Beeftalk

Taking stock of your future

Prime news and views for beef producers of south-east Queensland

Issue 23 Autumn/Winter 2007

in this issue

editorial

Thank you to all those readers who returned the readership survey from the last issue of *Beeftalk*. Your replies (all very positive) have been used to 'argue the case' for continuing *Beeftalk*. The situation is that we have 'won the battle' (*Beeftalk* 23 is paid for) but not the war. Several proposals are being considered for future, sustainable funding. The results of the survey are covered in an article in this issue.

April/May is Decision Time: the grass you have now is all that will be available until October or November.

Following yet another summer of below average rainfall we are again looking at a fairly bleak winter, at least from the cattle and pasture point of view. After this series of poor years, it is easy to see which landholders have 'bitten the bullet' and reduced stock numbers and which have 'lived in hope' that it 'might rain'. In the latter situation, pasture condition is falling. The longer this goes on, the longer it will take for the pasture to recover.

We cannot live in the hope of winter rain turning the situation around. For most of the south-east, winter rain may improve the quality of feed, but it won't improve the quantity.

On the bright side, the *Beeftalk* family continues to grow: Lucy Ann (daughter of Rebecca Farrell and Andrew Post) arrived safely in September. Bec says she is really enjoying being a mother. We also welcome back Felicity McIntosh from maternity leave and a stint of living in Sydney. Will is now 20 months old and keeping his parents (Felicity and Stewart) on their toes.

In this issue, we have the usual wide variety of articles from timber and pasture management to identifying ticks. We have included a calculation to help you make valid comparisons between supplementary feed options. This calculation is available as an Excel spreadsheet from Russ Tyler or Roger Sneath.

Remember, supplementary feeding is an aid to well-planned management, not a 'fix all' for poor planning.

Good reading!
The Eds

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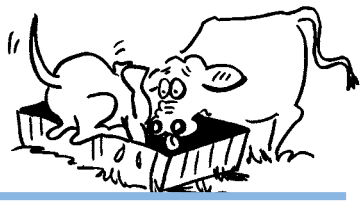
Queensland Government
Department of Primary Industries and Fisheries

Manage breeding cows to improve weaning rates



A calf weaned today is the result of nutritional circumstances and management actions taken almost two years ago. Under-nutrition is widely considered to be the leading cause of sub-fertility in breeding herds.

The causes of poor reproductive performance can be low conception rates, calf loss after conception, low numbers of weaners produced, or poor weights of weaners being produced.

Other factors that affect reproductive performance in the breeding herd include bull fertility, the age profile of cows in the herd, the season in terms of quantity and quality of feed, and disease.

Small window of opportunity

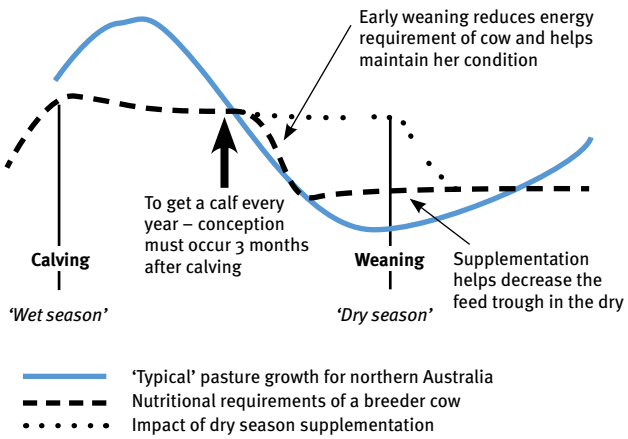
In an ideal world we would expect every breeder to raise a calf to weaning each year until she is culled. The single most important factor in achieving one calf each year is the body condition of the cow at the time of calving; this determines how soon a cow starts cycling and conceives post-calving.

A cow should be in condition score 3 or above (on a 1-5 scale) at calving if she is to get back into calf again within the 85 day window available for producing a calf each year. However, it is also important that breeding cows are not allowed to become over-fat by the time of joining.

Match feed needs to pasture availability

In order to give breeders the best chance of weaning a calf each year and to minimise supplementation costs, it is essential to aim to match the feed requirements of the cow with the availability and quality of pasture throughout the year (Figure 1).

Figure 1: Breeder energy requirements in relation to pasture nutrition available.



A cow's energy requirements are very high during late pregnancy and remain high after calving. A lactating cow requires about twice as much energy as a dry cow, and three times as much protein.

During the dry season a lactating cow's feed requirement usually exceeds what is available from pasture. As a result, the cow loses weight, which makes conceiving at that time of the year very difficult. Table 1 shows the impact of condition score on pregnancy rate.

Table 1: How the pregnancy rate of lactating breeders changes as body condition increases (for typical crossbred cattle). Adapted from Dixon, 1998.

Body condition score	Liveweight	Expected pregnancy rate in coming year
Poor – 1	300 kg	0-40%
Backward store – 2	330 kg	20-50%
Store – 3	360 kg	40-80%
Forward store – 4	390 kg	60-90%
Prime – 5	420 kg	80-95%

Offer supplements during the dry season

A practical option for maintaining breeder cow condition is to provide supplements during the times of greatest nutritional need.

Some producers draft all pregnant cows at weaning based on their condition score and provide preferential feeding to those cows that may not achieve their target condition scores by calving. Alternatively, many producers offer some form of supplementation to all breeders during the dry season.

Protein supplements and non-protein nitrogen supplements, such as urea-based licks and water medication (if suitable), are the most economical (Table 2).

Near Infrared Reflectance Spectrometry (NIRS) technology enables producers to more reliably assess when pastures are deficient in protein, enabling them to fine-tune when they start their dry season supplementation program.

In phosphorus-deficient areas, phosphorus supplementation should also be made available to breeder cows during the wet season (that is, while they are putting on body weight).

Table 2: Comparative costs of urea in different forms of supplements.

Product	Urea (%)	CPE (%)	Cost/tonne ($)	Recommended feeding rate (g/head/day)	Recommended rate of urea (g)	Actual feeding rate required to deliver 60g urea (g)	Cost to deliver 60g urea (c/head/d)
Proprietary water medication mixes	72	201	970	55	40	83	8
Loose mixes*	30	86	550	150	45	200	11
Blocks*	30	86	1200	70	21	200	24
Commercial liquid NPN supplement	4.7 to 11.6	14 to 33	500	1000	50	1200	20 to 50
M8U	8	23	220	500	40	750	17

*Note that content and cost of loose mixes and blocks can vary considerably ** Table from Water Medication – A guide for beef producers, Entwistle & Jephcott, 2005.

Wean early

Another option for helping a lactating cow to maintain condition is to wean the calf early. In most circumstances, weaning the calf will reduce the cow's energy requirements by almost half.

However, so that the young weaner (<150 kg) is not disadvantaged by having its milk supply terminated, it will need to be sustained with special supplements containing 'bypass protein'. In most circumstances it is cheaper to supplement the young weaner than to supplement the cow and calf.

This is also an ideal time to yard-wean calves in preparation for feedlot and live export markets.

Good heifer management

Finally, a good heifer management program is essential for improving reproductive performance in the breeding herd. Heifers are still generally growing themselves when they have their first calf and their nutritional stress is amplified.

A heifer that calves at the 'right' time at the start of her breeding career is much easier to manage over the years than one that calves out of season. Ideally, heifers should be mated two to three weeks ahead of cows and only for six to nine weeks.

Pregnancy diagnosis allows producers to identify the maiden heifers that have conceived at the desired time so that their calving period can be aligned with the main breeding herd.

If heifers are above their critical mating weight, in good condition (score 3 or more), on reasonable feed, are protected against *vibriosis*, and are put with bulls of satisfactory fertility, then over 80 per cent should conceive during that period.

The critical mating weight is approximately 280 kg liveweight for early-maturing breeds and up to 325 kg liveweight for late-maturing breeds.

However, heifers may require supplementation in some years or a special paddock after weaning so they achieve these targets.

It is best practice to over-mate by about 25 per cent and perform the final cull on the outcome of the pregnancy test, which should be done at least 15 weeks after the start of mating.

Heifers with low fertility should be culled because fertility is repeatable and some fertility traits are heritable.

Pregnancy diagnosis

Pregnancy diagnosis provides an early indication of the success of the mating period. If pregnancy testing reveals poor conception rates, producers can compensate by keeping more pregnant replacement heifers, buying in PTIC cows, or purchasing steers to fill the gap.

In breeding operations where the goal is to deliver an even line of weaners, pregnancy testing can also help in identifying cows with late pregnancies for culling.

By reducing the number of weaners in the 'tail', considerable financial gains are possible, even at high weaning rates.

Table 3 shows the significant gains that can be made by compacting the calving period and eliminating the 'tail' of weaners. In this case of a herd of 100 steers, nearly half the steers were born late and didn't have the full growing season to gain weight, and also achieved a lower price per kg. If all these animals had been born in the early spring, the producer may have gained as much as an additional $10 028 (the number of late-born animals by the difference in price gained per animal).

While there are no easy solutions, producers who set some reproductive goals and monitor the performance indicators do have options available to them for improving the reproductive performance of their herd.

Table 3: The effect of a prolonged calving period and an increased number of 'tail' or small weaners in a southern Queensland case study.

	Number	Weight 10 months after weaning kg	$/kg	Average price $
Steers (born early spring)	54	435	1.85	806
Steers (born early summer)	46	356	1.65	588
Difference		79		218

How you manage and feed a breeder cow today will determine her condition when she calves, which in turn will affect how long it takes to get her back into calf and produce a marketable weaner in two years' time.

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MLA's EDGEnetwork workshops

Breeding EDGE – designed to help you develop a cattle breeding program or improve your existing one.

Nutrition EDGE – assists you to better match your pasture and feed options to your livestock needs

Phone: 1800 993 343
Email: edgenetwork@mla.com.au

Managing the breeder herd – Practical steps to breeding livestock in northern Australia, free to MLA members

Phone: 07 3620 5234 Email: rdyer@mla.com.au

Key points

- *Maintaining cow condition at calving of at least condition score 3 (1-5 scale) is vital for increased reproductive performance.*
- *Match the cow's feed requirements with the availability and quality of pasture throughout the year.*
- *Offer protein or urea-based supplements during the dry season and phosphorus (P) during the wet season (in phosphorus-deficient areas).*
- *Early weaning reduces the lactation drain on the cow – but young weaners need 'bypass protein' supplements for sustained growth.*
- *A good heifer management program promotes conception at the right time of year and subsequent high fertility in the breeding herd.*

Dry season management

There have been many articles in *Beeftalk* about dry season management, and now there are a number of new supplements on the market, but the basic principles remain the same.

Planning is the key to successful management in any situation, and planning is very important for best dry season management. A good plan will prevent crisis situations from developing and will save money.

When developing a dry season management plan, consider the following points:

1. Supplementary feeding can be a useful tool in dry season management but it should not be seen as the 'cure all' for bad decisions and planning.
2. Is there sufficient feed to last all the grazing animals (not just the cattle) until the season breaks?
3. If the answer to point 2 is 'No' then develop a selling strategy.
4. Retaining dry stock (steers and heifers) and selling breeders can reduce the cost of supplements.
5. Continuous heavy grazing will cause a deterioration in pasture condition with long-term effects on production.
6. Winter rain might improve the quality of the pasture but probably not the quantity.
7. If you plan to supplement, consider:
   a. Which nutrients are deficient?
   b. Which supplements supply these nutrients?

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Climate forecasts – A review of the season just gone

Back in October, Dave McRae's seasonal outlook for November through to the end of January stated:

Monthly SOI values dropped from minus 4.6 for September to minus 16.4 for October. Based on this shift in value, the SOI is now in a 'Rapidly Falling' phase which gives a mixed seasonal outlook across Queensland. For November through to the end of January, the chance of getting above median rainfall throughout southern Queensland varies between 30% and 50%. The chance of getting above median rainfall throughout central and northern Queensland is generally lower and varies between 10% and 40%.

Taking Dave's advice, I had a look at the rainfall records for Gin Gin for those years that had a 'Rapidly Falling' SOI phase at the end of October: 1915, 1920, 1925, 1931, 1941, 1944, 1947, 1963, 1978, 1981 and 1992. The results are shown in the table below.

Another way of looking at this is that for the 11 years with rapidly falling SOIs prior to 2006:

- 4 out of 11 years (36%) were close to median rainfall
- 2 out of 11 years (18%) were above median rainfall
- 5 out of 11 years (46%) were below median rainfall

Of the five years that were below median, two were El Niño years and the other three were neutral years.

By the way, the lowest three-month total (1 November to 31 January) occurred during the 1900/01 summer. Only 102 mm of rain fell in this period. The highest three-month total of 1166 mm occurred in the 1912/1913 summer, when a whopping 927 mm fell in one week (including 370 mm in one day).

What actually happened during this last year?

As you can see from the table, rainfall at Gin Gin from 1 November 2006 to 31 January 2007 was pretty low (141 mm less than median). This puts it in about the driest 10% of years. Much of this was storm-based rain and, as such, rainfall totals can vary considerably within a district and even across a property.

How could we have used this information?

Because there have only been 11 years where we've had a rapidly falling SOI in September/October, we would have needed to be a bit cautious about how we used the information. But as it turned out, the prediction in October – that the coming summer would likely be dry – came true. It was still possible that we could have received good rain, but it was just less likely to occur.

Ways in which we could have used this information include:

- Deferring and/or scaling down sown pasture establishment and allowing for an increased risk of failed establishment.
- Changing fire regimes by planning to burn less country, staggering the burns, and waiting for better rain than would normally be sufficient to represent a break to the season.
- Paying closer attention to feed and water supplies.
- Keeping an eye on the cattle market in local or neighbouring districts and taking advantage of a 'kick' to off-load cattle.
- Scaling down the numbers of stores that would normally be purchased.
- Being aware that the window for effective weed control with herbicides would be narrower than normal and only associated with the patchy rain that was likely to fall.

So while there would have been no harm in hoping for a season similar to the 1981/82 season, it would have paid to prepare for a season similar to 1915/16 or 1992/93.

You really need to have a close look at the rainfall figures for your own district to make sense of seasonal outlooks.

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Year	ENSO phase	Rainfall (mm) 1 Nov – 31 Jan	Deviation from median rainfall for the period (325 mm)
1915	Neutral	129	-196
1920	Neutral	329	+4
1925	El Niño	305	-20
1931	Neutral	274	-51
1941	El Niño	323	-2
1944	Neutral	265	-60
1947	La Niña	300	-25
1963	El Niño	273	-52
1978	Neutral	421	+96
1981	Neutral	694	+369
1992	El Niño	264	-61
2006	El Niño	184	-141

Selecting a supplement

Supplementation is only one option for managing cattle through the dry season. It is important to consider all available options and closely examine the seasonal situation before starting a supplementary feeding program. Alternatives to supplementing are selling, agisting, and early weaning.

Consider the time of year and how long you may need to provide supplements, the amount of pasture available and how long it will last, and the performance you would like from the group of cattle (i.e. growth or maintenance).

Once all these options have been considered and costed and you have decided to supplement, you will need to consider these points before selecting a particular supplement:

- cost of the nutrient
- ease of feeding and equipment required
- palatability
- availability and continuity of supply.

Cost of the nutrient

All supplements vary in price, package weight or size, protein content and the way protein percentage is expressed (see information on this page about 'Understanding protein'). The recommended intake of the supplement also varies and does not relate to a standard intake of a nutrient. This makes it difficult to determine which will be the most cost-effective supplement. The easiest way to compare the cost of supplements is to compare the cost of 1 kg of the nutrient you need, e.g. protein. (Most dry season supplementation involves feeding a small amount of protein as this is the nutrient that is most limiting in pastures as they mature during and after flowering and seed set.)

The formula below can be used to compare the cost of a range of supplements. (The 'Comparison of Stock feeds' table will assist with making comparisons.)

Step 1:

Cost of 1 kg of supplement

$$= \frac{\text{Cost of 1 tonne of supplement}}{1000}$$

Step 2:

Cost of 1 kg of required nutrient

$$= \frac{\text{Cost of 1 kg of supplement} \times 100}{\%\text{ of nutrient in feed/supplement}}$$

Example: Cottonseed meal costing $450/tonne and containing 43% protein

Cost of 1 kg of supplement

$$= \frac{\$450}{1000\text{ kg}}$$

$$= 45\text{c per kg}$$

Cost of 1 kg of required nutrient (i.e. protein)

$$= \frac{45\text{c} \times 100}{43}$$

$$= 104.6\text{ c/kg of protein}$$

Be careful of how the nutrient percentages are expressed. Some manufacturers quote on the percentage in the feed as you buy it. This is referred to 'as fed' or 'as is'. Others quote on a dry matter (DM) basis. It is important to compare all feeds on the same basis, particularly for the very wet feeds such as silage (up to 70% moisture) and sprouts (80–90% moisture).

Ease of feeding and equipment

Most commercial supplements require little preparation, but they may require equipment to deliver the supplement to the cattle. For example, some blocks can be fed on the ground while others require some troughing. Some liquid supplements require a tank to transport them to the paddock.

Most homemade supplements require mixing equipment, a method of delivering them to the paddock, and troughs.

Palatability

Palatability varies between supplements. Most protein meals are very palatable. Some, with high salt and urea contents, are very unpalatable. Both high and low palatability can be a problem, leading to intakes that are too high or too low. Consider how easily the palatability of a supplement can be adjusted to regulate intake.

Availability and continuity of supply

This is usually only a problem when there is widespread drought, such as in 2006. Even common supplements such as cottonseed meal, molasses and whole cottonseed are difficult to source in a widespread drought. Supply also needs to be taken into account at all times for supplements that are not widely used.

Your final decision on a supplement will be a compromise between all the factors discussed in this article. If you are considering using a new supplement it is best to buy a small quantity at first to determine how palatable it is to your cattle. How cattle accept supplements will vary from one property to another, from one paddock to another, and from one soil type to another. It can be a good guide if your neighbour's cattle will eat a particular supplement but remember, it is only a guide.

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Comparison of stockfeeds

				Metabolisable energy			Crude protein		
Feed	**$/t** (as fed)	**(c/kg)** (as fed)	**DM %**	**ME (MJ/kg)** (DM)	**ME (MJ/kg)** (as fed)	**cents/MJ ME** (as fed)	**CP%** (DM)	**CP%** (as fed)	**$/kg CP** (as fed)
	A	A÷10 **B**	**C**	**D**	C ÷ 100 x D **E**	B ÷ E	**F**	C÷ 100 x F **G**	B ÷ G
Example: Block	$850	85	90	Nil	Nil	NA		40	$2.12/kg CP
Example: Bulk cottonseed meal	$300	30	90	12	10.8	2.8 cents per MJ	43	38.7	$0.78 /kg CP
Example: Silage	$100	10	30	9	2.7	3.7 cents per MJ	9	2.7	$3.70 /kg CP

As fed = feed including moisture e.g. silage may have 60-70% water which equates to 30-40% DM; grain and meals have around 10% water
CP = crude protein
DM% = dry matter percentage
ME = Metabolisable energy
MJ = mega joules (unit of energy)

Copies of this table are available from Russ Tyler and Roger Sneath.

Understanding protein in supplements

Protein comes in two forms:

1. Natural protein (NP), such as the protein in protein meals, grain and pasture
2. Non-protein nitrogen (NPN).

Non-protein nitrogen

The most common form of NPN is urea. The rumen microbes use the nitrogen in urea to form protein in their own bodies. These microbes are then digested in the abomasum (true stomach) providing the animal with a valuable source of protein.

If a supplement contains urea, the percentage of urea in the supplement will be indicated on the label as Protein equivalent, Total protein equivalent or Equivalent crude protein. (Sometimes 'minimum' will appear with these and other terms.) This figure refers to the protein in the ration that comes from urea and other NPN sources. If NPN is the only source of protein in the ration, then this figure may also appear as Total protein.

Natural protein

Supplements often contain some protein meal. The protein from this may be (but isn't always) shown as Natural protein, Protein from natural sources or Protein.

Total protein

The Total protein in a supplement is the sum of the protein from NPN and from natural sources. The total protein percentage is expressed in various ways. Common terms used are:

- Total protein
- Total crude protein
- Crude protein (CP)
- Crude protein equivalent (CPE)
- Protein.

The best advice is to look for the highest protein figure quoted on the label and check how much of it has come from urea. Don't add any of the figures together because the manufacturer has already done this.

Research has shown that the optimum feeding rate for total protein as a supplement is 150 g/h/d for adult cattle and 75 g/h/d for weaners.

Legumes – important components in any pasture

Legumes are broad-leaved plants that form a symbiotic relationship with bacteria called rhizobium. These bacteria form colonies in nodules attached to the plant's roots. The host plant provides the bacteria with nutrients and water while the bacteria fix atmospheric nitrogen and convert it into a form that the plant can use. The plants use this 'fixed' nitrogen to build proteins.

The legumes themselves are sources of dietary protein for grazing animals. Productive legumes fix more than enough nitrogen for their own needs; the excess fixed nitrogen is then available for other plants, such as pasture grasses, to use.

The role of legumes in a grass pasture system is therefore two-fold: to provide a source of high quality, high protein forage, and to improve soil fertility and hence the nutritive value of the grasses they grow with.

The relative importance of the two roles depends on several factors including:

- relative productivity of the legume
- soil fertility.

Improving animal performance

The main role for most legumes is to provide high quality feed to complement a grass-based pasture (native or sown). The feed quality of grasses tends to fall rapidly during flowering and seed set, with protein being the limiting nutrient. This usually occurs late in the growing season. Where there is sufficient legume in the pasture, animals will selectively graze for legume to increase their daily protein intakes. The legume effectively acts as a protein supplement. Figure 1 shows that the main

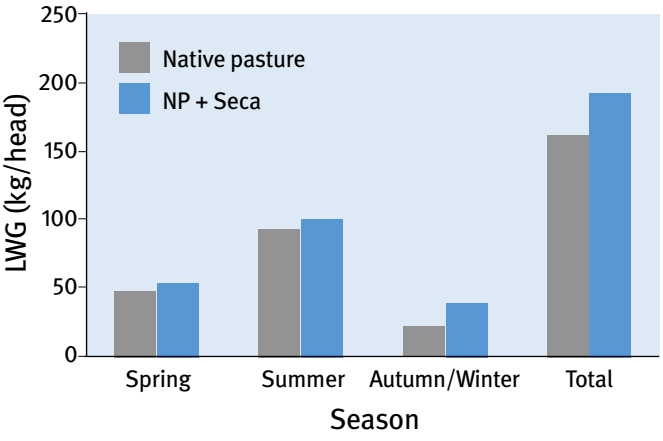

Figure 1. Legumes can lift annual liveweight gains by 30 kg. (Source: EDGEnetwork GLM)

response to the legume is seen in the autumn period. The legume in this case has lifted the average annual liveweight gain by about 30 kg. The response to legumes generally ranges between 20 and 50 kg/hd/yr. The legume needs to make up about 20% of the pasture bulk before this response occurs.

Improving soil fertility

Much of the fixed nitrogen that becomes available for pasture grasses is suppled by soil micro-organisms breaking down old plant material. A cycle develops with only a small amount of nitrogen from the total pool becoming available at any point in time. Additional nitrogen is supplied to this cycle by the legume through leaf fall and plant death and, to a lesser extent, animals cycling nitrogen through their urine and dung.

Obviously, the more productive the legume (how much bulk it grows), the more nitrogen it fixes. Less productive legumes, such as the stylos, siratro or lotononis, may contribute 20 to 50 kg N/ha/yr. Productive legumes, such as leucaena, may contribute as much as 180 kg N/ha/yr.

While nitrogen is the most important nutrient for grass growth, the legumes themselves often have a higher requirement than grasses for other nutrients. Legumes require adequate levels of macro-nutrients such as phosphorous and sulphur for efficient nitrogen fixation. In some very poor soils, micro-nutrients such as molybdenum may also limit rhizobial activity.

The more productive the legume, the higher the requirement for these nutrients. Productive legumes such as leucaena and annual forage legumes may require soil phosphorous levels greater than 20 ppm, so these legumes are usually only sown in fertile clay and loam soils.

Legumes such as the stylos and Wynn cassia will grow in soils with phosphorous levels of 5 ppm or less, but their growth will be restricted. At these low levels, the legumes themselves will be low in phosphorous, so the animal will be phosphorous deficient and unable to make use of the higher levels of protein supplied through the legume. Where legumes are oversown into a native pasture with soil phosphorous less than 8 ppm, providing a phosphorous supplement to the cattle will improve their growth rates (Figure 2).

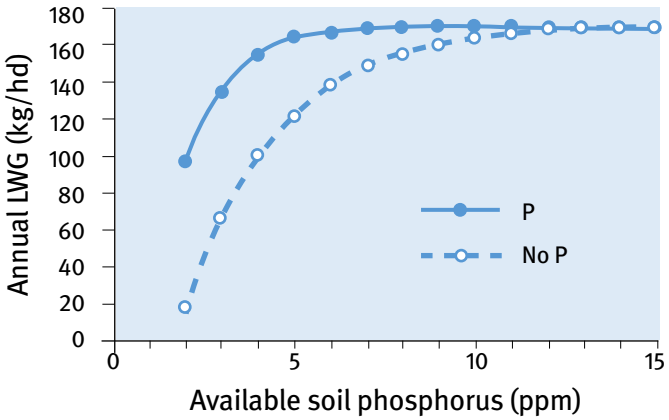

Figure 2. In phosphorous-deficient country, P supplement will 'switch on' the protein response.

Sown pastures (grass plus legume) on marginal country require starter and maintenance fertiliser to persist and maintain their productivity. Fertilising with superphosphate will improve legume production, which in turn improves grass production and slows or prevents pasture rundown. Fertiliser regimes will vary according to land type and pasture species, so it pays to check with an agronomist for specific cases. The added cost of the maintenance fertiliser should be accounted for when planning a pasture development program.

The nutrient requirements of irrigated sown pastures are going to be even higher than for rain-grown pastures, but the legumes may reduce the need for high levels of nitrogen fertiliser. In fact, fertilising legume-based pastures with nitrogen can reduce the quantity of legumes in the pasture.

Native legumes are common in native pastures. If encouraged, they can make a valuable contribution to animal growth (see the article on native legumes in this issue).

Remember

The main role of legumes in grass-based pastures (sown or native) is to provide high quality feed at particular times of the year.

The secondary benefit of legumes is to improve soil fertility by increasing the availability of soil nitrogen. How effectively the soil fertility is increased depends on the relative productivity of the legume, the inherent soil fertility, and maintenance fertiliser regimes.

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Native legumes

Awareness of native legumes and the contribution they make in cattle production is increasing. Information on the productivity and quality of native legumes is scant, but some general observations can be made.

Healthy, productive native pastures generally contain a diverse range of species, including many native legumes. A range of species with particular adaptations for different soil types and growing at different times of the year contribute to providing an even 'feed year' for grazing cattle. One species may grow mainly in the spring while another is more vigorous and selected by cattle in late summer and autumn. A variety of species allows cattle to select a better diet over a longer period of time.

Native pasture communities, managed for species diversity, can contain six to ten or more herbaceous native legumes. Many of these are nutritious and are actively selected by grazing cattle. Taken as individual species, these native legumes may not appear to be highly productive or to contribute substantially to the bulk of pasture, but collectively, the more palatable species do contribute significantly to the diet of grazing cattle. They may just be the 'icing on the cake' in terms of cattle production.

Some of the native herbaceous legumes, such as the rattlepods, are poisonous. However, provided stocking pressure isn't too high and an adequate selection of forage is available, stock will generally avoid the toxic plants.

Managing pastures to maintain a strong presence of native legumes can enhance cattle production and maintain the health and productivity of the landscape.

Here are some of the more important native legume species.

Glycine pea (Glycine tabacina)
Woolly glycine (Glycine tomentella)

Glycine pea: simple, thin pod

Woolly glycine: purple pea flower, three hairy leaflets

Description

Glycines are trailing or climbing, perennial legumes with stems to 2 m long. Their leaves are made up of three leaflets. They have small, purple, pea-shaped flowers and slender, slightly flattened, bean-like pods. Flowers may occur in elongated groups on erect stalks or singly in the junction of the leaf and stem. Glycines grow and flower during the warmer months.

Woolly glycine has a covering of rusty-brown hairs on all parts of the plant.

Glycine pea leaves are generally hairless and are longer and narrower than the leaves of woolly glycine.

Land types

Found on a wide range of land types, but common on the sandier, duplex soils in box, narrow-leaved and silver-leaved ironbark country. Woolly glycine prefers sandy soils, while glycine pea prefers clay soils.

Grazing notes

The glycines occur as scattered plants in many native pastures and have a higher protein content than many other pasture forages. They can survive light grazing and are palatable and nutritious for stock. They rarely form a high proportion of the pasture.

Rhynchosia (Rynchosia minima)

Other common name: Rhyncho

Rhynchosia: roundish leaflets with small, yellow flowers

Description

A trailing, perennial legume that grows to 2 m long. It has brown stems and leaves made up of three roundish leaflets. The yellow, pea-like flowers are widely arranged on an erect stalk. The flattened seed pods are covered with sticky hairs and contain one or two smooth, freckled seeds. Rhynchosia flowers in spring and summer.

Land types

Found in blue gum and silver-leaved ironbark country on cracking clay soils. Also often

found on heavy soils of other land types, particularly on fertile sites, along watercourses and beneath large trees.

Grazing notes

Rhynchosia often loses its leaves in winter, but makes good growth with favourable summer rains. Individual plants only survive for two to three years. Although seldom abundant in a pasture, Rhynchosia is moderately palatable. It can become a significant component of pastures that are frequently rested from grazing during the growing season. It is reported to be more salt-tolerant than most herbaceous legumes.

Birdsville indigo (Indigofera linnaei)

Birdsville indigo: pinkish pea flowers, each pod containing two seeds.

Description

A prostrate, perennial legume up to 40 cm long. It has hairy stems and grey-green, hairy, oval-shaped leaflets. The small, pea-like flowers are pinkish-red. It produces bunches of cylindrical pods, each containing a pair of seeds.

Land types

Grows in sandy and loamy soils in box and ironbark country. Occurs as scattered plants, and can be prevalent around waters and other trampled areas.

Grazing notes

Although eaten readily and without apparent ill effect by sheep and cattle, Birdsville indigo is responsible for Birdsville disease in horses. It is one of the first plants to shoot following rain.

Slender tick trefoil (Desmodium varians)

Slender tick trefoil: three leaflets; segmented pods

Description

A small, perennial legume with a strong taproot, three dark-green leaflets and inconspicuous, pale-cream or pale-pink pea-shaped flowers. The green seed pods are the distinguishing feature of the plant and are 2 to 4 cm long. They are covered in small, hooked hairs and are segmented with a smooth, downward-curved upper edge and a scalloped lower edge. Slender tick trefoil is most obvious in good summers and after fire.

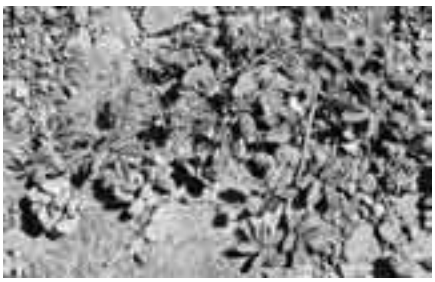
Land types

Occurs on clay soils in box, ironbark, brigalow and blue gum.

Grazing notes

Once seedlings establish a good taproot, the plant is very resistant to grazing. It will readily re-sprout from the taproot if defoliated or burnt. It is rarely abundant in grazed pastures as it is readily eaten by stock.

Native sensitive plant (Neptunia gracilis)



Native sensitive plant: multiple fine leaflets; terminal yellow flowers

Description

Trailing perennial legume (sometimes a small woody shrub) to 30 cm high with hairless trailing stems up to 1 m long. Leaves branch twice between the stem and individual leaflets. They are sensitive to touch and close when touched. Flowers are loosely clustered into small, 1 cm diameter, pale-yellow globular heads at the end of a stalk that is 4 to 13 cm long. They ripen into bundles of three to ten flat, brown pods, 2 to 3 cm long and 8 to 10 mm wide, with 8 seeds in each pod.

Land types

Grows mainly on clay and loamy soils in silver-leaved ironbark, blue gum and box country.

Grazing notes

Common and widespread, not as palatable as some other species, but is grazed.

The photos and descriptions in this article are taken from the DPI&F publication, Pasture plants of southern inland Queensland. This book has excellent photographs and will help you to become more familiar with the plants in the field.

Further information:

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Timely tips for south-east Queensland

BREEDING

Autumn
March, April, May

Breeders
- Note cows with below-average weaners for possible culling.
- Draft cows according to body condition for tailored management.
- Assess need for dry season supplementation.

Bulls
- Remove from breeders.
- Check for physical problems.
- Cull bulls on age (7 years old), temperament and physical defects.
- Start dry season supplement.

Weaners
- Vaccinate with booster 5-in-1 or 7-in-1.
- Vaccinate for tick fever (in ticky areas).
- Wean before pastures are frosted to allow cows to 'pick up' before winter.
- Wean into best paddock available.
- Provide special attention for weaners less than 150 kg.
- Feed supplements to weaners in yards to train them to eat supplements.
- Feed from troughs to reduce parasite burden.
- Consider coccidia control measures if weaners are going to be hand-fed in the yards for any length of time.
- Educate weaners through the yards and by tailing them out every day.

Growing cattle (steers and cull heifers)
- Are they on track to meet target markets? If not why not? Assess options.

Winter
June, July, August

Breeders
- Pregnancy test.
- Cull breeders on pregnancy, temperament, age, defects.
- Vaccinate breeders for leptospirosis.
- Assess mating program and plan/make changes if necessary.
- Order NLIS tags.

Bulls
- Consider bull requirements for coming season.
- Consider the type of bull needed to produce the type of calves best suited for your potential markets.
- Assess current bulls – are they giving you the progeny you require? If not, why have you still got them?

Weaners
- Continue supplement if necessary.
- Look at your weaners objectively:
  - Are they suitable for your business?
  - How are they stacking up against your key performance indicators?
  - If not, what do you need to do?
- Note flighty, poor doers or bad temperament animals and cull when possible.
- Check poor doers for coccidia or pestivirus.

Growing cattle (steers and cull heifers)
- As for autumn.

Spring
September, October, November

Breeders
- Assess breeder condition for mating. First calf cows may need extra care.
- Vaccinate maiden heifers for vibriosis (2 vaccinations 4 to 6 weeks apart).
- Vaccinate maiden heifers for leptospirosis if a problem has been diagnosed (2 vaccinations 4 weeks apart).
- Check calving cows, especially heifers, regularly.
- Record all cows and heifers that have calving problems and sell them and their calves as soon as is practical.

Bulls
- Evaluate the information available on potential bull supplies.
- Purchase bulls according to guidelines.
- Check purchased bulls are in working condition, not sale condition.
- Check all bulls for soundness (physical and reproductive) as well as for:
  - injuries, stiffness of gait, cuts or swelling
  - signs of three-day sickness.
- Cull any bulls with defects.
- Vaccinate bulls for three-day sickness and vibriosis (2 doses one month apart initially, then annual booster).
- Check mating paddocks are secure.
- Put bulls out with breeders:
  - Mate heifers one month before the main herd where nutrition is adequate.
  - Mate young bulls with young cows.
  - Avoid mixing bulls of different ages if possible.

Growing cattle (steers and cull heifers)
- As for autumn.

Summer
Dec, Jan, Feb

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

Bulls
- Observe bulls in mating paddocks. Are they all working?

Growing cattle (steers and cull heifers)
- Weigh. Assess individually rather than on average.
- Are poor calves from one bull? If so, cull bull and calves.
- Consider HGP implants for steer calves for non-EU sale.

Timely tips for south-east Queensland

NUTRITION	PASTURES	PARASITES & DISEASES	BUSINESS	PROPERTY MAINTENANCE
Assess pasture quantity and quality in each paddock and do up a forage budget. (Winter rain may improve pasture quality but not quantity.) Evaluate effectiveness and cost benefit of winter supplementation program: • Plan supplementary feeding program. • Order supplement supplies, required. Adjust stock numbers according to feed available.	Assess pasture quantity and quality for winter. Reduce cattle numbers if insufficient feed. Start preparing land for sowing improved pastures in spring.	Start strategic pre-winter tick control. If resistance is a problem consider using DPI&F Tick Resistant Survey Kit. Check weaners' worm burdens with WormCheck; treat if necessary. Check weaners for coccidiosis. Treat for buffalo fly to reduce the numbers over-wintering. Remove and replace out-of-date buffalo fly tags.	Review business plan. Consider training to improve knowledge and skills. Meet with accountant for tax planning. Are your Livestock Production Assurance (LPA) records up to date Would you pass a random audit?	Check fences and river and creek crossings after wet season. Check fences and water facilities in breeder paddocks.
Draft cattle according to nutritional need. Start supplementary feeding program. Re-assess pasture quality and quantity: • If pasture quantity is below requirements, reduce numbers. • If pasture quality won't sustain required performance, assess options.	Monitor pasture (quality and quantity) and adjust stock numbers as required. Continue land preparation for sown pastures.	Check late winter (early) calves for ticks. Plan tick control measures for summer.	Assess the last 12 months of cattle sales. Plan business strategies for the next 12 months. Review key performance indicators.	Train staff to use and maintain farm equipment in a safe, correct and competent manner.
Review dry season management plan and climate forecasts. Reassess pasture quantity and quality in relation to ground cover and feed values at the end of the dry season. Feed energy and protein supplements to heavily pregnant or lactating breeders and to weaners to maintain liveweight. Evaluate effectiveness and cost benefit of winter supplementation program. Re-order molasses, grain supplies or supplements for next drought.	Check pastures at the spring break: • Is there enough ground cover? Consider spelling some paddocks. • Consider burning native pastures to maintain good pasture condition and control woody weed growth. • Check and control weeds before they seed. Actively patrol known 'hot spots'. Watch long-range weather forecasts for suitable time to plant pasture. Check firebreaks and fire-fighting equipment. Consider bloat control on lucerne- or clover-dominant pastures.	Vaccinate bulls for vibriosis. Vaccinate for three-day sickness. Vaccinate all breeding cattle, including bulls, for pestivirus. Obtain cattle dip analysis and adjust chemical level if necessary. Check early calves (late winter) for ticks. Start tick control program. Check weaners for worms (WormCheck program) one month after season has broken.	Meet with all staff to discuss the progress of the business and plan for the future. Review overall property management and any changes that may be necessary. Review breeding program; assess whether it is producing animals suitable for market requirements.	Check river and creek crossings before wet season. Maintain fire-fighting equipment including extinguishers. Make sure staff are fully trained in use of fire-fighting equipment. Clean around buildings and check gutters are free of leaves. Ensure fire breaks are maintained and accessible.
Start phosphorus supplementation program in deficient areas. Continue until the end of the growing season.	Evaluate post-drought pasture management. Spell leucaena for at least two months. Consider applying maintenance fertiliser to sown pastures. Lock up paddocks to build up pasture grass seed banks in soil.	Continue tick control program. Check young cattle for worms. Treat if necessary. Control buffalo fly where applicable with insecticidal ear tags and buffalo fly traps.	Have a break with family over Christmas. Evaluate markets and plan sales for coming year. Update the NLIS database for all cattle born, purchased or sold or which died during the year.	While water is available in dams and creeks, carry out annual maintenance on windmills and watering points. Do workplace health and safety audit of property. Do annual electrical safety check on all household and farm equipment.

NLIS update

Cattle producers are urged to order their NLIS tags now to avoid difficulties moving cattle or potential prosecution when NLIS phase-in exemptions end on 30 June 2007.

Increased orders for NLIS tags may lead to delays in production, so producers should order their NLIS tags now to be sure of receiving their order and having the tags in place in cattle they plan to move from 1 July 2007.

As a recent court case has highlighted, courts will not accept forced movements of stock due to drought or other excuses for failing to comply with NLIS tagging and database notification stipulations.

From 1 July 2007, all cattle being moved must be fitted with an approved electronic device:

- This includes classes of cattle that were previously exempt, such as cattle moving to slaughter, bulls, bobby calves and livestock used in sporting events.
- All cattle moving to an abattoir must be tagged with an NLIS device.
- This includes feral or micky bulls that have been captured and sent to slaughter.
- Bobby calves will also require electronic tags; non-electronic tags will no longer be permissible.

The movement of cattle must also be reported to the NLIS database within 48 hours, and the legal obligation is on the receiver of the stock to notify the NLIS database.

Failure to electronically tag moving cattle or to report cattle movement to the database within 48 hours will be a breach under the Stock Identification Regulation 2005, which could lead to heavy fines being imposed by a court of law.

For a complete list of critical dates and requirements, contact:

Website: www.dpi.qld.gov.au/NLIS
Phone: 13 25 23
Your local DPI&F biosecurity inspector.

Collecting plant samples for identification

It is always good practice to get a new or strange plant identified to reduce the risk of weeds becoming established on your property. Your local shire weeds officer can help identify most declared weeds. Alternatively you could take a sample to your nearest NRW or DPI&F office.

How a plant is collected, preserved and presented will affect how easily, quickly and accurately it can be identified. The following points are a guide to plant collection:

- Collect as much of the plant as possible including roots, flowers and seed pods.
- Make a note of the plant's growth habit and any particular characteristics. Was it sticky or prickly to touch? Erect or prostrate?
- Make a note of the growing conditions including soil type, slope and aspect, and whether the plant occurs in native or sown pasture or in cleared country or uncleared bush.
- Putting the plant in a plastic bag will help to keep the sample fresh, but it will also promote mould growth. If it will be more than a couple of hours before you can get the plant identified, put the sample in the fridge to reduce the chance of mould growing.
- Dry the plant sample if it will be longer than a day or two before it will be identified. Spread out the sample and put it between sheets of newspaper, then place a weight such as some large text books on top.

Plant identification publications should be available at your local shire council, your nearest NRW or DPI&F office, and your regional natural resource management group (BMRG, SEQ catchments etc). Some useful web links include:

www.northwestweeds.nsw.gov.au
www.weeds.org.au/weedident.htm
www.hccrems.com.au/weeds_cd/index.html

Blady grass management – to burn or not to burn?

Blady grass (*Imperata cylindrical*) is native to Australia and is also found in the tropical and temperate regions of many other countries. It is widely distributed in the coastal and sub-coastal districts of Queensland up to about 300 km inland. This grass is unpalatable to stock when mature and reduces the carrying capacity of both sown and native pastures. It often indicates a run-down in soil fertility or other forms of pasture degradation. Due to its underground stems, blady grass is resistant to fire. Regular burning practices often lead to blady grass becoming dominant to the exclusion of more desirable pasture grasses. Here are some suggested strategies for dealing with blady grass.

Situation 1: Blady grass patches cover a minor portion of a good pasture paddock

- Selectively slash the patches a couple of times per year to let light through to the ground and encourage other grasses to establish.
- Fertilise the blady grass patches plus a strip around the outside with a nitrogenous content fertiliser, such as DAP, to encourage stoloniferous grasses to run in.
- If there are no running grasses present, poke in some runners (such as Rhodes, creeping blue, pangola or African star) on a wet day, or plant some sods of kikuyu.

Situation 2: Blady grass dominates the majority of the paddock on arable land

- Burn the blady grass bulk and chisel-plough the paddock (multi-directional ripping) to break up and expose all the blady grass roots and stems.
- Plant a fodder pre-crop for one or more seasons to ensure all the blady grass roots are killed.
- Replant the pasture with the desired pasture species and appropriate fertiliser.

Situation 3: Blady grass dominates pasture on non-arable land or on extensive grazing properties

- Burn (for the last time) in late summer/autumn.
- Oversow with legume seed (such as Seca stylo, Finestem stylo, Wynn cassia or lotononis) immediately after burning and before rain.
- Selectively graze the blady grass green shoot during winter (the cattle will trample in the legume seed).
- Withdraw the cattle during summer to allow the legumes to grow up through the blady grass.
- Graze during the winter once the legumes have set seed and are dormant.
- If there is insufficient rain for good legume establishment on the first attempt, repeat the process.

Situation 4: Blady grass patches

- Wick-wipe with glyphosate when the blady grass is green and actively growing, without damaging the shorter and more desirable grasses such as Rhodes grass.

These points should cover the main scenarios for blady grass management and control in south-east Queensland. There is no one single approach. In native pastures where blady grass already occurs, annual burning practices can lead to a progressive increase of the blady grass component over the years. Changing from the traditional spring burning practice to autumn burning, or reducing the burning frequency to every second or third year, can help to reduce, rather than increase, the blady grass component.

Remember

- Keep fire out of the blady grass after starting the pasture improvement.
- Encourage the establishment of competitive grasses and legumes.
- Apply fertiliser to maintain a vigorous and productive pasture.
- Manage the pasture to increase the legume component.

Further information:

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BEHIND THE SCENES

We would like to introduce and give a huge thankyou to:

- Lyndel Bryant (DPI&F Kingaroy), *Beeftalk* database manager,
- Heather Lees (DPI&F Rockhampton), *Beeftalk* desktop publishing,
- Stephen Smith (DPI&F Rockhampton) *Beeftalk* printing and mailout, and
- Elysa Riedel (DPI&F Yeerongpilly) Beeftalk funds finder.

Lyndel, Heather, Stephen and Elysa are key *Beeftalk* team members who have eluded formal recognition, and a photo, to date. Writing and organising *Beeftalk* articles is one thing – getting them ready to print and posted out is another. Thanks to Lyndel, Heather, Stephen and Elysa's commitment and dedication for making this happen!

Native forest management –
Implications for grazing

Significant areas of land in SEQ provide landholders with income from both grazing and forestry. Despite the supplementary income that can be derived from trees, most grazing enterprises have traditionally focused on enhancing grazing through cyclical clearing and thinning. As hardwood timber becomes scarce and prices rise, managing these areas for both beef and timber production can be financially rewarding.

Impacts of trees on grass

Trees can have both positive and negative effects on pasture (Figure 1), due to:

- rainfall interception
- shading
- root competition (for nutrients and moisture)
- microenvironment changes
- effects on soil condition (soil structure)
- nutrient cycling.

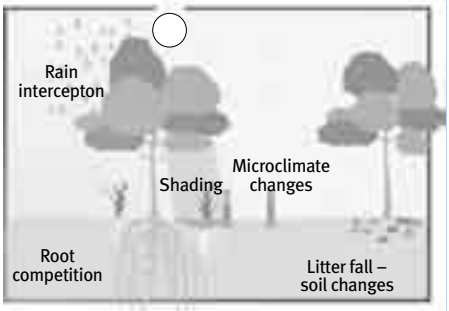

Figure 1. Impacts of trees on pasture
(Source: EDGEnetwork GLM)

While pasture quality is often better under or near trees, the net effect of too many trees is to suppress pasture growth. This is mostly due to competition for soil moisture. The impact of this competition on pasture growth is related to tree density (Figure 2). A useful measure of tree density is tree basal area (TBA).

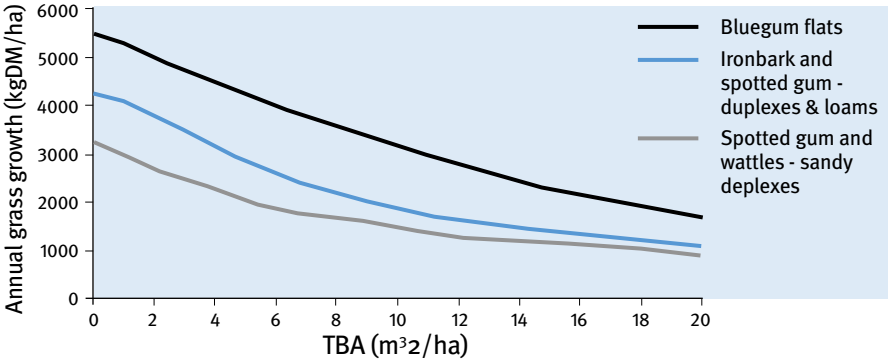

Figure 2. Impact of tree density on grass production for the coastal Burnett

Clearing heavily timbered country can triple pasture production. However, in many eucalypt forests, the costs of initial clearing and ongoing regrowth management render clearing uneconomical.

Impact of thinning on forest production and the grazing enterprise

To optimise the productive potential of a forest being managed for timber production, cyclical harvesting and thinning are critical (*Beeftalk* 20). Depending on the relative fertility of the site and climate constraints, optimal timber production occurs when the tree density is around 100 stems per ha with a total TBA of 10 to 12 m^2/ha.

A well managed spotted gum forest with optimal stocking density can yield up to 1 m^3/ha/year. Obviously, growth rates are less in drier areas (such as the inland Burnett) and for forests that are in poor condition.

Post-thinning pasture production

Thinning an over-dense forest to optimal stand density can reduce the tree basal area from 24 m^2/ha to 10 m^2/ha. This can increase pasture production by as much as 40 to 50 per cent. A heavy thin and harvest that reduces TBA to 6 m^2/ha can increase pasture production by as much as 85 to 120 per cent, the increase being greater on more fertile land types (such as blue gum flats).

Changes in carrying capacity

While increased grass production lifts the cattle carrying capacity (CC) significantly, the effect tends to be short lived. Generally, the retained trees in the stand grow relatively quickly, which increases TBA. Furthermore, significant regeneration usually follows a disturbance in a forest (this is one of the aims of sustainable silvicultural practice). This regeneration also increases TBA.

Thinning for timber production may lead to short term gains in cattle carrying capacity ...

...but probably only in the short term

Integrating forest management and grazing

In SEQ, few native forests are found on highly productive and developed grazing country. These land types either had little commercial timber initially (such as the scrubs), or the commercial timber was harvested early

Table 1. Grazing gross margins for three land types in the coastal Burnett at different TBA

	TBA	CC (ha/hd)	Annual LWt gain (kg/hd/yr)	Annual LWt gain (kg/ha/yr)	Cattle gross value* ($/ha/yr)	Variable cost ($/ha/yr)	Gross margin ($/ha/yr)
Ironbark and spotted gum on duplexes and loams	24	12.2	140	11.5	17.26	3.31	13.95
	10	6.4	140	21.9	32.79	6.29	26.50
	7	5.2	140	27.0	40.56	7.78	32.78
	0	2.8	140	49.5	74.22	14.24	59.98
Spotted gum and wattles on sandy duplexes	24	15.2	95	6.2	9.37	2.52	6.85
	10	8.1	95	11.7	17.57	4.72	12.85
	7	6.8	95	14.1	21.08	5.66	15.42
	0	3.7	95	25.8	38.65	10.38	28.27
Bluegum flats	24	7.0	170	24.5	36.68	5.99	30.69
	10	3.3	170	52.2	78.25	12.78	65.47
	7	2.7	170	61.9	92.92	15.18	77.74
	0	1.9	170	89.7	134.49	21.97	112.52

*LWt gain valued at $1.50

during settlement and the land subsequently cleared for grazing, dairying or cropping.

Much of the remnant hardwood forests grow on relatively unproductive grazing country (such as spotted gum and ironbark ridges and mountains). While timber production has provided an important income from these land types, there is room for improving hardwood productivity by more proactively focusing on forest management.

Some land types are quite productive in terms of cattle production and timber production (e.g. ironbark and spotted gum on duplexes and loams). This has been well recognised by landholders who manage productive native forests in conjunction with their grazing enterprise. The challenge for managing these land types is to strike a balance between cattle production and timber production.

If the timber is valued at $80 to $100/m^3 and a well-managed forest can yield 1 m^3/ha/year, it is easy to see from Table 1 that spotted gum and wattle country will never generate the same income from beef that it can from timber (even if it was fully cleared). Cattle production ($6 to $12/ha/year) on this land type is a bonus and contributes to enterprise cash flow.

Conversely, cattle production from productive blue gum flats, even at moderate TBA, will probably out-compete timber production.

Land types which are reasonably productive for both grazing and timber pose a challenge when determining the enterprise focus. Often landholders will choose to retain trees on these land types at a TBA that is sub-optimal for either grazing or timber production, but when these enterprises are combined they yield acceptable long-term financial returns. For example, retaining trees on a land type such as ironbark and spotted gum on duplexes and loams at between 7 to 12 m^2/ha TBA may only yield about ½ m^3/ha/year in timber production, which equates to $40 to $50/ha/year. However, when this is added to the cattle production of $20 to $30/ha/year expected at this TBA, it represents a better long term return than fully clearing for grazing alone.

Conclusions

Productive grazing country generally provides few opportunities for income from native hardwood forestry. This is because grazing has an economic advantage over timber production on this country, and also because few remnant forests exist in these areas.

Poor quality grazing land with significant forest cover should be managed primarily for timber.

The truly dual purpose land types have the potential to be managed at tree basal areas that are sub-optimal from both the grazing and timber production perspectives individually, to produce an optimum economic outcome when the productivity from both enterprises is combined.

Further information:

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Research update

Evaluating grazing systems

The advantages and disadvantages of various grazing systems have been debated for many years, but little objective information has been available, until now.

A four-year grazing systems evaluation project, now into its second year of recordings, has been designed to clarify the inputs required and outcomes that can be expected from various grazing management systems on the major beef cattle producing land types across Queensland.

The outcomes of this project, co-funded by Meat and Livestock Australia, Queensland Department of Primary Industries and Fisheries and CSIRO, will enable land managers to better evaluate the best grazing system – intensive, less intensive and continuous – for a particular property or type of country. The aim is not to recommend one system over another, but rather to outline the expected outcomes from each grazing system when inputs are considered.

At nine primary sites, pasture, landscape and cattle data are being collected from selected paddocks within commercial paddock-scale grazing systems, on land types that include eucalypt woodlands and Brigalow country, from Richmond in northern Queensland to Surat in the south of the state and east to Mundubbera. On these properties, 21 grazing systems are being assessed in 72 paddocks covering 12 528 ha. These consist of 52 cell paddocks (2907 ha), 13 rotation paddocks (5697 ha), and 7 set stocked paddocks (3924 ha).

At a number of secondary sites, less intensive recordings are being made which will enable project staff to tap into the graziers' knowledge, further increasing the scope of the study.

The first year of recordings has set a benchmark against which trends will be assessed.

This is the most extensive monitoring of grazing management systems undertaken in Queensland. From the results, practical grazing system decision guidelines will be incorporated into EDGEnetwork Grazing Land Management and Nutrition workshops and published in a booklet.

More information:

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Buffalo fly – possible natural control

A bacteria called Wolbachia, found in many insects, is thought to have an adverse effect on its host. If this bacteria is found in buffalo fly, there is potential to develop the bacteria as a natural control agent for this pest.

Staff at the DPI&F Animal Research Institute, Yeerongpilly, are collaborating with the University of Queensland to identify this bacteria in buffalo fly in Australia. The research group is interested in obtaining buffalo flies from sites around Queensland.

If you would like to help by collecting buffalo fly please, contact Peter James.

More information:

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DPI&F Animal Research Institute
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Skills Telegraph to identify rural workforce needs

Queensland's primary producers are helping to find training solutions for businesses and industries by logging on to a simple, easy-to-use online tool developed by the Department of Primary Industries and Fisheries.

The Skills Telegraph is an innovative web database collecting information on what training is needed and where for Queensland's rural industries.

The information gathered through the Skills Telegraph will be validated and prioritised in consultation with industry stakeholders. Then this information will be provided to the Department of Education, Training and the Arts to determine where funds will be invested in training.

The goal is to assist industries in accessing, attracting, retaining and developing skilled workforces.

How to register your training needs with the Skills Telegraph:

Website: www.dpi.qld.gov.au/skillstelegraph/
Phone: DPI&F on 13 25 23

Using NLIS as a management tool

The national livestock identification system (NLIS) has been in operation for 18 months. Many producers are benefiting from using this mandatory system in their everyday business management, such as by recording individual animal or herd data to track production performance and help fine-tune their management.

Many producers already record information about their cattle. Using NLIS in an electronic recording system can improve the accuracy and speed at which information is recorded, analysed, and ultimately used in decision-making.

The information that you will need to record will depend on your enterprise type and business goals. The equipment you will need will depend on how you need to collect this information and how often.

The possibilities are endless with electronic recording, especially with specialised software programs. However, the information that you get out is only as good as the information you put in. So if the information you put into the program isn't the sort of information that will strengthen your decision-making, then the information the program puts out won't be any better.

Whether you are starting from scratch, are using a paper-based recording system, or have already gone electronic, here's how to make the most of your NLIS investment and time:

1. Identify your business/enterprise goals and select the key areas (or 'key performance indicators') that will affect your bottom line.
2. Work out which information or data you need to help you make decisions regarding these areas, including how much data is needed, how often it needs to be recorded, and what devices and equipment are needed to collect and record the data.
3. Investigate your equipment options and needs; ensure your equipment is installed and operational. For example, the bare minimum required to collect meaningful weight-gain data may be a vet crush, scales and reader.
4. Collect the information.
5. Analyse the information and make adjustments to your management and/or information collection system.
6. Review the success of any changes you have made.
7. Start again.

Before embarking on electronic recording, it is most important to assess your business to identify the key area/s that affect your bottom line. With these in mind, you will be able to identify which data will be useful and ensure that only these data are collected, collated, compared and acted upon. By targeting only the data you need, you will be able to minimise the potential complexity of the software program you will need to analyse the data.

Three key information areas that you may like to consider are:

1. Production recording of individual animal performance – For example, individual daily weight gain and temperament identifies animals that will increase productivity and profitability.
2. Reproductive recording – Records of individual animal reproductive performance will provide links between desired traits and future offspring.
3. History recording – Recording individual animal history (e.g. vaccinations, hormonal growth promotants, sickness, chemical use) provides essential, documented information for Livestock Production Assurance.

Tips for choosing computer software

When considering electronic recording, first speak to people who are already using software packages and learn from their mistakes. Identify what you need, and purchase a product that will give you what you need. Be careful not to become overwhelmed by the prospect of a package's capability.

Software packages offer varying capabilities, but generally they will include integrated paddock recording and farm mapping, whole-of-life performance recording, general herd management, and on-farm performance and pedigree recording. Prices range from $500 to $4500, depending on the components, services and updates offered.

Some packages offer a huge range of supplementary components that you may never use. On the other hand, as you become more confident in using a program you may find additional uses for the information and expand the use of the package and any extra components you may have purchased. These benefits may branch out into other facets of your business, so keep your options open.

It is important to verify whether future updates to the package are included in the original price or have to be purchased. Updates can be produced regularly, and can become expensive if they must be purchased each time.

Operational training in using the packages is offered at the point of installation. Most companies also offer an over-the-phone help desk service for clients experiencing difficulties.

More detailed information can be obtained by contacting the software companies direct or searching the internet for farm management software.

Further information:

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Selecting a working dog

by Barrie Hughes

In a recent MLA survey, beef producers in northern Australia rated staff management (recruiting, training and retaining staff) as a major issue. Many beef producers are turning to herding dogs to make up their workforce.

A good, well-trained dog will easily replace a stockman, will never question your decisions, and will improve the temperament of your cattle. A dog that shows sufficient force and strength when it's needed and that gets into the right position on a mob of cattle will get the job done.

Beef producers often face the challenge of sourcing and selecting a suitable dog. If you're buying a dog, you can choose between:

- a pup to train yourself,
- a young 'started' dog, or
- a mature 'going' dog.

When purchasing a pup or dog, it is worthwhile to visit the breeder to view the parents and any older siblings in action. This will allow you to decide if the style in which they work will suit you. You also need to actually like the dog; a personality clash between you and the dog will make it difficult for you to put in the time and effort needed to develop a sound, reliable dog. Whether you select male or female is your personal choice; there are pros and cons either way.

The advantages of getting a 'going' or a 'started' dog are quite simple: you have a dog that is ready to work. You can also see that the dog works the way you want it to before you purchase it. Obviously a 'going' dog will be more experienced and confident than a dog that has just been 'started'. You should find out all the dog's commands and be aware of what it can and can't do, so that you can get the best value from your dog and capitalise on its ability. The dog will continue to develop if you train it consistently.

If you prefer to buy a pup, be sure there is nothing about the pup you don't like. You'll be a long time educating and keeping that pup, and that's a lot to invest in a pup that doesn't measure up. Exposing the pup to a few sheep, ducks or geese any time from six weeks of age can give you an indication of what it is going to do. The pup's education (of which bonding with you is one of the most important aspects) starts from the very moment you get it home.

Many pups are ruined by impatience and by expecting them to work cattle when they're still too

young. A pup may be 10 months of age before it is ready to go near cattle. Even then it is best to use weaners that are quiet and educated. By this time the pup should have learnt some basic commands (Sit, Stop and Come Here) and respond readily to its name. Your dog should want to go to the head of the mob and should be taught to draw the stock to you before being taught to drive stock.

A pup should probably not work cows and calves until it is two years old. Even then the dog should work at a distance that is far enough to avoid wet cows wanting to fight the dog, but close enough for the dog to have influence.

Not every dog or pup is going to be a world-beater but most can be fairly handy. Always remember they are all different and none is perfect. A going dog can cost from $500 to $5000, while a pup can cost from $50 to $500. Just because a dog comes from Western Australia, Tasmania, Victoria or New Zealand means nothing. The right dog for you may be next door.

On the other hand, if you are continually getting dogs or pups that aren't measuring up then perhaps it's not the dog!

I often hear people say, 'My dog is always in the gate-way or in front of the cattle when I'm trying to move them'. Herding dogs have been selected over countless generations for their ability to go to the head or lead of a beast or mob, collect that beast or mob and bring it to you. The dog's position is opposite you, balancing the mob to you, and they do this mostly on instinct. They won't want to be with you unless on command, so you need to get yourself into the right position i.e. the gateway! If you have educated your weaners correctly, you can trust your dog to bring the mob to you through the gateway.

You may be surprised at what you and your dog can achieve when you have the skills, knowledge and experience to capitalise on your dog's instincts. Information on handling working dogs can be

picked up from many sources, including publications, working dog training schools, stock handling courses and cattle dog trials.

In summary, buying a 'going' or 'started' dog is quicker than training a pup. However, training a pup to your own style can be very rewarding. Either way, ensure you are getting a dog that you like, works the way you want, and fits in with your operation.

Barrie Hughes is a retired butcher who now breeds Charbray/Brahman cattle at Electra, Bundaberg, and grows out and fattens steers at Coringa, Biggenden. Out of necessity, Barry started using herding dogs (short-haired Border Collies) while grain-feeding cattle to supply his Bundaberg butcher shop.

After retiring from the butcher shop in 1999, Barry became a keen and successful competitor at cattle dog trials. The dogs he uses for competition are the same dogs he uses to work his stock on the property and to educate weaners for other people.

More information:

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Working dogs – Importance of weaner education

Weaning is the best time to educate cattle. Weaning is the time to expose them to all the facets of stockmanship and husbandry they will be exposed to during their life.

Weaning time is the time to educate cattle to work with a dog. Weaners will learn to turn off a dog and to respect it. Flighty and free-thinking animals in the mob will quickly realise that it is much safer to remain in the mob than to attempt to break free past a herding dog.

This education will endure for the productive life of the animal. In the case of heifers, a few weeks of education at weaning will pay off over the potential ten to twelve years that the heifers remain in the breeding herd.

Weaning is an opportune time to start a young dog. Weaners are much less likely than mature cattle to intimidate a young dog, which assists greatly in building the dog's confidence.

Even mature dogs benefit from some extra work at weaning. In this relatively controlled environment you can generally fine-tune your dog or correct any bad habits that may be forming.

NLIS for goats

from 1 January 2007

The National Livestock Identification System (NLIS) for goats in Queensland commenced on 1 January 2007.

Under the regulations, farmed goats born after 1 January 2007 must be identified with an NLIS-approved property identification code (PIC) sheep tag before leaving their property of birth. Farmed goats include dairy, meat and fibre goats.

Deck lots or more travelling to slaughter on a weight and grade basis do not have to be tagged.

During the phase-in period (1 January 2007 to 31 December 2007) farmed goats born before 1 January 2007 will not require a NLIS tag.

From 1 January 2008, all farmed goats must be identified with a NLIS tag before being moved between PICs.

Harvested rangeland goats may be transported direct to slaughter or to a pre-slaughter depot without NLIS tags, but they must have a NVD/waybill.

Harvested rangeland goats born after 1 January 2007 that are held for more than thirty days must be segregated within ten days of arrival at the depot, earmarked if no marks are present, and identified with a NLIS tag allocated to the depot. These goats will then be subject to the same movement conditions as farmed goats.

All movements of goats travelling between PICs must have a correctly completed NVD/waybill.

More information:

Website: www.dpi.qld.gov.au/NLIS
Phone: DPI&F on 13 25 23
Your local DPI&F biosecurity inspector

What is the problem with my tick treatment?

When cattle tick treatments aren't lasting as long as you think they should, you might have resistant ticks or you might have a different species altogether. These are different problems with different solutions.

Types of ticks

There are numerous tick species in Australia. Many are native and most are of no significance to the cattle industry. The three main tick species of concern to cattle in Queensland are the:

- Cattle tick (*Boophilus microplus*)
- Bush or New Zealand cattle tick (*Haemaphysalis longicornis*)
- Paralysis or scrub tick (*Ixodes holocyclus*).

These tick species are relatively easy to identify. The chart and photos will help. If you find it difficult to identify a tick, staff at your local Department of Primary Industries and Fisheries office should be able to assist.

Confirm the species of tick

In any tick control program it is essential to know your ticks. These three species have different impacts on cattle and often require different treatment programs. Dairy farmers are not able to use some of the longer-acting tick control agents, so it is particularly important for them to identify the ticks on their cattle.

An effective tick control chemical should remove all stages of the tick at treatment time. If you have used a 'cattle tick' treatment and can see large numbers of engorging ticks on the cattle within two weeks of the treatment (even if the treatment had no residual effect), then you either have resistant ticks or a different species of tick. (Please note some chemicals do not kill all cattle ticks as quickly as other chemicals.)

This can be complicated on some farms where more than one species of tick is present at the same time. Other farms have problems with different species of ticks at different times of the year.

Resistance to tick control chemicals and different species of ticks are two very different problems requiring different treatment strategies.

Species of ticks

Cattle ticks (*Boophilus microplus*)

These ticks are found in the coastal Queensland and northern Australian areas. They do not survive in dry and cold regions. Female cattle ticks attach to cattle as larvae and stay with the one host animal until they engorge and leave the host to lay eggs. This complete cycle takes three weeks on average. Treatment every three weeks with chemicals with no residual effect should prevent most of these ticks from completing their life cycle.

Bush or New Zealand cattle ticks *(Haemaphysalis longicornis)*

These ticks are found in higher rainfall coastal areas. Tick numbers can build up rapidly in favourable seasons and can cause production losses. Bush ticks do not stay attached to one host so a different and much more frequent strategic treatment program is required, compared to a programme for controlling cattle ticks. In some areas, weekly treatments are used during the time when conditions are favourable for bush tick survival.

Paralysis or scrub ticks (*Ixodes holocyclus*)

Paralysis ticks are found mostly in higher rainfall areas and will attach to most animals. These ticks produce a potentially fatal toxin which can cause paralysis and death in calves and weaners. Young animals are particularly susceptible, but survival after exposure to this toxin may provide the animal with some resistance to the effects of these ticks. The paralysis tick has a different life cycle from the cattle tick and does not stay attached to the one host. Because paralysis ticks attach and cause paralysis very quickly, the most effective control option is usually close observation and immediate treatment.

When to treat

Farmers in the tick areas of south-east Queensland should combat cattle ticks in the spring before numbers become a real problem. Tick numbers can increase rapidly through spring and summer if left untreated. In many areas, conditions last winter did not favour tick survival and tick numbers were lower during the summer of 2007 than in previous years. In other areas, tick numbers seem to have been unaffected despite the conditions. If farmers are expecting large numbers of cattle ticks in the spring and summer, then treatments are needed in early spring to limit the build-up of ticks later in the spring and summer months.

Experienced farmers know from weather conditions and past experience if their area is likely to have a serious tick problem. A planned strategic approach to treatment is the only efficient means of limiting the tick population on cattle and in pasture.

The temptation is to delay treatments until cattle ticks are visible in large numbers. This appears to get better value from the treatment, particularly when long-acting tick control chemicals cannot be used. However, treatments done early

	Cattle tick	Bush tick	Paralysis tick
Legs	Pale cream legs, with a large space between the first pair of legs and the mouthparts.	Dark red-brown legs, with the first pair close to the mouthparts.	The first and last pairs of legs are brown and the other legs are paler. The legs form a V shape from the mouthparts down the body.
Mouthparts	Short	Short	Very long

Cattle tick (Boophilus microplus)

New Zealand cattle tick (Haemaphysalis longicornis)

Scrub or paralysis tick (Ixodes holocyclus)

Each female cattle tick lays 2000 to 2500 eggs in the paddock

Cattle tick larvae on a blade of grass waiting to attach to cattle

while tick numbers are relatively low have a much greater effect on the tick population. Sporadic tick treatments when ticks are visible in large numbers do not control pasture contamination, and may only be effective in easing the farmer's conscience. By the time engorging ticks are seen in large numbers, many will already have disengaged and dropped to contaminate the pasture with future ticks.

An effective program should provide maximum control with the least number of treatments. An appropriate chemical needs to be selected, and then it needs to be applied correctly. All cattle and most other livestock need to be treated at the same time (including calves where recommended). This is not necessary if groups are kept strictly isolated.

Tick fever vaccination is recommended with all cattle tick control programs, because even small numbers of cattle ticks carry the threat of tick fever disease with them.

It is important to observe all safety requirements for handling chemicals and disposing of unwanted chemicals and containers. Also observe any withholding periods and export slaughter intervals displayed on the product labels.

Resistant ticks?

There are still chemicals available that are effective against the known resistant ticks. A change to one of these more effective chemicals may be necessary. Other management strategies, such as pasture spelling and rotation, can be used to slow the development of resistance to the available chemicals.

However, if your area has ticks that are resistant to most of the available chemicals, you may need to consider changing your breed of cattle. Many of the Brahman or Brahman cross cattle have greater tick resistance and are less affected by ticks. Sometimes increasing the Brahman content in your cattle is all that is needed.

Avoid introducing or developing resistant ticks

The movement of cattle infested with resistant ticks is the most common way that resistant ticks are spread. When buying cattle, take care not to buy resistant ticks. To reduce your risks, take some of the following precautions:

- Examine all purchased cattle carefully for ticks.
- Keep any purchased cattle separate and observe them regularly for any developing ticks.
- Treat any incoming cattle with an acaricide that will kill all known resistant tick strains.
- Have any cattle treated for ticks before they come to your farm.
- Ask about the tick history of cattle you may be interested in buying, and seriously consider not buying from problem herds.

Resistance may also develop after the same chemical has been in prolonged use. If alternative chemicals are available, it is important to use a variety or to rotate the chemicals you use to limit the exposure of the ticks to individual chemicals. This can help to delay the development of resistance.

If you are concerned you may have resistant ticks, DPI&F at Yeerongpilly offers a testing service (phone 07 3362 9471).

More information:

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If you would like a copy of Beeftalk mailed to you, please complete the following form and send to Editor, Beeftalk, DPI&F, PO Box 118, Gayndah, Qld 4625 or Email russ.tyler@dpi.qld.gov.au

Name: .....

Address: .....

Postcode: ..... Shire: ..... Property Number: ..... No. of cattle: .....

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

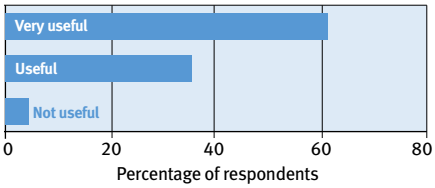
Which of the following best describes you?

☐ Beef producer ☐ Agribusiness outlet ☐ Education ☐ Other (please state) .....

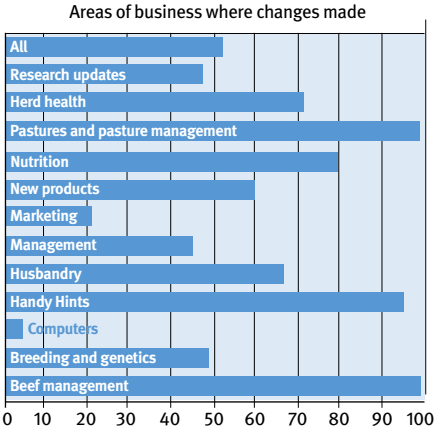
Beeftalk evaluation results

Thank you to everyone who replied to the *Beeftalk* evaluation last year. The results were very positive and the *Beeftalk* team are proud to continue providing this service to DPI&F clients. Congratulations to Melanie Leather from Gin Gin who won the DPI&F book voucher.

Over 400 readers responded, and sixty-five per cent of respondents found that *Beeftalk* is a very useful source of information; 31% found it useful; and only 4% did not find it useful.



Ninety-seven per cent of respondents had made changes to their business as a result of information in *Beeftalk*, while only 3% had made no changes. The areas of business in which changes were made are summarised in the graph below.



Respondents also indicated that the information in *Beeftalk* had positively improved their skills in five key areas. The top three areas of significant improvement:

1. Property management skills
2. Decision-making skills
3. Ability to resolve issues or problems.

All respondents thought there was value in the *Beeftalk* newsletter continuing. Respondents suggested a wide range of topics which we will endeavour to cover in future issues. As always, your feedback is essential for maintaining the relevance and usefulness of the *Beeftalk* newsletter.

The editorial team here at *Beeftalk* is pleased to hear that we have made a 'profitable impact' on beef businesses in south-east Queensland.

Rabbits causing you concern?

Did you know that seven rabbits will eat as much as one sheep? Sixty-three rabbits eat about the same amount as a 450 kg steer!

There are still more than two million rabbits eating crops and damaging fauna and flora in Queensland. Rabbits cost producers money every year through loss of produce, loss of productive land, and competition with livestock for food.

Rabbit Calicivirus (RCV) has reduced numbers, but it won't be the sole solution to our rabbit problem. It is vital that we take advantage of low rabbit numbers now by continuing to implement an integrated rabbit control program to stop rabbit numbers bouncing back.

Rabbits need to have shelter to breed and survive. If you locate and remove this shelter you will destroy the rabbits. Ripping warrens, burning or burying rubbish, and spraying weeds such as blackberries, can destroy the rabbits' shelter.

Better still, simply removing rubbish and woody weeds around the property will deter rabbits from establishing burrows under them.

When significant numbers of rabbits are in the paddocks, Council and local Land Protection staff will spend an evening with landholders to consider whether bio-control will help boost the effect of the other rabbit control methods being used.

It is the landholders' responsibility to look after their vegetable patch and gardens. If you can't find the rabbit harbour, your garden can be rabbit-proofed with a little extra maintenance and new netting for your house yard fence.

Rabbits that are game enough to enter house gardens are also going to be hungry enough to take poison baits. A rabbit bait called 'RABBAIT', now available in oat form, can be obtained through your local rural outlet.

More information:

Contact your Local Government or DPI&F Land Protection Officer

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