



Beeftalk

Taking stock of your future

Prime news and views for beef producers of south east Queensland

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editorial

Much of south-east Queensland is experiencing one of the driest periods on record. This in turn means that many people are preoccupied with making difficult decisions to ensure that their business survives this challenging season. While the dry season may be the main focus of our attention it is important to keep abreast of all the issues facing the beef business.

The *Beeftalk* team strives to cover a variety of topics in each issue. *Beeftalk* 22 is no exception. Topics covered in this issue range from managing native forest to NLIS and business management, from herd and pasture management to the correct use of the National Vendor Declarations and waybills.

National Vendor Declarations and waybills have been with us for many years but a high percentage still arrive at saleyards and abattoirs incorrectly completed. An article highlighting common errors on these forms will help producers to ensure that forms are completed correctly.

The way pastures are managed after a drought has a big bearing on their long-term composition and sustainability. 'Pastures need managing beyond the drought' gives a guide to the best management practices during the first two to three months following useful rain.

This edition we farewell Rebecca Farrell who is taking leave to be a mother. We also welcome back Damien O'Sullivan. Damien left the team in 2004 to move, with his family, to the Falkland Islands as the Agriculture Adviser. Damien's article in this issue offers insight into life in this remote part of the world.

The DPI&F is constantly reviewing how it does its business to ensure that the needs of producers are being met. An evaluation enclosed with this issue seeks information on how *Beeftalk* meets your needs for information and its value to your business. Please take time to complete and return this form.

Good reading!
The Eds



Managing a breeder herd

– An overview



A major objective of an efficient cattle-breeding enterprise is to maximise the difference between the increase in value of the herd and the cost of achieving the value increment. There are some very good principles but no fail-safe recipes for achieving this. Almost every action has trade-offs in effects on the country, the cattle or the cash flow. Further, there are always property development constraints and perennial surprises with the weather to be considered. The skill of a good manager is to find the best compromises and implement strategies that meet with business objectives.

Reproduction is the primary method of increasing herd value in a breeder herd. Reproductive efficiency can be defined as weight of calf weaned per cow retained the previous year. The primary determinants of weight of calf weaned are numbers of calves and calf weights at weaning. In simple terms, the business aims to produce big numbers of big weaners.

To consistently achieve high reproductive efficiency means managing for

- a high proportion of cows becoming pregnant early in the optimum conception period
- preg testing to remove non-pregnant cows or cows that conceive late
- high cow and calf survival through to weaning, during which time pregnancies for the next calf crop are established.

The following are some of the key elements required to consistently achieve high reproductive efficiency. However there are many more complexities than can be discussed in this broad overview and further specific advice should be sought from your cattle vet or a competent advisor.

The foundation of cattle management is having them under control (primarily a function of fencing and the capacity to muster and handle cattle as required) and providing them with sufficient feed and water to satisfy voluntary intake. If this is achieved, other management elements will be achieved more easily and much more cost effectively. However if basic management is not satisfactory, higher-order management becomes proportionately more difficult and less efficient.

A basic amount of feed consumed is used for maintenance in the animal. At this level, there is no

change in the animal and thus no return. Feed eaten in excess of maintenance is used for production, e.g. for growth, reproduction and lactation. Therefore achieving consistently high reproductive efficiency requires appropriate pasture utilisation and adequately distributed, good-quality water points.

The biggest challenge to reproductive efficiency is failure to cycle early enough. In heifers, this means reaching puberty. Age and weight at puberty are highly variable. Within a breed and management group, the majority of heifers will reach puberty within a 150 kg range. Generally, if well-managed heifers reach 350 kg by the end of their first mating, the probability of pregnancy is high.

Poor nutrition for heifers during the dry season after weaning can increase the average weight at puberty by 30 kg or more, so the heifers are older at puberty. It is often easy to justify improving nutrition for weaners when the impact of increased value achieved is put against the cost, as weaners respond more efficiently than any class of cattle to nutritional boosts.

Average weight at puberty in *Bos indicus* heifers tends to be about 50 kg above that for *Bos taurus* heifers when managed under the same conditions; composites are intermediate. On-going Beef CRC research has shown that weight at puberty is 50 per cent heritable in tropical cattle. The sire can affect the average weight at puberty by as much as 40 kg. This provides incentive for bull breeders to produce Estimated Breeding Values (EBV) for fertility traits.

If a cow calves in forward condition one to two months before the optimum mating period commences and she retains her condition, she has a fair to better chance of cycling and conceiving at the best time. Gestation averages 285 to 290 days (approximately nine months) in cattle, and cows must cycle within three months of calving in order to wean a calf annually.

Holding condition on pregnant and lactating cows keeps the ovaries in a ready state to cycle. If cows are allowed to lose condition it is generally too expensive to recover enough condition to warrant any increases in pregnancies during lactation. One exception is spike feeding where an energy concentrate is fed to cows during late pregnancy for

50 days prior to calving during a period when cows would otherwise have been losing condition. This strategy is only viable when targeting cows that are restricted to a three-month mating period or less.

For most businesses, the key strategies in maintaining cow body condition during both wet and dry seasons are appropriate pasture utilisation (basics), good management of the lactation period, and strategic use of supplements.

Management of the lactation period is through weaning and time of mating control. Weaning is the most critical. Managers must time weaning to achieve the best compromise between weaner growth and loss of cow condition. If pregnant cows lose too much condition, their cycle will be delayed next year, and their calf will be late and small if they calve at all the following year. In simple terms, a two-week timing error can reduce cash flow for years to come.

Therefore astute managers start weaning before cows start to slip, and time later weanings to minimise the degree of condition loss in lactating cows. Nutritional supplements can help rectify management errors, but in most cases, the efficiency in using supplements is much greater when based on good management.

A vast amount of research has shown that lactation suppresses cycling. Despite well-established folklore, research also shows that temporary weaning for 48 to 72 hours by itself has little or no significant fertility benefit.

The Beef CRC is currently investigating the genetics of lactational anoestrus (not cycling when lactating). When this research is complete, we will have identified the genes that control delayed cycling during lactation and how to manipulate these genes. Most importantly, it is envisaged that bull breeders will be able to produce bulls whose daughters will have much higher chances of cycling during lactation. This will have a huge impact on calf size and thus value at weaning and reproductive efficiency.

If the infrastructure is available, seasonal mating will markedly assist management of the lactation period and overall business efficiency. Mating should be timed to start in August/September and finish by the end of December. This allows all calves to be weaned before winter.

Disease

The primary infectious diseases affecting reproductive efficiency in north Australia are botulism, vibriosis, and pestivirus. Leptospirosis and trichomoniasis are a problem in some situations. Botulism and vibriosis vaccinations are recommended in most areas. Seek advice from your local cattle vet on diagnosis and financially-viable control measures for all diseases (e.g. vibriosis is recommended universally in bulls, but only for strategic use in female cattle).



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Bulls

Part of the cost of producing each weaner is the cost of having bulls. North Australian research shows that no more than one bull per 40 cows (2.5 per cent bulls) is required. Lower bull percentages mean higher-value bulls can be used, providing those bulls are not sub-fertile or infertile.

All bulls should pass a Bull Breeding Soundness Examination (BBSE) prior to their initial mating. Bulls that pass a full assessment and do not suffer injury, disease or mismanagement generally remain fertile for many years, and will often only need a basic annual check as follow-up.

Stress, regardless of its cause, contributes to sub-fertility. Stress can be caused by poor nutrition, relocation, mismanagement of bull groups, or non-adaptation. Fertility, and particularly semen quality, can be substantially suppressed for two months or more after the stress is relieved.

Good bull managers minimise stress in bulls, particularly in the two months leading up to the mating period and during mating. Some strategies to achieve this include:

- purchasing and relocating new bulls well in advance of mating and acclimatising them carefully
- keeping bulls in forward condition
- culling bulls before 10 years of age.



Key performance indicators – What are they?

If you are in a beef business you are in it to make money, but do you know the areas of your business that have the greatest effect on your profit (or loss)? Are they weaning rate, overhead costs, weight gain, and so on? These components of your business are known as Key Profit Indicators (KPIs).

During preparation for the MLA Beef-Up Forum, held in Mundubbera in June, we looked at two different beef businesses in the Central Burnett region and determined their KPIs. One business bred and finished their male cattle for the Japanese trade at 2.5 to 3 years of age. The second business bred and sold yearling stores. The exercise was conducted in two parts:

1. Defining the current production system (with actual numbers), income and expenditure.
2. Determining the effect of increasing or decreasing particular parameters by 10 percent – what did this change do to their business ‘bottom line’?

The KPIs to emerge for these businesses were branding rate, sale price and weight of steers at sale. You might say ‘Nothing new in that!’. However this exercise revealed these components as the important areas for these two businesses, so don’t assume that the KPIs for your business are the same.

Once you have established the KPIs for your business, what is the next step? Just knowing these KPIs is of little value if you don’t then take some action to improve them.

The first step is to get a better understanding of that area of your business. For example, if weaning rate is a key area for your business, ask some fundamental questions:

- Can you identify where the calf losses are occurring?
- Are the cows going in calf?
- Are they going in calf then aborting?
- Are they calving but the calves are dying before branding or weaning?

If you can’t answer these questions and determine the cause then it will be difficult to improve the weaning rate in your herd.

Once you have this information you will be in a position to determine what action you need to take and how much it is going to cost. In some cases the cost of the improvement will be more than the expected benefit.

Remember that there could be other areas outside the straight ‘beef production’ section of your business that may need attention to keep the business stable and profitable such as, for example, staff (including family members) management. Take the time to consider these aspects of your business also, and you will be on the way to healthy KPIs.



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Book review



Using herbicides on lantana

The National Lantana Management Group has recently published a booklet to assist landholders in controlling lantana (*Lantana camara*). ‘Using herbicides on lantana – a guide to best management practices’ is a easy to read booklet covering:

- Application methods
- Safety and legislation
- Developing a control plan
- Calculating volume of herbicide mix
- Selecting the best herbicide, and
- Reading manufacturers’ recommendations and tips.



The book is available free from the Department of Natural Resources Mines and Water.

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Corrections to the article in *BeefTalk* 21 – ‘HGP’s for cattle’

Compudose is distributed by Eli Lilly Animal Health.

Revalor is distributed by Virbac Animal Health.

Revalor-G contains oestradiol 17 beta.

Revalor -G can be used on calves from 6 weeks of age.

Revalor-H can be used in lotfed heifers and steers.

Reference to 4 x 100 day implants means one implant at a time, implanted every 100 days for 400 days (not 4 at once).

Pastures need managing beyond the end of a drought

Drought management seldom finishes when the rain eventually falls. Investing in pasture recovery is just as important as investing in herd rebuilding.

How pastures are managed following the break of an extended dry season or drought impacts on their long-term condition and productivity. In the first phase of growth, perennial grasses use energy reserves stored in their root systems to produce new leaf. They only start to replenish these energy stores when they have grown sufficient leaf, which may take up to six weeks growth to achieve. While feed quality is highest in the first phase of growth, this is also the phase in which perennial grasses are most susceptible to grazing.

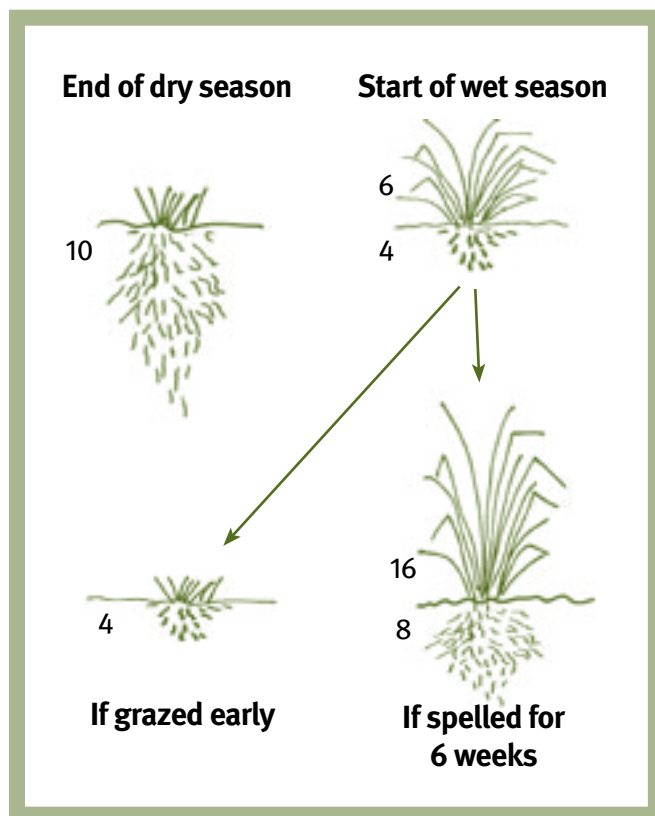


Diagram 1. The numbers in the diagram represent units of energy as they are transferred to various parts of the plant during early season growth.

Perennial grass pastures respond positively to spelling during the first phase of growth. This is especially the case when land condition is in decline and when the desirable grasses have been weakened during a series of poor growing seasons.

The 2005/2006 growing season for much of south-east Queensland was generally a poor one. For much of the south and central Burnett the January to April

rainfall was some of the lowest on record. While long-range forecasts for the 2006/2007 growing season do not indicate a significant chance of a 'big wet', most areas of south-east Queensland can reasonably expect a break to the season by the middle of December (see *BeefTalk 18* for break of season rules).

Landholders who have reduced stock numbers due to drought may be tempted to restock quickly following a break in the season, either by purchasing replacement stock or by returning agisted cattle to their home property. Financial demands make these strategies look attractive, but there is a risk that high grazing pressure on recovering pastures will cause a loss of land condition. This situation is made worse if the break to the season is only a false start and is followed by another poor growing season. Restocking in stages spreads these risks and allows for pasture to be spelled.

Where the main drought management strategy has been to supplementary feed with fortified molasses or whole cotton seed, it may be tempting to cut costs by halting these programs when rain finally falls. The risk in doing this is that cattle can lose weight rapidly by chasing 'green pick'. They use a lot of energy in foraging for feed that is in very short supply and can't eat enough dry matter to meet their nutrient requirements. In many cases it is a worthwhile investment to continue the feeding program for several weeks following the break in the season. This is especially effective if it is done in a way that allows some paddocks to be spelled at the same time.

Effective post-drought pasture management maintains or enhances land condition. Land that is in good condition grows more useful forage, is more sustainable, and generates more income than land that is in poor condition. Pastures that are well managed at the end of this drought will be better able to handle the next one.



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Managing the risks of failed pasture establishment



If a sown pasture fails to establish well, this quickly erodes the profitability of sown pastures as a development option. The factors that lead to failed establishment can be managed and need to be taken into account when planning to develop sown pasture.

In past editions of *BeefTalk* we have discussed the roles for sown pasture (*BeefTalk* 12) and listed best bet combinations for different land types (*BeefTalk* 1, 4 and 20). We have also described pasture run-down and how it impacts on the productivity and longevity of high-key pasture development (see *BeefTalk* 12, 17 and 19).

While sown pastures can be productive and economic, several limitations must be considered. One major limitation for high-key pasture development (sowing an exotic grass/legume mix into a fully developed seed bed) is the cost. The other major limitation of all sown pastures is the risk of failed establishment.

Establishment failures can be due to several factors and often combinations of these factors. The main reasons for establishment failure include:

- inadequate seed bed preparation
- lack of stored subsoil moisture and post-planting rain
- heat wave conditions following seedling emergence
- weed competition (including cover crops)
- poor quality seed.

Seed bed preparation

Most sown pasture species have small seeds with limited stores of energy to see the seedling through germination and establishment. They can't emerge from depths greater than 10 mm and need to be surface sown. Surface sown seed requires good soil-seed contact to

germinate and establish a seedling. The old rule of thumb for sowing pastures states, 'The better the seed bed, the better establishment'.

Soil moisture and rainfall

Pastures sown into a prepared seed bed that has good soil moisture have the best chance of establishing. Ground that is prepared over a few months can store rainfall as soil moisture. Fallow management using a combination of mechanical and herbicide options prevents weeds from using the stored soil moisture.

As little as 10 mm of rain will germinate most pasture species. However this moisture can disappear fairly quickly and if the establishing seedling does not have subsoil moisture to tap into it will perish. Sowing into a dry seed bed is very risky and only pays off in the two or three years in ten when you get a good break to the season and good follow-up rain over most of the growing season.

Heat waves

Hot dry weather is lethal for establishing seedlings. It depletes soil moisture quickly and desiccates the fragile seedlings. Heat waves are common during late November through to mid January. While they also occur in late January and February, historically they have been less common at this time of year and these two months are usually the best and most reliable for rainfall. Unfortunately the last few years have seen generally poor January and February rainfall.

Weed competition

Weeds compete with sown pastures for moisture and nutrients and this competition is most critical during pasture establishment. Old cultivation areas usually have a large, viable weed seed bank in

the soil, even if the areas have been fallowed for a long time and volunteer grasses have established.

A cover crop to provide some grazing during the establishment season can improve cash flow, but cover crops really act as 'smother' crops and have the same impact on the establishing pasture as weeds. Crops such as forage sorghums quickly utilise available soil nitrogen and moisture.

Seed quality

Seed cost is one of the biggest costs in a pasture development program. Good quality seed has better germination and purity than poor quality seed. A measure of seed quality is the percentage of Pure Live Seed (PLS). PLS is determined from the seed analysis report by multiplying the germination percentage by the purity percentage (see *BeefTalk* 4 and 18).

The germination percentage of pasture seed (particularly grasses) tends to decrease once the seed has been stored for more than one year. This decrease in viability accelerates if seed is stored in conditions where temperature varies considerably.

Managing the risks

The risk of failed establishment can be minimised through careful planning, attention to detail and implementing the following principles:

- Plan ahead for adequate seed bed preparation.
- Sow in the best planting windows.
- Sow paddocks in stages.
- Use appropriate establishment techniques.
- Pre-crop old cultivation areas with a forage crop prior to establishing pasture.
- Avoid cover ('smother') crops.

- Assess long range climate outlooks for their statistical significance in predicting either above average or below average summer rainfall.
- Assess seed quality, value and sowing rates based on percentage PLS.

Seed bed preparation usually involves several workings with disc or tyned implements and can include applying broadacre herbicides. The process of preparing the seed bed usually takes a couple of months so it should be started well before planting is expected to take place.

The old rule of thumb for sowing pastures is to either go early or go late. Early spring rain in September has a more lasting

effect than equivalent rain in November or December due to the lower evapo-transpiration rates. This early window usually closes by about mid October. The next window opens with rain events any time after Christmas and extends through until mid March. Late sowings after mid March may run out of moisture or be subject to early frosts in May and as a consequence usually fail to establish effectively.

Pre-cropping old cultivation areas before establishing pasture reduces weed seed banks in the soil. The key to this strategy is using appropriate pre- or post-emergent herbicides with the relevant forage or cash crop and paying close attention to weed management in the fallow and post-crop phases.

Successful combinations include Atrazine with forage or grain sorghums and trifluralin with forage or grain legumes.

Sown pastures can be a profitable development option for beef enterprises in south-east Queensland. However failed establishment can seriously erode the financial viability of sown pastures. The risk of failed establishment needs to be accounted for when planning sown pasture development and managed through the principles described above.

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BSE – Help prove Australia's freedom

Due to the worldwide concern about BSE (mad cow disease) Australia has to prove to its international meat trading partners that it is free from this disease.

The best and most cost-effective way for a country in Australia's position to demonstrate ongoing freedom from BSE is to target-test cattle showing symptoms similar to BSE. To do this the brains from cattle showing symptoms of nervous disorders are sampled and tested for signs of the disease.

A number of conditions that occur in Queensland cattle can produce clinical signs that at some stage are quite similar to those seen with BSE. These include three-day sickness, which is prevalent during spring and summer, and staggers from zamia palm poisoning.

Although well known, the term 'mad cow disease' is actually a poor description of BSE. A more accurate name is 'wobbly cow disease'.

BSE only affects older animals and the most obvious outward signs of BSE are uncoordinated gait and nervous disorders, so cattle 30 months or older showing any of the following symptoms can be tested – wobbly gait, falling over, inability to get up, muscle tremors, convulsions, unusual behaviours such as excessive bellowing or teeth grinding, and changes in temperament (calm to aggressive, or wild to quiet). 'Downer' animals in transport may also be considered.

You can help by notifying DPI&F or your private veterinarian of any animals demonstrating these clinical signs so that testing can be undertaken.

Owners are reimbursed \$150 for sampled cattle. This is a great incentive as producers receive some financial return for animals that may not recover from their condition and that certainly would not be allowed into the human food chain.

Owners get the added benefit of an accurate diagnosis for their animal's ailment. For example, through this testing rare genetic disorders have been discovered in some herds, leading the producers to change their breeding programs to avoid future losses.

Over 1500 brain samples from Queensland cattle have been tested since the coordinated national surveillance program began in 1998 and all have been negative for BSE. DPI&F organises submission of Queensland's specified surveillance quota (161 cattle samples for 2006) on behalf of the industry in Queensland.

Producers who also have sheep on their property showing symptoms of scrapie, which are similar to those of BSE, are encouraged to contribute stock for sampling.

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Or call DPI&F on 13 25 23



Using DNA and gene markers in your beef business

DNA is not just the catch-cry used in the latest police show. These days it is the buzzword of efficient cattle management.

DNA or Deoxyribonucleic Acid is the blueprint for all life – it contains the plans for how all bodily structures grow and function. DNA is unique to each individual and it lasts for a lifetime.

For beef producers, unlocking DNA 'secrets' can provide information to assist in breeding and management decisions.

How is the beef industry using this cutting edge technology?

In the seedstock industry, DNA fingerprinting is used as a tool to verify parentage. This process uses DNA profiling to identify paternity in multiple sire mating situations or where back-up bulls have been used in conjunction with an AI program.

DNA is also used in the meat processing industry – tracking live animals, carcasses and meat products from paddock to plate to guarantee product integrity.

Recently, exciting new research from the Cattle and Beef Quality CRC has resulted in the development of 'gene markers' for meat quality traits in beef cattle.

A gene marker is like a 'signpost' on the side of the genetic road or a 'tag' for a specific piece of DNA located physically near a gene which affects a particular trait. The gene marker and the gene are inherited together most of the time.

Gene marker technology is most useful for traits that are hard to measure, have low heritabilities, or cannot be accessed until after the death of the animal. Some traits, such as intramuscular fat, can be measured or scanned and used in association with the gene markers.

Seven gene marker tests are currently available to the beef industry. These diagnostic tests have been commercialised by Genetic Solutions and are marketed as GeneSTAR® Marbling 3 and GeneSTAR® Tenderness 4.

The results of the GeneSTAR® tests are easy to interpret. Genetic Solutions has developed a star rating system so producers simply look for more 'stars' in the results – not unlike the star system used to rate hotel accommodation!

What do these stars really mean?

For each marker, it is possible to obtain a result of 0, 1 or 2 stars. This is because one allele (i.e. half the marker) is inherited from the sire and one allele from the dam.

GeneSTAR® Marbling 3 tests for three gene markers that influence marbling in beef cattle. This test will determine whether an animal has 0, 1 or 2 stars for each marker. The three markers are separate and the results are additive, giving a total result on a 0 to 6 star scale.

The more stars, the more likely an animal is to exhibit marbling. For example, 0 stars means an animal carries none of the favourable forms of any of the marbling markers. An animal that has 1 star carries one of the favourable forms and so on up to 6 stars.

GeneSTAR® Tenderness 4 is a four marker test for tenderness. For each of the four markers it is possible to have 0, 1 or 2 stars, so an animal can potentially have up to 8 stars.

As with the marbling tests, the number of GeneSTAR® Tenderness stars represents the number of favourable alleles an animal carries – a 0 star animal carries no favourable forms of the tenderness marker while an 8 star animal carries all favourable forms.

How does this technology affect you?

As a producer, you will need to decide whether you will benefit from applying this technology

to your breeding program. In the first instance, examine your target market – which markets pay premiums for these traits e.g. export, feedlot, MSA, etc?

Commercial producers can take advantage of this technology by purchasing or using bulls with high 'star' ratings. However the priority remains that selected bulls match the overall breeding objective of the herd and have good genetic and physical reports such as the Bull Breeding Soundness Examination (BBSE).

This technology is still in its infancy and new markers for various economic traits are being rapidly developed.. In the future, gene marker assisted selection has the potential to be a valuable tool complementing current genetic evaluations.

In 2005, the CRC for Beef Genetic Technologies commenced operations. A major focus of this cooperative research program is to discover new gene markers for production efficiency traits as well as markers for disease resistance and reproductive traits.

The key message for beef producers is to critically evaluate your breeding programs, set breeding objectives to meet target market specifications, and base your selection decisions on all the objective information available.



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National Livestock Identification System



One year on

Implementation of the NLIS by Queensland's cattle industry has been judged as success based on numbers of cattle identified and moving through reading facilities at saleyards and at slaughter.

During the 12 months since NLIS was introduced, more than 1.75 million NLIS-tagged cattle were scanned at saleyards and the data on movements of cattle were recorded in the national database within the specified 48-hours time frame. It is considered that more than 99 percent of all cattle movements through 73 sales centres were recorded in the national database.

Cattle recorded as identified with NLIS tags at slaughter were also well up with expectations with 1.857 million read and recorded at 88 slaughter establishments. This represented 64.5% of the total kill figure.

It also appears that cattle producers were planning ahead with over 3.5 million NLIS tags purchased during the year. This suggests that there should be no further tag shortages with the commencement of the second stage of requirements with only home bred slaughter cattle now eligible for no tag movements in deck loads or more to slaughter on a weight and grade basis. (Over 90,000 Quicktags were supplied by DPI&F during July-September in 2005). NLIS audits at saleyards and abattoirs by DPI&F during the past six months, as well as audits of the national database, have confirmed high levels of compliance with requirements.

Industry assistance based on funding from the Australian Government is now being processed by DPI&F. Rebates of 20% of expenditures on purchases of NLIS reading equipment are available to cattle producers. Forms are available from reading equipment suppliers or DPI&F offices.

The NLIS trace-back system has already been demonstrated to work quickly and effectively in tracing animals suspected of being infected with disease. The NLIS is also able to provide cattle industry statistics that will be of considerable value in planning and facilitating improvements in industry efficiency and profitability.

Changes from 1 July 2006

- Direct to slaughter, the only cattle that may move without tagging are **homebred stock**, all being from the same PIC and one class (for example, cows,

heifers, steers, ox, bulls). The stock must be volume loaded and must fill a minimum of a 13 metre deck. All other stock must bear permanent NLIS tags

- For movement to live export, **homebred stock only** will be allowed to travel with transaction eartags and a mob based report of the movement to the database must be made by the receiver of the cattle. All other stock require NLIS tags, to be read and recorded to the database
- Cattle going to sporting events (for example, rodeos and campdrafts): Mob based movements of homebred cattle may be approved on application to an Inspector. This concession will cease on January 1 2007.
- The special phase-in tagging requirements for bulls born prior to 1 July 2003 and for bobby calves are currently under review and any changes would be advised as soon as possible after they were agreed to by the Queensland NLIS Implementation Committee. In the meantime, the use of tail tags on aged bulls and bobby calf ear tags on bobby calves could continue.

A bobby calf is a calf less than 6 weeks of age, sold separately from its dam.

Further information:

Contact your local DPI&F Biosecurity officer

NLIS – Transit centre movements must be registered

The movement of cattle from one location to another through a transit centre must be registered with the National Livestock Identification System database.

Transit centres are places such as dip yards other than the yards on the owner's property or a saleyards where the animals' journey was broken before they arrived at their final destination.

Lifetime traceability requires all movements and locations where cattle are held throughout their lives to be traced, which means the use of transit centres must be recorded.

The responsibility to register the movement of cattle through a transit centre lies with either the person responsible for the cattle or the owner-operator of the transit centre.

Arrangements must be made between all parties involved with the movement to ensure the use of a transit centre is correctly registered on the NLIS database.

NVD-Waybills – are they correct?

National Vendor Declarations (NVD) have been around for some years. In 2004 they were combined with the Waybill under the banner of the Livestock Production Assurance (LPA) scheme.

The declarations trace the history of animals being sold so that new owners know what management (including chemical use, vaccinations and feeding) the animals have had. The long term purpose is to ensure that processors can be sure that no residues are present in the animals.

It is important that these forms be completed correctly but many errors are still being found.

Common mistakes are:

Waybill

- Not noting the sex of the animals.
- Ticking 'yes' for NLIS devices but not indicating the number of ear tags or rumen boluses.

Part B

- In Question 3 on the March 2004 version (Were all the cattle born and raised on the vendor's property?), ticking YES when the cattle are in fact now on a different property (different property number) than the property they were born on, which happens to be owned by the same person.

The correct answers are

YES if the cattle are still on the property they were born on
NO for all other situations, even

if the cattle are on a property (different property number) that is owned by the person who bred them.

- Ticking NO to the same question and not indicating the length of time the cattle have been on that property.

Part C

- Not noting the name and address of the person responsible for the husbandry of the cattle on the first line.

Part D

- The truck driver not completing this section.

If you are unsure of the correct way to answer any questions on the form, contact your Stock Inspector, processor or agent.

Buying a small property

Many people dream of owning a rural property. Like all ventures there are many advantages and disadvantages. Often the disadvantages are blurred by dreams of more space, no immediate neighbours and more freedom.

While these advantages are real it is important to consider all the implications of buying a rural property before making the purchase.

The following points are a guide:

- What do you want from the property – do you simply want a bigger 'house yard' or do you want to run livestock? It is important to make sure all those involved in this venture are part of the discussion.
- If you want to run livestock, do you want a horse or two to ride or some cattle as well?
- Most small rural properties do not produce sufficient income for one family so one member will have to generate some 'off farm' income.
- Living out of town often means a lot of driving, particularly when children (and adults) are involved in sport and other activities. This can become very tiresome and considering the cost of fuel, expensive.
- In most cases living on acreage or a small farm means moving to a smaller town that may not have all the facilities you have been accustomed to.
- Livestock need to be cared for. If you go away, you have to make arrangements for them to be looked after. You can't just drop everything and go on holidays as you may be able to do now.

If you plan to have livestock, you need to make sure you have enough area to carry the numbers you intend to run. You should budget on running one cow or horse (if the horse is to be partially hand fed) per six to eight acres.

It is important to ensure that your property has adequate water. Most rural properties do not have access to reticulated (town) water. This means all your water has to come from tanks, dams or bores on your property. Dams should hold enough water to last two years without any runoff. You need to check if you can legally use stream water and also do not assume it to be a reliable water source.

The following is a guide to water requirements.

Water use	Litres per year
Domestic	80 000 per person
Cattle	20 000 per head
Garden	<ul style="list-style-type: none"> • Native garden (no lawn) 1000 per sq metre • Lawn with shrubs 3000 per sq metre • Vegetable garden 5000 per sq metre
Irrigation	4000 to 8000 m ³ /ha/yr (1m ³ = 1000 litres)

Remember to allow for evaporation and seepage. Seepage losses will vary for individual sites and surface evaporation can range from 1400 mm to 2900 mm annually depending on location.

It is advisable to talk to other property owners in the district and DPI&F to develop a comprehensive understanding of the new venture you are planning.

Further information:

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Livestock production assurance – are you keeping the records?

The most recent edition of the National Vendor Declaration (NVD) incorporates the on-farm food safety program called Livestock Production Assurance (LPA), which asks producers to be able to 'back up' their NVDs by keeping records of food safety-related on-farm management practices.

Random audits are being introduced to further strengthen the integrity of the NVD and LPA program.

Who is audited under LPA?

By becoming fully accredited with LPA, producers agree to be included in a random audit pool. Two thousand producers each year will be randomly selected from the pool for an audit. (If your NVD/Waybill book has your PIC number pre-printed in the Property Identification Code box, you are fully accredited with LPA).

What does the audit involve?

The audit involves an on-site visit to review the producer's LPA record keeping systems and assess how the five food safety elements of LPA are being met. The five elements are

- Property risk assessment
- Safe and responsible animal treatments
- Stock foods, fodder crops, grain and pasture treatments
- Preparation for dispatch of livestock
- Livestock transactions and movements.

How is the audit conducted?

The auditor will contact producers who have been randomly selected to organise a mutually convenient time to perform the audit. Before the audit is started, the auditor will explain the audit process to the producer.

The auditor will ask specific questions about general food safety-related management practices and about how records are maintained. The auditor may also wish to accompany the producer on an inspection of property facilities relating to food safety, including chemical storage areas.

Any areas identified as contaminated with persistent chemicals may also be visited to review the management systems

implemented at these locations. (Persistent chemicals include organochlorine (OC) pesticides such as dieldrin, DDT, chlordane, lindane, aldrin and heptachlor; industrial organochlorine chemicals called polychlorinated biphenyls (PCBs); and lead and arsenic.)

Cost of the audit?

The cost of the audit is incorporated into the purchase price of NVDs, so no direct charge applies when a random audit is undertaken. In the unlikely event that record keeping and management systems did not meet LPA requirements and the potential for a serious food safety breach exists, a producer may be charged for the cost of any subsequent audits.

Preparing for the audit

If you can tick the boxes below and can demonstrate that you meet these key areas, you should feel comfortable that you are prepared for an LPA audit.

This quick checklist is intended as a guide only, and you should review the more detailed *LPA Audit Checklist* and *Guide to the NVD Waybill* available from MLA.

Quick checklist

- | | |
|---|---|
| <input type="checkbox"/> All farm chemicals including drenches and sprays are stored in a place where livestock can't get to them. | <input type="checkbox"/> Livestock are not sold while still within the withholding period for a particular chemical, or if they are, it has been declared on the NVD. |
| <input type="checkbox"/> All farm chemicals including drenches and sprays are applied according to their labels. | <input type="checkbox"/> The residue status of any stockfeeds is known and any withholding periods are adhered to. No livestock are ever fed meat and/or bone meal. |
| <input type="checkbox"/> All areas on the farm that are or could be contaminated with chemical residues (e.g. cattle/sheep dips, stock yards, rubbish tips, old shed sites etc) are identified and managed. | <input type="checkbox"/> Livestock are not sent for slaughter if they are physically unfit for the journey. |
| <input type="checkbox"/> Livestock are prevented from grazing contaminated sites, and if they do graze them it is declared on the NVD. | <input type="checkbox"/> All transactions and movements between different PICs are accompanied by required documentation. |
| | <input type="checkbox"/> Records are maintained. |

This is a guide only and being able to complete this checklist does not infer that you will pass an audit.

Further information: *LPA Hotline Phone: 1800 683 111*

Managing nutrition for growth and profit

The nutrition available to cattle affects their rate of growth which in turn affects the maturity pattern of the animal.

Maturity pattern is the stage at which the animal begins to lay down significant amounts of fat to finish.

Research results from the CRC for Cattle and Meat Quality show that growth from birth to 250 kg liveweight is the critical period of growth that affects maturity pattern. Animals that grow slowly (less than 0.5 kg per day) will tend to lay down fat at an earlier age and be fatter at a specific finishing weight than animals that grow at greater than 0.5 kg per day.

The implications of this are:

- The fatter animal grows more slowly because it takes up to seven times the energy to lay down fat as muscle.
- The animal is destined for a specific market, particularly a market that requires a heavy carcass weight. There is a risk of the animal being over-fat at the required weight.

Most calves on the cow gain at approximately 0.8 kg per day and are weaned at between 200 and 250 kg so there is little to worry about with calves that are weaned at 6 to 9 months of age.

Early weaners need to grow at greater than 0.5 kg a day to at least 250 kg liveweight. To achieve this gain the calf requires a very good diet – pasture feed alone is generally of too low quality to achieve this aim without significant supplementation. A 100 kg weaner needs to be fed 2.2 kg per day of a ration that is

approximately 12 to 13 mega joules of metabolisable energy per kg and 15 percent crude protein. At a growth rate of 0.5 kg per day a 100 kg calf will take 300 days on good feed to achieve 250 kg liveweight.

Backgrounding

The weight gain of steers being backgrounded for a feedlot will significantly influence their performance in the feedlot. The impact on profitability will depend on the target market.

Fast background growth in animals over 250 kg can result in slower weight gains in the feedlot as the animals will be carrying more fat at feedlot entry weight. This will result in fatter, lower yielding carcasses at slaughter weights. Provided these animals have grown well throughout their life (ignoring genetics) they should achieve a higher marble score.

Slower background growth rates in animals over 250 kg will result in animals being leaner at feedlot entry. These animals will gain more efficiently in

the feedlot producing a leaner, higher yielding carcass with less marbling. However they will be older at slaughter weight. If this is a possibility then dentition should be monitored

These growth rates and maturity patterns reinforce the need to know the specific requirements of your target market. There are obvious implications for both the store producer and backgrounder and the finisher, particularly a feedlotter. Good communication between all parties will result in more carcasses meeting the specifications of the target market and better beef on the market, and therefore more satisfied consumers.

References:

Producing quality beef: Opportunities from the CRC for Cattle and Beef Quality May 2004. www.beefcrc.com.au (Publications).

Further information:

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Effect of background growth rate in steers fed to domestic and export specifications

Back-Ground growth rate (kg/d)	Feedlot entry fat (mm)	Growth in feedlot (kg/d)	Feedlot exit fat (mm)	Intra-muscular fat (%)	Retail meat yield (%)
0.6	4.6	1.34	11.8	4.1	67.3
0.7	5.0	1.27	11.9	4.1	67.2
0.8	5.8	1.22	12.6	4.7	66.5

Faster feedlot growth

Increased fatness and marbling

Lower yield

Animal welfare – vital for livestock transport

As the management and care of animals comes under increasing scrutiny, the Department of Primary Industries & Fisheries (DPI&F) is urging producers and transporters to examine their livestock transport procedures to ensure that animals arrive at their destination in the best possible condition.

Understanding the obligations of the person in charge and the animals' requirements are essential for ensuring the animals are delivered with minimal stress and discomfort, and maximum value.

'Persons in charge' can be anyone having custody of the animal at the time. This includes the owner, his/her employees, agents and transporters, and anyone else involved in the transportation process.

There is a clear legal responsibility that is shared by everyone involved in the process of transporting livestock to ensure the animals' welfare is not compromised.

National Codes of Practice are recognised as the accepted standards for various species of livestock. A number of species-specific codes deal with transport, clearly detailing the responsibilities of everyone involved.

The Code most applicable to the transport of cattle is the *Australian Model Code of Practice for the Welfare of Animals – Land Transport of Cattle* which is available through the DPI&F website listed below.

Adverse incidents can occur during transport when handlers don't follow procedures consistently, are complacent or under time pressure, or are inexperienced. The impact of an adverse incident isn't limited to the animals' suffering. The owner may suffer a financial cost through lost production or value, and the persons involved may be subject to regulatory action.

A good way to reduce the risk is to develop a checklist. This will promote consistency that will ensure that animals are prepared, transported and delivered in the best possible condition.

A standard checklist should incorporate planning the journey, preparing livestock for transport, loading, travel and unloading.

Long distance transport of livestock poses additional animal welfare risks and these risks are best managed by documenting a detailed travel plan. The elements to be covered in a plan for long distance transport are outlined below.

Travel plan for long distance transport of livestock

Planning the journey

- Do all persons involved understand all the legislative requirements for health and welfare of animals? (Check the relevant Code of Practice.)
- Has all documentation for the journey been completed i.e. NVD/waybills and Interstate documentation?
- Has the transport operator been selected on merit and recognised skilled performance in animal transport?
- Has the route, including needs for feed, water, and holding yards for spelling en route, been planned?

Preparing livestock for transport

- Is the rest period before trucking adequate? (This would depend on duration of mustering, class of stock and expected travel time. Check relevant Code.)
- Has adequate feed and water been supplied during the rest period?
- Has feed and water been withdrawn for the correct time period before trucking? (This depends on class of stock, weather conditions and expected travel time. Check relevant Code.)
- Are all stock fit to travel? (This is especially important during times of drought.)



Loading

- Are all the stock handlers experienced?
- Are loading facilities adequate (e.g. proper ramp, no protrusions and non-slip)?
- Are animals segregated according to size, class and species?
- Are animals loaded at recommended loading densities? (Check relevant Code and recommendations from transport operator.)

Travel

- Has the transport operator been given correct contact numbers for the owner, buyer, agent or saleyard, including the final destination?
- Has the travel operator been given clear, correct instructions for finding the livestock's destination?
- Does the transport operator have instructions on what to do in the case of an emergency involving animals becoming injured?

Unloading

- Will someone be present when the animals arrive? If not, have appropriate arrangements been made to receive the animals?
- Will adequate suitable feed and water be available when the animals are unloaded?

To access the Codes of Practice or for further information about the transport of livestock, contact your local DPI&F office, visit the DPI&F's Animal Welfare website on www.dpi.qld.gov.au/animalwelfare or phone the DPI&F on 13 25 23.



Further information:

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Worm infestations – Don't guess

Many producers believe they can pick when their cattle are affected by worms. This may be so, but there are many other conditions that cause animals to look 'wormy'. Poor nutrition is the most common misdiagnosis of animals being 'wormy'. Remember, animals do not have to be showing outward signs of a worm infestation before production losses occur.

The most effective and practical method of determining worm burdens is to measure the worm egg level in the dung. Results are expressed as eggs per gram of dung (epg). If egg counts are below 200 epg it is unlikely that worms are causing a problem. Above this figure it is important to determine what species of worms are present because different worms cause problems at different infestation levels.

To remove the guess-work, the WormBuster laboratory (based at the DPI&F Animal Research Institute in Brisbane) offers a worm testing service for producers.

The *WormBuster* collection kit streamlines the collection, dispatch and testing of dung samples. Each kit contains 10 bottles, gloves and instructions for collecting dung and returning the filled kits to the laboratory. Kits retail for \$33 and are available through the laboratory (07 3362 9534, ask for Judy)

or from your reseller. The purchase price covers the cost of postage, laboratory testing services, and interpretation of results. Kits are accepted at Australia Post offices in Queensland.

Worm egg count results are faxed or emailed back to the producer the same day as the samples are received at the laboratory. Larval cultures to determine the types of worms present take another seven days.

It is recommended that calves be checked at or within a month of weaning and again about a month after the season breaks.

Worms are generally not considered to be a great problem in cattle over 20 months of age on extensively grazed beef properties. However on some properties in wet years where permanent pastures are continually grazed, stock under 20 months of age may be at risk.

Do you need to drench your cattle?

The decision to drench should be based on a worm egg count. Results from testing over the last 10 years show that 70 percent of submissions carry very low worm egg counts and require no treatment.



Further information:

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Know your worms

Internal parasites in cattle can be divided into three broad groups: roundworms, flukes and tapeworms.

Roundworms

Parasitic adult roundworms live in various parts of the gastrointestinal tract of cattle. The most common roundworms in south-east Queensland are the barber's pole, nodule and cooperia worms. Barber's pole and nodule worms are more pathogenic than the cooperia worms and both are prolific egg layers.

Eggs passed out with the dung continue to develop within the pat and after about 4 to 21 days, depending on temperature, produce infective larvae that move in a film of moisture out onto grass stalks to be ingested by grazing animals. Hookworms have a more complicated life cycle. They penetrate through the skin and are more prevalent in wet and muddy areas.

Infective larvae are the only stage capable of initiating an infection in cattle. They can 'wait' for

up to three months on grass if conditions are very humid. If, however, conditions are dry, these larvae quickly die but those in the dung pat are protected from adverse conditions until the next rains. Rainfall of 50 mm or more is required to soften the dry outer crust of the pat and provide the necessary film of moisture for the infective larvae to escape onto the surrounding grass. After the infective larvae are ingested by cattle, the larvae take up residence in their preferred section of the gastrointestinal tract, mature, and produce eggs.

Liver flukes

Cattle on irrigated pastures or grazing green pick near water in summer or autumn in fluke endemic districts are at risk of infection.

Liver fluke infection is most commonly seen in the Stanthorpe and Mary River districts. The introduction of aquarium snails capable of transmitting fluke into the coastal waterways could extend these endemic areas. Aquarium snails are more aquatic and have a greater tolerance of high temperatures than the traditional snail host in Queensland.

Under normal conditions, clinical disease is only likely in young cattle.

In their adult parasitic phase, liver fluke inhabit the bile ducts of cattle. Their eggs (up to 20 000 per day) are shed into the bile ducts and move with the bile to the small intestine and onto pasture with the dung. The young non-parasitic flukes continue to develop in an aquatic snail – hence flukey country is considered to be wet and low lying. Enormous increases in fluke numbers occur within the snail. Eventually the flukes emerge from the snail, swim out into the water and form small cysts on the underside of foliage growing in or bordering the edge of water. Only these cysts are capable of initiating an infection in cattle.

The cycle continues when cysts are eaten with the graze. Young parasitic flukes emerge in the small intestine, migrate through the wall to the liver and into the bile ducts where they mature into adults,

suck blood, and commence egg laying. It takes about 8 to 12 weeks after the infective cysts are ingested for the liver flukes to mature into egg-laying adults.

The best times to test for liver fluke infection are April and August.

Tapeworms

Tapeworms live in the small intestine of calves and shed segments containing eggs into the dung. Immature tapeworms develop in a mite host and infect cattle when the mite is eaten with the graze. They cause no known pathogenic effects and calves rapidly become resistant to them.

Further information:

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MSA – a production option

Supplying consistent quality meat to the beef consumer should be the aim of *everyone* involved with beef production, from the breeder to the retailer. Meat Standards Australia (MSA) is a grading system that has been developed to address this aim.

MSA standards were developed using consumer taste tests of beef produced over a wide range of cattle breeds, management practices, processing systems, ageing periods and cooking methods for the main cuts of meat.

The system grades each muscle (cut) on a carcass according to the suggested cooking method. The eating quality and cooking method are printed on the label of each cut. The eating quality is guaranteed and backed by a 100 per cent money back guarantee.

Supplying MSA beef is an option for beef producers, particularly those supplying the domestic market, but it does require meeting strict standards and working very closely with

everyone in the meat supply and processing chain.

The production standards relate to the nutrition and growth of the cattle, how they are managed on the property and when they leave the property, and how the carcass is managed during and after processing.

Cattle dispatched for slaughter must meet the following requirements:

- Have been continually grazed or fed rations to a level that is adequate for growth for a minimum period of one month prior to dispatch
- Not be of poor temperament or with signs of severe stress
- Not be sick or within a withholding period for any treatment
- Not have been purchased or moved from another property/saleyard within one month of arrival
- Not have been mixed with cattle from different mobs or pens on the property within two weeks of dispatch
- If female, not be pregnant or have previously calved
- Be handled and mustered quietly to reduce stress

- Have free access to water until dispatch
- Have free access to feed until dispatch, other than a minimum period required for preparation through cattle yards
- Loaded quietly, preferably without using goads or electric prodders
- Loaded at the recommended densities set out in the trucking industry code of practice.

In addition to the NVD/waybill, an MSA vendor declaration must accompany the cattle to the MSA-licensed abattoir. The MSA vendor declaration confirms that MSA guidelines for cattle handling and trucking have been followed and that tropical breed content is recorded. MSA feedback is provided on cattle consigned for MSA.

Detailed information is available from Meat and Livestock Australia on 07 3842 3114 or at www.mla.com.au

Further information:

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Mould in hay – Should you be concerned?

Fortunately poisonous moulds in hay are uncommon. The main issue with hay is to stop the gradual deterioration in nutrient composition caused by common non-toxic moulds. Effective drying, designing (or wrapping) hay bales to shed rain, maintaining good air flows, and avoiding condensation or leaking roofs in storage sheds are some of the most important principles.

Moulds are a very broad group of micro-organisms that are members of the Fungi Kingdom (neither plant nor animal). The Kingdom also includes the macro-fungi – mushrooms and toadstools. Many fungi are beneficial – yeasts are responsible for our bread and beer, some gave us antibiotics, others are used in fermented cheeses and other foods. DPI&F officers have found fungi that kill cattle ticks and are evaluating them for this purpose. However some moulds are poisonous to humans and livestock.

Moulds are the normal agent of decay for all plant material. They are held at bay by chemical defences in the living plant, but start to grow as soon as the plant becomes senescent (mature) providing that sufficient moisture is present to allow the fungi to remain active. The primary aim when preserving plant material is to stop fungal growth. In hay this is achieved by removing water. In silage, plant material is fermented with acid-forming bacteria that also prevent moulds from growing.

Moulds use the energy stores in the plant (sugars and starches are used first), converting them to carbon dioxide gas and water. This decreases the energy value of the plant, and increases cell wall components such as fibre. The end result is the hay loses weight and density. Plant protein is converted to fungal protein, which might or might not be as readily utilised by stock, but the risk should be avoided.

Moulds in hay are rarely poisonous to cattle. Most are the same types of moulds as those growing on dead leaf litter in pasture to which stock are continuously exposed without apparent ill effect. There are a few exceptions to this in northern Australia, although different toxic moulds can also affect stock grazing perennial pastures in southern Australia.

Hay made from forage sorghum infected with ergot (*Claviceps africana*) can contain ergot alkaloids that impair heat regulation in cattle and reduce feed intakes. However hay made within three weeks of sorghum flowering will have very little alkaloid present. (See article 'Ergot in forage sorghum' in this issue of *BeefTalk*.)

Peanut hay is a special case, since drought-affected peanut crops can contain aflatoxin produced by the fungi *Aspergillus flavus* and *Aspergillus parasiticus*. Aflatoxin damages the liver and can cause cancer. The fungi do not produce aflatoxins in the hay itself, only in the nuts. Calves have been poisoned in Queensland when they selected nuts from peanut hay, but adult cattle are moderately tolerant of aflatoxin. Nevertheless, it is recommended that peanut hay containing large amounts of nut-in-shell from drought-affected crops should not be fed to cattle for two weeks prior to slaughter to avoid aflatoxin residues in meat. Aflatoxin is also produced in grain, particularly maize and sorghum if it is stored without effective drying and aeration.

Hay made from wheat and barley stalks affected by crown rot (a common disease in northern Australia caused by *Fusarium pseudograminearum*) can contain high concentrations of deoxynivalenol (which can reduce feed intakes in young cattle) and zearalenone. Zearalenone can reduce conception rates in grazing stock in other countries, but its impact in northern Australia is hard to assess. Zearalenone is related to the zearalanol that is sometimes used as a growth-promoting ear implant in steers, and residues of zearalenone in Queensland cattle have been mistaken in the past for evidence of use of HGP, impacting on meat exports. However it has since been recognised that zearalenone occurs naturally in many of our crops and pastures.

Silage that is not well compressed is another problem area. Well-compressed silage ferments rapidly, which is desired. Poorly compressed silage contains air pockets which provide the opportunity for moulds to develop. A sequence of *Aspergillus* and *Penicillium* fungi can grow in these conditions, and such mouldy silage has occasionally been poisonous to cattle, particularly calves.

A blue mould *Aspergillus clavatus* caused problems in 'fodder factories' in southern Queensland a few years ago by infecting germinating seeds and shoots. It can afflict livestock with severe nervous signs and can also be fatal.



Further information:

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Native Forest Management Workshop

Private Forestry Southern Queensland has developed a five day Native Forest Management (NFM) workshop to implement a comprehensive knowledge and capacity building program for landholders.

Each workshop is attended by 15 to 30 people with the majority of participants being rural landholders. The five days are spread over several weeks with each day being undertaken on a different participant's property. This provides an opportunity for participants to look at a range of forest types, forest conditions, species mixes, products and best management regimes. One of the days includes a visit to a cooperating sawmill to gain an appreciation of the milling and processing side of the industry.

At the conclusion of the workshop, participants:

- have a working knowledge of 'best practice' forest management
- understand their rights and responsibilities under current legislation
- can managed private native forest to enhance the ecological, productivity and economic values of their land
- understand the implications of 'asset stripping' and diameter cutting limits
- have a comprehensive resource information kit, and
- receive a certificate of attendance.

Topics covered during the course of the workshop include:

- Native Forest legislation and the Code of Practice

- timber species recognition and forest products and the value of those products
- native forest assessment methods including indicators of tree and stand health
- timing of harvest and treatment
- biodiversity, habitat and ecological values
- timber stand improvement processes
- timber processing, products and marketing
- harvest planning, contracts and management
- post-harvest management for stand protection and regeneration
- forest management planning as part of property management planning.

The program includes presentations and demonstrations from other organisations and businesses including DPI&F's Sustainable Grazing Systems Unit, local sawmillers, NRMW, and Stihl Australia.

As part of the workshop, participants receive:

- an information folder (containing forest assessment forms, product guides, stand

management guides and model contracts)

- a fibreglass tree diameter tape
- landholder legislation guide
- log volume tables.

Private Forestry Southern Queensland Inc. is a Private Forestry Development Committee (PFDC) supported by the Australian Government Department of Agriculture, Fisheries and Forestry in partnership with the Department of Primary Industries and Fisheries, Queensland.

PFSQ is delivering the Native Forest Management Series across south-east Queensland and other regions in collaboration with the Burnett/Mary Regional Group, Mackay Whitsunday Natural Resource Management Group, AgForests, Central Queensland Farm Forestry Development Association and the Silver Lining Foundation.

Workshops are planned for Rathdowney, Peak Crossing, Maleny, Nanango, Blackbutt and Maryborough.

Further information:

Private Forestry Southern Queensland Inc.

Phone: 07 5483 6535



Workshop participants observing tree crown health



Timely tips for south east Queensland

October – November

Dry season management

- Review supplementary feeding program. Is it worth the cost, time and effort versus the benefits?
- Feed supplements to maintain good breeder condition, particularly first calf cows (and second calf cows if yearly mating). Lactating cows have high nutritional needs to maintain live-weight and milk production.
- Estimate future supplement needs and contract supply where necessary.
- Re-assess pasture quantity and quality in relation to ground cover and feed values.
- Request vendor declaration when purchasing fodder.
- Feed hay or silage at designated feeding stations and check these areas for weeds.

Breeders

- Assess breeder condition for mating. Heifers and first calf cows may need extra care.
- Move pregnant breeders to a calving paddock, close to homestead and yard facilities.
- Check calving cows, especially heifers, regularly.
- Record all cows and heifers that have calving problems and cull them and their calves.
- Order NLIS ear tags or rumen boluses for calves branded this year.

Bulls

- Cull on age (over 6 to 7 years) and unsoundness.
- Purchase performance-tested replacement bulls.
- Check:
 - that purchased bulls are in working condition, not show or sale condition

- whether purchased bulls have been vaccinated against tick fever and vaccinate if necessary
- all bulls for any injuries, stiffness of gait, cuts or swelling.
- Have breeding soundness evaluations done on all bulls prior to mating.
- Vaccinate bulls for three-day sickness and vibriosis (two doses one month apart initially, then annual booster).

Growing cattle

- Consider vaccination against three-day sickness, particularly forward stock close to turnoff.

Pastures

- Check pasture yields following the spring break – is there enough ground cover?
- Plan to spelling pastures early in the growing season. Lock up leucaena for at least 2 months.
 - Plan and implement burning program for native pasture.
- If pasture development is a part of your overall plan, sow pastures if seasonal conditions are favourable.
- Consider bloat control on lucerne or clover dominant pastures.
- Implement weed control early in the growing season, when it will be most successful.

Parasites

- Start tick control program.
- Obtain cattle dip analysis.
- Check early (late winter) calves for scrub tick.
- Check young cattle for worms (*Early Bird Wormcheck* kit) one month after season has broken.

Property management

- Check mating paddocks are secure.
- Check fence lines, creek crossings, etc.

- Check firebreaks and fire fighting equipment.
- Check firebreaks for house and buildings, clean gutters etc.
- Do Workplace Health and Safety audit. Check that all workplaces, machinery and equipment are safe and ensure all staff are properly trained to operate the machinery or equipment they use.
- Check and clean out chemical store. Check with local DPI&F for correct disposal methods.
- Clean up sheds. If you haven't used it in 50 years you're probably not going to.
- Check that storage facilities are clean and free of vermin and insect pests.

Business management

- Hold a meeting 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.
- Go to livestock sales and compare your cattle to cattle at the sales.
- Go to meatworks and see the carcasses you are producing. Are they meeting the specifications for the target market?
- Review breeding program; assess whether it is producing animals suitable for market requirements.
- Review marketing options.

November – March

Breeders

- Assess breeder condition for mating. Heifers and first calf cows may need extra care. Are cows cycling?
- Put bulls out with breeders:
 - Where nutrition is adequate, mate heifers one month before the main herd.
 - Mate young bulls with young cows.

- Avoid mixing different-aged bulls if possible.

Bulls

- Check that bulls are in working condition, ready to mate:
 - Check for signs of tick fever or three-day sickness.
 - Check for any injuries, stiffness of gait, cuts or swelling.

Calves

- Brand, dehorn, castrate, tag and vaccinate calves ('5 in 1' or '7 in 1').
- Assess individual calf performance. Consider culling dams of poorly grown calves.
- Enter new calves onto herd performance recording program.
- Enter new calves onto NLIS data base.

Growing cattle

- Weigh growing cattle; assess them individually rather than on average.
- Assess performance against required target.

- Consider HGP implants for steers for non-EU sale.
- Evaluate markets and plan sales. Do you need to book cattle into meatworks or feedlots?

Supplements

- Start phosphorus supplementation program where soils are deficient. Continue until the end of the growing season.
- Evaluate effectiveness and cost/benefit of last winter's supplementation program and plan for next winter.

Pastures

- Consider spelling native pasture paddocks on an annual rotation.
- Spell leucaena for at least 2 months during the growing season but ensure it does not go to seed.
- Consider applying maintenance fertiliser to sown pastures (e.g. superphosphate).

- Consider growing a summer forage crop to carry cattle while pasture paddocks are being spelled.

Parasites

- Continue tick control program.
- Control buffalo fly where applicable with insecticidal ear tags or buffalo fly traps.
- Check young cattle for worms (*Early Bird Wormcheck* kit).

Personal

- Try to have some quality time with family and friends over Christmas and New Year.
- Annual medical check up.
- Annual financial check up – time to check personal finances, retirement and succession plans.



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'Some people think I invest too much in my people and they say to me, 'Tom, what if you train them and they leave?'

To which I usually reply, 'What if I don't and they stay!'

Tom O'Toole



Managing a beef business in the subtropics

Managing a beef business in the subtropics provides information and tools to help you produce an environmentally friendly, market-driven beef product. It will assist you to proactively manage your business in an every-changing industry.

The book covers all aspects of subtropical beef production, including markets and selling, handling and husbandry, pasture and drought management, and cattle feeding, growth, breeding, and health. Contacts and sources of further information are listed to assist you in researching particular topics and keeping up with industry developments.

This book is a useful resource for commercial beef producers, small area landowners, agribusiness, consultants, students, and hobby farmers.

Available for
\$51.35
 (including GST) plus
 \$6 postage from:

Stephen Smith, DPI&F
 PO Box 6014, Rockhampton Mail Centre QLD 4702
 Phone: 07 4936 0393
 Email: beef@dpi.qld.gov.au

Falklands foray

The Falklands Islands are located in the South Atlantic about 500 kilometres off the coast of South America. These islands, covering about 12 000 sq kms, are most well known for the 1982 conflict in which the Argentinean military forces took over the islands, which had been held by the British since 1833. The successful removal of the Argentineans from the islands ensured the re-election of Margaret Thatcher, then British Prime Minister. The Mount Pleasant military base in the Falklands run by the British now deters the prospect of any further incursions.

Agriculture in the Falklands is based on wool production with increasing income from sheep meat. As in agriculture anywhere, there are problems such as low wool prices and increasing costs of production. The overriding factors affecting agriculture are the acidic peat soils, poor nutrition from the predominating native whitegrass, and highly variable weather. Temperatures average about 5°C during the year but snow, an ever-present wind, and regular bleak days make conditions difficult...

There are 88 farms in the Falklands ranging from family-



The Falklands are treeless and windy!

based businesses to farms that run over 40 000 sheep. Total sheep numbers are around 575 000 head. An export abattoir opened in the last four years, giving farmers the opportunity to broaden their enterprise and produce sheep for the meat market in Europe.

Cattle in the Falklands are used only for local consumption. There is a market of about 500 head a year. The cattle breeds have a dairy base with an infusion of Angus and Hereford genetics. One farm has some excellent Murray Greys. Traditionally beef in the Falklands was eaten over the winter months when the carcass can be hung outside. Animals were typically not slaughtered for beef until they were at least four years of age, but with the development of the abattoir

and changing consumer tastes younger animals are now being used for the local trade.

Agriculture once provided the mainstay for the Falkland's economy but now the sale of fishing licences to overseas and local fishing fleets provides the country with its main income. Oil reserves in the waters around the Falklands offer the possibility of income in the future. Cruise ships visit the Falklands regularly during summer. More than 35 000 tourists can visit Stanley, the capital of the Falklands, during day stop-offs. The Falklands are also a base for the British Antarctic Survey with two icebreakers and twin engine aircraft servicing the British Antarctic bases in the summer season.

Two years in the Falkland Islands as a senior advisor for the Department of Agriculture was a fantastic opportunity for me to experience a different lifestyle. I was involved in looking at ways to improve grazing management, setting up grazing trials with farmers, working with the abattoir staff to ensure supply of suitable sheep, and planning genetic improvement programs

Port Howard Settlement on West Falkland



with farmers. During my stay I organised four wool classing workshops and four workshops on sheep selection and breeding. A Government Pasture Improvement Program allows farmers to apply for funds to help improve farm productivity, and I spent a lot of time working one on one with farmers to ensure the success of these programs.

While the Falklands are half a world away, other DPI&F staff have also worked there. Peter W.

Johnston, now based at DPI&F in Brisbane, was in the Falklands for three years and the current Department of Agriculture manager in the Falklands, Neil Judd, was a sheep and wool advisor at Cunnamulla.



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Dehorning has not yet been adopted as a regular practice!

Storing and handling oil and fuel

It is well documented that oils and fuels contain many contaminants that can accumulate in the environment and cause problems for our wildlife. Waste or used oil is probably the worst offender as it has picked up many contaminants (such as heavy metals) from the engines and machinery in which it has been used. As a result, strict requirements for storing, handling and disposing of oil and its associated products have been developed.

There are some simple steps we can all take to make sure our oils and associated products such as diesel fuel, petrol, kerosene and so on are stored, handled and disposed of appropriately:

- Store oils (both waste and new) and fuels in a 'bundled area' – a leak-proof storage area, under cover or roofed to stop rain getting in, with the capacity to hold the entire contents of the container should it leak or rupture. In most households this could simply mean placing the full container inside a cut-off 44 gallon drum or other suitable container inside a garage or shed.
- Keep adequate equipment handy to soak up any spills as soon as they happen (e.g. kitty litter, sawdust, rags etc).
- When decanting (pouring) oils or fuels, don't rush! Work over an impervious surface such as concrete, bitumen or even a tarpaulin so that no soil is contaminated by spills, protecting the groundwater and preventing polluted runoff from rainfall.
- If you can't decant on an impervious surface then make like a scout and be prepared to immediately shovel up any spills together with the soil. Dispose of small quantities in the general

waste bin (NOT the recycling bin). If you have large quantities to dispose of, contact your local Council's Environment Department to discuss disposal options.

- Pouring oil on weeds and using oil for line marking on sports ovals is no longer acceptable.

We may tend to associate oil spills with super tankers and think that, in comparison, only small amounts of fuel and oil are stored on properties. However over many years you run the risk of seriously damaging the nearest creek or groundwater supply if you don't take these precautions.

By appropriately recycling your oil you are keeping it out of your drinking water, out of waterways, and away from marine and wildlife. Also remember that used motor oil is a valuable resource which can be re-refined into lubricants, processed into fuel oils, and used as raw material for the refining and petrochemical industries.

Thankfully, oil recycling in Australia is easy. The Australian Government, through its Product Stewardship for Oil Program, has funded hundreds of used oil collection facilities throughout both metropolitan and regional areas of Australia.

You can play an important role in protecting our environment. All you need to do is pour your used oil into a clean, empty container and drop it in to your local facility for recycling. It's easy as.

To locate your nearest collection facility or to find out more about used oil recycling, visit www.oilrecycling.gov.au or call 1800 982 006.

Adapted from an article in 'Land for Wildlife', Autumn 2006

Poultry in the backyard

With the high price of seaside property many people are no longer opting for a sea-change but instead are considering a tree-change – that is, moving to country areas.

One advantage of moving to the country is being able to keep poultry as a hobby that can provide fresh eggs and meat.

How many birds?

Six good layers will produce five to six eggs per day which would be more than enough for the average family.

Getting started

Laying hens can be raised from day-old chicks or purchased as started stock. Always buy stock from a reputable supplier because this will minimise the chance of introducing disease. If you buy day-old chickens, ask the supplier to confirm the chicks have been vaccinated against common diseases such as fowl pox and Marek's disease.

You should aim to have your new pullets starting to lay in January or February. By doing this the birds will lay for a full twelve months without moulting in autumn. Commercial cross-bred pullets usually commence laying at between 20 and 24 weeks while other breeds may take up to 28 to 30 weeks. This means that started pullets should be purchased in December or January while day-old pullets should be purchased in August or September. Started pullets will require several weeks to settle into their accommodation before they will commence laying.

It is best to avoid mixing birds of different ages and colours because this can upset the flock's established pecking order. It may be necessary to run new pullets separately at first and then slowly introduce them to the older flock.

Requirements

- adequate space – adults in small flocks require a minimum of 0.4 m² per bird
- adequate shade and protection from heat radiating through roofing – the long axis of the poultry shed should run east-west, with the open front facing north
- a dry area protected from rain
- adequate cool water
- protection from the winds, especially westerlies in winter – however a gentle breeze and a

reasonably high roof can reduce ammonia building up, reduce dust, help dry the pen and helps minimise the spread of disease

- regular inspection for the health of the birds and condition of their environment
- protection from predators, and
- good quality food.

Feeding

For the best performance, feed must be balanced and appropriate for the age of the bird. As a rough guide, chick starter is fed to birds from 0 to 6-8 weeks, then grower up to 16-18 weeks, then the birds are put onto layer mash or pellets. Pellets are usually easier to feed than mash. Most commercial products are generally adequate, although layer rations should be supplemented with extra shell grit, at least in the peak laying period.

If you plan to mix your own feed seek professional advice on appropriate nutrient content and mixes.

Important: Do not feed commercial poultry feeds to other livestock. These feeds may contain products such as meat meal that are not allowed (by law) to be fed to ruminants (i.e. cattle, sheep and goats).

Disease control

Cleanliness and isolation are the major factors in keeping poultry flocks healthy. Many health problems are caused by poor management. A flock will remain healthy if the following needs are satisfied:

- suitable environment is provided
- pens are periodically emptied and cleaned
- healthy young birds are purchased
- flock is quarantined
- stress is minimised
- internal and external parasites are controlled
- sick birds are recognised, quarantined and treated
- birds are protected through vaccination.

There are as many types of diseases as there are causes, but usually a combination of factors work to make the birds sick. Stress predisposes birds to disease.

If birds become sick, a diagnosis from a qualified person should be obtained as soon as possible. Many diseases cause similar symptoms and making an accurate diagnosis requires skill and experience.

When the disease is identified the right treatment can be given.

Moulting – a natural process

During the autumn, egg production often declines as birds go into a condition known as 'the moult'. During the moult, the bird loses its feathers, the reproductive physiology of the bird takes a complete rest from laying, and the bird builds up its body reserves of nutrients.

Poultry manure

One of the benefits of running your own poultry is fertiliser for your garden. You can use poultry manure to increase the water-holding capacity of sandy soils and to open up clay soils. Poultry manure is a good accelerator in the breakdown of composting plant material. Once aged, manure encourages earth worm activity in soil. Bird manures are a particularly good source of phosphate for organic gardeners who do not want to use chemical fertilisers.

Regulations

Most local authorities have by-laws regarding the keeping of poultry and should be consulted prior to acquiring birds. These by-laws usually relate to how many birds you can keep and whether you can keep roosters.

If you intend to import birds from interstate, contact the Department of Primary Industries and Fisheries for any regulations applying to the movement.

From 1 July 2005 it is illegal to sell or barter eggs unless they come from a registered poultry farm. With this in mind, it is best to keep only enough birds to satisfy your own requirements.

If you run more than 100 birds you need to register your property with the DPI&F and have a Property Identification Code (PIC).

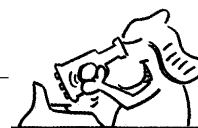
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Research update



New tick vaccine – a new approach

Developing a new once-a-year tick vaccine is the aim of a research team led by the Department of Primary Industries & Fisheries and funded by the Queensland Government and the CRC for Beef Genetic Technologies.

The research approach being used is called 'reverse vaccinology'. Computer predictive tools and tick genomic sequence data are used to identify potential vaccine candidates. These candidates are genes in the tick that can be controlled to prevent ticks attaching to cattle or to inhibit the tick's reproductive cycle.

Once the genes are identified they have to be tested in the laboratory and in the field. It is hoped that the vaccine will be developed within the next three years, but it will take several years after development for the vaccine to become available for commercial use.

An effective vaccine will potentially provide an economic benefit of \$98 million to Queensland through increased production as well as an estimated \$US100 million in vaccine exports. A new vaccine will have effects world-wide with potential for overseas sales to other tick-affected countries. Queensland is the most developed cattle tick affected tropical/sub-tropical region in the world with a proven track record in animal health vaccine development and thus is best placed to lead this new research program.

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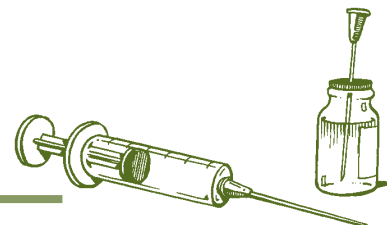
Postcode: Shire: Property Number: No. of cattle:

Phone: Fax: Email:

Which of the following best describes you?

Beef producer Agribusiness outlet Education Other (please state)

Vaccinations for beef cattle



Vaccinations are an important part of disease prevention in an animal health program. Vaccinations need to be combined with specific management practices for best control of some diseases. If you are developing the vaccination program for your herd, contact your veterinary practitioner, DPI&F veterinary officer, stock inspector or beef adviser for up-to-date advice. The following table provides some vaccination recommendations for south-east Queensland herds. When administering vaccines, always follow the manufacturers' instructions. All injections should be given in the neck subcutaneously (under the skin).

'5 in 1' covers a number of clostridial diseases, namely pulpy kidney (enterotoxaemia), black disease, tetanus, blackleg, and malignant oedema.

'7 in 1' covers the same diseases as '5 in 1' plus *Leptospira harjo* and *Leptospira pomona*.

Disease	Animals to treat	When to treat	Initial treatment	Annual booster
Clostridial diseases (Blackleg, tetanus, and pulpy kidney)	Calves from 6 to 8 weeks to 2 years old	Branding and weaning (assuming these aren't more than 6 weeks apart) for maximum protection	2 injections 4 to 6 weeks apart	At your discretion but recommended in areas where there is a high risk of any of these diseases
<p><i>Giving only one vaccination at branding provides only limited protection for 4 to 6 weeks. There is a small window where tetanus could be a problem. The normal incubation period for tetanus varies between 3 days and 4 weeks, so ideally calves should be vaccinated prior to branding. Development of immunity after most bacterial vaccines are administered is 10 to 14 days so there is a small risk that some vaccinated calves at branding could still get tetanus. An additional muster prior to branding needs to be balanced against the potential losses.</i></p>				
Leptospirosis	Maiden heifers and pregnant cows	See comments	2 injections 4 to 6 weeks apart	Yes
<p><i>Vaccinate maiden heifers (2 injections) before mating. Vaccinate all pregnant animals at mid to late pregnancy. If heifers have had two '7 in 1' injections, an annual vaccination mid to late pregnancy is required.</i></p>				
Three-day sickness (Ephemeral fever)	Current season's sale cattle and bulls	Spring	2 injections 4 to 6 weeks apart	Yes
<p><i>A difficult vaccine to handle. The virus component needs to be kept frozen and the diluent needs to be refrigerated. Only 10 doses can be mixed at a time. Too expensive to treat a whole herd, so consider treating only valuable animals.</i></p>				
Botulism	All susceptible animals	When convenient	1 injection OR 2 injections 4 to 6 weeks apart – depending on the vaccine used	Yes
<p><i>Vaccines are available that give up to three years' protection with a single injection. However their effectiveness depends on whether animals get exposed to botulism during that time. If in a low risk area, annual vaccination is recommended. Deaths from botulism are usually associated with phosphorus deficiency. In recent years botulism has caused deaths in areas previously thought to be free of the disease. Consult your local DPI&F officer or vet.</i></p>				
Tick Fever	All animals including home-grown and introduced	Any time but ideally at weaning (3 to 9 months of age)	1 injection	No
<p><i>There is a greater risk of tick fever due to the drought. Contact the Tick Fever Research Centre (07 3898 9655) for information on tick fever vaccination programs including choice of vaccine, vaccinating introduced susceptible adult cattle, and revaccination.</i></p>				
Vibriosis	All bulls In infected herds, maiden heifers at first mating	All previously vaccinated animals 1 month before mating	2 injections 4 to 6 weeks apart	Yes
<p><i>A very common infertility disease which mainly affects maiden heifers. Vaccinated bulls will not spread the disease.</i></p>				
Pestivirus	All breeding cattle including bulls Introduced females and introduced bulls	Second initial vaccination should be 2 to 4 weeks prior to mating	2 injections 4 to 6 weeks apart	Yes, 2 to 4 weeks prior to mating
<p><i>This disease presents in many forms it would be best to discuss vaccination with your veterinary practitioner.</i></p>				

Editorial Committee

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