



# CQ BEEF

## Better Economic and Environmental Futures

CQ Issue 6 DEC 2009

futurebeef

## Should beef herds control mate?

Repeatedly producers ask advice on controlled mating

Ken Murphy, QPIF Rockhampton

The idea of controlled mating is to have all the calves on the ground in a short time frame at the preferred time of year. This management plan allows one branding, one weaning and turnoff of bullocks at an optimum age. It also offers the opportunity to make harsh decisions about breeder culling during difficult times.

It requires that the bulls are put with the cows for a short period which may vary from two to four months.

In Central Queensland the generally preferred calving time is October to December. To ensure calving happens at this time, bulls are paddocked with the cows from December to late February. Problems occur if the season has not broken in sufficient time for cows to complete at least two cycles. Producers are faced with the probability that conception rates will be very poor. There is a strong temptation in this case to leave the bulls a few weeks more. This causes late calving which results in a spread in the calving period and late calves that don't do as well as the earlier born calves.

An alternative management option is to seasonal mate only the maiden heifers at this time of year whilst leaving the bulls in with the older cows throughout the year. It is important that maiden heifers commence their breeding life by calving at the preferred time of the year. Once heifers are in the system to calve in spring, it is easier to maintain the pattern.

The single most important management practice that must be carried out on a beef enterprise has to be pregnancy testing and using the test results to cull non-productive females. Pregnancy testing also offers a method by which

herds can be changed from continuous mating to controlled mating. Drafting the breeders into three groups (those to calve at the preferred time of year, those to calve out side the preferred time and empty breeders) will allow easier decisions on which animals to keep especially in dry times.

If pregnancy testing is carried out around May, empty breeders can be culled while they are in good condition and very marketable. Selling these animals also makes more grass available for pregnant breeders. If only pregnant breeders are left in the paddock there will be no work for the bulls so they are effectively inactive in the herd.

Heifers are a little different as it is important to start them calving at the right time of year. To maximise the chances of high pregnancy rates in maiden heifers, it is a good idea to put the bulls with the heifers a month earlier than normal to have heifers calving in August/September. Having the heifers calving earlier gives them an extra month to get back in calf with their second calf while still fitting into the normal breeding season of mature breeders. However if the seasonal break is late, these heifers will have been wet on average a month longer than other cows and their body condition may suffer. If this is not managed the loss of body condition is likely to negate the benefit of the extra time given to them. Calving earlier may mean extra feeding if the season breaks late but in average years no extra care may be needed.

If most of the bulls are left in the breeder paddocks there is a lesser requirement to have a large bull paddock. This does free up country for another class of animal, e.g. weaner heifers. Bulls used for heifer mating can be paddocked with steers away from breeders to prevent disease spread.



Soon after I sent out an email to QPIF staff looking for newsletter topics I received a completed article on management options for control mating from senior extension officer Ken Murphy. Ken has scored the front page for this effort.

In October the Middlemount *CQBEEF* Group hosted a Dry Season Supplementation day. A contentious topic discussed during this meeting was compensatory growth and when and where supplementation was beneficial for fat cattle. One of the day's presenters Rob Dixon is continuing this discussion to include all *CQBEEF* groups with an article below. Given the ongoing dry conditions, Peggy Rohan has written an article on other outcomes from the Supplementation day from notes she took.

Rabobank have been great supporters of the *CQBEEF* project and have contributed an article on economic challenges to the Australian beef industry for this issue. Rabobank recently presented a banks perspective to business analysis and probe results at a Billaboo meeting. Thanks Rabobank.

Earlier this year members of *CQBEEF* groups were asked

to complete a survey on their knowledge of the economics of land restoration by economist Megan Star. As thanks, Megan has submitted a copy of her report.

Jody McDonald from The Fitzroy Basin Association has also contributed some updates on FBA happenings.

The projects economist Rebecca Gowen has wrapped up the main themes from this years round of ProfitProbe results meetings.

Members of the Rolleston group Mathew and Mary-Ellen Peart feature as this editions producer profile. The Pearts are involved in a Legume Establishment Producer Demonstration site, amongst other things.

*CQBEEF* staff wish you all a very Merry Christmas and thanks for a great year. We certainly enjoy working with the proactive people who are involved in *CQBEEF* groups. We've also got fingers crossed for some widespread rain.

I hope you enjoy our sixth edition. Any comments or feedback please let me know.

**Byrony Daniels, Industry Development Officer – *CQBEEF***

## Can the natural process of compensatory growth be used to better meet markets and reduce supplementation costs?

*Rob Dixon, QPIF Rockhampton*

Compensatory growth in cattle is a process where if growth is less than normal for some months due to under-nutrition, later when good nutrition is available the liveweight gain of the cattle will be greater than would otherwise be the case. It means that there is a 'rebound' effect. Typically if cattle have reduced growth during the dry season because of low quality and low availability of pasture, then during the following wet season or in a feedlot when good nutrition is available then weight gain will be abnormally high. Compensatory growth effects often mean that part of the liveweight losses relative to a fully fed animal will be recovered during good nutrition. This effect is well known and many feedlotter and finishers consider this when selecting and setting values for cattle entering their operations.

Compensatory growth is also important for the nutritional management of any cattle herd – regardless of whether the cattle are sold as stores or being finished on the property. It can

have a substantial impact on the economics of many of the management decisions on the nutrition of cattle such as the extent to which and when supplements should be used, and decisions on stocking rates and utilization of pastures.

Although the principle of compensatory growth has been demonstrated in many situations and circumstances there are many aspects which are not well understood. It is often not possible to reliably predict for a specific mob of cattle how much compensatory growth is going to occur in various sets of circumstances. It is however possible to give some guidelines in the context of the northern cattle industry.

1. The increased growth rate of cattle during the recovery (or compensation) phase (typically when cattle are grazing wet season pastures) depends mainly on higher intakes of pasture. A 15-30% higher intake would be typical. This means that achieving the benefits of increased growth

rates associated with compensatory growth depends on having adequate availability of good quality pasture during the recovery phase. Also because the increase in growth rate is usually only modest (e.g. 0.1 to 0.3 kg/day) the good nutrition as pasture has to be available for at least some months to have a substantial effect on the liveweight of the animal.

2. The extent of compensatory growth depends on the duration and the severity of the poor nutrition. Generally the greater the reduction in animal liveweight due to poor nutrition, the greater the compensatory growth effect to increase cattle growth per day and the longer the effect will continue.
3. The age and maturity of the animals when they go through the nutritional restriction has a major effect of the extent to which they are likely to compensate.

Young cattle (e.g. less than 6 months of age and less than 150 kg liveweight) will not compensate at all or if they do not nearly the same extent as older cattle. When good nutrition is available following nutritional restriction these young cattle are likely to grow at much the same rate or only slightly better than if they had not been restricted. These animals are likely never to catch up with their contemporaries which were not restricted.

Responses are very variable in cattle which have gone through nutritional restriction when 6-12 months of age. Research trials have shown the compensation to range from nil to 100%, and we often cannot explain why these differences occurred between trials. Again these animals are likely to never catch up with their contemporaries which were never restricted, and the restricted animals will need to be older to meet the same turnoff liveweight.

In contrast older cattle (of at least 300 kg liveweight when the restriction occurred) often show complete compensation to catch up

with their contemporaries if they have the good nutrition to allow them to do so.

The table below shows examples of low or high compensatory growth in steers in research trials of Lyle Winks and colleagues at Swans Lagoon in the Burdekin. Steers grazed speargrass native pasture either without any supplement or were fed molasses-urea supplement through roller drums during the dry season. In both years there was a large response in steer liveweight to the supplement during the dry season, and in one year there was little compensation but in the other year there was about 60% compensation during the following wet season.

*What does compensatory growth mean for a dry season supplementation?*

Compensatory growth has important implications for deciding on the most appropriate 'targets' for liveweight and body condition for cattle as they progress through the dry season and for the end of the dry season. A difficult management question is often how to set these targets for various classes of cattle, and how much to invest in supplements (or other options) to maintain animal liveweight and body condition through a difficult dry season such as 2009. (Hopefully there will have been widespread rain by the time you are reading this!).

**Grazing cattle:** Collated results from numerous trials over the last 30 years in north Queensland (although usually on native pastures and poorer classes of country) indicate that on average only about 65% of the liveweight advantage of dry season supplements will be retained by the end of the following wet season. However, that is an average, and there was a lot of variation between trials and between years – between the extremes of almost nil and almost all of the advantage being retained. In general, when younger cattle such as weaners are being supplemented then compensatory growth is less likely and a higher proportion

Extent of compensatory growth	Steer liveweight in July (kg)	Steer liveweight in October (kg)	Steer liveweight in the following May (kg)	Extent of liveweight compensation
Low	162	133	240	Nil compensation
	162	156	263	
	Difference = 0	Difference = 23	Difference = 23	
High	148	149	255	60% compensation
	148	167	262	
	Difference = 0	Difference = 18	Difference = 7	

of the supplementation benefit is likely to be retained to the end of the following wet season.

With older growing cattle where high compensatory growth can be expected after the seasonal break, and the intention is to retain the cattle through the coming wet season, then the benefits of dry season supplementation are likely to be eroded before the end of the following wet season.

**Breeders:** The question of utilizing compensatory growth with breeders is more complicated. As an older animal the breeder cow has a high capacity for compensatory growth when she is not lactating, but this is reduced if she is lactating. However, regardless of the possible benefits of compensatory growth there are two important reasons to manage the breeder for a good body condition and liveweight at the time of the expected seasonal break. First the breeder needs to be in sufficient body condition (e.g. store) to get pregnant again promptly for the next calving cycle. Utilizing the benefits

of compensatory growth will not solve this problem. Second, since breeders grazing poor dry season pastures lose body condition very rapidly after calving and often become a major management problem when the seasonal break is late, a good insurance against a late seasonal break is to have the breeders in good body condition into the late dry season.

In conclusion, although there are potential benefits in using compensatory growth, there are also a number of other reasons why it is not desirable to allow cattle to lose too much liveweight, even when that means foregoing some of the benefits of compensatory growth. For example animal welfare requirements must be met, cattle in better body condition are much easier and more flexible to manage, retain their value in case of forced sale, and alleviate the worry about when the seasonal break will arrive. However, these considerations do not prevent producers capturing some of the benefits of the natural processes of compensatory growth to reduce input costs.

---

## On-ground grazing results from Reef Rescue

*Jody McDonald, FBA Rockhampton*

**A** group of government officers saw the on-ground impact of funding under the Reef Rescue component of the Australian Government's Caring for our Country in the Fitzroy Basin in late October.

Bronwyn Higgins, Jessica Feder, and Geoff Dyne from the Australian Government joined Fitzroy Basin Association Inc (FBA) staff on a tour across the basin to see first-hand the results of projects supported under Reef Rescue.

The \$200 million Reef Rescue component of Caring for our Country is the largest single commitment ever made to address the threats of climate change and declining water quality in the reef.

FBA Chief Executive Officer Suzie Christensen

said the visiting group met with landholders doing their part to protect the reef, including grazier Sir Graham McCamley of *Glenprairie* near Marlborough, north of Rockhampton.

'Sir Graham worked with FBA and local group Fitzroy River and Coastal Catchments Inc to fence tidal areas to enable him to better manage grazing and help protect mangroves and other coastal vegetation, which will also reduce erosion and improve water quality downstream,' Ms Christensen said.

'This is a great example of how money is being spent on-ground, working with landholders at the frontline of natural resource management to adopt world-leading farming practices that will reduce erosion and run-off to the reef,' she said.

Ms Christensen said funding received under the Reef Rescue component of Caring for our Country would allow FBA to invest around \$23 million in CQ over four years in collaboration with industry partners.

'Landholders across the basin are already reducing annual average sediment loads delivered to waterways by about 75,000 tonnes, and are on target to cumulatively reduce sediment entering waterways by 4.1 million tonnes by 2014,' she said.

*Bronwyn Higgins,  
FBA's Claire Rodgers,  
Jessica Feder,  
Geoff Dyne and  
Sir Graham McCamley.*



## Global economic crisis eases, but short-term challenges remain for Australian beef



*Wendy Voss,  
Senior Analyst  
Rabobank*

Whether talking about poultry in the United States, sheepmeat in China or cattle in Australia, recent years have not been easy for many of the world's meat producers. From 2006 global grains, oil and fertiliser prices surged to record levels, placing upwards pressure on input costs. These rises were not matched by similar growth in livestock prices, leading to producers in a number of countries limiting their expansion, or in some cases, reducing their livestock numbers. Ironically, for cattle producers (and sheep and hogs) the decision to reduce herd numbers actually resulted in increased livestock entering the market for processing in the short term; further exacerbated by drought in some key livestock producing regions, including Australia. This actually held back prices for producers at a time when they needed to see better returns to encourage growth. However, by mid-2008 prices for all meats were rising rapidly around the world as the impact of years of liquidation began to impact on the availability of supply.

Then, just as meat and livestock prices were beginning to rise rapidly, the world was hit by the global economic downturn. Demand was 'paralysed' by consumer uncertainty, the retail and food services' 'wait and see' attitude to buying, and restrictions on credit and trade finance. This saw prices for meat and livestock around the world decline once more.

For Australian producers, the downturn was partially offset by a number of factors. The Australian dollar, which had almost reached parity with the US dollar, and 104 Japanese yen in mid-2008, plunged to just over 60 US cents and 58 Japanese yen by November, mitigating some of the impact of the US dollar prices decline. Weather conditions also improved in many cattle regions, which together with the limits on herd growth overseas in previous years meant that livestock supply was relatively low, and demand from re-stockers improved. The Eastern Young Cattle Indicator actually remained steady with 2008 levels between April and July, although Japan Ox prices declined. And although prices declined, so too did input costs, with the value of grains, fuel and fertiliser all plunging in the wake of the downturn.

Now it is spring and the world economy seems to be past the worst of the crisis, with signs

of recovery now appearing. Ironically, one of the major challenges facing the Australian cattle industry is in part a consequence of this improvement, the rise in the Australian dollar. The dollar has surged in recent months, reaching 93 US cents and 84 yen as of mid November, buoyed by strong commodity sales to China, rising interest rates and increased global confidence resulting in a shift away from currencies such as the US towards 'riskier' but high return currencies such as the Australian dollar.

It appears that these factors are unlikely to change significantly in the short term, and so there will continue pressure on all export returns, including beef.

At the same time, while the global recovery is underway, forecasts are for a slow and steady improvement rather than a surge, with economic growth in key beef markets such as the United States and Japan expected to remain subdued for at least the first half of 2010. Unemployment is also high and asset values have still not recovered to pre-crisis levels in these markets, which continues to weigh on consumer sentiment and spending. Together with the high Australian dollar this is likely to limit rises in Australian cattle prices in the short term.

That being said, you can never underestimate the effect of improved seasonal conditions in the local market. This has been evidenced by improved prices (up to 20 cent gains) in the Emerald store sale after receipt of good storm rain in some areas. As Central Queensland moves further into its traditional wet season, further improvement in demand and pasture quality may strengthen store prices whilst improving finisher's ability to tighten supply to meatworks in a push for higher prices. Whether this is enough to overcome subdued global demand is yet to be seen with some doubt as meatworks continue to plan early shutdowns over the Christmas period, and may not be willing to increase prices to source supply.

It is worth noting that it is not just the Australian cattle industry feeling the heat. Cattle (and other livestock) producers in a number of other countries are also facing challenges. For competitors such as Brazil, New Zealand and Uruguay, fundamental weakness in the US dollar has their currencies

appreciating rapidly, impacting on export returns. In the US, which is one of Australia's largest beef export markets and also a major competitor, cattle producers and feedlotters are facing their own challenges. Local feedgrain (corn) prices, despite declining from 2008 peaks remains at high levels, demand in the domestic market remains sluggish and exporters face continued barriers to sale, in some cases through foreign government restrictions and in other cases lukewarm consumer response to US product.

Overall, incentives to grow cattle herds remain reasonably subdued in many producing countries, and once recovery in demand does improve, is likely to drive a rise in cattle prices. Australian producers remain well positioned to benefit from this with relatively stable herd numbers whilst predominantly producing grass-fed beef at a lower cost to our grain-fed competitors.

## The economics of land regeneration

Long-term land decline affects economic performance due to a lower carrying capacity and lower productivity. But is it actually worthwhile from a production standpoint to bring highly degraded land back to good health? To answer this question, case studies were developed for central Queensland to explore the benefits and costs of land regeneration and the viability of investing in land regeneration. Whole property analyses were undertaken with a 20 year time frame.

Two land types were used in the analyses; brigalow blackbutt; and narrow-leaved ironbark woodlands. Male turnoff from these was Jap Ox (gross margin \$176/beast area) and 18 month old store steers (gross margin \$149.50/beast area) respectively. Property area for the brigalow blackbutt analyses was 5,000 ha and 10,000 for the narrow-leaved ironbark woodlands. For both land types, regeneration from 'D' condition to 'B' condition and 'C' condition to 'B' condition was examined.

### Costs

The costs used in the analysis are shown in table 1.

#### Brigalow blackbutt case studies:

##### 'D' – 'B' land condition

The sequence of management activities for the degraded areas was;

Time (year)	Management activities
0	Deep ripped and re-seeded with buffel grass No grazing
1	No grazing
2	Stocked to 'D' condition stocking rate
3	Stocked to 'C' condition stocking rate
4	Wet season spelling for 6 weeks Stocked to 'B' condition stocking rate
5–20	Stocked to 'B' condition stocking rate Every 5 years, stocked at 75% of 'B' condition stocking rate for two months of the wet season

**Scenario one:** Entire paddock in declined condition

- Analysis undertaken for four areas of declined land condition; 100 ha, 500 ha, 1000 ha, and 2000 ha
- No additional fencing or waters installed.

**Scenario two:** Area in declined condition is portion of a larger paddock but not fenced off

- Analysis looked at following paddock and declined land condition areas

Area of entire paddock (ha)	1000	2000	2500
Area of paddock in declined condition (ha)	500	1000	2000

- No additional fencing or watering points installed
- Spelling area in declined condition requires entire paddock to be spelled.

Land regeneration costs	Cost (\$)	Assumptions on amount used
Deep ripper	80.45/ha	Total area in 'D' condition land
Buffel seed 1.5 kg/ha @\$7.00/kg	10.5/ha	Total area in 'D' condition land
Fencing	5000/km	1 km for every 100 ha of 'D' condition land
Poly pipe/km	5000/km	1 km for every 100 ha of 'D' condition land
Poly tank	5000/tank	Refer to scenarios
Trough	1200/trough	Refer to scenarios

Table 1. Land treatment and infrastructure costs



Meg Star, QPIF Rockhampton

**Scenario three:** Area in declined condition fenced from rest of paddock

- Analysis undertaken for four declined condition areas; 100 ha, 500 ha, 1000 ha and 2000 ha
- Declined condition areas fenced off using the ratio of 1 km of fencing per 100 ha
- Additional watering points installed in areas of declined condition (except 100 ha).  
500 ha – 1 watering point,  
1000 ha – 2 watering points,  
2000 ha – 3 watering points.

### Results

The results of this analysis indicate that for each of the scenarios modelled the decision to restore brigalow blackbutt grazing lands from 'D' to 'B' condition increased the economic performance of the representative property by \$13,234 to \$481,355 depending on the hectares being restored, and the need for additional infrastructure.

Figure 1 shows that the net present value for regenerating a 1000 ha paddock (scenario 1) is \$226,755. This means that over 20 years, the grazier would be \$226,755 better off in today's dollar value if the land was regenerated and kept in 'B' condition. Under scenario 2 where the 1000 ha is part of a larger paddock (2000 ha) the return is lower but the grazier is still \$189,635 better off. When additional fencing and waters are required (scenario 3) the grazier will be \$114,493 better off in today's dollars. Figure 1 demonstrates that the larger the area regenerated the greater the return on the initial investment.

### 'C' – 'B' land condition

Assumptions for regenerating brigalow blackbutt land from 'C' to 'B' condition were;

- Deep ripping and seeding were not required
- Declined land would regenerate from 'C' to 'B' condition within 12 months of destocking
- Every 5 years, stocked at 75% of 'B' condition stocking rate for four months of the wet season.

**Scenario one:** Entire paddock in declined condition

- Analysis undertaken for four areas of declined land condition; 100 ha, 500 ha, 1000 ha, and 2000 ha
- No additional fencing or waters installed.

**Scenario two:** Area in declined condition is portion of a larger paddock but not fenced off

- Analysis looked at following paddock and declined land area

Paddock area (ha)	1000	2000	2500
Area of paddock in declined condition (ha)	200	1000	2000

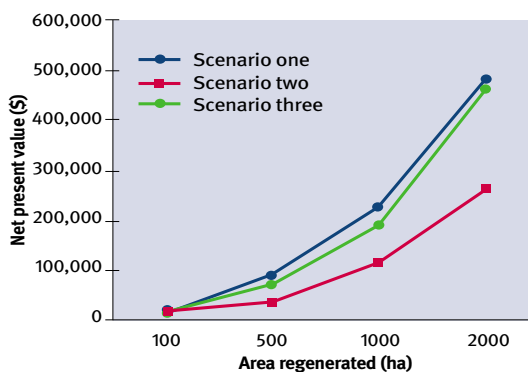


Figure 1. Net present values of regenerating brigalow blackbutt land from 'D' to 'B' land condition

- No additional fencing or watering points installed
- Spelling area in declined condition requires entire paddock to be spelled.

### Results

The net present values indicate that the decision to regenerate land from 'C' to 'B' is also an economically viable decision (Figure 2). However, the net present values are not as high as regenerating land from 'D' to 'B' condition despite lower costs. This is because the production benefits of going from 'C' to 'B' land condition are lower than 'D' to 'B'.

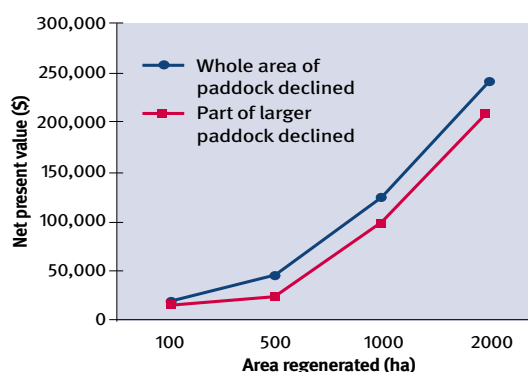


Figure 2. Net present values of regenerating brigalow blackbutt land from 'C' to 'B' land condition

### Narrow-leaved ironbark woodlands case studies:

#### 'D' – 'B' land condition

The sequence of management activities for the degraded areas was;

Time (year)	Management activities
0	Deep ripped and re-seeded with buffel grass No grazing
1	No grazing
2	Stocked to 'D' condition stocking rate
3	Stocked to 'D' condition stocking rate
4	Wet season spelling for 8 weeks Stocked to 'C' condition stocking rate
5–20	Stocked to 'B' condition stocking rate Every 5 years, stocked at 75% of 'B' condition stocking rate for two months of the wet season

**Scenario one:** Entire paddock in declined condition

- Analysis undertaken for four paddock areas; 200 ha, 1000 ha, 2000 ha and 4000 ha
- 200 ha of each paddock fenced using a ratio of 1km of fencing per 100 ha
- No addition waters installed.

**Scenario two:** Area in declined condition is portion of a larger paddock but not fenced off

- Analysis looked at following paddock and declined land area

Paddock area (ha)	400	2000	3000	5000
Area of paddock in declined condition (ha)	200	1000	2000	4000

- For the 400 ha paddock the 200 ha of land in declined condition was fenced using a ratio of 1 km of fencing per 100 ha
- No additional watering points installed
- Spelling area in declined condition requires entire paddock to be spelled

**Scenario three:** Area in declined condition fenced from rest of paddock

- Analysis undertaken for four declined condition areas; 200 ha, 1000 ha, 2000 ha and 4000 ha
- Declined condition areas fenced off using the ratio of 1 km of fencing per 100 ha
- Watering points installed for all areas of declined condition (except 200 ha).  
1000 ha – 2 watering points,  
2000 ha – 3 watering points,  
4000 ha – 4 watering points.

**Results**

The results (figure 3) demonstrate that regenerating Narrow-leaved ironbark woodlands using any of the three scenarios does not produce economic benefit to the grazier. This is due to the land types lower gross margin, lower carrying capacity, and longer time period for regeneration. These results indicate that investing in regeneration is a major challenge for

graziers and incentives may be required.

**‘C’ – ‘B’ land condition**

Assumptions for regenerating narrow-leaved ironbark woodlands from ‘C’ to ‘B’ condition were the same as those used for regenerating brigalow blackbutt from ‘C’ to ‘B’ land condition.

**Scenario one:** Entire paddock in declined condition

- Analysis undertaken for four paddock areas; 200 ha, 500 ha, 2000 ha, and 4000 ha

**Scenario two:** Area in declined condition is portion of a larger paddock but not fenced off

- Analysis looked at following paddock and declined land area

Paddock area (ha)	400	2000	3000	5000
Area of paddock in declined condition (ha)	200	1000	2000	4000

**Results**

Regenerating narrow-leaved ironbark woodlands from ‘C’ to ‘B’ land condition can produce economic benefits (figure 4). This is because the only cost is the opportunity cost of spelling country. However, the benefit does not occur with smaller areas of degraded land (<500 ha), due to the low income from small areas.

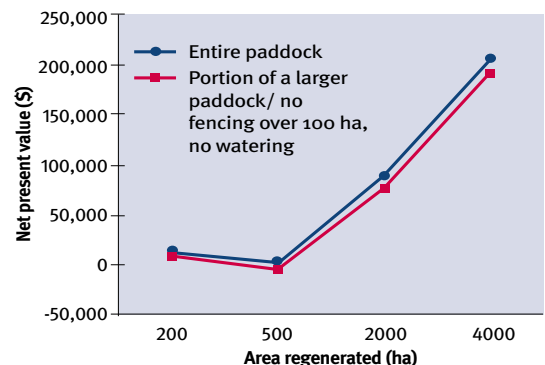
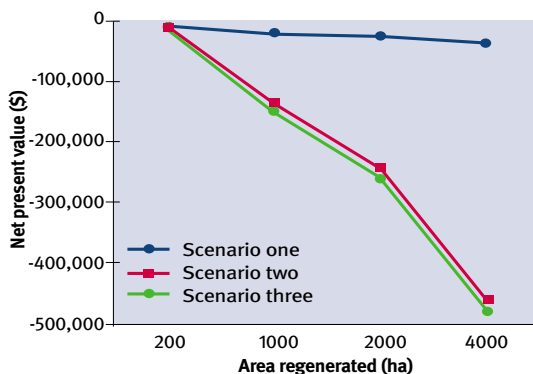


Figure 4. Net present values of regenerating narrow-leaved ironbark woodlands from ‘C’ to ‘B’ land condition

**Conclusion**

This analysis demonstrates that land type, carrying capacity and initial cost are important variables when considering land regeneration. Regenerating highly productive land types such as brigalow blackbutt from ‘D’ or ‘C’ to ‘B’ land condition is likely to be a viable investment. However, for less productive land such as narrow-leaved ironbark woodlands there are economic challenges in regenerating land from ‘D’ condition to ‘B’ condition. If these land types are in ‘C’ condition, regeneration to ‘B’ condition is likely to be a viable investment as long as no significant initial capital investment is required.

Figure 3. Net present values of regenerating narrow-leaved ironbark woodlands from ‘D’ to ‘B’ land condition





# Supplementation Day – CQ BEEF Middlemount

**D**ry season supplementation was the focus of a recent workshop held by the Middlemount CQ BEEF group on October 1. Producers gathered at Peter and Bev Quinn's property *Essex* to listen to speakers Ross Dodt, Rob Dixon and Mick Sullivan, and to discuss factors affecting supplement management decisions, such as: 'What are the nutritional requirements of my cattle?' 'When is the right time to start supplementing?' 'Which classes of cattle should I supplement?' and 'How can I tailor my supplement ration to minimise costs?'

---

**Did you know that the rumen is able to synthesise 70% of an animal's required protein?**

---

Ross Dodt (QPIF, Mackay) began the day with an informative presentation on basic ruminant nutrition, covering the nutrient cycle and the contribution of the soil profile to the protein and energy content of pastures. One of the important factors to consider when deciding whether to supplement cattle is how much of their nutritional requirement is being supplied by the available pasture.

If the pasture is green and actively growing (as generally occurs after the wet season) then it will be digestible, as well as being adequate in protein and energy (the actual protein and energy content will depend on the pasture species, soil fertility and digestibility). Considering that a 400 kg lactating cow requires approximately 75 MJ of energy per day and 150 g of protein to stay at maintenance, and that she will eat between 2.5-3% of her body weight in dry matter, then that fresh green pasture (providing it is not limited in quantity) should be sufficient to meet the energy and protein requirements

of a cow/calf unit.

If, on the other hand, the available pasture is dry and stalky (e.g. at the end of the dry season), then it will contain a lot less protein and energy per kilogram of dry matter. It will also be less digestible and the animals intake will be lower. The combination of a lower intake and poorer quality forage often results in the pasture alone not being adequate to supply the protein and energy requirements of a lactating cow. These are just some of the factors that need to be considered when making the decision to supplement your cattle.

Prior to the supplementation day, some group members had collected faecal samples to send away for NIRS analysis. Rob Dixon (QPIF, Rockhampton) began his presentation by explaining that faecal Near Infra-Red Spectroscopy (or F.NIRS) is a tool used to measure the composition of a faecal sample to then predict the diet eaten by grazing cattle.

The F.NIRS analysis provides information such as the protein content and digestibility of the pasture cattle have been grazing, as well as the ratio of grass to non-grass species (e.g. legumes, forbs or browse) in the animal's diet. Rob then ran through the analysis results provided by group members and discussed if the cattle requirements were being met by the standing pasture and whether they would respond favourably to protein (urea) or energy supplementation.

The final session for the day was presented by Mick Sullivan (QPIF Rockhampton) and incorporated the use of 'FeedCalc', a spreadsheet program used to create and



*Peggy Rohan,  
QPIF Emerald*

---

**Weaners (particularly early weaners) can be badly affected by dry season weight loss and may never fully compensate.**

---

---

**If your cattle are in need of energy then look at high molasses rations/ products for dry season; if protein is limiting then supplementation of high urea products are typically most cost effective.**

---

## Things to remember when making a supplementation plan:

- Find out the nutritive value of your pastures to see if they meet animal requirements
- Supply the most limiting nutrient first
- Monitor supplement intakes and adjust ration accordingly (e.g. urea, salt and protein meal contents can be adjusted to increase or decrease intake)
- Make lick easily accessible and implement strategies to prevent misuse (e.g. shelter over urea in wet season so that cattle are not exposed to high concentrations of urea in pools of water)
- Look at splitting cattle into groups based on their supplement requirements (e.g. only supplement cattle in lower condition rather than whole mob in order to decrease costs)
- Urea can increase pasture intake by 20-30% (make sure that the paddock can handle the increased grazing pressure).

compare supplement rations. FeedCalc allows the user to select different ingredients to include in a ration. Using nutritional and cost information it calculates the ration cost and concentration of nutrients. The intake of the cattle can also be adjusted to see how that affects nutrient intake e.g. protein and energy and the cost of feeding.

Rations mixed by feed companies can also be added to enable comparison of both commercial and home mixed products.

Middlemount group members submitted nutritional analysis and costs of the supplements they were feeding prior to the meeting so

the group could compare costs and nutrition supplied by the different rations used.

FeedCalc is a very handy tool for comparing the cost of supplements as well as the cost of a ration in terms of the protein or energy (or any other nutrient that you want to compare) that it can deliver, i.e. which ration will give you the most bang for your buck.

If you are interested in holding a similar workshop in your area or getting information on your supplement program, please do not hesitate to contact one of the CQ *BEEF* team.

---

## ProfitProbe™ wrap-up for 2009

**C**ongratulations to everyone who got their ProfitProbes in this year. This year the whole process has been completed a month earlier than last year which is great.

A total of 31 businesses completed Probe through the CQ *BEEF* project this year, 15 for the first time. We now have a total of nine groups involved in the project, including one at Mackay which involves landholders who have both sugar and beef.

This year the review process has continued to evolve and four out of the six review meetings to be held were conducted solely by QPIF staff. Feedback from this process has been great but I'm sure we can continue to improve so if you have any other comments or suggestions please pass them on. This year seems to be the transition year for a lot of people and the affect of changes they made after last year's Probe will only start to appear in next year's results. This is to be expected given both the time lag in getting Probe results and in implementing planned changes so my comment would be to 'hang in there'.

It's interested to see some of the different ways that people have used the results of their Probes, either directly or indirectly. For some it has allowed them to highlight reproduction issues which have then been addressed through disease testing and alternative supplementation regimes. Several other producers have realised how valuable their time is and hired contract labour to finish jobs such as fencing and yard building.

While they were capable of completing these jobs themselves, hiring specialists has reduced the time required and allowed focus to be concentrated on other areas of the business.

To make the most out of your results this year, each group will be holding 'report-back' meetings. The purpose of these is to present to the group your 'action plan' on how you're going to tackle the priorities that Probe identified. I would encourage you to make these plans as detailed as possible, including budgets and timelines. If you need any help with this process please don't hesitate to contact either myself or your group facilitator.

A number of people have also indicated their interest in analysing options using the *Breedcow Dynama* software. This program allows you to model different herd management options and investment decisions and compare the results over a single year or up to ten years. If you are interested in this program and haven't already spoken to myself or your group facilitator about it, let us know and we will organise a day to visit you.

The best news about Probe 2009 is that a new and improved version is coming in 2010 – though I think calling it 'iProbe 2.0' would probably be a bad idea! The new version will be much more intuitive to use and will allow you to upload the completed sheets to a website and get a draft report much faster.

Don't forget, if you have any questions or filled in a blue sheet with corrections and haven't heard back yet, give me a call anytime.



Rebecca Gowen,  
QPIF Rockhampton

## Have your rural skills acknowledged

Opportunities exist for beef producers to access the services of Skilling Solutions Queensland. This is a free skilling information service provided by the Queensland government. Skilling Solutions Queensland can help you gain formal qualifications through the skills recognition process.

For more information contact Nancy Rowe QPIF Moura on 49971741 or

Call 1300 654 687 or visit [www.skillingsolutions.qld.gov.au](http://www.skillingsolutions.qld.gov.au) to make an appointment with Skilling Solutions Queensland today.

### Formal recognition for support of family farming business

When you support the operations of three farming properties, you are certain to develop a broad range of skills.

Tina Ellwood has achieved a Certificate IV in Business Administration through formal recognition of the skills she gained providing support to her family's farming businesses.

'I do a range of tasks on a daily basis and never considered that they could relate to a qualification, they are just things that have to be done as part of owning a farming business,' Tina said.

The Walkerston resident didn't realise that the skills and experience she had could be recognised towards the qualification until she undertook an interview with Skilling Solutions Queensland in Mackay.

After her interview, Tina was referred to Blueprint Career Development, a training organisation contracted with Skilling Solutions Queensland, to provide the formal recognition process.

'I was very happy with the whole process; it was not as difficult as I initially thought it would be,' Tina said.

'The support and service offered by both Skilling Solutions Queensland and Blue Print Career Development, my chosen RTO, were excellent.

'Gaining a nationally recognised certificate through recognition of prior learning was a worthwhile experience I would certainly recommend.



*Tina Ellwood, gained the Certificate IV in Business Administration through recognition of prior learning*

'Gaining the certificate IV has given me the motivation to obtain a diploma level qualification.'

Skilling Solutions Queensland can assist individuals like Tina, who have work experience and skills without a formal qualification.

The free service can work with you to identify the recognition you could receive towards a variety of qualifications relevant to your experience.

Skilling Solutions Queensland has a network of training organisations who are contracted to provide the formal assessment process to referred customers. Subsidies are also available for eligible customers, depending on the qualification.

### Canegrowers achieve diploma through formal recognition

The boardroom of Canegrowers Mackay erupted in celebration when eight local canegrowers were awarded the Diploma of Agriculture (Sugar Production) by the Australian Agricultural College (AACC).

The group achieved the diploma qualification through formal recognition of their skills and experience after accessing the Skilling Solutions Queensland service in Mackay.

The achievement is the result of a pilot program coordinated by Janice Nelson, training manager at Canegrowers Mackay Pty Ltd.

Ms Nelson collaborated with the AACC and Mackay BSES to develop the Diploma of Agriculture (Sugar Production), to reflect the skilling requirements of the sugar production industry.

Ms Nelson then collaborated with Skilling

*Canegrowers from Mackay gained the Diploma of Agriculture (Sugar Production)*



Solutions Queensland and AACC to organise the recognition of prior learning process for the eight farmers.

Skilling Solutions Queensland Director Linda Bradley congratulated the eight cane farmers and acknowledged the commitment to training and skills development shown by Mackay Canegrowers Pty Ltd.

‘This is a great achievement for the sugar production industry,’ Ms Bradley said.

‘This qualification has been tailored to accurately represent the skills and experience

of farmers working within the sector.

‘This is an indication of the value of collaboration between the vocational education and training sector and industry.’

Department of Employment, Economic Development and Innovation and Skilling Solutions Queensland are working in partnership to assist Queenslanders employed within the sector to gain formal recognition of their skills and experience.

‘Skilling Solutions Queensland can assist people working in all facets of primary industries to obtain formal recognition towards a range of qualifications including business management, agriculture, beef production, horticulture and forestry,’ Ms Bradley said.

Call 1300 654 687 or visit [www.skillingsolutions.qld.gov.au](http://www.skillingsolutions.qld.gov.au) to make an appointment with Skilling Solutions Queensland today.

## Healthy waterways focus for FBA

*Jody McDonald, FBA Rockhampton*



Protecting waterways for a better environment and ensuring healthy water for use by residents, agriculture and industry is an essential goal for Fitzroy Basin Association Incorporated (FBA).

FBA Chief Executive Officer Suzie Christensen said the local natural resource management group had intensified its focus on waterway health through:

- A new project to establish a **healthy waterways monitoring and reporting partnership** for the Fitzroy Basin;
- The recent release of a **Fitzroy Basin Water Quality Improvement Report**;
- Membership of the State Government’s **Fitzroy water quality advisory group**; and
- The creation of a **new Healthy Waterways Manager position** to support partnership development across the Fitzroy.

‘The Fitzroy Basin Water Quality Improvement Report released by FBA presents current best available data and knowledge, and proposes targets and ideas for implementation,’ Ms Christensen said.

Ms Christensen said that FBA had received \$500,000 from the Queensland Government to help identify environmental values and establish a healthy waterways monitoring and reporting partnership for the Fitzroy Basin, building upon the current report.

‘FBA has an enviable record in coordinating monitoring and we have the networks and community base needed to establish a truly effective basin-wide monitoring program,’ Ms Christensen said.

‘For years FBA has been working with local landholders to monitor water quality on properties and gain a better understanding of agricultural impacts on waterways,’ she said.

‘We now aim to develop a monitoring partnership that includes all stakeholders such as local and state government and the mining and industrial sector.

‘This new partnership based approach to deliver a more comprehensive monitoring and reporting program will ensure that we have a strong scientific foundation for accurately assessing local waterway health.’

We also recently appointed a new Healthy Waterways Manager to support partnership development and influence planning and policy-setting to ensure the community’s aspirations for waterway health across the Fitzroy Basin are achieved.

Copies of the Water Quality Improvement report are available from FBA by phoning 4999 2800 or online at [www.fba.org.au](http://www.fba.org.au).

# PDS: what is it? how do I become involved?

PDS simply means producer demonstration site. PDSs are MLA funded projects designed for producers to explore and demonstrate a known technology or science on their property/properties and sharing the learning and experience of the technology with the community. MLA says that a PDS is an

*‘applied on-farm research and demonstration projects supported by MLA. The purpose of PDS projects is to support groups of northern beef producers and extension staff to demonstrate, develop and adopt priority MLA research findings and technologies. This will be achieved under commercial conditions that will improve whole-property sustainability and profitability.’*

MLA offers up to \$20,000 to northern beef producer groups and partner organisations over a two-to-three year period to undertake demonstration site projects.

Currently within the CQ *BEEF* network there is one PDS conducted by the Biloela CQ *BEEF* group. Members of the Biloela group, Gavin and Megan Muller host the PDS on behalf the group. Animals are monitored from branding through to sale. The performance of the breeding herd is also monitored. This particular PDS project is about quantifying the potential management benefits of using NLIS and associated technologies and communicating benefits of the technology to other producers. The project has been running since 2008 and is due to wind up in mid-2010 with a field day demonstrating the learnings of the PDS. So far all growing animals on the properties involved are entered into the database and their performance is monitored. Part of the breeder herd has been entered into the database with the balance to be entered in 2009.

Some of the data being collected on each individual animal includes

- NLISID (Visual EID number)
- RFID (electronic number)
- Visual ID (matching paddock management tag)

- Sex
- Liveweight
- Breed composition
- Age (estimated by AgInfolink software from liveweight).
- Brand
- Body Condition Score (BCS)
- Pregnancy test
- Wet/dry

This data is being monitored with the sale of animals that were incorporated into the system in the beginning to be slaughtered in 2010. There are lessons to be learnt from the wide range of equipment in use which all have their strengths and weaknesses. The biggest challenge still to be investigated is how to make best use of the use of software back in the office. So far the collection of the information has been fantastic and the reporting supplied by Don Menzies of Outcross has been exceptional. The challenge for the PDS is to demonstrate the use of the data post PDS. The options may include continuing to pay consultancy fees for reports on the data or adopt a software package that is user friendly for businesses in this area. Stay tuned for more information as this PDS evolves.

There are currently four other PDSs in the CQ *BEEF* pipeline which are due to start early in 2010. The paperwork has been finished and pre-approval from MLA has been given. The Mackenzie River group is looking at leucaena establishment options; and there is another leucaena ripping PDS starting with the Biloela group. Rolleston have two PDS applications – one looking at market compliance issues and the use of a fat depth scanning machine – the other is a legume establishment and maintenance PDS.

These PDS ideas have been developed by the group members. Once an idea has been settled, the group facilitator then completes the paperwork and seeks the funding from MLA. The PDS is run in conjunction with group members and QPIF staff. The whole process from the concept of the idea to the beginning of the PDS can take 6–12 months. If your group has an idea generated from your last ProfitProbe™ results or a field day, then by all means lets explore the option. The sooner the ball gets rolling the better.



Compiled by  
Lindy Symes, QPIF  
Biloela

### ***What can PDS funds be used for?***

PDS funds can be utilised for direct project operating costs, external project support and facilitation, communication and adoption costs and some capital costs associated with project establishment. This simply means that the monies can be used for the purchase of equipment that you may like to demonstrate or vaccines for a vaccine trial. Employing consultants or the purchase of results like NIRS

sampling is all within the realms of a PDS. If you have an idea, then please talk to your group facilitator and maybe bring the subject up at your next meeting. PDSs are great activities where the whole group can become involved in exploring and developing an idea. The group has control over how the PDS evolves and the scope in which the idea needs to be developed.

<b>Project description</b>	<b>Location</b>	<b>Project leader</b>	<b>Start date</b>	<b>End date</b>
<b>Current PDSs</b>				
Quantifying and demonstrating the management benefits enabled through NLIS technology - central Qld.	Biloela	Lindy Symes (QPIF)	Feb-08	Apr-10
Demonstrating and testing land condition recovery and enhancement strategies in the Jimbour Uplands sub-catchment of the Darling Downs	Jimbour	Jill Alexander (QPIF)	Feb-08	May-10
Demonstrating and testing land condition recovery and enhancement strategies in the Jinghi sub-catchment of the Darling Downs	Jinghi	Jill Alexander (QPIF)	Feb-08	May-10
Demonstrating recovery of pasture productivity. Mulga lands – Bollon, south-west Queensland	Bollon (Mulga Lands)	Jane Hamilton (QPIF)	Mar-08	Nov-10
Demonstrating the on-property management benefits of using the National Livestock Identification Scheme. (NLIS)	Kingaroy	Damien O'Sullivan (QPIF)	Apr-09	Apr-10
Getting more from the NLIS	Charters Towers	Karl McKellar (QPIF)	Jan-08	Dec-10
Remote water management		Les Zeller	May-08	Mar-11
Demonstrating the management benefits of using the NLIS	Bollon & Chinchilla	Tim Emery (QPIF)	Jan-08	Apr-10
Vaccination against reproductive wastage in beef breeder herds.	Bow Park (NQ)	Geoff Fordyce (QPIF)	Jan-08	Oct-09
Utilizing MSA feedback to enhance MSA compliance	Burdekin / Cloncurry	Alan Laing (QPIF)	Nov-08	Jan-11
Utilising MSA feedback to enhance MSA compliance	Charters Towers	Felicity Hamlyn-Hill (QPIF)	Nov-08	Jan-11
<b>Potential new PDSs</b>				
Legume establishment	Roma	Suzy White (QMDC)		
Investigating and improving market compliance issues in beef markets in Central Queensland.	Rolleston	Lindy Symes (QPIF)	2010	
Demonstrating and quantifying the impact of planting configurations on the establishment and productivity of leucaena.	Mackenzie River	David Hickey (QPIF)	2010	
Demonstrating the impact of establishment options for leucaena.	Biloela	Stuart Buck (QPIF)	2010	
The Bundaleer PDS: Demonstrating innovative approaches for the improvement of buffel grass pastures.	Rolleston	Joe O'Reagain (FBA)	2010	

## Producer profile

### Mathew and Mary-Ellen Peart Rolleston CQBEEF group

**M**athew and Maryellen Peart are active members of the Rolleston CQBEEF group. The Peart's are the owner/managers of *Bundaleer* a 3559 ha breeding and finishing property in the Arcadia Valley. The average annual rainfall for *Bundaleer* is 600 mm, but so far this year the rain gauge has only received 317 mm.

Mathew and Maryellen operate a 'reasonably intensive rotational grazing system'. Next year they'll do so with the help of their daughter Jennifer who after finishing school is taking a year off study before beginning university. The Peart family also includes three younger children still at school. 'We rotationally graze to decrease distance between perennial grasses, increase the diversity of pasture species and put a good layer of organic matter on the ground' Mathew says.

The next stage is to establish legumes in the pasture. In fact one of the two producer demonstration sites the Rolleston group is driving is a Legume establishment project on *Bundaleer*. 'We're looking at establishment of burgundy bean, butterfly pea and siratro in a buffel grass pasture.' The aim is to get second generation seed established and do so without losing many stock days per hectare. 'To do this we are going to focus grazing timing decisions on the establishment and recover of legumes' Mathew says. 'If we're successful we are hoping for increased stock days per hectare and an improvement in animal performance from the added nitrogen in the system'.

The Pearts have also developed a heavy duty slasher to assist in regrowth control. 'The plan is to slash when it's most damaging to suckers so we should get a reasonable percentage kill and a reduction in the shrub canopy. The advantage of the slasher is that we won't be disturbing soil' Mathew says.

The Pearts have what Mathew calls a 'minimalist intervention' approach to beef production. 'We need reproduction without assistance and aim to meet market specifications without hormones and grain' Mathew says. 'We've worked hard to get



both Heifers and bulls sexually mature by 15 months of age'. Mathew notes that these dry times are good opportunities to cull less than optimum genetics for fertility.

In a previous partnership the Pearts supplied cattle to the EU, Jap ox and to a lesser extent the trade market. 'Now that we're out on our own Maryellen and I see MSA being our preferred market as we make our way towards organic certification' Mathew says. This last year the Pearts have sold weaners from PTIC cows purchased last year to increase their stock numbers and utilise available feed. They are now fattening the cows for sale. The Pearts own breed is a mix of Indian African, European and British breeds. 'We've done this to improve hybrid vigor. The traits we select for include meat quality, fertility, mothering ability, foraging ability and growth' Mathew says.

Mathew explains why they are a part of CQBEEF quite simply. 'We've always been interested in finding our own answers and doing our own research. We need to be part of the solution and we are going to have more drive to find answers to our problems than consultants. CQBEEF is being proactive and we feel very privileged to be part of CQBEEF and be part of the networks it provides. It's provided us with good access to a wide range of expertise gathered by staff'.

The holiday the Pearts would most enjoy would be somewhere in Australia with their family. In Mathew's words they want to 'enjoy unique Australian landscape of which there is plenty, away from bright lights and smoke, with an esky full of ginger beer'.

*FBA's Joe O'Reagan, Lindy Symes from QPIF and Mathew Peart inspect Bundaleer's legume establishment PDS sites.*

# FutureBeef – Supporting the Queensland beef industry

The *CQBEEF* project team has had a very successful year and industry demand for these partnerships has been steadily growing. Did you know we have many other successful beef projects, services and partnerships being delivered under our 'FutureBeef' banner? Queensland Primary Industries and Fisheries (QPIF). 'FutureBeef' initiative ensures all our beef industry services are delivered in critical areas of industry need such as applied nutrition, applied grazing, breeding and genetics, and business management. In fact, we are Australia's lead government agency for beef research, development and extension.

This year alone, our state-wide team has worked with many hundreds of innovative and willing producers integrating existing and new technologies and best management practices to improve the productivity, sustainability and profitability of their beef businesses. FutureBeef delivers workshops, courses, seminars, facilitated groups, consultancies and on-property demonstrations. Our team members also support the producer-driven Regional Beef Research Committees (RBRCs) across the state, and provide input into policy issues such as livestock transport, climate variability, drought preparedness, biosecurity, animal welfare and high environmental risk management.

In addition to projects like *CQBEEF* that focus strongly on enterprise analysis, we are currently assisting Meat and Livestock Australia with the development of a new business management workshop that will be launched next year. We also currently deliver a range of EDGE Network workshops such as Grazing Land Management (GLM), StockTake, Nutrition EDGE and The Breeding Edge; those and 'Testing Management Options', another business management course, are now Farmready accredited.

The FutureBeef team works hard at keeping Queensland beef producers informed and you'll often see this work profiled in your local paper or radio, QPIF newsletters like *BeefTalk* and *Northern muster*, collaborator magazines such as MLA's *Frontier Magazine* and NRM group newsletters, and displays at local producer field days and Beef Up Forum presentations.

If you would like more information contact me on (07) 3362 9626 or email [Krista.cavallaro@deedi.qld.gov.au](mailto:Krista.cavallaro@deedi.qld.gov.au) or visit our website <http://www.dpi.qld.gov.au>

Krista Cavallaro, A/FutureBeef Manager, Department of Employment, Economic Development and Innovation.

## Department of Employment, Economic Development and Innovation

Byrony Daniels	Beef Industry Devpmt Officer	Emerald	4983 7467	0427 746 434	<a href="mailto:byrony.daniels@deedi.qld.gov.au">byrony.daniels@deedi.qld.gov.au</a>
David Hickey	Beef Extension Officer	Rockhampton	4936 0217	0428 544 223	<a href="mailto:david.hickey@deedi.qld.gov.au">david.hickey@deedi.qld.gov.au</a>
Ken Murphy	Beef Extension Officer	Rockhampton	4936 0337	0419 585 412	<a href="mailto:ken.murphy@deedi.qld.gov.au">ken.murphy@deedi.qld.gov.au</a>
Lindy Symes	Beef Industry Development Officer	Biloela	4992 9178	0428 104 248	<a href="mailto:lindy.symes@deedi.qld.gov.au">lindy.symes@deedi.qld.gov.au</a>
Mick Sullivan	Beef Industry Development Officer	Rockhampton	4936 0239	0428 104 374	<a href="mailto:mick.sullivan@deedi.qld.gov.au">mick.sullivan@deedi.qld.gov.au</a>
Rebecca Gowen	Agricultural Economist	Rockhampton	4936 0205	0417 791 297	<a href="mailto:rebecca.gowen@deedi.qld.gov.au">rebecca.gowen@deedi.qld.gov.au</a>

## Fitzroy Basin Association

Vacant	FBA Technical Manager	Rockhampton	4999 2805	0429 066 047	<a href="mailto:gavin.peck@fba.org.au">gavin.peck@fba.org.au</a>
Gina Mace	Grazing Land Management Officer	Emerald	4987 7904	0429 992 810	<a href="mailto:gina.mace@fba.org.au">gina.mace@fba.org.au</a>
Jill Lyons	Three Rivers Catchment Coordinator	Rockhampton	4999 2820	0427 992 800	<a href="mailto:jill.lyons@fba.org.au">jill.lyons@fba.org.au</a>
Joe O'Reagain	Grazing Land Management Officer	Biloela	4992 5417	0427 572 200	<a href="mailto:joe.o'reagain@fba.org.au">joe.o'reagain@fba.org.au</a>
Johnelle Stevens	Isaac/Connors Catchment Field Officer	Middlemount	4985 7511	0428 985 440	<a href="mailto:johnelle.stevens@fba.org.au">johnelle.stevens@fba.org.au</a>
Kate Wilson	Mackenzie Catchment Field Officer	Emerald		0429 992 822	<a href="mailto:kate.wilson@fba.org.au">kate.wilson@fba.org.au</a>
Kellie Nilsson	Dawson Callide Catchment Coordinator	Theodore	4993 1004	0417 938 022	<a href="mailto:knilsson.dcca@bigpond.com">knilsson.dcca@bigpond.com</a>
Lisa Sutton	FRCC Project Officer	Rockhampton	4921 3834	0428 123 017	<a href="mailto:lisa.sutton@frcc.org.au">lisa.sutton@frcc.org.au</a>
Sara Cue	Lower Dawson Field Officer	Theodore	4993 1777	0417 938 739	<a href="mailto:scuedcca@bigpond.com">scuedcca@bigpond.com</a>
Bronwyn Roberts	Farm Project Development Officer	Emerald	4982 2996	0427 326 400	<a href="mailto:bronwyn@chrrup.org">bronwyn@chrrup.org</a>
Vicki Horstman	BMP Officer	Emerald	4982 2986	0427 320 539	<a href="mailto:vicki@chrrup.org">vicki@chrrup.org</a>