



Northern muster

Information for rural business in north Queensland

Producing quality food and fibre
for a healthy bottom line

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Issue 26 December 2010

editorial

Welcome to the 2010 Christmas edition of the *Northern muster*. A good early wet season has started for many areas. While this is good for our beef industry, other industries such as sugar cane and small crops are being adversely affected by the rain. Unfortunately, some areas with dry conditions still exist.

This issue includes a new segment titled 'Around the Northern Gulf', We also have Dalrymple diary, Market outlook, various weed issues, tick populations, an update on phosphorous supplementation strategies, some insight into the reef regulations and worm control in sheep and goats.

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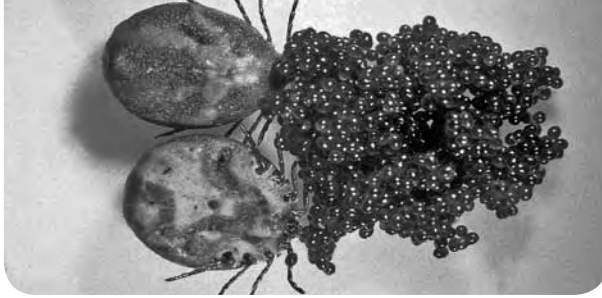
We wish everyone an enjoyable festive season, a timely break in the season and rain and pastures to sustain our Industry.

Please take the time to fill in the feedback sheet and send it in.

Alan Laing
Editor



Queensland Government



Tick populations boom in northern weather conditions

North Queensland's tick populations have been revelling in a wet winter – and Biosecurity Queensland is urging producers to begin their tick control programs for the 2011 wet season. Most producers take a combined approach to tick control – using paddock rotation, chemical treatments and a regular tick fever vaccination program.

Biosecurity Queensland has already been contacted with cases of tick fever caused by *Rhipicephalus (Boophilus) microplus* (cattle tick).

The cattle tick is one of the most serious external parasites of Australian cattle. Ticks contribute to loss of body condition and even death because of tick-worry and blood loss. Cattle tick can also carry and transmit tick fever organisms, which cause illness and death in cattle.

Cattle raised in tick free areas and then moved to tick infected areas are most at risk from tick fever

and should be vaccinated prior to movement.

Bos taurus cattle are the most susceptible but *Bos indicus* cattle can also be affected. Vaccines can be purchased through the Queensland Government's Tick Fever Centre by phoning 13 25 23.

The selection of appropriate products to manage cattle ticks not only treats ticks but keeps treatment costs lower. If ticks are already an issue on your property, using a product with an initial knock-down effect followed by a longer acting product such as a growth inhibitor or a macrocyclic lactone product may ensure ticks are controlled for longer.

Producers know that minimising the tick population in the paddock is essential for control. The long action of a growth inhibitor product is most effective in breaking the life cycle by preventing growth in juvenile ticks while preventing hatching of eggs laid by treated females.

It is important to use only registered chemicals and follow label instructions for the products selected. Seek advice if you are unsure how to address a tick problem. It is vital that re-treatment intervals and withholding periods are observed carefully as they vary between chemicals and any confusion can lead to residue or toxicity problems.

To seek advice on any animal health related issue contact Biosecurity Queensland on 13 25 23 or contact your local veterinarian.

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Wet Season Phosphorus Supplementation

Why feed Phosphorus?

Many areas of Northern Australia are phosphorus deficient and the consequential effect is phosphorus deficiency of cattle grazing these pastures. Phosphorus is found in all animal tissue and fluid, where it is required to convert feed into energy, and is crucial for skeletal growth, developing foetus' and milk production.

A number of trials over many years have proven the importance of phosphorus to animal production by showing that inadequate phosphorus reduces growth and fertility and increases breeder deaths. Consequently, several studies across Northern Australia where phosphorus supplements were fed to phosphorus deficient cattle during the wet season showed production increases in, live weight gains by up to 70 kilograms, calving/weaning rates by 15 – 20 per cent and weaning weights by 10 – 20 per cent, and a decrease in breeder deaths. Furthermore, phosphorus deficient cattle have a depraved appetite which leads to bone chewing, predisposing the herd to costly Botulism outbreaks.

Why the need to supplement during the wet season?

An animal's phosphorus requirements are related to the animal's intake of protein and energy. Wet season pastures provide high levels of energy and protein allowing for high growth and production. To achieve this level of high growth and production the higher levels of energy and protein need to be matched with adequate intakes of phosphorus. Compared to slow growth in the dry season due to lower energy and protein levels, phosphorus demands are low. This is why the largest animal responses and greatest cost effectiveness for phosphorus supplements are during the wet season and hence, the necessity of phosphorus supplements in phosphorus deficient areas during the wet season.

Wet Season Phosphorus Supplement Economics

Economic returns of feeding phosphorus supplements during the wet season are strongly supported by extensive research and beef producer experience across Northern Australia. Even in 2008 when phosphorus prices were at their highest (with MDCP/Kynofos peaking over \$2000/tonne), an economic analysis on wet season phosphorus supplementation showed that there was still a 3 to 8 times return for money spent on supplement. With these phosphorus products back to approximately \$800 - \$850/tonne you can expect much greater returns on your investment in wet season supplementation.

For example a Stocklick Trading wet season phosphorus supplement containing approximately 10 per cent actual phosphorus costs approximately \$740/tonne ex manufacturer, and cattle are required to consume around 80 grams per head per day, which costs around 6 cents per head per day or \$7 - \$9 per animal for 4 to 5 month wet season. By comparison, phosphorus blocks with 5 per cent actual phosphorus are approximately \$1100/tonne.

In steers, up to a 70kg weight bonus will result from an approximate \$10 investment in wet season phosphorus supplementation, and an even bigger bang for your buck with breeders in terms of live weight gain, conceptions and calving/weaning rates, all accumulating over time.

Stocklick Trading's Wet Season Supplements

Stocklick Trading manufacture quality custom blended loose mixes tailored to your individual needs. This is important to ensure your herd is receiving the correct amount of phosphorus, as too often wet season supplements are put out but the cattle don't consume enough to meet their phosphorus requirements. We recommend around 8 grams of Phosphorus per head per day (range 5 – 10grams/head/day). With the cost of supplementation it is critical to get these daily intakes correct to ensure maximum cost effectiveness. This is Stocklick Trading's advantage with custom blended mixes.

Speak to one of Stocklick Trading's Sales Representatives to discuss a customised wet season supplement suitable for your needs and management program.

Impact of primary production on reef examined in new report

The inaugural ReefPlan Water Quality Baseline Report will be released early next year.

While AgForce is confident it will demonstrate the majority of producers including graziers and graingrowers sustainably manage their properties and use good management practices, the report will throw even more spotlight on primary industries in reef areas.

Why is a baseline report being written?

In 2003 the Australian and Queensland Governments made an agreement called ReefPlan to ensure all industries have minimal run off of sediment, nutrients and chemicals into the Great Barrier Reef lagoon from six adjacent catchments in order to maintain its health and resilience.

This agreement was revised in 2009.

To fulfil this agreement, the governments are responsible for different actions: The Australian Government enacted a voluntary, incentive-based program called Caring for our Country Reef Rescue initiative and the Queensland Government introduced the reef regulations.

The combined government investment in ReefPlan is more than \$375 million over five years.

Therefore they want to monitor their return on investment by monitoring trends in land condition and reef water quality in comparison to the ReefPlan Water Quality Baseline Report due out early next year.

At a glance, the programs' main differences are:

Reef Rescue	Reef Protection regulations
<ul style="list-style-type: none"> • Component of ReefPlan • Delivered through Regional NRM Groups with industry partnerships • Voluntary water quality grants across priority areas in six catchments in the reef lagoon for grazing, cane, grain, cotton, horticulture and dairy. • Depending on Regional NRM Group delivery, may require a property map or a plan, project or property risk assessment and some training by project applicants. 	<ul style="list-style-type: none"> • Component of ReefPlan • Delivered through the Department of Environment and Resource Management (DERM) • Mandatory record keeping of residual herbicide and fertiliser use for graziers (>2000ha) and canegrowers (>70 ha) in three catchments: Burdekin, Wet Tropics and Mackay-Whitsunday. • Requires Environmental Risk Management Plan (ERMP) from all graziers (>2000 ha) only in the Burdekin and all canegrowers (>70 ha) in Burdekin, Wet Tropics and Mackay-Whitsunday.

How is the baseline report being written?

A team of government and Regional Natural Resource Management (NRM) staff involved in ReefPlan will compile the report, summarising 2008/09 monitoring and modelling information.

The report will group all industry practices into four simple categories of A, B, C and D.

B practices will be considered as optimal 'best management practice'.

For grazing, summary reports of long term trends in land condition in the Burdekin and Fitzroy catchments will be used as the main basis for benchmarking these two major grazing areas. This is because good to fair land condition has low erosion risk in comparison to land in poor or degraded condition which has a high erosion risk. Land condition drives erosion processes, regardless if the management practice is rotational grazing or conservative continuous grazing. Whereas in intensive agriculture such as cane or grain, it is the types of practices (e.g. minimum till and stubble retention versus full till) that influence soil erosion.

The baseline and subsequent annual reef reports will also include estimates of current catchment condition (ground cover, extent of riparian or watercourse vegetation and wetlands); whole of catchment loads of sediment, nutrient and pesticides and measures of coral and reef health.

For more information, contact the ReefPlan Secretariat, Department of the Premier and Cabinet on 07 3238 3327 or 0434 074 764 or visit the website www.reefplan.qld.gov.au

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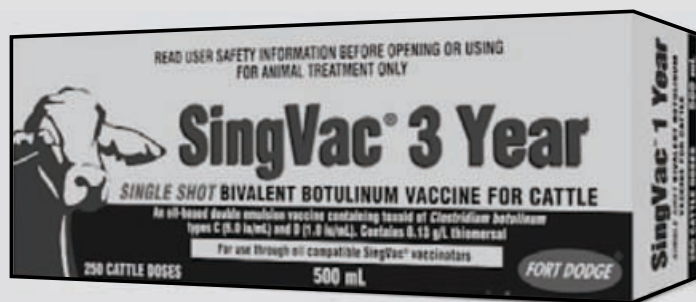
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Perennial grasses are there for the long haul – if you look after them!

Annual grasses like button and flinders grass come and go. But perennials like desert bluegrass (*Bothriochloa ewartiana*) are there for years, producing forage in even the worst seasons. These species are really the backbone of every beef enterprise but we know surprisingly little about their ecology. For example, how long do perennial grasses actually live? How are they affected by grazing management and variable rainfall? When are new plants recruited to replace those that die?

Long-term work by David Orr at the *Wambiana* grazing trial near Charters Towers is providing some answers to these questions. This work involved establishing permanent quadrats in the moderate (MSR) and heavy stocking rate (HSR) paddocks at the trial. These quadrats were then visited at the end of the wet season each year from 1998 to 2010, and the position and size of every perennial plant recorded. This allowed the progress and fate of every tussock and seedling to be followed over 12 years. Soil samples were also collected in 1998 and 2008 and germinated in a greenhouse to measure soil seed banks.

Rainfall over this time was very variable; there were four very good seasons at the start and another three good seasons at the end of the 12 years but there was also a severe drought from 2001 to 2006. This sequence of rainfall years, together with the very different stocking pressures in the two treatments, gave some very interesting results.

1 Desert bluegrass was indeed very long lived and trial data suggests that tussocks can easily live up to 30 years with moderate stocking. This contrasts with species like wiregrass and hairy panic (*Panicum effusum*) which survive for only a few years. Interestingly, black speargrass (*Heteropogon contortus*) was also relatively short lived compared to desert blue.

2 Desert bluegrass is also far more drought tolerant than most other species: during the dry years of 2001 to 2006, the majority of tussocks survived (60%) while virtually every plant of most other grass species died. Golden beard grass (*Chrysopogon fallax*) was also long lived and 50% of its tussocks survived the drought

3 Although desert bluegrass is long lived and relatively drought tolerant, its survival was strongly influenced by grazing. Overall, mortality through the dry years was far higher under heavy stocking than under moderate stocking: by 2010, 55% of the original desert bluegrass plants from 1998 had survived under moderate stocking compared with only 25% in the heavy stocking treatment. The desert bluegrass plants at moderate stocking were also far larger than the latter plants.

4 Although many of the desert bluegrass tussocks survived over the whole 12 years, surprisingly, virtually no recruitment of new plants occurred under either moderate or heavy stocking. There was also virtually no seed of this species in the soil seed bank – in both of the years that soils samples were taken, no seedlings emerged.

So what do these findings mean for management? First, they show that species like desert blue are very long lived and can withstand some very severe droughts – so they really are the species that you can depend upon. However, if they are grazed too heavily during dry years they will eventually die. The bad news is that once they are gone, it takes a very long time for them to return – there seems to be very little viable seed in the soil and it appears that very specific conditions are necessary for it to germinate and for new plants to establish. If there are only a few adult plants left to provide seed then any recovery will naturally take even longer.

Of course, the plants that die will probably be replaced by annuals and less productive perennials – these species can supply useful feed, but only in years when there is plenty of rain. The result will be a forage resource that cannot be relied on in dry times – and it is almost impossible to produce beef economically when that happens.

The bottom line is: your perennial grasses are like good friends: look after them and you have them forever in good times and in bad. Treat them badly and they are almost impossible to get back!

David Orr

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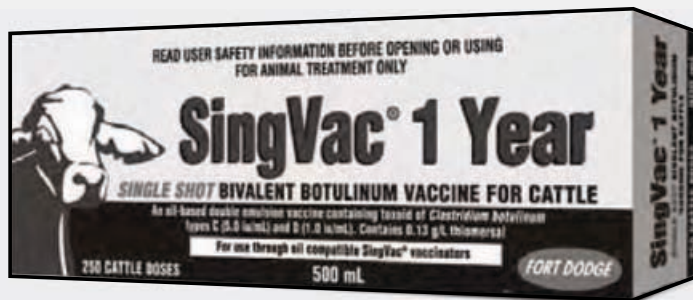
1 PROBLEM

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Weed management – making a start, maintaining effort and what is reasonable?

The October 29 store cattle sale at Charters Towers saw a large yarding of young cattle making good prices. Numbers 9 steers making up to \$2.15/kg and returning in the vicinity of \$600/head indicates confidence in the season and the future.

Protecting this example of economic return continues to be an ongoing balance of making sound business decisions and implementing long term best practice land management options.

Weed management is an important component of land management, and is increasingly acknowledged as a major threat to business returns, ecosystem stability and in some cases, human health concerns.

If you are a new landholder to a region, there are a number of things to consider when planning an attack on invasive weeds. The old saying of ‘one year seeding – seven years weeding’ rings true in many cases.

Prevention, and the strategic control of priority species, is a good starting point.

Prevention is the cheapest control option and includes knowing what material/equipment/stock is coming onto your land, weed identification skills, a vehicle wash down policy and a capability for early detection and rapid response if required.

A concise property pest management plan can help to oversee a strategic control approach. Mapping pests in association with sub-catchments allows your control investment to be targeted to get the best possible gains.

These gains can snowball when conducted on a larger regional basis and many landcare/grazier groups have been able to reduce the spread of weeds at this scale.

The Queensland Government has recognised the impacts certain species can cause and as a result have declared species under the *Land Protection (Pest and Stock Route Management) Act 2002*, Classes 1–3. Under this legislation landholders have a responsibility to take reasonable steps to control declared pest species.

Class 1 are not commonly present in Queensland and are subject to eradication goals. Class 2 are more established, control is governed by Local

Government Area Pest Management Plans and land owners are required to take reasonable control action. Class 3 are also established and land owners are required to take in or near environmentally significant areas.

For the Burdekin Dry Tropics catchment some of the class 2 weeds causing ongoing concerns include *Harrisia* cactus, parkinsonia, prickly acacia, rubbervine and the further spread of parthenium weed.

Control requires a committed integrated approach that can include a cycle of a number of the following options: – mechanical (e.g. blade plough), chemical, fire, biological agents and pasture/ground cover management.

The use of herbicides combined with the other methods can be a cost effective method to achieve long term control. There are five main methods to apply registered herbicides to suitable weed species. These are – foliar, basal bark, cut stump, stem inject and soil absorbed. The right technique applied to a particular weed at the right time of year can achieve high kill rates and the integration of other methods such as mechanical and fire can provide for an on-going management cycle that ensures follow up treatment into the future.

The Biosecurity Queensland website has a range of pest management information that can help landholders to make informed decisions relating to pest management, while protecting your investment in sustainable agriculture.

Factsheets for individual pest species are available that list herbicides suitable for control as well as many species have specific best practice management manuals outlining all aspects such as impacts, biology, ecology, research and control. These manuals are available for all Weeds of National Significance (WoNS) including lantana, rubbervine, parthenium, prickly acacia, parkinsonia and olive hymenachne.

Many other stakeholders including local governments, catchment bodies, landcare groups and other government agencies have pest management information available on their websites that include project work, research and funding options.

Effective weed management can help to ensure steers turn into bullocks over the shortest possible time while protecting long term efforts towards sustainable land management.

Rob Cobon

Biosecurity Queensland, Townsville

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Charters Towers community unites in weed offensive



Biosecurity Queensland and Charters Towers Regional Council are urging residents and visitors to remain vigilant against weeds that pose serious threats.

One of the worst weeds is parthenium, which can threaten human health, livestock industries and the environment. Isolated infestations of parthenium can be quickly eradicated, but it needs ongoing effort by authorities and the community to detect and report the infestations.

Charters Towers Regional Council warns that because parthenium is well established in the Central Highlands its seeds can easily hitch a ride on cars or trucks up the Gregory Highway and onto the town's roadsides, public parks and backyards.

People who might venture off road are encouraged not to drive through infestations of the plant, but find a way around them. This will limit any movement of the seeds from the primary outbreaks.

Washdown facilities will be available at the saleyards for vehicles entering the city from the west or south-west, and everyone is encouraged to use these to stop weed seed spread – not only of parthenium, but a range of unwelcome weeds.

Biosecurity Queensland Principal Officer Steve

Matheson said spring was the time when weeds flourished, particularly with the recent showery weather, and encouraged residents to keep a look out for infestations and report them.

Parthenium will smother pastures and quickly invade degraded natural and recreational areas. Control costs are very high and parthenium can also cause serious allergic reactions in people and animals, including dermatitis and severe respiratory problems such as asthma and hay fever.

Parthenium grows to 0.75 metres in height and as it matures, develops many branches on its top half. The weed has pale green leaves that are deeply lobed and covered with fine, soft hairs. It produces small white flowers on the stem tips.

Parthenium is a declared Class 2 plant under Queensland legislation and a Weed of National Significance (WoNS).

More information on parthenium and its control is available from Biosecurity Queensland, Charters Towers Regional Council or by visiting www.biosecurity.qld.gov.au

History and technology combine to give NQ graziers an insight into gullies

New research that gives scientists an insight into erosion in river catchments will assist land rehabilitation programs to tackle sedimentation and improve the quality of water flowing out of grazing lands.

Gully erosion along the Upper Burdekin River frontage has been studied by combining new technology with more traditional methods.

As part of the research, an area of extensive gullying near the confluence of the Burdekin and Clarke Rivers was selected, and aerial photos and satellite imagery of the gully network were studied, which gave a visual history of the area from 1951 to 2009. By measuring the area affected, it is calculated that the gullies have expanded by 22% in 58 years.

Not satisfied with this time frame, we also scoured historical documentation from some of the region's first explorers. The diary of Ludwig Leichhardt,

published in 1847, mentions gullies in the same specific area in 1845. This is significant because it predates the introduction of domestic livestock by at least 16 years.

This research suggests that in some areas gully formation occurs due to geomorphological reasons – such as changes in river behaviour and water movement.

Graziers in the Burdekin are committed to improving land condition, but it is important to discern between naturally occurring erosion and erosion caused by poor grazing land management – or areas where there is a combination of the two.

By using technology such as long term satellite imagery, and going even further back through historical archives, we can more strategically identify priority areas for remediation work by landholders.

This will ultimately improve grazing land by reducing erosion and sedimentation, and improve the quality of water for downstream users.

Bob Shepherd

Principal Extension Officer, Agri-Science Queensland Charters Towers Phone: 07 4761 5171



Mike Steel Ralph Lawson Stephen Allan

Wish our valued clients and business partners a Merry Christmas and a safe prosperous New Year.

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To P or not to P

Feeding wet season phosphorus and removing the calf as soon as possible after the wet minimises the need (and cost) for dry season supplementation. The wet season is also the cheapest time to put weight on cattle because all other nutrients are in the green grass – for free. With the exception of frontage, basalt and goldfield soils most properties need to feed wet season phosphorus in north Queensland (see table below).

Country or soil type	Phosphorus status	Phosphorus supplement requirement per breeder/day (grams)
Basalt, River frontage, Mitchell grass downs and Goldfields	Adequate	None – economic responses questionable
Deep Sands	Deficient	10 grams
Everything else	Marginal*	5–7 grams

*Note - Other areas known to have a marginal P status include the grey clays (blue grass/browntop) south of Normanton/Burketown.

Getting intakes right so cattle consume enough P/day to maximise herd performance on specific land types is critical and can take a while to sort out. Intakes can vary enormously between paddocks and even water sources (bore or dam) can influence lick consumption. Keeping records of numbers fed in different areas and the amount of lick fed out is critical to the economics of any P supplementation program.

Pros and cons of phosphorus delivery systems

In the early stages of developing phosphorus supplementation it is a good idea to start feeding in

a paddock easily accessed over the wet season and closely monitor intakes. Trial feeding will help avoid costly outlays for large tonnages of loose lick, blocks or bulk bags that cattle may not readily consume. Phosphorus supplements need to be available all wet season or at least while cattle have access to green feed.

Supplement vs phosphorus intakes

The concentration of P (% phosphorus) in supplements varies greatly and therefore required intakes will vary between products. The tables below indicate supplement intakes needed to meet daily phosphorus requirements of cattle in marginal and deficient P areas (target intakes of 7 g and 10 g P/head/day respectively).

Phosphorus % in lick	Intake of lick – required grams/head/day	
	Marginal	Deficient
5	140	200
10	70	100
15	47	67

When getting lick quotes consider the percentage of phosphorus in the lick as well as cost per tonne. The P % in a supplement has a major impact on intakes required/head, costs/head, freight costs and workload in paddock distribution. Higher P concentration mixes will usually cost more per tonne but will be cheaper on a landed cost per unit of P.

Joe Rolfe and Bernie English

Ph 0427 378412, 0427 146063

Far North and Western FutureBeef Team

Peter Smith

Ph 0427 089 647

Northern FutureBeef Team

Loose lick	Blocks	Loose lick in bulk bags
Need lick sheds/covered troughs	Weather resistant in most cases	Reasonably weather resistant with limestone
Lower cost/kg of P	Higher cost/kg P	Lower cost/kg of P
Recipe can be changed to achieve target intakes	Set recipe	Recipe can be changed to achieve target intakes
Difficult to put out full wet season requirements	Adequate supplement can be distributed in paddocks before onset of wet	Adequate supplement can be distributed in paddocks before onset of wet
Labour intensive	Less labour intensive	Less labour intensive but need suitable lifting gear to distribute
Severe storms/cyclonic rain can spoil supplement	Storm resistant	Prolonged heavy monsoon rain can spoil supplement
Freight efficiency – Option to increase P% and reduce freight cost/tonne of P	Less freight efficient as P% is usually lower	Freight efficiency – Option to increase P% and reduce freight cost/tonne of P

Northern Gulf flood recovery

Wet season flooding in 2008/09 resulted in land being inundated with water for up to 12 weeks, resulting in large stock deaths and pasture loss. Stock showed poor liveweight gains during the 08/09 wet and in the following long dry season which resulted in poor reproductive rates across most herds in the Gulf in 2009 and has continued to show in some herds with a subsequent lower calf crop in 2010.

Over 200 monitoring sites were established in June 2009 to assess pasture recovery after the floods through a partnership between Northern Gulf Resource Management Group and DEEDI Far North FutureBeef Team. These sites have been re-visited in the dry season of 2010 and data collected in relation to ground cover, pasture yield, soil surface condition, weed presence, thickening and pasture species composition.

Results suggest that, for the most part, country is returning to normal ground cover and yields. This has been helped in many cases by the good 2009/10 wet and late rains at Easter this year. However the black soils are slow to recover and mostly remain in D land condition (20% of normal carrying capacity).

Areas that went into the floods with good groundcover and pasture yield have come out more favourably than others, highlighting the importance of good ground cover at the start of the wet season. From experience and research, we know it is important to have more than 50% ground cover when going into the wet season (above right). This maximises infiltration into the soil and reduces runoff – which takes topsoil, leaf litter, mulch, accrued manure and valuable nutrients with it.

Bob Karfs and Rebecca Matthews (DEEDI) undertaking monitoring in the Northern Gulf



Ground Cover Research

Upper Burdekin

At 20% cover, soil loss is 10 times greater than if ground cover is greater than 50%. (Scanlan, Pressland and Myles 1991)

Northern red basalt soils

The research work on red basalt soils by Cogle and others during 1998, 1999 and 2001 demonstrated the dangers of low ground cover. Annual runoff from bare ground is seven times greater than runoff from areas with good ground cover. Annual soil loss from bare ground is 34 times greater than soil loss from areas with good cover.

At the same time, those who have spelled pastures since the floods have been rewarded with a much better body of feed throughout the 2010 dry season. Again we stress the importance of wet season spelling to maintain and/or increase 3P pasture species and improve paddock productivity.

Monitoring sites will be re-visited again in 2011 after the wet.

Kiri Broad and Rebecca Matthews

0428 102 841, 0417 726 703

Far North and North West FutureBeef Team

Junior Landcare Kids in the Gulf check out biodiversity!

Kids in the Gulf have been doing their own biodiversity studies of insects and/or water bugs to celebrate the International Year of Biodiversity! Gulf Kids at Croydon State School, Cairns School of Distance Education – Savannah Cluster, Gulf Christian College and Camp Cobbold have all participated and had a lot of fun investigating their local environment.

The students have assessed the variety of plant life, looking at different types of trees, shrubs and grasses. They then got out their nets and went hunting to catch and identifying insects and water bugs to assess the diversity of their local environment!

The results of their surveys have been posted on the Gulf Kids webpage as well as lots of photos. Visit www.northerngulf.com.au/gulfkids and click on the bugs to see what they found! You will also find links to resources to do your own biodiversity surveys.

Erosion control grader workshops

Northern Gulf Resource Management Group has recently hosted four workshops over a week with Darryl Hill from Katherine. Darryl has worked on the land, managed cattle properties and has studied erosion for more than 40 years. He continues to run grader workshops across the Australian rangelands.

The workshops were informative practical and well received. Darryl explained the principles of preventing erosion and the design and maintenance of fire breaks, property access roads, fence lines and formed roads then goes on to demonstrate grader use.

What is erosion? Erosion means the transport of soil, sediment and other particles from one place and then depositing them else where, normally in the creeks, rivers and out to sea. A certain amount of erosion is natural but it has been suggested that a staggering 75% of current soil loss in arid regions results from poorly formed and maintained access roads, tracks and fencelines. On grazing lands erosion is often a result of a lack of ground cover, a symptom of not matching stocking rates to the carrying capacity of the land type. Ground with good plant cover allows effective water infiltration as opposed to runoff and prevents direct damage from the impact of raindrops preventing runoff and erosion.

The soil type, length of slope and slope fall are important factors when considering and spacing of the erosion works being either flat drains, check banks, diversions works or contour banks.

The principals

1. The wash out is always the result not the problem
2. Works to start at top of the catchment because anything done at the top has a direct impact down slope
3. Water flows at right angles to the contour
4. In any major works we need to establish the contour line, the distance and slope of the land, you can not rely on your eye to design the structures
5. All banks need to be surveyed or otherwise we may be just be transferring the problem from one place to another. That is: it is mandatory to use a dumpy, laser or other levelling devise to find the contour and the fall of the land.
6. Reinstate the natural flow direction as often as possible and slow the water down
7. The energy or velocity in the water is doing the damage not the volume of water

8. The greatest cause of fenceline and access track erosion is the windrows channelling water flows in directions along the fenceline or roadway away from the natural drainage line
9. If water is directed towards the natural flow lines instead of using the roadway or fenceline as a drainage corridor, the water will flow across the country and allow for maximum infiltration
10. The soil should always be pushed up the slope at right angles to the direction of the flow from the sill or borrow pit
11. Slopes of drains should be no greater than 0.03% to reduce erosion potential
12. Flat bottom drains reduce the velocity of water and are easier to install and maintain as opposed to a V drain
13. A sill or hook at the end of the drain will slow the water down enough to leave the sediment behind
14. People complain they can't afford to do the works, but can costly maintenance and repairs be afforded on poorly constructed water control structures

Gully erosion is a very visible form of soil erosion and develops where water runoff concentrates resulting in loss of productive land and taking out of fencelines and roads and also poses danger to people and animals. Cattle pads, any small rill, roadways, fences, dam bywashes or bare ground can develop into a large gully.

If a gully head is eating back up slope a surveyed bank can be constructed upstream on the slope. The gully head can then be battered off; the batter is determined by the depth of the gully and the type of machine used, ideally the more gentle the batter the better. The gully can be protected with mulch traps or rock gabions. Lastly it is necessary to let pasture and ground cover establish around the gully.

Fencelines are particularly susceptible to erosion because construction of parallel windrows concentrates runoff along the fenceline. If the fencelines are below ground level they have high erosion risk, it is suggested to bring the windrows back over the line when we install a new line. Whoa boys or cross bars may assist in taking the energy away from the flow under fencelines, it is becoming common place to see diversion banks installed on new lines prior to the fence construction. Fencelines are often constructed to bare earth, ideally it is good to leave the grass behind as the grass will slow down water and prevent erosion.

Erosion results in loss of top soil, organic material and nutrients which in turn reduces fertility creating unproductive paddocks growing undesirable species of grass or in worse cases scalds and bare ground. Loss of plant cover reduces the available water in the system

Around the **NORTHERN GULF**

as water will not infiltrate into the ground without the assistance of deep plant roots.

Erosion also can lead to deteriorating water quality as well as siltation of dams and culverts as organic material, soil and sediment runs off the land downstream into the waterways.

The take home messages are that prevention is always better than cure, to work with the environment and not necessarily to suit the existing infrastructure, and do not rely on your eye to design any structure for water management.

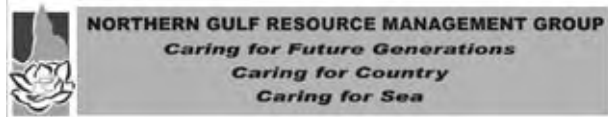
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Market report November 2010

As we head into Christmas with this report a wide area of NQ has had significant rainfall over the last six weeks and many producers report good green grass and cattle going ahead. Per usual the rain has not covered all districts and dry conditions still prevail across many properties.

The wide spread rain across eastern Australia has tightened the supply of fat cattle to markets and lifted prices for the last few weeks plus boosted the store market for the right descriptions.

Even though slaughter rates at present are hovering between \$3.15 and \$3.25 kg dressed weight for best grass fed types in the north, the market fundamentals for the next six months are not good. We have a high Australian dollar making our beef exports dearer to buy, the USA and Japanese economies are still flat with poor economic figures and high unemployment rates and when the abattoirs open up after the Christmas – New Year break there will be a lot of fat cattle on the market plus the live export trade could be difficult.

As mentioned above the Australian dollar which up until August is averaging 18% higher than 2009 and has continued to rise since has resulted in lower volumes and values for exporters. The few exceptions are Korea, Russia and the Middle East where returns are up on 2009 values. Also frozen beef exports to Indonesia has shown some improvement in 2010 with a 5% lift in the Jan–Sept. period to 36,200 tonnes of mainly manufacturing type cuts.

Our total exports from July 09 to June 10 totaled 898,960 tonnes. Japan maintained its position as our most important customer taking 349,888 tonnes, USA 210,514, Korea 123,837 tonnes, and the Asian region (Indonesia, Philippines, Taiwan, Malaysia, China, Hong Kong, Taiwan) has imported a record 123,837 tonnes.

On the Australian domestic scene the big news is the announcement by Coles that from 1 January 2011 all their beef in their supermarkets will be HGP free. Coles and Woolworths currently account for about 50% of all retail beef sales in Australia and the HGP announcement has been followed by a large price war between the two retail giants. Woolworths has not made an official counter move but no doubt if it is a successful marketing ploy HGP use for Woolies beef supplies could also be out.

The most serious economic impact will be on the economically tight feedlot industry as the use of HGPs boosts live weight gain and minimises fat coverage. How the independent retail butchers across the nation handle the situation will no doubt depend on what happens to their retail sales volumes in early 2011, but a worst case scenario could see HGP use fall dramatically.

MLA has recently launched a vigorous beef and lamb domestic marketing campaign under the guidance of new marketing manager Glen Feist. Glen has come via Korea and Japan as our marketing guru in those countries, and on a recent visit to north Queensland spoke on the numerous opportunities and new ideas his team is working on, that will strengthen the Australian consumers love for all types of beef.

Beef retail sales for Australia for 2009 are estimated at \$7.2 billion which is up 12% on the 2008 figures.

Another interesting development on our domestic market is the premium prices being paid further south for Angus (minimum 75% angus content) cattle. In a meatworks grid I sighted in early October best milk and 2 tooth steers were \$3.30 kg dressed weight, if they graded MSA price was \$3.45 kg and if they were Angus and graded MSA boning group 1–8, \$3.70 kg.

A serious issue has emerged in NSW with the decision by a small group of beef producers-processor, to convince several politicians to change their beef labelling system and base it on the age of the animal.

The bill has now passed through their parliament and from the first of January 2011 will be law in NSW. All meat sold within the State with the word 'Budget' on it must also have low grade – low quality. Beef from other states that enter NSW for sale will also have to comply. The NSW powers that be have taken no notice of industry bodies or our latest meat science. Australia has a world leading science based eating quality grading system MSA, and to go backwards and declare an animal's eating quality is determined by age alone is absolutely ludicrous. It has the potential to put our consumers off side with inconsistent eating quality and depress beef sales in favour of other protein sources.

The Roma saleyards has for the third year in a row been our top saleyard centre. For 2009–10 Roma sold 322,365 head, Dalby 237,942, Cloncurry 213, 850 which were mainly cattle on transit to live export or southern destinations, Blackall 142,253 (fair percentage transit cattle) and Gracemere 118,018 head.

Live exports

Since the introduction of the 350 kg weight limit for cattle into Indonesia there has been a drop in numbers exported to this destination.

Our live export agents have done a good job at such short notice selling heavier types into the Middle East with several shipments going that way at reasonable rates. The main destinations have been Egypt, Jordan and Israel. Egypt has taken 33,000 head for 2010 the best figures since 2002. The live export agents are also hopeful on getting a slice of the market in Turkey which will also be for heavier types.

We have had some unusual high death rates on a cattle shipment from Perth to the Middle East and the media has had a field day with welfare groups again calling for live shipment bans.

October prices \$1.70 delivered Cloncurry for shipment out of Darwin and \$1.60 delivered, weighed Karumba 250–350kg.

In the 2008–09 financial year we exported 891,000 head, financial year just ended 09/10 956,000 head were shipped with main ports Darwin 358,000 head, Fremantle 162,900, Broome 101,600 and Townsville 90,000 head.

South America

The beef situation in Argentina is confusing with producers rebuilding breeder numbers after several years of drought and Government export restrictions. The herd building is tightening cattle slaughter numbers and driving up prices but Government agencies continue to restrict beef exports in the hope that domestic supply will improve plus prices will be lowered so that domestic consumers will have a ready supply of cheap beef. It is

estimated the Argentina's national herd has fell by 8–10 million head over the last 3–4 years. Their usual herd numbers approx. 57 to 58 million head.

Brazilian beef exports were up slightly for the first six months of 2010 at 761,000 tonnes despite their currency also rising in value making their beef dearer to buy on world markets. Their estimates are for the full 2010 is to export 1.7 million tonnes. Main destinations so far for their exports were the Middle East and North Africa.

Brazilian beef producers are fortunate they have a population nearing 200 million who consume 80% of total production.

Brazilian cattle slaughter for 2009–10 fiscal year was up 8% to 29.3 million head producing 7 million tonnes carcass weight. Their herd numbers have increased to an estimated 176 million.

USA

A combination of poor domestic demand and prices and lacklustre export volumes has seen the continued decline in cattle numbers. The USDA predicts US cattle numbers to be down to 92.3 million head by the end of this year. This is the lowest number since the 1950s. During October Australian beef exports to USA were very poor and tonnages moved were behind Japan, Korea, and Russia.

Japan

The USA and Japanese are still at logger-heads over the 21 months of age restriction on all of their beef imports. During the January to July period the US exported 43,088 tonnes of beef into Japan which was up 22% on the previous year but still only 28% of pre BSE volumes before 2003.

Japan has just had their hottest summer since records began and market observers were blaming this and the sluggish economy on ordinary beef sales figures. Fast food outlets on the other hand have reported a boost in sales. Australia exported 356,569 tonnes into Japan in 2009 a 43% share of their consumption total of 840,649 tonnes. The Jap domestic beef industry supplied 43%, the US 8% and others 6%. Japan runs approx. 2.89 million head on 74,000 farms averaging 39 head per property.

Korea

Korean domestic cattle slaughter has fell 13% behind 2009 figures and the lower beef supply has boosted import demand. Economic reports indicate upward trends for Korea's economy and it is forecast to show healthy growth over the next 12 months. Hopefully this will translate into an increase in our beef sales.

Bernie English

Kairi Research Station 07 4091 9440

Greg Brown

Meadowbank Station, Mt. Garnet

Siam weed... an enemy of northern grazing lands

Recognised as one of the world's most invasive weeds, Siam weed (*Chromolaena odorata*) is a serious threat to northern Australia's coastal grazing and agistment properties.

First detected in the Innisfail/Tully area of north Queensland in 1994, it has the potential to spread across northern Australia and down both the eastern and western coastlines.

Biosecurity Queensland delivers the National Eradication Program for Siam weed, cost-shared by the Commonwealth, Queensland, New South Wales, Northern Territory and Western Australia governments.

Siam weed has the potential to seriously degrade large areas of dry tropics savannah, subtropical and coastal regions, including ecologically important conservation areas. In dry conditions, dense infestations of Siam weed can cause frequent and more intense bushfires.

Siam weed is currently found in five local government areas in NQ (Townsville City Council and the Charters Towers, Cassowary Coast, Tablelands Regional and Cairns Regional Councils).

Siam weed has a phenomenal growth rate and can grow at 20 mm a day – or five metres a year. This makes it a potential nightmare to control for land managers. Early detection and eradication of Siam weed plants is vital as each plant is capable of producing more than 80,000 seeds per year.

Under optimal conditions Siam weed seeds can survive in the soil for up to seven years which means that complete eradication requires a long period of sustained monitoring to control all germinating seedlings. Therefore it's particularly important to eliminate Siam weed plants before they have an opportunity to flower and set seed.

Biosecurity officers are assisting landholders with control of Siam weed, in support of them meeting their obligation under the Land Protection (Pest and Stock Route Management) Act 2002, to control this Class 1 pest plant.

Siam weed seeds are predominantly spread by wind, however, they can also spread by attaching to animals, vehicles and people. In order to prevent the spread of Siam weed, Biosecurity Queensland requires that all landholders:

- hold all incoming and outgoing stock in a quarantine paddock or yards for seven days
- if possible, fence stock out of infested areas

and restrict stock access to infested paddocks particularly when plants are flowering

- do not sell fodder, seeds, stock or anything else that may contain Siam weed or its seeds. This is a severe offence under the *Land Protection (Pest and Stock Route Management Act 2002*
- do not slash or cultivate land that contains seeding Siam weed plants
- restrict vehicle and machinery activity within Siam weed infestations
- wash or clean down all vehicles, equipment and machinery that have been used in infested areas prior to them entering clean paddocks or leaving a property.

Reports from overseas indicate that consumption of young leaves and flowers have caused both abortions and deaths in cattle. Biosecurity Queensland is currently undertaking trials to ascertain how toxic the infestation in Australia may be. In assisting with early control for eradication, graziers will limit any adverse impacts to stock.

The estimated cost to agriculture and the environment of not eradicating Siam weed is \$8–20 billion over the next 30 years.

Native to Central and South America, Siam weed is now a major weed in central and western Africa, tropical America, India and South East Asia.

Identifying Siam weed

Siam weed grows in a wide variety of landscapes, and can take the form of a shrub or a scrambling vine. It flowers in May–June and September–October and produces masses of white to pale lilac flowers. The leaves are triangular in shape and have three veins in a distinct 'pitchfork' pattern.

To report suspected new sightings of Siam weed, or for more information, please contact Biosecurity Queensland on 13 25 23 or visit www.biosecurity.qld.gov.au



Biosecurity Queensland's Michael Holder with a Siam weed shrub

Plant poisonings on the rise in northern cattle and horses

Unexplained stock deaths in north Queensland could be the result of poisoning from a plant species that has flourished in recent winter rains – *Crotalaria*.

Biosecurity Queensland inspectors are urging cattle and horse owners to be on the lookout for the plants, which have already been suspected in poisonings around Longreach and in coastal areas from Townsville to Tully.

Producers are urged to learn more about the plant family and what to look for.

There are more than 600 species of *Crotalaria* worldwide, and 33 of these are found in North Queensland. Most species contain pyrrolizidine alkaloids, which are not in themselves particularly toxic, but when eaten by stock they undergo a change, usually in the liver that increases their toxicity.

Cattle, pigs, sheep and horses can all be affected by poisoning, but it is horses that are most susceptible. *Crotalaria* poisoning is implicated in two fatal horse diseases, Kimberly Walkabout disease and Chillagoe Horse poisoning.

Symptoms of poisoning also varied amongst animal species. In horses, affected animals can display head pressing, aimless wandering and be uncoordinated. Horses can also have difficulty swallowing and start to regurgitate food through their nose. Cattle and sheep typically waste away and may also display nervous signs.

There is no treatment for the poisoning as the toxins accumulate in the body – which also means that animals may display symptoms long after plants have been removed.

If you are losing stock and are unsure why, contact Biosecurity Queensland as it may be a plant poisoning. Also, get to know the species of *Crotalaria* that may be present on your property because you can prevent future losses.

For more information on *Crotalaria* or a suspect plant disease visit www.biosecurity.qld.gov.au or contact Biosecurity Queensland on 13 25 23.

Watching the weather

Climate and weather have been the focus of attention for many Australians over the last few years, with the ‘drought and flooding rains’ description applicable to many of our regions.

The Bureau of Meteorology’s (BOM) weather outlook for summer indicates that over the coming months, Queensland will be exposed to an unusually high risk of seasonal cyclones, storms and flooding. It is therefore worth keeping a close eye on both long- and short-term weather predictions and considering the potential impact on your business.

Climate versus weather

BOM explains the difference between the two terms as ‘climate is what you expect; weather is what you get’. Climate is about long-term records, trends and averages and indicates the most common or likely events or conditions, while weather is the day to day experience of what the atmosphere is doing at any given time.

The internet contains many climate and weather modeling and information services, many of them free and most sites also contain information on how to interpret their material. Examples of some of these websites are below.

The Australian Bureau of Meteorology website provides weather forecasts and climate predictions, storm and flood warnings, and a wide range of data and other information services. Their Water and the Land page (www.bom.gov.au/watl) provides a portal to relevant to agriculture and natural resource management, including wind and rain forecasts, latest radar and satellite images, rainfall data, SOI index information, drought statements, disaster mitigation services and more. From the forecast rainfall page, a state and district can be selected, and rainfall forecasts for the next five days viewed in map format as either amount in mm or percentage chance.

Under the climate area (click on ‘climate’ in the navigation bar near the top of the page), three month seasonal outlooks for rainfall and temperature are updated every month. A wide range of maps of recent and average conditions can also be generated.

The Australia Rainfall and River Conditions page (www.bom.gov.au/australia/flood/) gives current rainfall and waterway heights, including relative flood levels. For those without internet access, BOM also has telephone and fax weather services.

The German site **Wetterzentrale** includes a global forecast system that provides individual rainfall outlook maps for Australia over the next nine days

(www.wetterzentrale.de/pics/ausavnpanel4.html). Pressure and temperature predictions are available by adjusting the web address to panel 1 or 2.

The **OzForecast** website (ozforecast.com.au) provides latest weather observations, daily forecasts for the next week, radar images, and a range of other data for your nearest town.

The **Centre for Ocean-Land-Atmospheric Studies** (COLA) Weather and Climate data website (wxmaps.org) includes short-term climate outlook maps for 1–7 and 8–15 days for precipitation, temperature and soil moisture.

All of these sites should be used with caution and taken in context, as weather still retains a large element of unpredictability, and forecasts are subject to regular change.

For information on cyclone preparation, visit Queensland's Disaster Management Services website (www.disaster.qld.gov.au), or contact your local council.

Tonia Grundy
DEEDI Information Officer, Ayr
Ph 0409 034 960

Worms and meat sheep in the tropics – part 2

Issue 25 provided information on barbers pole worm – the predominant worm parasite of meat sheep in the tropics. In this edition, we continue with How to recognize any build-up in worm numbers through regular visual inspections and laboratory testing and treat sheep and goats before productivity is compromised.

Worm testing

Weekly visual inspection of sheep for any signs of infection combined with laboratory testing for the level and nature of the parasite burden will help producers to make the better decisions about the timing of drench treatments.

WormTest is a laboratory test that identifies the size of the worm burden and the type of worms present. WormTest kits have been developed to enable producers to easily collect dung samples and post them to the laboratory for analysis. Test kits can be purchased from the Yeerongpilly Animal Research Institute laboratory by calling 07 3362 9534. The price of \$33 includes the kit, postage to the lab, laboratory analysis and results.

Results report on the total adult worm burden and the species of worm present. Both types of information are needed when deciding whether to treat and what chemical to use.

It is important to realize that the WormTest does not identify the size of the immature burden, which can be large during wet weather.

Drenches

Drenches kill worms very effectively when they first come onto the market i.e. worms are 'susceptible'. However, with repeated use drenches soon begin to fail and worms are said to be 'resistant'. Some pointers when using drenches:

- Don't assume that the drench will kill 100% of worms in sheep
- Read the label. Look for the active ingredients listed usually at the bottom of the label on the drench drum. Use a multi active ingredient product.
- Always follow a drench with a WormTest 10 days later as not all worms will be susceptible. It is important to know how many worms are left after the drench – in case you have to drench again!
- Use a multi active ingredient drench when quarantine drenching newly purchased sheep. Hold drenched sheep in a yard for 24 hours (provide water and feed) and then turn them onto a wormy pasture. These measures will reduce the likelihood of importing drench resistant worms with your new sheep.

Grazing rotations

During the wet season, worm infections on the coastal strip can become very heavy due to continuous reinfection. One method to relieve the reinfection rate is to develop a system of paddocks and move sheep through them quite quickly. The speed of the rotation will depend on the rainfall zone.

For example, in a very hot humid situation, a system of 10 paddocks using graze times as short as 3.5 days has been shown to provide excellent results. However, larger enterprises often use 2 weeks graze time and a 5–6 week spell time. If this is not giving good control, shorten the graze time and increase the number of paddocks.

More information on worms in sheep is available from the AWI's WormBoss website: www.wormboss.com.au/grow

WormTest laboratory
AgriScience
Animal Research Institute
Ph 07 3362 9447 or 13 25 23

What is halal?

An estimated one-fifth of the world's population is Muslim, providing many potential markets for halal products both domestically and for export.

Halal is an Arabic word meaning lawful or permitted, and the term not only covers food and drink, but also applies to all objects and actions of daily life. Muslims must ensure that all fresh and processed foods, pharmaceuticals, and non-food items like cosmetics, are halal. This can be difficult to achieve, as complex manufacturing processes mean many items may contain ingredients that are not permissible for Muslims to eat or use on their bodies.

According to the Qur'an, a variety of substances are considered 'haram' or harmful for humans to consume and are therefore forbidden. Some examples include pig meat and byproducts, blood and placental tissue, carrion or dead animals, animals with fangs or talons, and alcohol and other intoxicants

For meat to be eligible for halal classification, slaughter must be in accordance with Islamic regulations. These include only using clean, healthy, non-stressed animals. The slaughterman dedicates the animal to Allah, and a swift, deep incision with a sharp knife is made on the neck, cutting the jugular veins, carotid arteries, trachea and oesophagus but leaving the spinal cord intact. This method leaves very little blood remaining in the body. Separate equipment is used for halal meat to avoid contamination with forbidden material.

Australian standards ensure that animals must be effectively stunned prior to slaughter. Halal slaughter in Australian export abattoirs uses a reversible (electrical) stunning method, while conventional humane slaughter uses an irreversible

(physical) stunning method. The animal welfare implications of non-stunning forms of ritual slaughter are still under debate in many parts of the world.

All cattle, sheep and goats processed in Australia destined for Islamic markets are slaughtered under the Australian Government Halal Slaughter (AGHS) program, by Muslims approved by accredited Islamic certifying authorities in accredited processing plants, according to strict Islamic law or Shariah. This program is guaranteed under the Australian law, and administered by AQIS.

Halal certification tells Muslims that the ingredients and production methods have been tested and declared permissible by a certification body. There are several organisations in Australia that can certify a business as being halal.

For more information on this program, and a list of recognized Islamic bodies for halal certification of red meat for export, visit the Federal Department of Agriculture, Fisheries and Forestry website (www.daff.gov.au) and search for 'halal'.

More information on halal is also available from the Australian Federation of Islamic Councils (www.afic.com.au) and the Halal Australia website (www.halal-australia.com.au)



MLAs 'Guaranteed Halal' branding for Middle Eastern markets.

Tonia Grundy
DEEDI Information Officer, Ayr
Ph 0409 034 960

Net carbon position of the Queensland beef industry

According to the international rules for reporting greenhouse gas emissions, the grazing industries in Queensland contribute significantly (about 40%) to the State's annual emissions of 181 Mega-tonne CO₂ equivalent (Mt CO₂-e) through livestock methane, woody vegetation clearing and burning emissions. However, in the agriculture sector, unlike most other sectors of the economy, both natural and induced processes of sequestration and emissions occur as part of a biological production system which is diverse and covers large areas of the country.

The sources of greenhouse gas emissions from a typical beef enterprise include enteric fermentation

in cattle (methane), burning of vegetation (either intentional or accidental), energy use (including electricity and fuel), land clearing, loss of pasture, and declines in soil carbon.

Biosequestration in the beef sector occurs through vegetation growth (above and below ground) and by improving soil condition. The difference between the emissions and sequestration represents a 'net carbon' position.

A recent study conducted by officers of the Department of Employment, Economic Development and Innovation (DEEDI) looked at the 'net carbon' position of the Queensland pastoral beef industry at

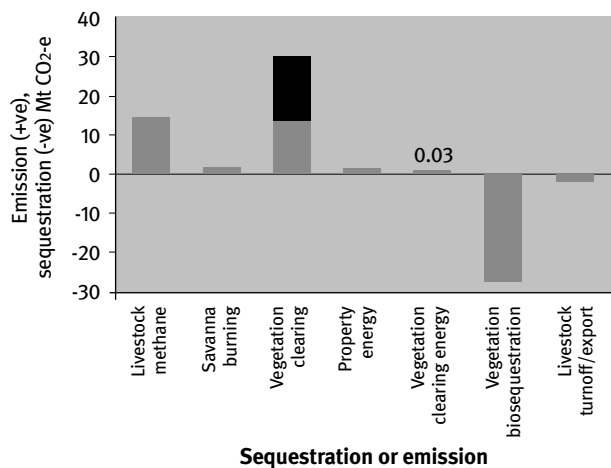


Figure 1. Magnitude of each emission or sequestration (Mt CO₂-e) used to calculate the net carbon position of the Queensland beef industry. For 'vegetation clearing' the full bar (blue and maroon) indicates the estimated emissions for 2006–07; the 'blue' portion of the bar represents the emissions assuming a further 75% reduction in the clearing of remnant vegetation.

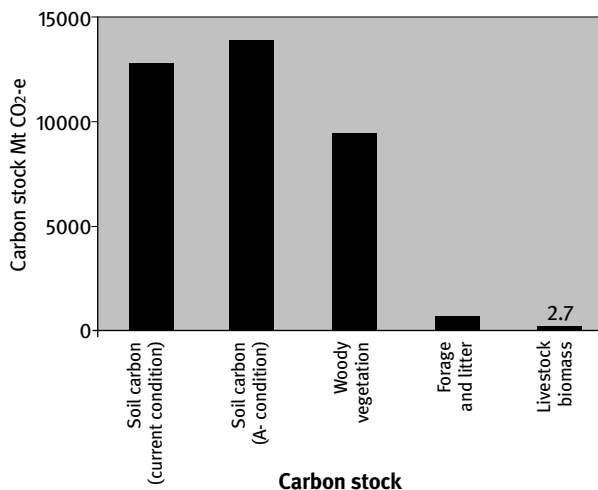


Figure 2. Magnitude of each carbon stock managed as part of the Queensland beef industry.

the farm gate level. The analysis showed:

1. An estimated **22 720 Mt CO₂-e** of carbon stocks are being managed by graziers in Queensland. While this is not required to be reported under the current greenhouse gas accounting process, the figure provides an indication and recognition of the scale of current stocks in the land being managed by graziers (see figure 2).
2. Total greenhouse gas emissions from the beef industry (at the farm level) in Queensland are estimated to be **45.9 Mt CO₂-e** per year. The emissions data draws on the most recent tree clearing data from 2006–07 which predates the full implementation of legislative controls on tree clearing in Queensland and includes methane and savanna burning emissions (figure 1).
3. Total biosequestration is **28.5 Mt CO₂-e** per year (assuming no change in soil carbon). Sequestration includes growth of woody vegetation and the carbon in livestock 'exported' off the property.
4. Net emissions are **17.4 Mt CO₂-e** per year (assuming no change in soil carbon). This is before the full implementation of the legislative controls on tree clearing.
5. When the clearing controls are fully implemented and assuming the clearing rate falls 75% from 2006–07, the net carbon emissions also fall dramatically to an estimated **1.2 Mt CO₂-e** per year. This effectively means that the beef industry is **carbon neutral**.
6. Soil carbon sequestration potential is significant. While the report excludes current contribution of soil carbon to the 'net' position

due to insufficient data sets, it does indicate the significant potential gains that could be achieved through improvements in land condition and soil carbon levels and their further impact on the net position of the industry.

For example, moving half of the current C (poor) condition land in Queensland to B (reasonable) condition over a 25-year-period could sequester an additional 190 Mt CO₂-e or **7.6 Mt CO₂-e** per annum. However, further research is needed to better understand the role of soil carbon sequestration.

This article was derived from the Executive Summary of the DEEDI report Net carbon position of the Queensland beef industry by S Bray and J Willcocks (2009). This report is available at www.dpi.qld.gov.au/27_15803.htm

While the analysis used the latest available data, it did not encompass current international greenhouse accounting polices. It used a scientific approach to assess the biological processes. This assessment was not definitive but rather an attempt to better understand the issue of net carbon position in relation to agriculture. The reports' authors acknowledge that policy considerations at the national level do not occur in isolation from international developments.

Further information

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WQ BMP project nears completion

The WQ BMP project is nearing completion with all ten properties nearly finishing on ground works ready for the 2010/11 wet season. A range of changed management techniques will be implemented across the ten properties. With a ground area of approximately 19 000 ha of land – the project represents the equivalent of an average size property in the Charters Towers region.

The areas targeted through the project include frontages to rivers, creeks and springs of all sizes across a range of land types in the district from goldfields country, heavy clays, alluvial soils and the basalt land types.

The on ground works are aimed at facilitating improved management of the riparian and adjacent areas through adoption of recommended grazing management practices such as wet season rest and spreading grazing pressure for more even utilisation. Landholder awareness and understanding of these management techniques has been improved through training activities such as MLA Edge Network Grazing Land Management training and the Stocktake Forage Budgeting program offered through DEEDI.

The project aims to improve water quality through increasing end of dry season ground cover levels on the property. A total of 37 monitoring sites have been established to document this change using both photos and land condition assessments on ground. Results after the first two years of the project are promising with many of the properties seeing an improvement in ground cover at the end of the 2010 dry season. It is hoped that in the longer term, with the improved management, there will also be improvement in overall land condition.

The wrapping up of the project in early 2011 will see a total of four case studies produced both in hard copy and online through the DLC website using the digital story telling media – PlaceStories.

The Dalrymple Landcare Committee would like to formally recognise the efforts of the 10 properties involved with the project over the past 18 months, and encourages them to continue the improved management practices in the future.

The 'Piloting Adoption of Grazing Best Management Practices for Improving Water Quality in the Burdekin Rangelands' project is supported by the Dalrymple Landcare Committee Inc, through funding from the Australian Government's Caring for our

Country and NQ Dry Tropics NRM. For further details on the case studies or the project, please contact the DLC.

A wet season spell will help lift productivity...

With the forecast wet season ahead looking promising, it is important that producers do what they can where they can to make the most out of the precious rain that falls. A wet season spell is a management tool which can be combined with the property management program to lift land condition.

A wet season spelling program is designed to improve various aspects of the system including:

- Improved pasture productivity/yield and nutrition
- Improved pasture seed production
- Recruitment of new pasture plants
- Improve overall ground cover and reduce sediment loss
- Duration of 6–8 weeks up to 4–5 months depending on season and state of pastures.

Results from the WQ BMP project where a six week wet season spell was implemented improved pasture yields by 20% – 40%.

To ensure the best out of your wet season spell, stock exclusion is essential – even small numbers of cattle can selectively graze preferred species over large areas which can be severely detrimental to the outcome of the spelling program. Spelling can be difficult during rainfall events with creek crossings inevitably being washed out. No doubt for many there will never be a dull moment in the upcoming wet! Most people would rather be putting up flood crossings than feeding lick, so stick with your wet season spell and where possible make it a priority to maintain stock exclusion. Over time, ongoing wet season spelling will improve land condition, which is a big bonus to the stability and longevity of a grazing enterprise. If you have any questions about wet season spelling programs do not hesitate to contact the DLC or DEEDI officers for further advice.

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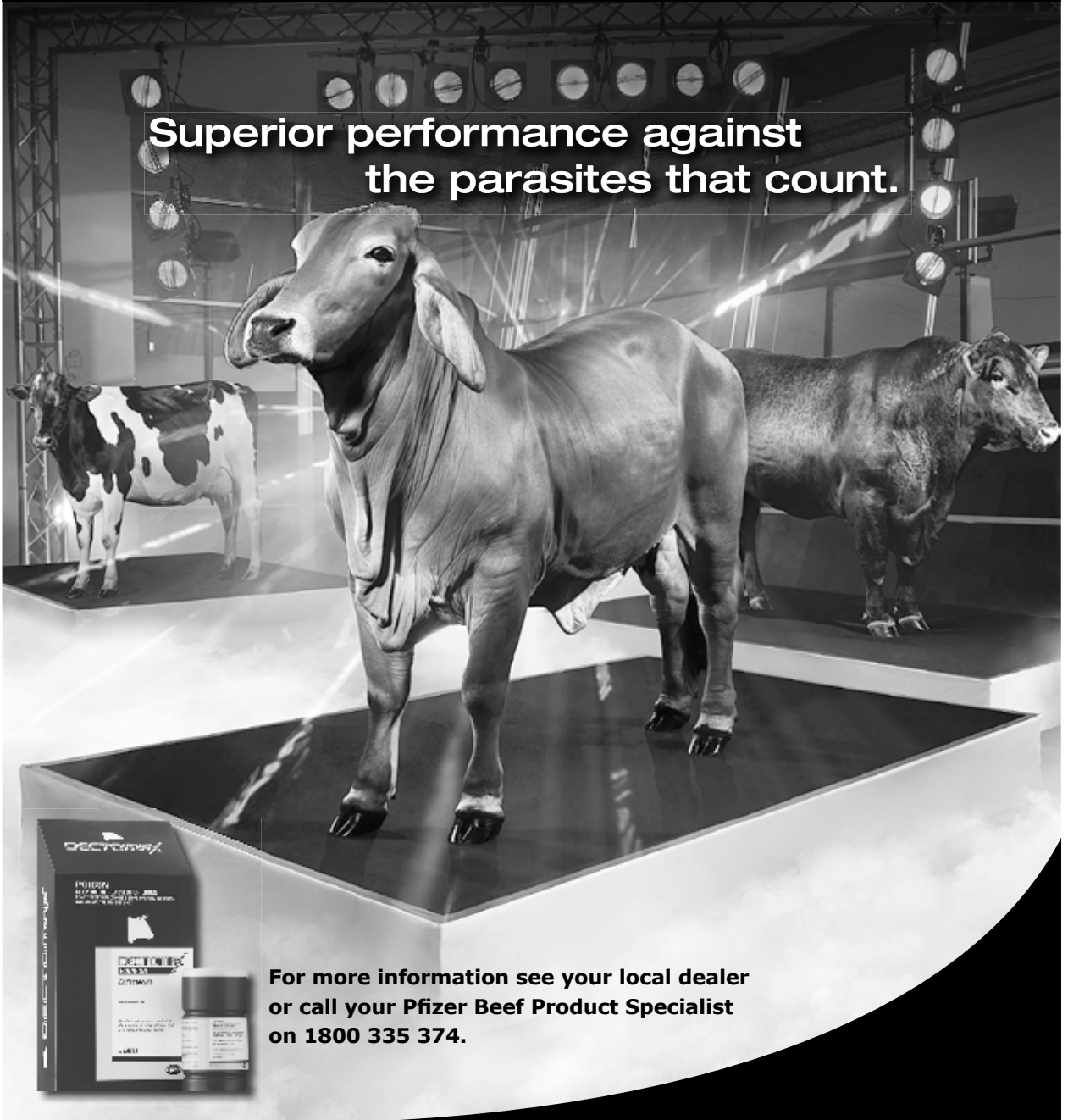
¹BF5870 ²Based on Elanco sales data, typical liveweight gains and cattle prices.

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