels of land, build herd numbers, upgrade fencing and water infrastructure and more - ensuring that the kids will be taking on the best business possible, and that there is enough property to avoid disputes," he said.

"It's been great to see this forward-thinking by many of our clients – growing their business while getting a head-start on their succession plans."

In the last three years, over \$40 million in Sustainability Loans has been approved to beef producers.

First Start and Sustainability Loans have no fees or charges and can be obtained for terms of up to 20 years. The current fixed interest rates are 3.24 per cent for one year, 3.11 per cent for three years and 3.22 per cent for five years. Joint lending is also available when additional funding is required.

QRAA has eight Client Liaison Officers based throughout rural and regional Queensland, who are available to meet graziers on-property to discuss eligibility and what the changes mean to them. Visit www.qraa.qld.gov.au or **Freecall 1800 623 946** to arrange an appointment.



Assessment of live animal ultrasound carcass measurements

The Clermont Cattlemen's Challenge is an annual competition for local cattle producers, who can enter 5 weaner steers for growing out and feedlot finishing for the 100 day grain-fed market.

A demonstration of the measurement accuracy of crush side ultrasound scanning of carcass traits was undertaken as a group learning exercise and to compare ultrasound and carcass measures to eating quality.

At the Cattlemen's Challenge, Laurel Hills Feedlot Field Day, one steer from each property group was selected for slaughter and carcass measurements after 110 days on grain. There were 16 steers in total with an average live weight of 615 kg. The eye muscle area (EMA), intra-muscular fat (IMF), rump (P8) fat depth and rib fat depth of each steer was scanned using a Pie Medical Aquila scanner.

P8 fat depth was also scanned with an UltrAmac® fat depth scanner. The steers were slaughtered three days later at the Kilcoy Pastoral Co abattoir and carcass measures were taken by Kilcoy employees. The striploin of each steer was judged in a blind taste test at the Clermont Show for juiciness, flavour, tenderness and overall liking. The following sections outline the findings from the demonstration.

Pie scanner vs. UltrAmac®

The UltrAmac® performed well against the Pie scanner for P8 fat depth. Measures of P8 fat were within 1mm of each other in 14 of the 16 steers (Table 1).



Ultrasound scanning carcass traits of grain fed steers at Laurel Hills Feedlot, Clermont using Pie Medical Aquila scanner.

Live animal scans vs. Carcass measures

P8 fat depth

Both Pie and UltrAmac® ultrasound measures of P8 fat depth were strongly correlated with carcass P8 fat depth. Pie scans of P8 fat depth were within 1 mm of carcass P8 in 10 of the 16 steers and within 3 mm in 13 of the 16 steers (Table 1). UltrAmac® scans of P8 fat depth were within 1 mm of carcass P8 in 9 of the 16 steers and within 3 mm in 12 of the 16 steers. The Pie scanner correctly predicted P8 fat depth to be within or outside optimal carcass specifications of 8–12 mm in 13 of the 16 steers and the UltrAmac® in 11 of the 16 steers. Weak correlations were found between ultrasound and carcass measures of P8 fat depth and rib fat depth.

Rib fat depth

Pie measures of rib fat were weak-moderately correlated with carcass rib fat depth. For most steers (13 of the 16) scanned rib fat depth was smaller than carcass measures. Differences between the measures can be explained because ultrasound rib fat depth was measured at the 12/13th rib whereas carcass fat was measured at the 11th rib and rib fat typically thickens toward the head.

Eye muscle area

Pie ultrasound measures of EMA were moderately to strongly correlated with carcass EMA. Pie scans of EMA were larger than carcass EMA in 14 of the 16 steers. The difference could potentially be due to cooler shrinkage. The Pie scanner correctly predicted the two steers with the largest carcass EMA (Steer # 10 and 46) and the two steers with the smallest carcass EMA (Steer # 54 and 83).

Intra-muscular fat

Pie measures of IMF were strongly correlated with carcass MSA marbling and moderately correlated with AUS-MEAT carcass marbling. The MSA marbling score is assessed on a finer scale (100-1190 in increments of 10) compared to the AUS-MEAT carcass marbling score (0-6 scale in increments of 1). The Pie scanner assigned an IMF > 5% to 5 of the 6 steers with the highest MSA marbling score

(Tag # 17, 83, 31, 80, 60). All 8 steers with a scanned IMF < 5% gained an AUS-MEAT carcass marbling score of 1.

Carcass traits vs. eating quality

The strongest correlations between carcass traits and eating quality were found between MSA marbling score, flavour and overall liking. A higher MSA marbling score related to higher eating quality scores. The positive influence of marbling on improved eating quality for many cuts is generally well known. Correlations between MSA marbling score and juiciness and overall liking were also apparent. Weak-moderate correlations were found between carcass EMA and tenderness juiciness and overall liking. A smaller carcass EMA related to higher eating quality scores. Some research has shown that a smaller EMA can relate to reduced meat chewiness. However, a larger EMA relates to improved juiciness and tenderness, the opposite to what was apparent in this demonstration.

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Table 1: Ultrasound and carcass measures of 16 grain-fed steers. *Carcass MB is AUS-MEAT marbling score (0-6 scale in increments of 1). Carcass MSA_MB is MSA marbling score (100-1190 scale in increments of 10).

Steer #	P8 fat depth (mm)			Rib fat depth (mm)		EMA (cm ²)		IMF (%)		
	Pie	UltrAmac	Carcass	Pie	Carcass	Pie	Carcass	Pie	Carcass MB*	Carcass MSA_MB*
4	9	10	9	5	12	85	72	5	1	380
10	10	7	11	4	9	95	84	2	1	320
15	6	6	7	4	4	83	76	2.5	1	310
17	11	10	11	8	11	77	75	7	1	390
27	11	11	11	4	7	91	73	4	1	320
31	12	12	7	5	15	85	78	6	1	390
39	9	8	7	5	8	88	72	2.5	1	320
42	10	10	11	4	6	85	79	5	2	440
46	6	7	7	4	6	85	80	3	1	310
54	10.8	11	10	6	5	70	72	2	1	310
60	11	11	7	6	12	91	78	5.5	2	410
65	11	12	17	6	9	90	73	4.5	1	340
68	14	12	11	11	13	80	76	3	1	340
72	10	9	11	8	13	73	75	5	1	300
80	12	13	11	7	15	82	74	6	2	460
83	18	18	21	9	6	70	68	7	2	440
Average	11	10	11	6	9	84	75	4.4	1.3	361

Cut the bulls

Doug, Zoe and Ingrid O'Neill of Mt Oweenee Station north of Charters Towers have dramatically reduced their bull power, achieving large savings with no reduction in herd fertility.

According to David Smith from the Department of Agriculture and Fisheries (DAF) in Charters Towers, the O'Neill's have shifted to using one bull per 40 cycling females.

This process has dramatically reduced the initial capital investment in bulls, and halved the cost of bulls from the former figure of \$21 per calf.

During a recent Producer Demonstration Site (PDS) project, jointly funded by DAF and MLA, ovarian ultrasounds at Mt Oweenee found only 50 per cent of heifers were cycling into mating. This is fairly common on northern forest properties.

The station applied the principle of one bull per 40 cycling females, not per 40 females, and cut the twelve bulls (3.5 per cent) they would normally mate to 334 two-year-old heifers to just four (1 per cent). This alone reduced the year's bull-buying budget by \$24 000.

All bulls used had passed Scrotum, Physical, Semen and Morphology as part of an Australian Cattle Vets' BULLCHECK™ assessment. Doug considers this very cheap insurance when it has such a large impact on the business bottom line.

Mt Oweenee heifer pregnancy rates have been around 70 per cent for many years. This did not change when fewer bull were used. Ultrasound examinations showed all cycling heifers conceived, confirming the lack of risk as long as at least two vetted bulls are in a paddock.

Doug initially had great trepidation using the much lower mating ratio. However, following the PDS there is no way the family is going back to the old ways. Ingrid O'Neill is now applying this approach across the cow herd, which is now mated at no more than 1 vetted bull to 50 females.

One bonus Doug noted was bull problems are now almost eliminated during mustering.



Mt Oweenee owners reduced the bull percentage in their heifers from 3.5% to 1% with no change to the number of conceptions, but reduced the bull-buying budget by \$24 000.

Dr Geoffry Fordyce from the Queensland Alliance for Agriculture and Food Innovation (QAAFI), an institute of the University of Queensland, jointly supported by the Queensland Government, is based in Charters Towers. Dr Fordyce said: 'This is not a new story. The Bull Power research project 20 years ago made these recommendations. It is gratifying to see producers applying them now and reaping incredible value.'

The Bull Power project debunked a lot of bull myths. A classic is, 'You can tell by his backward condition how hard he's been working', when the reality was that he'd simply been fighting and getting very few calves.' The Bull Power research showed that no matter what producers did; just 2 per cent of bulls sired most of the calves.

A large number of excuses for grossly-excessive bull power are used, such as hills, rivers, wet weather, big paddocks, and the list goes on. Under testing conditions the research clearly showed none of these excuses were viable as the bulls and females simply found each other in the middle of the night whenever they needed to—the 'nightclub' effect.

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Best Management Practices driving sustainability in the cattle industry

More and more graziers are setting their sights on sustainability by becoming accredited under the Grazing Best Management Practices (BMP) program.

The program which helps graziers improve their long term productivity, profitability and sustainability has recently welcomed Megan and Terry Dunne from Central Queensland as its 50th cattle business to become accredited.

"Grazing BMP provides best practice guidelines, outlined in the program's five modules, to help graziers improve their farm practices and demonstrate sustainable and ethical beef production.



Participants at a Grazing BMP workshop studying soil types in a soil pit.

Megan Dunne said "the program highlighted areas within the business where improvements could be made. We have been able to change some management practices since completing the BMP modules and have now improved our own practices to become 'at' or 'above' industry standard."

"An area of over 20 million hectares across Queensland is involved in the Grazing BMP program and more than 37% of grazing area in the reef catchments (Fitzroy, Burdekin and Burnett) have been benchmarked against 157 standards," said AgForce Grazing BMP Industry Coordinator Corrie Grimmatt.

"As sustainably produced food becomes a mainstream consumer expectation, the Grazing BMP program has become a valuable way of demonstrating how graziers are addressing consumer demands, while continuing to protect the environment.

"This is why it is great to see our 50th cattle business become accredited across all five modules: Soil health, Animal health and welfare, Animal production, Grazing land management and People and business."

Becoming accredited is a simple process for producers. For further information contact AgForce Queensland (07 3236 3100), your local DAF extension officer and for producers in the Fitzroy and North Queensland Dry Tropics your respective NRM group.

The program was developed by Fitzroy Basin Association (FBA), AgForce Queensland and the Queensland Department of Agriculture and Fisheries (DAF) along with a producer reference group, and is supported by the Department of Environment and Heritage Protection (DEHP).



Heavy Stocking leaves you short

The Wambiana trial began in 1997 to investigate how different grazing strategies cope with rainfall variability. The strategies are:

- **Heavy stocking** (HSR) at 4 hectares (ha) per animal equivalent (AE = 450 kg beast)
- **Moderate stocking** (MSR) at the long term carrying capacity of 8 ha/AE
- **Rotational wet season spelling** (R/Spell) in a 3-paddock system (8 ha/AE)
- **Flexible stocking** (Flex) - stocking rates varied based on available forage and climate forecasts, and;
- **Flexible stocking with spelling** (Flex+Spell).

The previous 2014/15 season was the fourth driest year in 105 years with only 246 mm of rain recorded. The drought was so severe that many large Ironbark trees died as did many grass tussocks.

Drought feeding (M8U+ copra) was started in all paddocks to prevent further loss of condition in remaining animals. **Note: this is the first time in 18 years that stock withdrawal or drought feeding had to be implemented in any treatment other than the HSR.**

Given these tough conditions, the HSR paddocks had to be destocked in November 2015. While animals in other strategies like the MSR and Flex were in better condition, some poorer animals had to be withdrawn from these paddocks also.

After rain in January 2016, drought feeding ceased and the withdrawn animals returned to trial paddocks. Although total rainfall for 2015/16 (397 mm) was higher than 2014/15, it was still well below the long term average (650 mm). Pasture yields in all paddocks were very low with lots of annuals.

In 2015/16 animal live weight gain (LWG) per head was highest in the HSR with these steers also performing relatively well at the meatworks (Table 1). This is in sharp contrast to previous years where the HSR animals performed worst.

The good LWGs in the HSR in 2015/16 were due to strong compensatory gain after these steers lost weight together with the extremely low stocking rate applied (Table 1). **Note: without significant drought /substitute feeding, HSR animals would have perished in the 2015 dry season.**

Unlike previous years, LWG/ha was highest in the MSR and R/Spell but lowest in the HSR. Gross margins per hectare were also far lower in the HSR (-\$1.17/ha) than in the other treatments (Table 1). This was because of the very low LWG/ha and the large amount of drought feeding required in the HSR relative to the other treatments. Consequently, the HSR ran at a net loss for the 3rd year in a row.

Averaged over the 18 years of the trial, the HSR gross margin is far lower (\$4/ha/yr) than that for the other treatments (\$12-13/ha/yr).

When converted to accumulated gross margin for a 25 000 ha property, stocking around long term carrying capacity and/or flexible stocking would make about \$3.75 million more compared to heavy stocking over the same 18 year period. These results once again emphasise that matching stocking rates to carrying capacity either through moderate or flexible stocking is essential for long term profitability.

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Table 1: Stocking rate and total live weight gain (LWG) per head, total LWG per hectare, carcass value and gross margin per hectare for the 2015/16 season. *N.B. LWGs exclude weight gained while steers were withdrawn from paddock and drought fed.*

Treatment	Stocking rate (ha/AE)	LWG total (kg/hd/yr)	LWG/ha (kg/ha)	Carcass value (\$)	Gross margin (\$/ha)
R/Spell	8	88	12	\$1,196	\$5.39
Heavy	27*	158	6	\$1,220	-\$1.17
Moderate	8	97	13	\$1,164	\$3.85
Flexible	14	97	8	\$1,221	\$4.47
Flex + spell	13	93	8	\$1,277	\$4.01

* Partially destocked: usual stocking rate = 4 ha/AE

Aid in your Mitchell grass recovery



A pasture in good condition will return to full productivity when average to above average rains fall. To ensure pasture resilience during next drought, continue with conservative stocking and spelling fresh growth until seed set.



To restore poor condition pasture, whole of wet season spelling (or spell until seed is set) for two to three seasons will be necessary to promote re-establishment of Mitchell grass from seed and seedlings.

Drought is part of the production cycle in west and north-western Queensland and is not an unexpected occurrence. Mitchell grass plants (or tussocks) can live for 20 to 30 years, and are very drought tolerant. Severe drought conditions eventually kill a proportion of tussocks, especially if they are under stress during their recovery.

With some rains experienced through winter and spring across the region, many have observed varying levels of response in their Mitchell pastures.

Depleted pastures may have a large number of Mitchell grass tussocks which have responded poorly, isolated tussocks or patches which have responded well, or large areas of dead tussocks. Recovering from significant Mitchell grass dieback will generally take a number of wet seasons.

To restore healthy pastures as quickly as possible, grazing management should concentrate on protecting existing tussocks, as well as encouraging new tussocks. Strategies such as wet season spelling, delayed restocking, and reduced stock numbers, help to return pastures to full productivity, to restore the country's carrying capacity, and generate business income.

Wet season spell

Management to promote drought recovery differs for country in good compared with poor condition. In each case, drought breaking rains are a prerequisite for recovery to occur and

management needs to concentrate on allowing remnant Mitchell grass tussocks—often of low vigour—to take advantage of rains to expand in size, promote root growth and go to seed. This is best achieved by spelling or keeping stock numbers at low levels until recovery has occurred.

Good condition country

Mitchell grass country is considered to be in 'good condition' if there is one live Mitchell tussock every 5 to 10 paces, or better. The key post drought recovery management action for country in good condition is to keep the stocking rate low for the first few months of the wet season until the majority of Mitchell grass tussocks in the pasture have gone to seed. Delaying an increase in stock numbers will ensure fresh leaves and stalks are able to grow during the crucial early growth phases and allow Mitchell grass to re-build energy reserves, re-establish roots, and replenish the soil seed bank.

This may be supplemented by early wet season spelling to further promote root growth and seedling establishment. Good condition country will recover faster from tussock regrowth than poor condition country and may recover over a single summer as tussock density and basal area increase.

Poor condition country

Where most of the Mitchell grass has died and the density of tussocks is low—one tussock for every 20 to 30 paces or less—recovery will occur by encouraging seedling establishment.

Capitalise on low stock numbers

This poor condition country needs the combination of maintaining low stocking rates and implementing full wet season spelling over a **number** of wet seasons.

The scattered living Mitchell grass tussocks need to be encouraged to increase in size and produce seed to re-build soil seed banks so that seedlings can establish in subsequent summers.

Once seedlings germinate, spelling for five to six months over the wet season will encourage crown and root development to promote survival during the following dry season. With adequate soil moisture seedlings may mature and set seed over a single wet season.

Overall, this recovery process may take three to five years: one to two years for established tussocks to replenish the soil seed banks and two to three years for seedlings to become established tussocks able to survive the next drought.

A rule of thumb for getting stock numbers right would be “if the grass is growing faster than they can eat it, then numbers are about right”, but “if they are eating it faster than the grass can grow, then numbers are too high” and there is likely to be longer-term damage.

Research at Redland Park, McKinlay, in the mid-1990s, showed that there is very little gain in re-seeding Mitchell grass—as long as there is some seed in the soil. There is usually at least some seed in the soil, and as few as six Mitchell grass tussocks per hectare will produce the equivalent amount of seed (assuming it rains) as the commercial sowing rate of 2kg/ha.

Where country was in good condition leading into a drought, there will nearly always be enough seed in the soil to naturally re-establish the pasture. Reduced stocking rates and wet season spelling are the keys to hastening this re-establishment after rain.

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Pasture recovery is a challenge, but **like most things in the beef industry; ‘management’ is the only thing that is in your control.**

How grazing land was managed during the drought massively affects the recovery of pasture and land condition. Management practices that retain adequate ground cover and preserve grass tussocks at the end of the dry season will ensure a rapid response and allow for seedling recruitment in the coming wet season. Building pasture resilience during good seasons will make management easier during the next drought.

On many properties during drought, cattle numbers are reduced by 25–50 per cent, or lower. Therefore, depending on the wet season ahead, there is an opportunity to wet season spell—completely destock—significant areas of all properties to maximise recovery of land condition.

Which paddocks?

The more degraded the land and pasture, the slower the recovery.

The emphasis must be on retaining paddocks in good condition—wet season spell the better condition paddocks first to prevent them from slipping into a poorer state.

Duration and timing of the spell

For paddocks in:

- Land Condition A, early wet season spell until the feed is ahead of the cattle (i.e. 6–8 weeks after opening rains)
- Land Condition B, spell late in the wet season to allow for seed set at the end of the growing season (i.e. 4–6 six weeks after seed heads start to become obvious across the pasture)
- Land Condition C, spell from opening rains until most of the seed heads are out but not hayed-off (i.e. 12–16 weeks). If there is evidence of a lot of recruitment of new plants, extend the spell to allow for maximum establishment. If recruitment is not evident, stock the paddock while the pastures are still green to obtain some useful grazing.

How many paddocks?

Make an estimate of the area required to carry the cattle on hand for the duration of the spell and only stock sufficient paddocks to make up that area.

Where to put the cattle?

Put cattle in C condition paddocks while better condition paddocks are being spelled. These paddocks should grow enough feed to support the cattle for the wet season and then be given a break. If cattle are away on agistment, consider either selling from agistment or staying on agistment (even if just for an extra six weeks after the start of the wet) to maximise the number of paddocks that can be spelled at home.

Stocking rates after the spell?

Use a simple forage budget at the end of the spell period to determine how many cattle the spelled paddock can carry to the end of the dry season. For example:

- graze period April to December (270 days)
- pasture consumption 10 kg/day/adult equivalent (450 kg dry and empty animal)
- pasture yield 2 000 kg/ha
- pasture utilisation 25 per cent of yield
- equates to a stocking rate of 5.4 ha or 13 acres/AE ($270 \times 10/2000 \times 0.25 = 5.40$).

For paddocks with a low starting yield (below 1800 kg/ha), lighter utilisation rates may be needed to ensure an adequate residual at the end of the dry season (above 800 kg/ha). Stocking more heavily will undo the gains made as a result of the spell and reduce ground cover going into the following wet season.



Heavy seed set where wet season spelled (left) compared to no seed set where heavily grazed over the wet season (right)

Seeding as well as spelling?

Finances are stretched for most producers during and after a drought, but there is an opportunity to over-sow commercial sized paddocks with improved legumes (and grasses in some instances). The economics of establishing legumes in grass pastures is excellent.

Mixing pasture seed with licks is the most inefficient and expensive method of sowing legumes – therefore it is not recommended.

For more information about land condition classes, forage budgeting and pasture yield photo standards see the FutureBeef website (www.futurebeef.com.au).

For beef producers who cannot see a clear path forward for developing a wet season spelling program, please contact any of the beef extension officers in your area. We can also put you in touch with other producers who have made good use of wet season spelling to improve land condition and beef business performance on their properties. They have walked the walk!

The DAF Charters Towers FutureBeef team will be delivering property mapping, pasture ID and Stocktake workshops early in 2017. Keep up to date with the FutureBeef events calendar to find out more.

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Tactics for tough times

'Find the balance between what your land can produce, degrading your country and what you can earn.' — Glen and Cheryl Connolly, Blanncourt, Georgetown

Operating a successful beef business in the dry tropics is challenging and comes with many production, financial, market and family constraints. Production cycles are long, with the time from conception to store turnoff exceeding three years across the northern forest country.

Rainfall, or seasonal variability, is another challenge that can significantly influence these long production cycles. After a run of tough years in the north and north-west of Queensland, now is a good time to record how some producers have tried to minimise the financial and personal strain of low rainfall years and poor seasons.

Glen and Cheryl Connolly, who own and operate Blanncourt (Georgetown) and Elwell (Prairie), have some rules of thumb to better prepare for the inevitable run of dry years.

'Our Rules of Thumb'

Match cattle numbers to available pasture

Total cattle numbers on Blanncourt don't vary much; however, cattle numbers per paddock are adjusted depending on rainfall and feed supply.

Stocking rates should be set so your business can handle a dry year without stress and emergency destocking. Maintain safe stocking rates in the good years to avoid running out of grass. Safe stocking will maintain good ground cover and residual pasture to make use of the first storms.

Don't get trapped by the common misconception that 'more cattle mean more money'.

Wet season spell

Aim to lock up 25 per cent of your property every wet season. Each paddock on Blanncourt receives a wet season spell every two to four years. Weaner paddocks are spelled annually.

Identify paddocks in poor condition and wet season spell these every year until pasture condition turns around. Land in poor condition due to historic overgrazing and set stocking

won't improve overnight. Adjusting stocking rates and introducing a systematic wet season spelling system requires patience. It took 10 years to really see the value of spelling and reducing numbers on Blanncourt.

Offload non-performers

Cull non-performing breeders and you will end up with performers and grass in the paddock, and cash in the bank. Learning to foetal age can be difficult unless pregnancy testing large numbers. Having enough pregnancy testing ability to identify 'empties' or 'in calf' is sufficient.

Wet-dry breeder segregation

Wet – dry breeder segregation is simple but effective. In dry years, if you need to decrease numbers, start with dry cows. Focus on what your dry cows are doing— if they come in dry a second time, sell them.

Marketing

Decisions must be driven by what grass is in the paddock. Have critical dates and if it hasn't rained by then, start by selling cull cows. Always consider the SOI and seasonal forecasting. If there is talk of a dry year or El Niño, and cattle prices are good, it pays to sell.

Have a variety of market options and if you need to sell, sell early. Use agistment if needed to reduce stocking rates and implement wet season spelling.

Infrastructure

Ideally, have bores and troughs rather than relying on dams.

Finances

Based on accountant's advice, put money away in Farm Management Deposits or self-managed super funds. Manage debt pressure to allow for sensible property development to improve land and herd management options.

*Glen and Cheryl Connolly
Blanncourt Station, Georgetown*

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Preserving pasture species for the future

Australia's grazing industries have been built upon the cultivation of sown grasses and legumes imported into Australia, predominately from international collection missions led by Australian scientists over the past 70 years.

In December 2014 the Australian Pastures Genebank (APG) was officially launched and it is Australia's first national pasture and forage genetic resource centre. The South Australian Research and Development Institute (SARDI) manages the APG, which is based in Adelaide, South Australia.

The APG is the most significant seed bank of grasses and legumes collected from around the tropical world. It currently maintains a globally unique collection of more than 75 000 accessions, including more than 10 000 tropical legumes and more than 2 500 tropical grasses. Seed availability and quality has declined in the past 15 years following a reduction in funding.

The APG monitors the viability and volume status of all accessions held, and seed of low volume and/or low viability is flagged for regeneration. Seed regeneration is currently undertaken at regional hubs in Queensland (tropical grasses and legumes), South Australia, Tasmania and Western Australia (temperate grasses and legumes).

The regeneration of APG tropical germplasm is led by Dr Kendrick Cox with field operations led by Steven Dayes, both of the Queensland Department of Agriculture and Fisheries (DAF) on the Atherton Tablelands.

The DAF team:

- regenerate prioritised accessions of the APG
- characterise the plants
- provide description data to the Curator of the national collection for incorporation into freely-available information resources; and
- contribute to the planning of the future development and use of the collection.

Current regeneration work includes seed production of 90 legume and 30 grass plots at the Walkamin Research Facility. DAF are collaborating with SARDI on this 'seed increase' program to ensure valuable pasture germplasm is maintained, with aim of providing at least 5 000 seeds of each variety to SARDI for long term storage (100 years).

Current priority is on regenerating accessions of species suited to beef production, particularly legumes within the seasonally dry tropics and grasses suited to intensive pasture systems (*Centrosema*, *Desmanthus*, *Macroptilium*). Regeneration is also being completed for pasture legumes for the higher rainfall areas (*Centrosema*, *Vigna*), high-quality grasses (*Brachiaria*, *Digitaria*, *Panicum*, *Urochloa*) and ley legumes for crop/graze systems (*Clitoria*, *Lablab*).



Collecting good quality hard seed from Urochloa mosambicensis. The fly screen mesh bag captures the seed as it ripens and falls off the plant, preventing seed loss in windy conditions.

The APG maintains a backup of the collection and plans another deposit in 2017. This will include the representatives of the tropical forage collection currently being regenerated on the Atherton Tablelands.

The APG's vision is to conserve the diversity of Australia's current and prospective pasture and forage species for use nationally and internationally as the basis for enhanced agricultural productivity and environmental preservation.

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