



Beeftalk

Taking stock of your future

Prime news and views for beef producers of South East Queensland

in this issue

- 2 Diagnosing disease and deficiencies
- 3 Dung beetles
- 4 Visual selection for muscling
- 6 Comparing grazing systems
- 7 Do I want to be a stud cattle breeder?
- 8 NLIS refresher
- 9 Beware of mulga fern poisoning
- 10 An immunocontraceptive vaccine for cattle
- 11 Landholder rights and the CSG industry
- 12 Bull options for smaller herds
- 13 Splatter gun for lantana control
- 14 7 steps to buying, moving and selling livestock
- 15 Water medication
- 16 Supplementary feeding
- 17 Genomic predictions
- 17 Scented-top grass
- 18 Understanding the MSA grading system
- 20 QRAA loans for sustainability and productivity
- 21 Timely tips—Autumn/Winter
- 23 Ordering leucaena rumen inoculum
- 24 Hudson pear

Issue 33 Autumn/Winter 2012

editorial

In this edition of *Beeftalk* we have collected several articles related to producing profitable beef carcasses. The articles on 'Visual selection for muscling in a breeding herd', 'Understanding the MSA grading system' and 'An immunocontraceptive vaccine for cattle' each provide information that can help you produce a beef product best suited to your market.

In smaller herds owning and managing bulls has many challenges but there are several options that are worth considering that might suit your operation.

Many *Beeftalk* readers will be interested in the AgForce Projects' article about landholder rights when negotiating with the coal seam gas (CSG) industry.

Be on the look out for two weeds—the mulga fern that can poison cattle and the Hudson pear, a nasty cactus that has been identified in four locations in Queensland. There is also a practical article about the benefits of using a splatter gun to treat difficult-to-access areas infested with lantana.

The *Beeftalk* team says goodbye to editor, Ian McConnel, who has left the Department to take up a position as sustainable beef project coordinator with World Wildlife Fund (WWF). We thank Ian for his input to *Beeftalk* as editor and contributor over several years as well as his work on the beef extension team. We wish him all the best in his new job.

The winner of the *Beeftalk* 32 feedback prize was the Zabel family of Coolana. This edition we are offering a great prize of 5 litres of Grazon Extra donated by Dow Agrosiences. The winner's feedback form will be drawn from all the feedback forms we receive by 13 July, 2012. We hope you enjoy this edition of *Beeftalk*!

Happy reading!
The *Beeftalk* Team



Diagnosing disease and deficiencies

Diseases and parasites can severely limit production and, in severe cases, lead to livestock death. Livestock owners need to be aware of common diseases that occur in their region. You also need to be aware of signs or symptoms of diseases that may be new to the area, including diseases that are exotic to Australia.

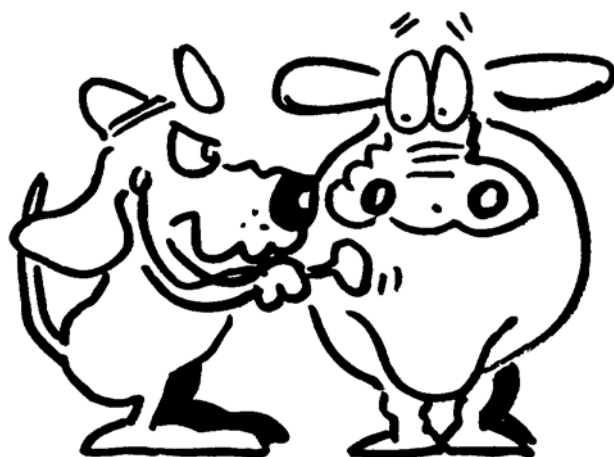
It helps to know what is 'normal' in order to be able to detect what is not normal. The following table indicates normal ranges for important cattle functions.

Normal beef cattle functions

Body temperature (daytime rectal average)	38.6°C
Pulse	50–80 beats/minute
Respiration	10–30 breaths/minute
Puberty (age at first cycle)	12–24 months
Oestrus (duration)	14 hours (10–18 hours)
Return to oestrus after calving	41–60 days
Length of cycles if not pregnant	21 days (18–24 days)
Gestation period (conception to calving)	282 days (272–295 days)

Diagnosing the causes of ill-health

Animal diseases are complex to diagnose because, to the untrained eye, the symptoms of many diseases appear similar (see table on page 3). Determining which disease is present and what action is required is a job for a professional. However, if you can compile comprehensive information about the affected animals, the whole herd and the progress of the disease, this will greatly assist your vet or stock inspector with diagnosing and advising on courses of action. You can download the 'Disease and welfare investigation form', which provides a guide to the information required, from www.dpi.qld.gov.au/documents/Biosecurity_GeneralAnimalHealthPestsAndDiseases/Animal-HD-Investigation-DW-form.pdf



Malnutrition

Inadequate nutrition is the most important factor that predisposes animals to disease. Animals suffering from malnutrition are more susceptible to disease and parasites and have a less effective immune response than healthy animals. The main causes of malnutrition are:

- insufficient feed
- a lack of one or more nutrients in the diet
- an imbalance of one or more nutrients in the diet.

Parasites

With some experience it is easy to recognise the main external parasites that affect livestock (i.e. ticks, buffalo fly and lice). However, determining whether internal parasites, such as worms, are affecting an animal is not so easy. Faecal testing for worms will indicate whether, and to what extent, an animal is infested and identify the types of worms present. For more information visit www.business.qld.gov.au/industry/agriculture/animal-management/managing-worms-livestock/wormtest-kits-wormbuster

Disease

To a certain extent, diseases and other causes of ill-health can be broadly categorised according to their main impact. The table on page 3 shows some common symptoms and the diseases and other conditions that can cause these symptoms in cattle. More information on specific diseases is available from Biosecurity Queensland's 'A-Z list of significant animal pests and diseases' on www.dpi.qld.gov.au/4790_12612.htm

Further information:

Managing a beef business in the subtropics by Tyler et al, 2004, Department of Primary Industries, Queensland, pp 112-113.

Symptoms of diseases, parasites and other conditions in cattle

Symptom	Disease or parasite	Other conditions
Sudden death	clostridial disease (blackleg, tetanus) botulism	urea poisoning cyanide (prussic acid) poisoning plant poisoning
Fever and possible death	three-day sickness (bovine ephemeral fever) tick fever	acidosis
Reproductive problems	akabane leptospirosis pestivirus trichomoniasis vibriosis	
Body abnormalities	blight or pink-eye cancer eye lumpy jaw warts (papillomas)	
Diarrhoea	coccidiosis parasitic scours white scours	
Failure to reach growth targets	buffalo fly cattle ticks lice worms	phosphorus or other nutritional deficiency

Adapted from *Poisonous plants: A field guide* by Dowling and McKenzie, 1993, Department of Primary Industries, Qld.

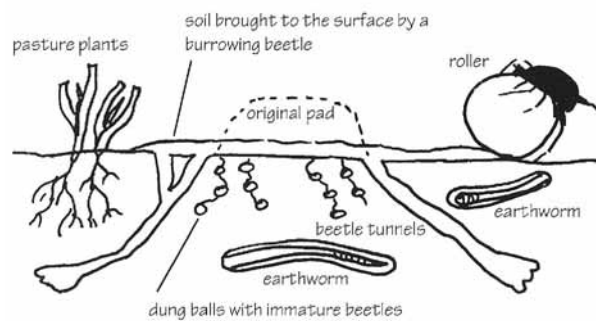
Dung beetles

Dung beetles are one of the most useful insects in rural Australia. As they tunnel and bury manure they play an important role in recycling pasture nutrients as well as limiting the spread of flies, buffalo fly and worm larvae.

Dung beetle legs are specialised for digging. Some species can easily tunnel through a compacted dirt road to bury manure. The beetles found in Australia range in size from 2 to 30 mm; some species found overseas are far bigger. The beetles mostly reproduce in summer when they are most active although there is at least one species that will work through winter. Dung beetle adults and larvae feed on manure and on other rotting material in the absence of manure.

Both male and female dung beetles burrow to create tunnels for a nest, taking the manure underground with them. When the eggs hatch the larvae feed on the buried dung. Ball roller beetles however roll the dung into a ball into which they lay their eggs. The dung balls are left on the soil surface, usually at the base of pasture plants.

CSIRO has introduced many dung beetle species from overseas and there are now at least 30



Methods of recycling a dung pad by two different dung beetles

introduced species in Australia. The more species you have on your property, the longer the period of activity will be during the year. Dung beetles can be susceptible to the chemicals in some cattle drenches.

Further information:

www.australianmuseum.net.au/Dung-Beetles
www.dungbeetle.com.au

Dung beetle suppliers:

John Feehan, Soilcam
3 Prell Place, Hackett ACT 2602
Phone: 02 6248 0376

Bernard Doube, Dung Beetle Solutions Australia,
37 Cave Avenue, Bridgewater SA 4158
Phone: 08 8339 4158

Visual selection for muscling in a breeding herd

Producers have long been concerned that selection for heavier muscling in a breeding herd would bring penalties in the performance of females. Fears include poorer fertility, lower milk production and greater calving difficulty.

This article outlines a long-running experiment with a commercial breeding herd set up by NSW DPI and now included in the Beef CRC. It aims to establish the progress that can be made in improving the value of steers and examine any negative impact of extra muscling on the breeding females.

Muscling selection experiments

Bill McKiernan, NSW DPI livestock research leader (Orange) and Greg Meaker, beef officer (Goulburn), have been running a selection program for and against muscle score since the early 1990s, concentrating on selection for muscling and measuring the consequences.

The experiment was started at NSW DPI Elizabeth Macarthur Agricultural Institute at Camden in 1991. It continued there until 2002 when drought and alternative demands on the site necessitated moving the herd to the DPI's Glen Innes Research Station. Since then there has been increasing CRC involvement.

Originally a random selection of Hereford females were used, representing breed average muscularity. High and Low muscle score Angus bulls were selected visually and used to produce progeny for comparison. In 1997 females from these matings were selected on their High or Low muscle score pedigree and on their own muscle score, to form High and Low female lines. They have been subsequently run as separate breeding groups, mated to High or Low muscle score Angus bulls respectively, sourced from industry herds. Subsequent generations of females have been selected on muscle score to be replacements for the respective herds.

Currently two herds of more than 70 cows are being run. The average muscle score of the Low herd is D muscle score and the High cattle are a little over muscle score C (i.e. one full muscle score separation, average of both male and females).

A third, related herd is also run at Glen Innes and includes cows carrying the 'double muscle gene' (myostatin deletion gene). This research is helping to understand the biology of muscling

and the potential use of DNA tests to improve retail yield. Information from this herd is reported independently, but also compared with the two selection lines described above.

Selection line results and implications

There is now a full muscle score difference between the herds in both males and females, which has given a clear economic advantage to the High muscling herd. In saleyard terms, one full muscle score advantage across all stock categories attracts a premium of 10c to 20c per kg liveweight, currently worth more than \$100 per animal sold.

Implications:

- Visual muscle scoring by experienced people does work—it is repeatable and heritable.
- Selection adds substantial value to sale stock in an average commercial herd.

Selecting for cows and sires on muscle score has also increased the eye muscle area (EMA) of progeny. Measured at any age up to slaughter, there is a difference of 5 to 10 cm² between the lines at the same weight.

Implications:

- The objective measure, EMA, is correlated to visual muscle score.
- The two can be used as alternative, or preferably complementary, selection tools.
- BREEDPLAN EBVs for EMA can be used in bull selection for herds and breeds with this information of sufficient accuracy.
- Visual selection becomes more important for breeds without accurate EBVs.

Fatness has decreased in the High muscling line, although the decrease is only marginal at the rib site. Results from over 200 steers slaughtered from these lines show a decrease of about 2 mm at the p8 site on a 350 kg carcass from the High muscling line at 2 years of age. Rib fat has been relatively constant. Marbling fat has slightly decreased in the High muscling line.

Implications:

- Selection for muscling results in higher-yielding cattle that are more attractive for most markets.
- For the high quality longfed Japanese and Korean markets, to avoid losing marbling, watch EBVs for marbling and use the Japanese market \$index.

Compared to the Low muscling line, High line steers after three generations of selection had: 1% extra dressing percentage; 1.25% better retail yield percentage and the proportion of hindquarter primal cuts was over 1% higher.

Implications:

- These changes combine for a very significant increase in beef value per kg liveweight or dressed weight.
- This is in keeping with crossbreeding experiments using heavily muscled breeds such as Limousin, but had not until now been so clearly shown for a British breed.
- The widely held view that ‘selection on conformation cannot change the distribution of cuts’ is not always true.

There has been little or no effect on growth rate between the lines. High line cattle are however shorter as measured by hip height.

Implications:

- Selection for muscling need not reduce growth—a common industry concern.
- Weight can also easily be monitored via BREEDPLAN weight EBVs.
- The shorter stature is in keeping with industry perception of ‘dumpiness’ in more heavily muscled animals. However, the experimental lines are the same weight at any age.
- Contrary to common industry perception, heavier-muscled, ‘dumpier’ animals are in fact the same maturity pattern if not later maturing than their low muscle counterparts.
- Store steer buyers should not only rely on animal height as a gauge of maturity and growth potential but should consider muscularity in combination with height and weight to assess finishing performance.

Possibly the most difficult trait to measure accurately is female fertility and performance, as

very large numbers of calvings are needed.

- There is currently no difference in weaning weight of progeny between the High and Low muscle lines, indicating that milk production has not been adversely effected.
- Serial ovary scanning of weaner and yearling heifers found no differences in ‘active ovaries’ as heifers achieved sexual maturity. This indicates sexual maturity of females from the two muscle lines is the same.
- There has been virtually no calving problems within the muscle line herds. The Low muscle line has slightly heavier calves at birth—the opposite to what most producers would expect.
- Overall fertility, number of calves born or weaned relative per cow mated, is effectively the same in each herd.

At a recent field day, Bill McKiernan summed up, saying “we are now confident of the results that selection for muscling within British breeds, at least to these levels, will result in substantial economic benefit with little impact on other herd productive traits”. He also stressed: “This is an experiment to study the effects, by selecting on a single trait. This does not imply that single trait selection should be pursued commercially. We recommend that muscling can and should be included in multiple trait selection programs. This can be either by straight or cross breeding, depending on the situation”.

This article by Brian Sundstrom, formerly NSW DPI cattle breeding specialist, is reproduced with kind permission from the Beef CRC.

Further information:

[www.beefcrc.com.au/Fact sheets](http://www.beefcrc.com.au/Fact%20sheets)

Muscle scoring beef cattle, NSW DPI Primefact available at www.dpi.nsw.gov.au

New FutureBeef program to benefit Queensland beef producers



Government and industry have joined forces under the FutureBeef Program for Northern Australia to boost business and growth opportunities for beef producers. FutureBeef will provide innovative extension activities through government agencies (Queensland, Northern Territory and Western Australia) working with Meat & Livestock Australia. These activities aim to deliver a more profitable and sustainable beef industry across northern Australia.

To find out more about FutureBeef and what it can offer you, visit futurebeef.com.au

Comparing grazing systems

Continuous, rotational or cell grazing—what difference do they make?

To investigate these grazing systems an MLA-funded, DAFF/CSIRO project was run on nine Queensland properties, which had two or three of these existing systems in place. Data was collected over four years between 2005 and 2009. The six rotational and eight cell systems had been in operation for between 2 and 12 years before the project started. In total, 74 paddocks covering 12 700 ha were monitored. The land types ranged from light eucalypt to heavy brigalow/gidgee in northern and southern regions of Queensland. Owners made all management decisions, including stocking rates, and the pastures in all 21 grazing systems were well managed.

A major conclusion was that the system itself is less important than the underlying grazing management principles used—namely that stock numbers are matched to annual carrying capacity and that paddocks are spelled during the pasture growing (wet) season.

The grazing systems investigated

- **Continuous** grazing typically involved cattle being in a paddock most of the time. In this study most continuous paddocks received some spelling and stocking rate adjustments each year.
- **Rotational** grazing typically involved one mob of cattle moving around a number of paddocks (6–18 across the sites) with variable stocking rates and grazing periods (e.g. 5–45 days/paddock across sites).
- **Cell grazing** typically involved one mob of cattle moving around a large number of paddocks (20–166 across the sites) with variable stocking rates and short grazing periods (e.g. 1–3 days/paddock).



Data collected on ecology, cattle and economics

Researchers monitored the following factors in selected paddocks on broadly similar land types (i.e. not the whole property):

- Ecology** pasture yield, ground cover, botanical composition/diversity, soil surface condition, land condition
- Cattle** grazing imposed (converted to stock days per hectare), diet quality (using faecal near infrared spectroscopy, or F-NIRS)
- Economics** capital and running costs of the various levels of system intensity

Six main findings

1. Across all sites, grazing systems had no consistent effect on pasture, soil surface or land condition.
2. Pasture production, land condition and ground cover improved across all systems and sites due to higher rainfall in the final two years of the study, irrespective of the system.
3. There was a small difference in the diversity of plant species between the grazing systems, with the cell grazing systems having fewer pasture species.
4. Cell systems were the most evenly grazed and continuous systems were the least evenly grazed.
5. Diet quality was lowest in cell systems and highest in continuous systems, with differences being the greatest during the wet season. Individual animal performance is therefore likely to be higher under continuous stocking.
6. There was no statistical difference between systems in grazing days 'harvested' per hectare on an animal equivalent (AE) basis; however there was great variation across sites.

Project learnings

The project highlighted that it is not the grazing system but rather the use of careful and regular stocking rate management and wet season spelling that drives pasture and livestock productivity. Conversely, inappropriate stocking rate management such as over-grazing will lead to loss of ground cover, top soil, nutrients, water and key perennial grasses, irrespective of the grazing system.

Whilst intensive systems did not show any intrinsic ecological advantages over well-managed less intensive systems, it was clear from the project that adopting cell grazing had the effect of focusing

the producer's attention on the essentials of good grazing management. These producers were assessing stocking rate over time in line with short-term changes in pasture production, and monitoring land condition.

Producers reported other benefits from adopting more intensive systems, such as reduced mustering costs, greater flexibility in managing pasture and livestock, easier anticipation of problems with pasture quantity and quality, and ease of supplementation, especially using medicated water. However there can be high up-front costs in intensive systems and, depending on the scale of operation, possibly also high running costs, with labour timeliness requirements being a management issue.

Further information:

Weighing up grazing strategies, Frontier, Winter 2011 (MLA).

Investigating intensive grazing systems in northern Australia Final Report (98 pages), downloadable from www.mla.com.au

FutureBeef presentation on YouTube: 'Grazing Systems—Fact and Fiction' www.youtube.com/watch?v=bUU8L1PVwXM.

Trevor Hall

DAFF, Toowoomba

Phone: 07 4688 1239

Email: trevor.hall@deedi.qld.gov.au

Do I want to be a stud cattle breeder?

Many new cattle breeders ask this question. They may be thinking about the prices stud breeders can get for their stud bulls which, compared to the prices they're getting for steers, make the stud game look pretty good.

To be a commercial breeder you just need to buy a number of females of good enough quality of the breed you like and a reasonably-priced bull. You can afford to make a few mistakes with timing of mating, late weaning or not vaccinating, and generally the market will still accept your sale stock.

However to become a stud member you have to buy good quality, registered breeders and a bull. Occasionally you might get lucky and find a good, used bull but mostly you will need to buy a young stud sire, which can be a costly exercise. Buying an expensive sire does not guarantee top quality calves. It usually pays to take an experienced cattle breeder with you to help select good quality breeding stock that are suited to your property.

You will have to register your stud and there are some considerable costs involved in this, including cattle breed society membership and calf registration.

If you want to be in BREEDPLAN, and some cattle breed societies insist on this, there are further costs involved and you must have good yards and accurate scales to weigh your cattle.

You must keep very good records. Every stud calf must be identified with an ear tag as soon as possible after birth and later with a tattoo or brand



number. To register a calf you need its date of birth and the names and numbers of its sire and dam.

When you come to sell your bulls, most sales have special conditions regarding vaccinations and require a vet's bull breeding soundness evaluation (BBSE) for each bull on offer. Female sales also have conditions. If your cattle don't weigh well or don't look good at sale, they may not sell well either. Most cattle that do sell well in stud sales have been fed a grain-based diet, adding to the cost of sale preparation.

Selling in the paddock is another option but you will have to work out how to get buyers to see your cattle. This will usually involve some advertising costs. You still need to have the vet do a BBSE for each bull and you need to guarantee the bull's performance. Nothing travels faster than the tale about the stud breeder who wouldn't replace a dud bull.

Setting up a stud operation is an expensive game and the costs often outweigh the benefits. However there is great satisfaction in seeing your cattle perform well in the show or sale ring. Stud breeding is certainly not for everyone and you might get just as big a thrill from seeing your weaners sell for top money at the local sale.

Further information:

Carli McConnel

Phone: 07 5426 0169

NLIS refresher

Transfers—when and how?

All cattle movements must be recorded on the NLIS database with the exception of cattle moving between two properties that have the same property identification code (PIC). This includes both for sale and agistment.

When?

The database must be notified with 48 hours of the cattle movement.

The type of movement determines who is responsible for recording the movement on the NLIS database, as per the following table:

Type of movement	Who's responsible for recording the movement
To and from saleyards	Saleyard operator.
To abattoirs and slaughterhouses	Abattoir and slaughterhouse management.
Other movements, including interstate	Manager or person responsible for the livestock at the destination property, i.e. the receiver. The receiver can arrange for this task to be carried out by the consignor or by an authorised third party or agent at origin, <i>en route</i> or at destination.
To another land parcel with the same PIC	Devices are not required to be read. Database does not need to be updated.

How?

With internet access...

MLA's NLIS Ltd manage the NLIS database on behalf of SAFEMEAT. SAFEMEAT is a partnership between the red meat and livestock industry and the state and federal governments of Australia. To access the database and carry out livestock transactions you need a PIC, an email address and an internet account in the NLIS database.

If you only trade via the saleyards or sell direct to the meatworks you do not need to open an NLIS

account because the saleyards and abattoirs will record all transactions for you.

If you ever move cattle between properties with different PICs then you will need to record these transactions on the NLIS database yourself. When updating the database you will need the following information:

- NLIS ID or RFID number of each animal
- 'from', or departure property, PIC
- 'to', or destination property, PIC
- serial number of the waybill or combined NVD/waybill
- date of movement.

When buying cattle at a saleyard, you may wish to check your database account to ensure the saleyard operator has entered the transaction correctly.

Once movement details have been uploaded, the NLIS database will send a confirmation email to both the departure and destination properties (if these parties have an account with the database). Agents acting as a third party for a client will also receive an email.

Without internet access...

If you don't have access to an NLIS reader or the internet, you still have options for updating the database.

1. Visually read the tags and manually record the data

Reading NLIS tags visually is less reliable than using an electronic reader so you can use this method only for simultaneous transfers of 20 NLIS IDs or fewer.

You need to purchase a form (called a Form A) from the NLIS Helpdesk at MLA (contact details at the end of this article). Each form has a unique serial number and can be used only once, with a maximum of 20 devices per form. Each form costs \$10 plus a \$4 postage and handling fee per order.

2. Employ a data transfer service provider

DAFF Queensland has trained data transfer service providers to help producers who do not have internet access or NLIS device reading equipment. Some livestock agents offer this service to their clients.

If you intend to use a service provider, you need to complete a database transfer authority form to authorise them to carry out transfers on your behalf. Allow at least one day (six working hours) for the authority to be processed. Access authority forms are available from the NLIS Helpdesk (see contact details on page 9).

However, some third party providers and livestock agents automatically have authority to carry out transfers, in which case you don't have to provide written authorisation. Before making any arrangements with a service provider ask them to explain their services to ensure they meet all the legal and commercial obligations. Once a transfer is complete, get written confirmation from your service provider or livestock agent that the transfer has been completed correctly.

Note to data transfer service providers: Third party service providers should also check that the PICs of cattle bought and sold through saleyards or taken to abattoirs have been correctly recorded.

What if I don't update a transfer...

If you move an animal to a property with a different PIC and the movement is not updated on the database, that animal will lose its lifetime traceability status. At a later reading of the tags the system will

detect animals that were not correctly transferred.

When the animal's movement records are next uploaded, the database will automatically reassign it to the consigning PIC on the national vendor declaration. However, the animal's lifetime traceability status will be lost because its movements have not been fully recorded. Animals that do not have lifetime traceability status may not be eligible for some markets, such as the European Union market.

Further information:

NLIS helpdesk
Phone: 1800 654 743 or
Email: nlis.support@mla.com.au

Your local Biosecurity or Stock Inspector on 13 25 23

Doug McNaught

Phone: 07 3310 2828 or 0427 582 113
Email: douglas.mcnaught@deedi.qld.gov.au

Beware of mulga fern poisoning

Cheilanthes sieberi

The name 'mulga fern' suggests a plant from inland areas but this is a common pasture plant in Queensland's near-coastal areas. It is a small, unassuming plant that often goes unnoticed in pastures and it can be toxic to stock. Mulga fern has caused significant losses on some properties in the Burnett and the Brisbane Valley.

Mulga fern generally grows to 20 cm tall but can reach 45 cm in some situations. The stalks are thin and stiff, ranging in colour from dark brown to black. The dark green fronds are 2.5–5 cm wide and are segmented, or in lobes, up the stem. In dry conditions the fronds will curl up and look very dry and dead but the plant will recover after rain.

The plant contains toxins that affect the bone marrow and have carcinogenic effects in cattle and sheep. Acute mulga fern poisoning in cattle has similar symptoms to bracken fern poisoning including:

- blood-flecked discharges from the nose
- blood in the faeces
- haemorrhages under the membranes of the nose, mouth, rectum and vagina
- anaemia and fever
- blood in the urine.

Cattle that have died from eating mulga fern

show signs of widespread haemorrhaging and sometimes cancerous changes in the urinary bladder. There have been cases where naive cattle introduced to pastures with mulga fern have died from the stiff stems of the plant perforating the gut.

If you suspect mulga fern poisoning, remove your cattle from the pasture immediately; cattle may recover if they have not eaten large quantities of the plant.

Mulga fern can be quite common and stock generally avoid eating it. Reports indicate that poisoning is more common in drought years when other feed is limited.

Selwyn Everist, author of *Poisonous Plants of Australia*, suggested: 'Effects on animals are worse if they are driven after eating the fern and if continued the animals usually die. The best option is to remove them from the paddock if possible. If stock have been eating mulga fern, don't drive stock, don't allow access to paddocks with fern or if you must, remove them after 10 days grazing and place on other feed for three weeks before returning them for another ten days'.

There is no chemical registered to control mulga fern and local experience indicates it is not killed when pastures are sprayed to target other weeds.

Further information:

Damien O'Sullivan

DAFF, Kingaroy
Phone: 07 4160 0717
Email: damien.osullivan@deedi.qld.gov.au

An immunocontraceptive vaccine for cattle

article supplied by Pfizer Animal Health

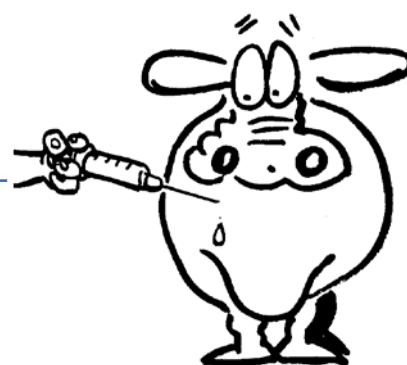
A new approach to meat quality and behaviour control for bulls and heifers

A new vaccine is now available for use in non-breeding cattle. This vaccine temporarily inhibits the release of male and female sex hormones, thereby decreasing hormonally-driven sexual and aggressive behaviour. For bulls it provides an immunological alternative to castration, enabling easier management and delivery of better meat quality. For heifers it provides a tool for managing oestrus-related behaviour, providing the potential for improved productivity.

When administered to heifers, normal oestrus activity ceases within 1–2 weeks of administration of the second dose. The vaccine effectively suppresses standing oestrus behaviour for a period of at least 16 weeks after the second vaccination. If continued anoestrus is desired, additional booster doses can be given. The vaccine can also be used to prevent unwanted pregnancies in heifers and as a welfare-friendly, short-term alternative to surgical spaying. This labour-intensive surgical intervention frequently results in complications and in severe cases, mortality. The spaying process itself can result in temporary impairment of growth and performance.

In collaboration with Australian investigators, Pfizer Animal Health has evaluated the efficacy of this vaccine in a large-scale study involving feedlot heifers¹. The study demonstrated that feedlot heifers given two doses of the vaccine and implants containing oestrogen and trenbolone acetate, required significantly less feed to reach finishing weight compared to heifers given implants containing oestrogen and trenbolone acetate alone. The vaccinated heifers also had significantly lower percentages of 'dark, firm, dry' meat, which can be a significant meat quality issue in Australia.

When administered to bulls the vaccine provides temporary immunological suppression of testicular function within 1–2 weeks of administration of the second dose. A 3–4 week interval between doses will result in



reduction of blood testosterone levels for a period of at least 8 weeks, while an 8–12 week interval between doses is expected to result in suppression of testosterone for approximately 16 weeks in the majority of bulls. The vaccine provides an alternative to the current practice of physically castrating bulls to reduce sexual and aggressive behaviour and improve meat quality. Immunological suppression of sex hormone production avoids the set-backs associated with physical castration. It also provides flexibility around the timing of vaccination. Some beef bull producers are opting to administer the product after the early benefits of growing entire bulls are realized, but prior to testosterone driven behaviours becoming problematic from a management perspective. A booster dose can be given to extend the duration of effect if desired.

The vaccine has minimal side effects in vaccinated cattle, usually limited to transient pyrexia (fever) or injection-site swelling that generally disappears within 3–5 weeks. A proprietary vaccinator with a two-step safety mechanism is recommended to ensure operator safety during administration. This vaccine accommodates what has historically been an unmet need in food animal production: a safe and highly effective vaccine for temporary suppression of testicular and ovarian function in entire cattle. It provides an innovative approach for control of hormonally-driven sexual and aggressive behaviours, an animal welfare-friendly alternative to surgical castration/spaying, and a means of improving meat quality and potentially improving productivity.

¹ Study data on file Pfizer VMRD Parkville Vic

Further information:

Talk to your veterinarian or call Pfizer Animal Health on 1800 814 883.

Landholder rights and the CSG industry

The coal seam gas (CSG) industry is a rapidly expanding resource industry in Queensland located primarily in the Surat, Bowen and Galilee Basins. The development of this industry has left many landholders anxious about their legal rights and the impact on their farming operations.

The AgForce Projects division launched a landholder CSG project in March 2011 providing free information sessions for landholders. The sessions provide landholders with information about their rights and responsibilities and tips on how to negotiate with a resource company to minimise the impacts of CSG activity on agricultural land. Initially launched in the Surat Basin, the project has now expanded to include the Bowen and Galilee basins and has already assisted more than 1400 landholders.

How can I find out if there are any CSG tenures over my property?

Landholders who are concerned about the industry should first find out if a company has an Environmental Authority (EA) to explore over their property and understand their rights and responsibilities in the event of a company approaching them. Landholders can visit www.business.qld.gov.au and search for 'interactive resource and tenure maps (IRTM)' for the most current information on tenures in their region.

Landholder rights and responsibilities

Under amendments to the Land Access Code introduced in October 2010 any company with an EA must avoid unreasonably interfering with a landholder's lawful farming activities and must negotiate a Conduct and Compensation Agreement (CCA) before conducting any advanced activities on a property. Landholders have the right to tailor an agreement that best suits their individual property needs, considers all impacts to their business and lifestyle and ensures they are compensated for those impacts. This includes having a say in where CSG companies can go on their property and how they conduct themselves.

Some important conduct provisions that graziers need to consider is the impact CSG activities will have on their grazing practices. Graziers can use a property plan to demonstrate their grazing strategies to a CSG company and ensure any disruption to cell or rotational grazing is minimised and compensated. Other important considerations include working with the resource company to

manage requirements of NVDs in relation to CSG activities, dust on pastures, increased grazing pressure and livestock stress. It is important landholders monitor their property and stock to ensure CSG companies are adhering to specific conduct provisions. Landholders should also check that they are being compensated according to the agreement with the company and for any breaches in conduct provisions.

Where can I go for legal advice?

Negotiating a CCA with a CSG company is a complex exercise and AgForce encourages producers to seek professional legal advice before entering into negotiations. Legal Aid Queensland runs a free, non-means tested service specifically designed to assist rural landholders affected by mining activities in Queensland. Contact Glen Martin (Toowoomba) on 4687 2934 for assistance. Landholders in Central Queensland can also access free legal support through McInnes Wilson Lawyers. Call the Central Queensland land access advice hotline on 1800 557 992 for free legal enquiries. Landholders can also seek assistance from their local legal practitioner. Landholders are encouraged to make sure their legal advisor has an understanding of the CSG negotiation process.

'Make good' arrangements and baseline assessments

One of the major concerns for landholders is the potential impact CSG will have on underground water. The extraction of CSG involves dewatering the coal seam, which has the potential to affect the pressure, volume and quality of the groundwater that many Queensland landholders rely on. Recent amendments to the *Water Act 2000* include requirements that resource companies 'make good' any adverse impacts of CSG activities on underground water including bores and springs. Make good arrangements could include restoration of underground bore performance or the establishment of an alternative water source.

While CSG companies are required to undertake baseline bore assessments when moving into CSG production, AgForce recommends all landholders consider having their bores independently assessed before advanced exploration activities commence in order to provide evidence should CSG activity affect their property.

Further information:

www.agforceprojects.org.au

Phone: 07 3238 6048

Information sessions are delivered free, with the financial support of the Queensland Government, to all producers.

Bull options for smaller herds

Buying bulls is one of the major costs that cattle breeding enterprises face. In small herds there are some additional risks and costs associated with owning your own bulls.

Bulls will be more cost-effective if you can put them across the maximum number of cows. Most bulls can be safely expected to cover 50–80 cows in a breeding season. Running only one bull in a small herd means you run the risk of being caught out if he suffers injury, infertility or infection with disease. You can minimise these risks with correct vaccination programs, proper bull preparation and annual bull breeding soundness evaluations (BBSE). In any case, in single sire herds you need to replace a bull when his daughters return to the breeding mob. Many people buy an additional bull as a backup and to add genetic diversity to the herd.

However, there are options other than buying your own bull that are worth considering in smaller herds.

Artificial insemination and embryo transfer

Artificial insemination (AI) and embryo transfer (ET) are ways of introducing genetics into your herd that may otherwise be too difficult or expensive to acquire. A \$70 000 bull may be out of reach but a few straws of his semen may be well within your budget. Below are some of the costs involved in using AI and ET in your breeding program.

Angus Australia estimate the cost of a typical AI program for a herd of 100 cows to be about \$73 per AI calf. Conception rates from the first round of AI are often around 50% so a back-up bull or a second round of AI will still be required to cover the cows that do not get in calf in the first round.

Compare this to the cost of buying an above-average Angus bull and using him under natural mating conditions. Angus Australia suggest the cost of a naturally-bred calf is around \$47. This example uses the Angus breed but other breeds will have similar costs.

You can reduce some of the cost if you learn to AI your own cattle. An AI course costs around \$1450, purchasing your own canister costs \$1500 and maintaining the canister costs about \$200/year. Additional equipment will cost around \$250 and then there are the costs of supplies for each round of AI performed.

For ET you are looking at around \$500 per embryo produced plus the cost of a specialist veterinarian to transfer them.

Generally only stud breeders use AI and ET to access very good genetics.

Bull leasing or hiring

A few studs and commercial operations hire, lease or rent bulls to other producers for the joining season. The advantages of leasing a bull include not needing to manage a bull outside the breeding season, making it easier to establish controlled breeding seasons, being able to rotate bulls annually, introducing more genetic diversity into the herd, and avoiding the problem of replacing a bull once his daughters return to be joined.

Not having control over the bulls you use does have risks though. Be sure you have good communication with the bull provider and some sort of contract in place outlining the responsibilities for keeping the bull's vaccinations up to date, guaranteeing the bull is disease free, and conducting an annual bull breeding soundness evaluation (BBSE). Other considerations include deciding who bears the risk of injury to the bull and ensuring the cows are disease free. Such a contract is important for both parties. You will still have the risks associated with running only one bull, so do all you can to make sure he works!

Bull/herd sharing

In some areas, it may be possible to open the gates during the joining season and run your cows with your neighbour's cows, using a shared bull or bulls. You could agist your cows on a larger property to run with their bulls. Or two producers could buy two bulls under an agreement that they will swap bulls after three years. By sharing the cost of the bull(s) you are potentially reducing your financial risk.

These options still require vigilance to ensure all cattle are vaccinated, disease free and well managed. Be aware that running mobs together requires merging your property identification codes (PICs) or transferring cattle on the NLIS database. Contact your local biosecurity officer to discuss the best option for you (phone 13 25 23).

Again, it is worthwhile having a contract drawn up to avoid misunderstandings.

However you gain access to a bull, in small herds it is imperative to manage your herd to maximise the bull's chance of success and ensure his fertility and soundness. Empty cows are no use to anyone and your economic success depends on each cow having a live calf every year.

Splatter gun for lantana control



Using a splatter gun (or gas gun) to apply herbicide is an effective method for controlling lantana, particularly in areas that are difficult to access or where there is potential for off-target species to be affected. The splatter gun applies a low volume, high concentration stream of herbicide droplets to the lantana foliage. Using a splatter gun keeps the herbicide cost down to less than five cents per bush, making this method generally cheaper than traditional foliar spray methods.

This application method works best on thick, clumped lantana or scattered re-growth with a compact growth form that is at least 300 mm high. Only glyphosate and metsulfuron-methyl are registered for use on lantana with a splatter gun.

The splatter gun is essentially a drench-style gun with the chemical being carried in a backpack. Two types of splatter gun are commercially available: a manual drench gun and a gas-powered gun. You can do a longer day's work using the gas-powered option but it costs more to buy and operate than the manual type. The gas-powered devices can apply a stream of herbicide to lantana plants 6–10 m away, facilitating the treatment of gullies.

Advantages

- Can be used to treat lantana in sensitive areas, in production situations, in areas where mechanical clearing is not advisable, and in quite inaccessible areas.
- Applies a reduced volume of herbicide. A 5 L bottle of herbicide mix should cover approximately 2000 m² (0.5 ac or 0.2 ha) of moderate-density lantana.
- Accurate delivery reduces off-target damage.
- High concentration means only a small portion of the foliage needs to be sprayed; less water for dilution needs to be transported, and larger areas can be treated using a backpack.
- Can be used from a vehicle, from horseback or on foot.

Disadvantages

- Cannot be used in wet weather, and is less effective on plants carrying heavy dew.
- Not effective for treating spindly lantana re-growth as it is difficult to apply the total volume of required herbicide to enough leaves in this situation.

Timing

- Can be used year-round if plants are actively growing, but works best during summer months.

Application

- Apply only to actively growing plants with full foliage and ensure leaves are not wet from rain or dew. The best times to spray are before 10 am and after 3 pm, when there is reduced evaporation and the plant will be more susceptible to herbicides.
- A specialised nozzle that produces large droplets of herbicide mix must be used to achieve the desired low volume, high concentration application. A fine spray or mist will not be effective.
- To apply the herbicide, angle the spray gun up at 45 degrees and arc the stream of herbicide over the top of the bush and down the front face.
- If treating dense walls of lantana, apply one vertical spray line every two strides with an occasional horizontal pass low across the front edge of the bushes to treat any low growth.
- Apply only the recommended volume of herbicide (for example, 360 g/L of glyphosate, that is, two squirt lines of 2 mL chemical mix per half metre of plant height or approximately 16 mL of mixed herbicide in total for a 2 m bush).
- It is vital that you do not spray to the point of run-off as you would with conventional foliar spray techniques. If too much chemical is applied at this concentration, the plant will go into shock and herbicide uptake will be inhibited.
- Always use clean water for mixing and cleaning as dirty/heavy water can bind the glyphosate and dramatically reduce the kill rate.
- Use a marker dye to identify splattered bushes, particularly if working in a team.
- Do not use a surfactant or additive—these increase the costs and provide little additional benefit to this application technique.
- Undertake follow-up treatments, which are critical for controlling seedlings and/or re-growth.

Adapted from: www.weeds.org.au/WoNS/lantana/docs/65_Splatter_gun4.pdf

Further information:

www.weeds.org.au
www.njphillips.com.au/green.html



7 steps to buying, moving and selling livestock in Queensland

Step 1—obtain a PIC

- Property registration—no fees involved.
- If you keep one or more horses, cattle, deer, sheep, goats, pigs, buffalo, camelids (camel, llama and alpaca), or 100 or more birds or poultry, you need to register the property with Biosecurity Queensland. Biosecurity Queensland will issue the property with a property identification code (PIC).
- Read more about property registration at www.dpi.qld.gov.au/4790_6011.htm

Step 2—purchase and use NLIS devices

- National Livestock Identification System (NLIS) devices—*Stock Identification Regulations 2005*
- Apply for a NLIS device form at your local DAFF office. Take this form to a farm supply store and order your NLIS devices. Delivery may take several days.
- Apply the NLIS device to your stock correctly. Always refer to the manufacturer's instructions.
- Prior to movement from a property of consignment/origin all cattle, goats, sheep and pigs (all pigs under 30 kg liveweight and all unbranded pigs of 30 kg or more liveweight) must bear an approved NLIS device.
- Find out more about NLIS devices at www.dpi.qld.gov.au/4790_9281.htm
- Read more about NLIS at www.business.qld.gov.au/agriculture/animal-management/legal-requirements-transporting-animals/nlis.html

Step 3—transport livestock

- Combined National Vendor Declaration (NVD)/Waybill and PigPass NVD are industry requirements and must be retained for 5 years.
- A combined NVD/Waybill or PigPass NVD must accompany ALL cattle, goats, pigs and sheep consigned to abattoir, saleyard and/or private sale. It must be fully and accurately completed from the PIC of consignment.
- This paperwork declares valuable information about the food safety status of the livestock being sold and processed to ensure only the safest food enters our food chain.
- To order an NVD/waybill book phone MLA on 1800 683 111 or visit www.mla.com.au/lpa

- A Move Easy waybill is a legal requirement for moving livestock under the *Stock Act 1915* and must be retained for 2 years.
- Move Easy waybills are not combined NVD/waybills. If you are using a combined NVD/waybill you do not require a Move Easy waybill.
- Find out more about permits to move stock at www.dpi.qld.gov.au/4790_13152.htm

Step 4—brand

- Branding is a legal obligation under the *Brands Act 1915* for cattle over 100 kg.
- A brand proves ownership and must be registered for use with Biosecurity Queensland. Brand in any of the legal prescribed positions available, either vertically or horizontally.
- To apply for and register a brand contact the Registrar of Brands on 07 3239 3574 or view www.business.qld.gov.au/agriculture/animal-management/branding-livestock/index.html

Step 5—update NLIS database

- MLA manages the NLIS database under the *Stock Identification Regulation 2005*.
- Use the NLIS website (see below) to download 'A guide for producers' (in Quick Start Guides and References) and establish a free user account to register livestock movements, check and download carcass feedback data and view reports (e.g. transaction history, devices on property, audit property).
- Notify the database of any livestock movement within 48 hours of stock arrival on property of destination.
- See page 8 for your notification options.
- Ph: 1800 654 743 Web: www.nlis.mla.com.au Email: nlis.support@mla.com.au

Step 6—animal welfare

- Any person in charge of animals has a duty of care toward those animals under the *Animal Care and Protection Act 2001* (ACPA) and *Animal Care & Protection Regulation 2002*.
- This means providing for the needs of animals in an appropriate way, including the provision of suitable food, water, accommodation, treatment for injury and/or disease, and to ensure animals are handled appropriately.
- The Act also recognises codes of practice as agreed standards of animal welfare for the various livestock species and types of animal use. Cruelty or ill-treatment of animals should not be tolerated under any circumstances.
- For more information on animal welfare

requirements or to access the codes of practice go to www.business.qld.gov.au/agriculture/animal-management/animal-welfare/index.html

Step 7—cattle tick management

- The cattle tick is a serious economic pest in Queensland. Legislation exists (*Stock Act 1915* and *Stock (Cattle Tick) Notice 2005*) to restrict the movement of primary hosts (cattle) and secondary hosts (horses, sheep, goats and camelids) between the three cattle tick zones.

- Please contact Biosecurity Queensland for livestock movement regulations. You can also phone the Business Information Centre 13 25 23 or access information at www.business.qld.gov.au/agriculture/animal-management/legal-requirements-transporting-animals/cattle-tick.html

Further information:

Your local Biosecurity Officer on 13 25 23.

Water medication

Too little protein and too little phosphorus are limiting factors for beef production across northern Australia. Water medication is the cheapest way to provide non-protein nitrogen (i.e. urea, which stimulates rumen bacteria to produce proteins) and also offers an effective way to deliver phosphorus supplements.

Water medicator dispenser units are either electronic dispensers or water pressure driven injectors. The supplement is mixed with water in a concentrate tank and then the dispenser injects the concentrate directly into the water line supplying one or more troughs.

Who can or should use it?

As with many new technologies, water medication has been most successful in the hands of producers convinced of its value. These producers have been prepared to learn and understand the principles and mode of action of medicators and the safety margins and potential risks. They also accept the need for frequent and ongoing monitoring of watering points, equipment and livestock.

Water medication is a useful technology but cannot be used everywhere by every manager.

Advantages

Claimed advantages include:

- all animals drink the medicated water and thus consume the supplement
- intake of water, and thus nutrient, is proportional to body size
- intakes are more uniform across a mob because confounding factors relating to animal behaviour (shy feeding, bullying) and the supplement (acceptability and palatability) are reduced.

Disadvantages

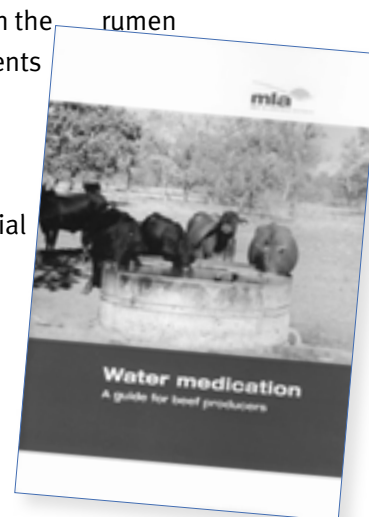
Recognised disadvantages include:

- water medication can only be used where troughs are the only source of water
- additional capital investment in equipment and facilities is needed
- the technology requires a high level of management and technical skill as well as continuous supervision and monitoring of the equipment
- if stock are held off water in the yards, or if storm rains provide temporary surface water, this will interfere with the rate of supplement delivery.

The MLA publication *Water medication—a guide for beef producers* gives guidelines for providing nutritional supplements to livestock through their water supply. This publication has sections on:

- benefits of water medication
- use of non-protein nitrogen in the rumen
- types of nutritional supplements
- water consumption by stock
- problems with water quality
- medicator technologies
- experiences of four commercial users.

Water medication is a 50-page illustrated publication available from MLA by phoning 1800 023 100. It is free to members and \$25 for non-members.



Supplementary feeding— Frequently asked questions



1. When to start?

When pastures have matured and dried off, and possibly frosted.

The protein content of a plant decreases as the plant matures with an increase in dry leaf and stem, and this decrease is accelerated by frosting. At this stage there is generally sufficient energy in the plant, but the low protein results in an imbalance of nutrients in the rumen and therefore rumen activity decreases. This results in lower intake of pasture.

Feeding a small amount of protein – generally about 150 g/day to adult cattle and 75 g/day to weaners—will fix the lack of protein. Thus rumen activity will increase, as will pasture intake. By using near infrared reflectance spectrometry (NIRS) tests on dung samples you can identify when protein is deficient in the diet.

2. How long to feed?

There is no definite answer to this question; it depends mainly on the season and the performance you require from the animals.

Feeding should continue until there is sufficient green feed for the animals to meet their daily requirements. This is usually 2-3 weeks after good rain. The problem is that once it has rained cattle will often stop taking a protein lick.

As the dry season/winter progresses the feed value of the pasture continues to decline. The feed value often reaches a point where both energy and protein are too low to meet the animals' daily requirements. This usually occurs from about August onward until the season breaks and coincides with late pregnancy and calving when the cows' nutrient requirements double. When this occurs you need to change the supplement from one that supplies only protein to one that supplies protein and energy.

3. How much to feed?

This will depend on the level of production required.

Where protein is the main nutrient in the supplement, feeding protein at the rate of 150 g/head/day for adult cattle, particularly breeders, and 75 g/head/day for weaners is sufficient. Feeding more than this amount may be of little benefit because energy may also be limiting.

Protein is most commonly fed as a urea-based supplement. Building up to feeding 60 g urea to adults and 30 g to weaners per day will give them the correct protein intake.

4. Liquid supplement vs blocks?

There is no clear answer to this question. Points to consider when selecting a type of supplement are:

- cost
- palatability—animals' taste preferences can change with the property, soil type, and even the paddock itself; when trying a new supplement, buy only a small quantity at first to check that your cattle will eat it
- ease of feeding, including time to feed out
- equipment required – mixers, troughs etc
- ability to adjust the mixture to obtain the desired intake (possible with liquid supplements and loose mixes).

5. Should I be feeding minerals?

Only if a mineral deficiency actually exists.

Before feeding a specific mineral do some research to find out if that mineral is actually deficient in that country. Steps to take are:

- Talk to experienced local producers, veterinarians and advisors.
- If testing for specific deficiencies, use a professional who can do the right test, interpret the results and advise on appropriate action.

Phosphorus

Phosphorus is the mineral most commonly deficient in the diet of grazing cattle in Queensland and is included in most proprietary supplements. Most of the forest country east of the coastal range is deficient in phosphorus. If deficient, the best return is to supplement with phosphorus during the wet season.

Sulphur

The rumen microbes need sulphur to make protein from nitrogen (urea). Therefore it is important to feed sulphur when urea is being fed. Most proprietary supplements will include sulphur at the correct ratio. The desired ratio of sulphur to nitrogen is 1 to 10.

This can be achieved by feeding a ration of 1 part of Gran-am® to 5 parts urea.

Russ Tyler

Formerly Queensland Government, Brian Pastures Research Station

Beef genomics breeding values—a world first

Beef CRC Chief Scientist Professor Mike Goddard announced the delivery of genomic breeding values for key beef production and market traits across Australian beef cattle breeds at Beef Australia 2012.

Professor Goddard said the prediction of genomic breeding values across cattle breeds was a world first innovation, and would be integrated into the existing estimated breeding values (EBVs) in BREEDPLAN by July 2012.

“We’ve developed genomic across-breed predictions for all the existing traits in BREEDPLAN, except birth and weaning traits, including traits such as feed efficiency, carcase and beef quality and female and male reproductive performance,” Professor Goddard said.

These genomic predictions have been developed and tested on Australian cattle under Australian beef production systems. While the prediction equations have been developed to work in all breeds they will be most accurate for the breeds that were available in the training data (i.e. Angus, Hereford, Shorthorn, Brahman and Brahman-derived composites such as the Santa Gertrudis, Belmont Red and pastoral company Tropical Composites).

Professor Goddard said the accuracy of the CRC’s predictions varied across traits. For feed conversion efficiency the average accuracy is around 40% (0.4), for marbling and age at puberty in heifers and bulls it is around 30% but it is only around 20% (0.2) for eye muscle area. The accuracy also varies across the cattle breeds, with the accuracy being highest in those breeds with the largest number of trait records.

Using genomic predictions will give breeders a genetic insight into the qualities of young animals that do not have any performance data recorded. Beef CRC CEO Dr Heather Burrow said the greatest value to the industry will be identifying animals that are genetically superior for traits that up to now have been very difficult or sometimes impossible for industry to measure.

The Animal Genetics and Breeding Unit (AGBU) will calibrate the predictions to allow their inclusion in BREEDPLAN and the blended information should be available to breeders by July.

Further information:

Dr Heather Burrow

Beef CRC, www.beefcrc.com.au

Scented-top grass

Capillipedium spicigerum or *C. parviflorum*

Favourable seasons in the last two years have seen an increase in the amount of scented-top grass growing in many pastures. Scented-top is one of the 3P grasses (perennial, palatable and productive) and is often prevented from going to seed in drier years unless pastures are spelled. It seems to flower late in the season so it is susceptible to grazing over the summer months. The more 3P grasses that can be encouraged in your pastures, the better production will be.

Scented-top is a perennial tussock grass growing to 1500 mm tall. The stem nodes are often reddish with short hairs and the leaves are long and slender (300 mm by 2–7 mm), growing mainly on the stems. The seed head is an open panicle, up to 250 mm long. The seed head and stems have multiple primary and secondary branches, all purple in colour. The seed head has a distinctive aroma when it is crushed, hence the name. Scented-top prefers heavier soils but can be seen on lighter forest soils. It is found in the Northern Territory, Queensland and New South Wales.

Look for the distinctly branched, purple seed head of scented-top in your pastures and crush the seed head in your hands to release the scent. If you are unsure whether a grass you have is scented-top, you are welcome to send a dried sample to Damien O’Sullivan, PO Box 23, Kingaroy for identification.



Line drawing from:
The Grasses of Southern Queensland, Tothill & Hacker
1983

Further information:

Damien O’Sullivan

DAFF, Kingaroy

Phone: 07 4160 0717

Email: damien.osullivan@deedi.qld.gov.au

Understanding the Meat Standards Australia (MSA) Grading System

Meat Standards Australia (MSA) is a grading system that was developed to improve the supply of consistently high quality meat to the beef consumer. MSA grades beef based on its eating quality. MSA grading is a tenderness guarantee to consumers.

MSA was developed using consumer taste tests of the main cuts of beef. Testing included beef from a wide range of cattle breeds grown under different management practices and using a variety of processing systems, ageing periods and cooking methods.

The MSA system grades each muscle (cut) on eating quality, with regards to tenderness, juiciness, flavour and overall liking. The grade can be 3, 4 or 5 star and each cut is labelled accordingly.

MSA certified graders assess carcass attributes collected during processing using a uniform set of standards and collate information that the producer provides. This information is then entered into a computer program. Results of grading are allocated to the carcass to produce a MSA score, and a grade is allocated to different cuts along with days of aging required to achieve the grade, and the suggested cooking method.

MSA licensed processors ensure all their systems are compliant with MSA program requirements. The key factors are pre-slaughter lairage (rest in holding pens), processing treatments, carcass grading by a MSA certified grader and product labelling.

MSA parameters measured at the abattoir on each carcass include carcass weight, rib fat depth, eye muscle area, MSA marbling score, ossification (measure of maturity of carcass), hump height (as a measure of tropical breed content), meat and fat colour, and meat pH.

Producing MSA beef

Producing MSA beef is a marketing option for beef producers, particularly those supplying the domestic market. Producers wishing to supply MSA beef need to be registered as a MSA producer. You can request a MSA registration form by phoning 07 3620 5200 or you can do the training and registration online at <http://registerproducer.msagrading.com.au/>

The on-property or feedlot management of beef cattle contributes significantly to the eating quality of the beef. Producing MSA beef does require meeting certain standards and requirements for cattle consigned to slaughter:

Do

- handle and muster the cattle quietly to reduce stress
- load cattle quietly, preferably without the use of goads and electric prodders
- load cattle at the recommended densities set out in the trucking industry code of practice
- allow the cattle free access to water until dispatch
- allow the cattle free access to feed until dispatch, other than a minimum period required for preparation through cattle yards
- ensure the cattle either continually graze or are fed rations to a level that is adequate for growth for a minimum period of one month before dispatch.

Do not

- include pregnant females or ones that have previously calved
- consign any cattle of poor temperament or with signs of severe stress
- consign sick cattle or cattle within a withholding period for any treatment
- mix cattle from different mobs or pens on the property within two weeks of dispatch
- dispatch cattle purchased or moved from another property/saleyard within one month of arrival.

A MSA vendor declaration and a National 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 HGP treatment is recorded.

To be eligible for MSA grading cattle consigned must meet the MSA-licensed processing company specifications for grading. These specifications include weight, dentition and P8 fat depth parameters. All breeds are eligible for MSA grading, however high tropical breed content can impact on eating quality and therefore the level of grading achieved.

MSA feedback

A MSA boning group score is computer-calculated for each carcass from measurements taken by the certified MSA grader and from information supplied on the MSA vendor declaration form. MSA assigns numbers to cuts that share similar eating qualities or grading outcomes. These numbers represent

boning groups and are used to allow the boning room to utilise cuts from similar bodies during packing.

Boning groups are numbered 1 to 18 and U, where 'U' represents ungraded carcasses. Boning group 1 represents the group having the highest quality grading outcomes.

MSA feedback is provided on cattle that meet company specifications and have been allocated a MSA boning group (including 'ungraded' or 'U' carcasses). This feedback is also available online at www.msagrading.com.au Click on the feedback and benchmarking login button.

Producers who have consigned cattle to be graded

in the MSA system should study the feedback sheets to understand why carcasses:

- did or did not meet company specifications for MSA grading eligibility
- did not receive an MSA grade (i.e. were ungraded)
- received a low, medium or high boning group score.

This will point to where changes in management can be made to increase MSA compliance rates and decrease boning group scores.

Felicity Hamlyn-Hill

Formerly Queensland Government, Charters Towers

Making the MSA Grade

Strategies to improve MSA compliance rates should target:

- reducing the percentage of cattle that do not meet company specifications for weight, dentition and fat cover and are therefore ineligible for MSA grading
- reducing the percentage of cattle that become MSA 'ungrades' due to high pH, meat colour and low rib fat
- increasing the percentage of cattle receiving a premium (i.e. in a lower boning group).

The following are some examples of management strategies that can be used to improve the MSA grade achieved:

- avoid holding cattle overnight in the yards before trucking
- do not mix strange mobs of cattle before trucking (draft cattle a fortnight before and hold separately where possible)
- do not consign animals with poor temperament with quieter cattle in a consignment intended for MSA grading
- apply best practice stock handling in the month before trucking to reduce stress
- provide the best available nutrition (and ensure it is a rising plane) to animals soon to be turned off
- ensure a high plane of nutrition as long as possible, right up until muster and trucking
- assess stocking rates for efficiency and manage paddock nutrition to ensure adequate growth rates leading up to slaughter

- use targeted supplementation to increase lifetime growth rate and reduce ossification (maturity) and age at turnoff
- use genetic selection to increase growth rate and reduce age at turnoff
- use genetic selection to increase rump fat, rib fat cover and marbling.

The Meat Standards Australia website also includes a MSA Grading Calculator that registered users can use. You can find it at www.msagrading.com.au/login.aspx Once opened, just select an option for each parameter (e.g. hump height or ossification) and then click the calculate button. This calculator gives an indication of the scores that are required to achieve targeted boning groups. For example, lower (i.e. better) boning groups will be achieved with lower ossification, lower hump height, higher carcass weight, higher MSA marble and higher rib fat scores.

Detailed information is available from Meat and Livestock Australia at www.mla.com.au/Marketing-red-meat/Guaranteeing-eating-quality/Meat-Standards-Australia

Further information on MSA grading can be found at www.msagrading.com.au and a tips and tools booklet on MSA can be downloaded from www.mla.com.au/Publications-tools-and-events/Publications

Alan Laing

DAFF, Ayr

Phone: 07 4720 5115

QRAA loans for sustainability and productivity

QRAA Sustainability Loans can help you achieve long-term productivity and sustainability for your cattle enterprise. In recent months QRAA has assisted southern Queensland graziers to improve pasture utilisation and reduce the threat of overgrazing through lending funds for projects to reduce paddock sizes and increase the number of watering points.

If you are looking for cost-effective ways to implement grazing land management and sustainable production strategies then QRAA's Sustainability Loans with concessional interest rates and long term repayment arrangements may be of assistance.

With a buoyant cattle market, the opportunity exists for beef producers to maximise their dollars per hectare through infrastructure changes that can result in better carrying capacity, improved calving rates and an increase in stock condition.

QRAA Sustainability Loans provide funds for projects such as fencing, upgrading stockyards and pasture improvement programs. These loans can provide terms of up to 20 years so the loan term matches the depreciation of your infrastructure investment.

Funds can also be provided on terms up to seven years for livestock purchases to change an

enterprise from a fattening to a breeding operation. Graziers looking to improve their supply chain could discuss with QRAA the opportunity to add fattening or breeding blocks to their pastoral enterprise or, subject to relevant approvals, develop a feedlot operation.

QRAA Sustainability Loans do not incur any fees or charges. Loan amounts up to \$650 000 are available and, depending on the type of project and financial requirements, up to two years of interest-only repayments can be provided within the loan. There are no exit fees with QRAA loans.

Interest rates can be locked in for one year, three years or five years with the corresponding interest rates currently at 5.22%, 5.06% and 5.33% for loans drawn down from 1 January 2012 to 30 June 2012. A review and update will occur from 1 July.

QRAA has Client Liaison Officers based in Roma, Kingaroy, Bundaberg and Toowoomba who are happy to discuss your requirements on-farm and assist with loan applications.

If you are considering farm succession, a QRAA First Start Loan may be available to assist with the purchase of an initial property or to purchase a stake in a current partnership for the next generation. Loan terms and conditions are similar to the Sustainability Loans.

For further information on QRAA's First Start and Sustainability Loans contact QRAA on Freecall 1800 623 946 to speak to your local Client Liaison Officer or visit qraa.qld.gov.au.



Mark Barrett
Bundaberg

Sam Spina
Innisfail

Geoff Kerr
Longreach

Mieke Elder
Roma

Bill Fletcher
Kingaroy

Peter Crowley
Mackay

Brendan Hamilton
Rockhampton

Zoe Burke
Toowoomba

Freecall: 1800 623 946

Website: www.qraa.qld.gov.au

Bundaberg

Mark Barrett
Phone: (07) 4154 2874
Mobile: 0417 775 547
mark.barrett@qraa.qld.gov.au

Kingaroy

Bill Fletcher
Phone: (07) 4160 0716
Mobile: 0417 778 317
bill.fletcher@qraa.qld.gov.au

Mackay

Peter Crowley
Phone: (07) 4967 0728
Mobile: 0427 770 147
peter.crowley@qraa.qld.gov.au

Roma

Mieke Elder
Phone: (07) 4622 8527
Mobile: 0427 029 141
mieke.elder@qraa.qld.gov.au

Innisfail

Sam Spina
Phone: (07) 4064 2824
Mobile: 0429 497 757
sam.spina@qraa.qld.gov.au

Longreach

Geoff Kerr
Phone: (07) 4658 2879
Mobile: 0417 775 345
geoff.kerr@qraa.qld.gov.au

Rockhampton

Brendan Hamilton
Phone: (07) 4936 1872
Mobile: 0417 775 245
brendan.hamilton@qraa.qld.gov.au

Toowoomba

Zoe Burke
Phone: (07) 4634 8987
Mobile: 0427 690 448
zoe.burke@qraa.qld.gov.au



April–May

Dry season management

- Assess pasture quantity and quality in each paddock. Estimate how much is there, its carrying capacity and how long you can carry that number of stock.
- Assess current stocking rates. Do stocking rates need to be adjusted to keep the stock and country in good condition?
- Evaluate effectiveness and cost-benefit of winter supplementation program.
- Start your dry season management plan that was developed earlier. Stick to the plan.
- Make sure you have supplements on hand to meet your dry season management plan requirements.
- Check feed-out equipment.

Bulls

- Remove from breeders.
- Check for defects, injuries or other problems e.g. to sheaths, legs. Cull as needed.
- Cull bulls that are older than seven years if they are showing signs of age, arthritis etc.

Breeders

- Draft cows according to body condition for tailored management and possible supplementation.
- Start dry season supplementation if the season demands it.

Calves

- Brand. Use correct legal position.
- Ear tag. NLIS in correct position, OFF ear (see *BeefTalk* 25 page 22).
- Dehorn calves (the younger the better).
- Castrate the males that are not potential bull replacements.
- Vaccinate with 5-in-1 or 7-in-1.

Weaners

- Train weaners correctly to have:
 1. less stressed animals and people
 2. animals that are trained to eat supplements, know the yard layout and how to work through it, and are more amenable to learning paddock mustering control
 3. animals that are usually calmer and quieter, more productive over time and more saleable

4. the opportunity to identify problem animals sooner and make management decisions about their future.
- Wean early. This instantly reduces stress on cows and allows them to pick up condition before calving again.
 - Wean and weigh calves. Identify and, if possible, sell mothers of poor calves.
 - Draft off any small weaners (less than 150 kg) and give them special care.
 - Feed weaners good quality hay in yards. Feed out of racks if possible to minimise wastage. Introduce weaners to supplements.
 - Ensure an adequate supply of good clean water.
 - Weaner yards and paddocks should be in good condition with plenty of shade.
 - Consider coccidia control measures if weaners are going to be hand-fed for a considerable time in the yards.
 - Vaccinate with booster 5-in-1 or 7-in-1.
 - In tick infested areas, vaccinate for tick fever. If possible, do not administer more than one vaccine at a time. Immunity produced by the tick fever and other vaccines may be more reliable if these vaccines are administered at different times. As a general rule, administer tick fever vaccine at least two weeks after any other vaccine but before weaners leave the yards.
 - Wean into best paddock available.

Assess mating and marketing program

- Do my herd mating practices give me the maximum number of calves on the ground, at the correct time of the year, without putting undue stress on the cows? Make any adjustments by changing when you join the maiden heifers.
- What are the best markets? Are they going to be the best for a reasonable number of years?
- What criteria do my cattle have to fit to be eligible for these markets?
- Are my cattle the best type for the most profitable markets?
- Could my animals be suitable for other types of markets?
- What inputs do I have to provide to make my cattle suitable for a different market? Is it going to be worth it?
- Have the markets I have supplied in previous years changed? Are there new legal requirements?



Timely tips Autumn/Winter 2012

- Were my animals produced for the least financial, labour and environmental cost? Consider breed suitability, tick resistance, ease of calving etc as ways to save time and money.
- Would changing my cattle breed give me a greater financial reward? It costs a lot of money to change over to new breeds etc.

Parasites

- Start strategic dipping for pre-winter treatments.
- If resistance is a problem, consider using DAFF Tick Resistant Survey Kit available from DAFF offices or phone 13 25 23.
- Check worm burdens in weaners (for WormCheck call DAFF on 13 25 23). Treat if necessary.

Business plan

- Conduct tax planning meeting with accountant.
- Assess success of last year's business plan.
- Plan management strategies for next 12 months (budget, property maintenance and development, marketing etc).
- Are your on-farm Livestock Production Assurance (LPA) records up to date? Record chemical purchases, batch numbers, withholding period on treated mobs. Store chemicals correctly. Would you pass a random audit?

Pastures

- Start preparing land for sowing improved pastures in spring.

June–July

Dry season management

- Re-assess pasture quantity and quality:
 - » If quantity and quality will not sustain desired animal performance, consider WHY NOT.
 - » If quantity is below requirements, implement your selling strategy.
 - » If quality will not sustain desired animal performance, consider how to improve your pasture quality.

Breeders

- Pregnancy test 6–8 weeks after bull removal.
- Cull breeders from main mob (on temperament, age, defects and non-pregnancy). Truck to saleyards.

- Vaccinate breeders (e.g. for leptospirosis).
- Assess mating program and plan changes if necessary. Consider options for breeding programs e.g. crossbreeding.
- Maintain check on pregnant breeders, maiden heifers and first-calf heifers.
- Order NLIS tags.

August–September

Dry season management

- Re-evaluate dry season management plan.
- If season has not broken, assess breeder and weaner condition. Sell, agist or drought feed.
- Draft cattle according to nutritional requirements.

Bulls

- Check bulls for soundness, including a semen test of all working bulls, and determine numbers needed for next breeding season.
- Consider type of bull needed to produce type of calves best suited for your potential markets.
- Source and evaluate potential bull supplies.
- Check young, home grown bulls as potential sires.
- Annual vibriosis and three-day sickness booster for bulls at least four weeks before joining.
- Obtain advice on breeder vaccination programs e.g. pestivirus vaccination program.

Breeders

- Assess your maiden heifers. Will they be heavy enough to mate?
- Assess your first-calf cows. Are they in good enough condition to get back in calf?
- Check first-calf heifers twice a day to keep them quiet and identify any calving difficulties. Sell any that have trouble calving.

Parasites

- Plan tick control for summer. Check for resistance if control is a problem.

Pastures

- Consider burning native pastures every 2–3 years in late winter or early spring after 50 mm of rain to maintain good pasture condition and control woody weed growth.
- If pasture condition needs to improve, remove

stock from paddocks that have been burnt until pasture is at least 15 cm high.

- Watch SOI and other long-range forecasts for a suitable time to plant pasture.
- To maintain or improve pasture composition, ensure paddocks get at least one late spring or summer spell every fourth year.

Property maintenance

- Check fences and water facilities in breeding paddocks.
- Check river and creek crossings before next wet season.
- Make sure you have fence maintenance supplies on hand to mend flooded or burnt fencelines.
- Maintain fire fighting equipment, extinguishers etc and ensure fire breaks are serviceable. Slash or mow around wooden cattle yards and inside your boundary, particularly in paddocks adjoining roads.
- Clean and mow around buildings and check that

gutters are free of leaves.

- Ensure all personnel know what to do in case of fire. Do they know who to call? Discuss the property evacuation plan.
- Join your rural fire brigade for useful training and equipment advice.
- Do workplace health and safety audit of property.
- Has everybody been trained to use and maintain the farm equipment in a safe, correct and competent manner? This is a legal responsibility.
- Do annual electrical safety check on all household and farm equipment.

Personal

- It is not just the animals and property that need maintenance. You and your family are the most important assets on your property. Make sure you go for your annual health checks and ensure you have quality family time together.

New way to order the leucaena rumen inoculum

The leucaena rumen inoculum (the leucaena 'bug') is now dispatched from the Tick Fever Centre at Wacol in Brisbane's south-west instead of Brian Pastures Research Station at Gayndah.

The price of the rumen inoculum did not increase as a result of this change but there may be some change in freight charges.

To order, telephone 07 3898 9655 or fax 07 3898 9685. **The option of ordering by email is no longer available.** Office hours at the Tick Fever Centre are 8 am to 4 pm Monday to Friday.

Benefits of the rumen inoculum

The leucaena rumen inoculum is a mixed bacterial culture that contains the rumen bacteria *Synergistes jonesii*, which can specifically break down mimosine, a toxic amino acid found in the fodder tree *Leucaena leucocephala*.

More than 200 000 hectares of leucaena-based pasture is grazed by cattle in Queensland and the leaves, pods and seeds of leucaena all contain mimosine.

The bacteria present in the inoculum break down mimosine to harmless by-products. Without the inoculum, mimosine can significantly limit animal liveweight gain and, in severe instances, the animal will die.

It is recommended that 10 per cent of the cattle herd grazing leucaena be drenched with a 100 ml per animal oral dose of the rumen inoculum.

Each bottle will dose five head.

Further information:

For more information on leucaena grazing production systems, telephone Stuart Buck on 07 4992 9187 or email Stuart.Buck@deedi.qld.gov.au

If you would like a copy of *BeefTalk* mailed to you, please complete the following form and send to *BeefTalk*, DAFF, PO Box 118, Gayndah 4625 or Email felicity.mcintosh@deedi.qld.gov.au

Name:

Address:

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

Phone: Fax: Email:

Which of the following best describes you?

Beef producer Agribusiness outlet Education Other (please state)

Hudson pear

The class 1 weed Hudson pear (*Cylindropuntia rosea*) has recently been discovered at the Willows, about 80 km west of Emerald.

Originally from Mexico, Hudson pear is a densely branched cactus that grows up to 1.5 m tall and 3 m wide. Stem segments are green to grey-green, cylindrical, up to 90 cm long by 4 cm wide and easily detached.

Hudson pear is readily dispersed by small stem-segments that become dislodged from the parent plant whenever an animal, vehicle or person brushes against it. The segments take root when they contact the ground.

Small infestations of Hudson pear are found in South Australia, the Northern Territory and Western Australia. In New South Wales, Hudson pear is most abundant around the opal fields of Glen Garry, Grawin and Lightning Ridge in the north western plains. Estimates of the area of New South Wales infested range from 60 000 to 100 000 hectares.

Hudson pear has been recorded at four sites in Queensland; Mundubbera, Charleville, Cracow and most recently at the Willows. All of these sites are now being actively managed by Biosecurity Queensland to prevent further spread, and hopefully eradicate it.

The impact of this pest cannot be understated. The long sharp thorns are also barbed, and will easily penetrate thick leather boots, but require pliers to be removed. The establishment of Hudson pear prevents the use of infested country for agriculture or recreation.

The Hudson pear detected at the Willows was found in a garden by a Central Highlands Regional Council officer. The cactus was removed from the garden and sent to Brisbane where researchers are trying to find potential biocontrol agents for this weed.

It is not known how the cactus arrived in Australia, but the early detection of this pest means that the development of another significant infestation has been prevented. The most significant of the four Queensland infestations is at Cracow, where control work is ongoing.

Hudson pear is controlled either chemically, using an overall spray, or mechanically by collecting the plants and burning them.

Landholders are asked to report any suspicious cactus. If you suspect you have seen Hudson pear, please call Biosecurity Queensland on 13 25 23.



Editorial committee

Damien O'Sullivan, Roger Sneath, Felicity McIntosh, Rebecca Farrell (DAFF) and Carli McConnel representing the South East Queensland Regional Beef Research Committee.

Enquiries

Felicity McIntosh GPO Box 267 Brisbane Qld 4001
Ph: 07 3255 4261 Email: felicity.mcintosh@deedi.qld.gov.au

© The State of Queensland, Department of Agriculture, Fisheries and Forestry (2012)

Reproduction of articles

Department of Agriculture, Fisheries and Forestry welcomes reproduction of articles appearing in this newsletter providing the source is acknowledged, the article is reproduced in full and technical information is confirmed with the Editor before publication, ensuring that recommendations are still accurate at the time of reprinting. DAFF has taken all reasonable steps to ensure the information contained in this publication is accurate at the time of publication. Readers should ensure that they make appropriate enquiries to determine whether new information is available on the particular subject matter.