Pastoral MEMO

Rangelands

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Department of Agriculture and Food
GOVERNMENT OF WESTERN AUSTRALIA

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HELLO AND WELCOME TO THE FIRST EDITION OF THE RANGELANDS PASTORAL MEMO

This publication replaces the respective Southern and Northern Pastoral Memos that have graced many kitchen tables over the past 10 years. The decision to merge both publications was made in light of increasing difficulties to resource both publications and declining number of officers on the ground. The new *Rangelands Pastoral Memo* will be published **three times/year** and posted to all pastoralists in the Rangelands. There are also a number of other readers (non pastoralists) who receive an electronic copy.

The distance between the most northern pastoral lease in WA, Carson River (Timor Sea) and most southern pastoral lease Balladonia (Great Australian Bight) is approximately 2118 km. In between are mud flats, pastoral leases, shrublands, grasslands, sand and spinifex, mines and the occasional inland lake. This diversity of landscapes and businesses will bring with it a new diet of articles for many readers—I hope you enjoy.

Unfortunately parts of the Pilbara and Southern Rangelands are in a severe drought, as evidenced by the Rainfall Decile map on page 4. Rainfall in the Upper Gascoyne, Gascoyne, Mount Magnet, Leonora and Goldfields areas was generally **'below average'** for the period 1 May to 31 October 2010. Effective winter rain has been a rarity for the past decade. Considering rainfall in these areas is winter dominant and November to January rainfall is commonly low (only contributing a small fraction of the annual total), we can appreciate the seriousness of the current situation.

The Memo celebrates the achievement of **Hayley Easter**. Hayley won the WA Trainee of the Year Award for excellent leadership and general all-round ability as a stockwoman on Spring Creek Station. Also **Keith Anderson** from Jubilee Downs was recognised as the North Australian Beef Research Council (NABRC) Producer of the Year.

There are a number of informal meetings planned across the Southern Rangelands in the next couple of months for producers. Meetings will touch on a range of topics including **feeding livestock**, **managing stress** and **post-drought opportunities**. These meetings are available at the request of producers and are an opportunity for the community to meet and discuss the current dry conditions.

Some of the articles in the Memo could be taken as too pessimistic, unhelpful or negative about the current dry period in the Southern Rangelands. However, it is the authors' opinions that these articles provide an **accurate assessment** of industry at present. While land managers are restricted in what can be done now, it is hoped that these articles will be considered **post the current dry period**, by aligning stock numbers with the amount of available forage (pasture budget or food on offer). Managing other grazers such as kangaroos and goats has always been difficult. The initiative at the Australian Rangelands Conference to form a national body to address total grazing pressure control may be the circuit breaker that cracks this perennial problem.

Happy reading

Matthew Fletcher

Front page photos courtesy of Mike Reed (Property Monitoring Services), Katherine.
Photos left to right: Gouldian Finch (male in red phase), Gouldian Finch, Banded Honeyeater and Spinifex Pigeon.
Photos were taken on Lissadell Station.

WEATHER FORECAST AND CYCLONE SUMMARY

The chances of exceeding the median rainfall for November to January are between 60 and 70% for much of western WA and northern WA, with areas of 70 to 75% in the South West Land Division, and 70 to 80% in the east Kimberley (see map on page 4). This means that for every 10 years with ocean patterns like the current, about six to seven years would be expected to be wetter than average over much of WA during the November to January period, while about three to four years would be expected to be drier than normal. For parts of the Pilbara, Interior and Eucla, the outlook is close to neutral with odds of 50 to 60%. This means that the chance of a wetter than average November to January is about as likely as the chance of below average conditions in these areas. [Source: Bureau of Meteorology.]

People in Western Australia's north-west are being urged to prepare for the coming cyclone season. This season there is a higher than normal risk of a pre-Christmas cyclone and with the cyclone season rapidly approaching it is important that residents start preparations immediately. In terms of cyclone numbers, the last cyclone season was quiet. There were three cyclones in waters off north-west Australia with two severe impacts: Laurence (Category 5) and Magda (Category 3). According to Brad Santos from the Bureau of Meteorology, 'we are likely to have more cyclones this season than last, and we have a much greater chance of a pre-Christmas cyclone'. 'Sea surface temperatures off the north-west coast are warmer than usual and climate modelling suggests that the current La Niña event will persist into the cyclone season. This increases the chance of an early season cyclone and also boosts the number of cyclones we are likely to see over the whole season.' The average number of cyclones is five; this year we expect about six or seven cyclones. It is likely that during the season there will be two coastal impacts with one of them being severe. Coastal communities between Broome and Exmouth face the highest cyclone risk of anywhere in Australia.

Details of the 2010/2011 Tropical Cyclone Seasonal Outlook for north-west Australia are:

- higher than normal risk of a coastal impact before Christmas
- about six or seven cyclones in waters off the north-west coast (average number is five)
- likelihood of around two coastal impacts
- significant risk of at least one severe tropical cyclone coastal impact during the season.

Please visit the links below for more information:

www.bom.gov.au/watl/rainfall/exceedance.shtml?dataview=median
or
www.bom.gov.au/wa/cyclone/seasonal/

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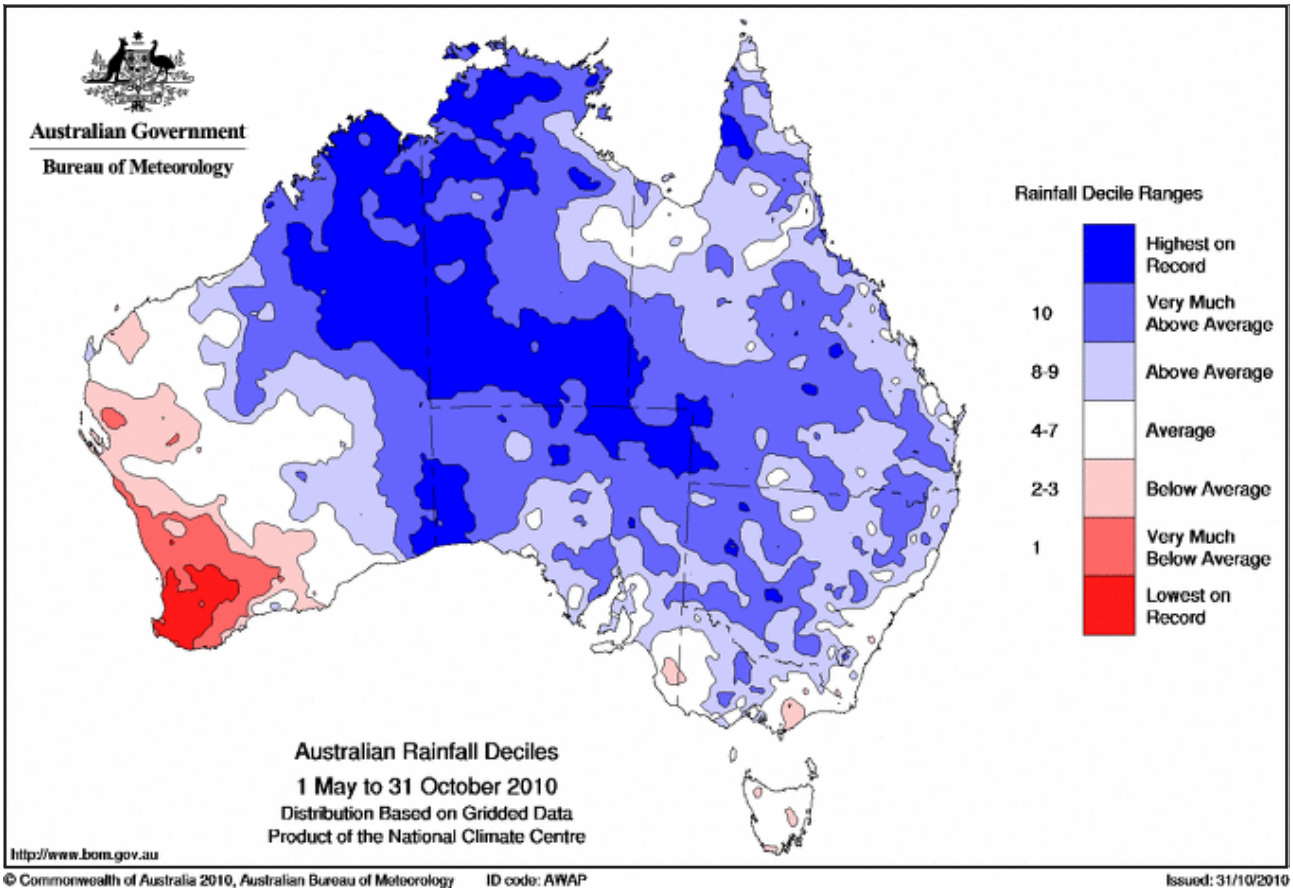
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Australian Rainfall Deciles
1 May to 31 October 2010
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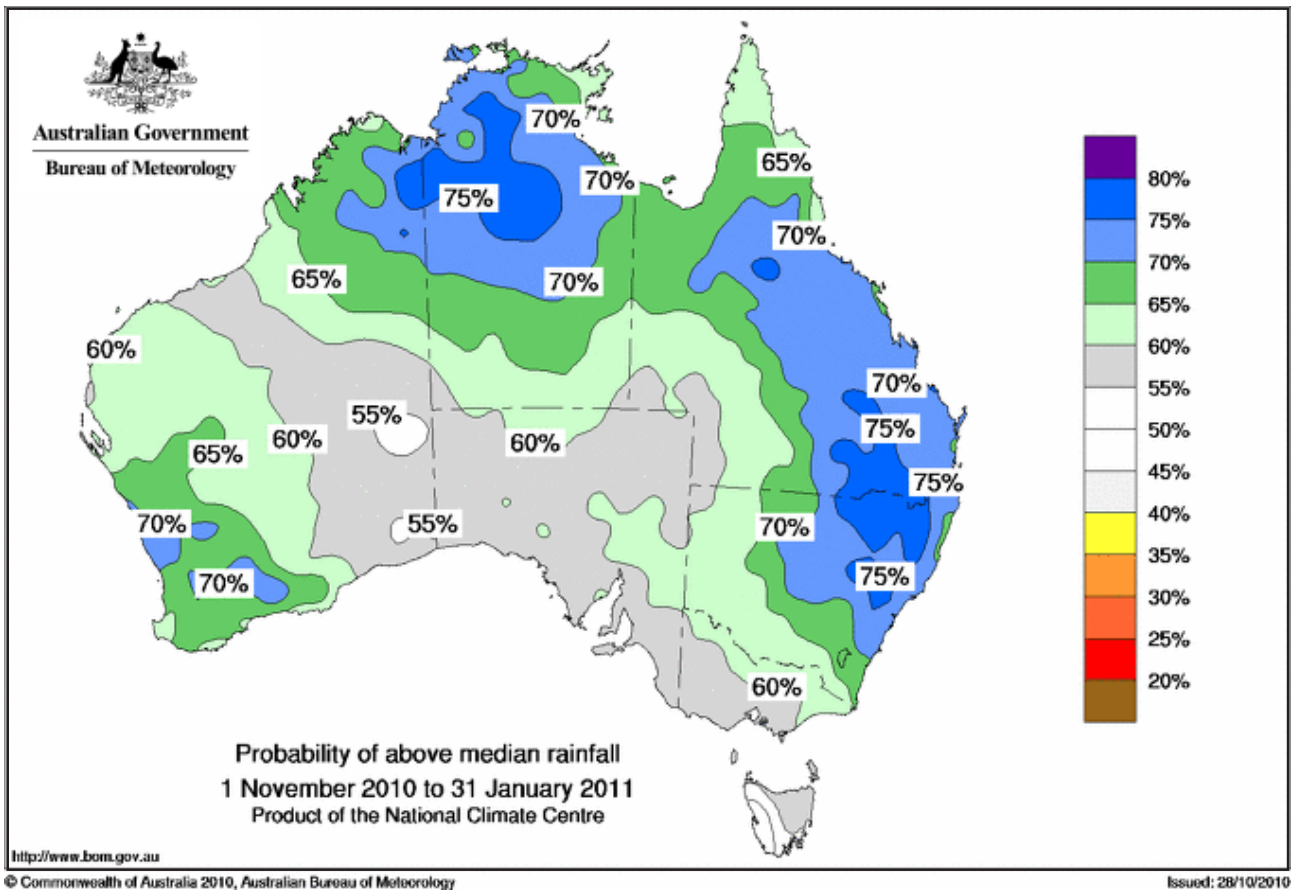
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Probability of above median rainfall
1 November 2010 to 31 January 2011
Product of the National Climate Centre
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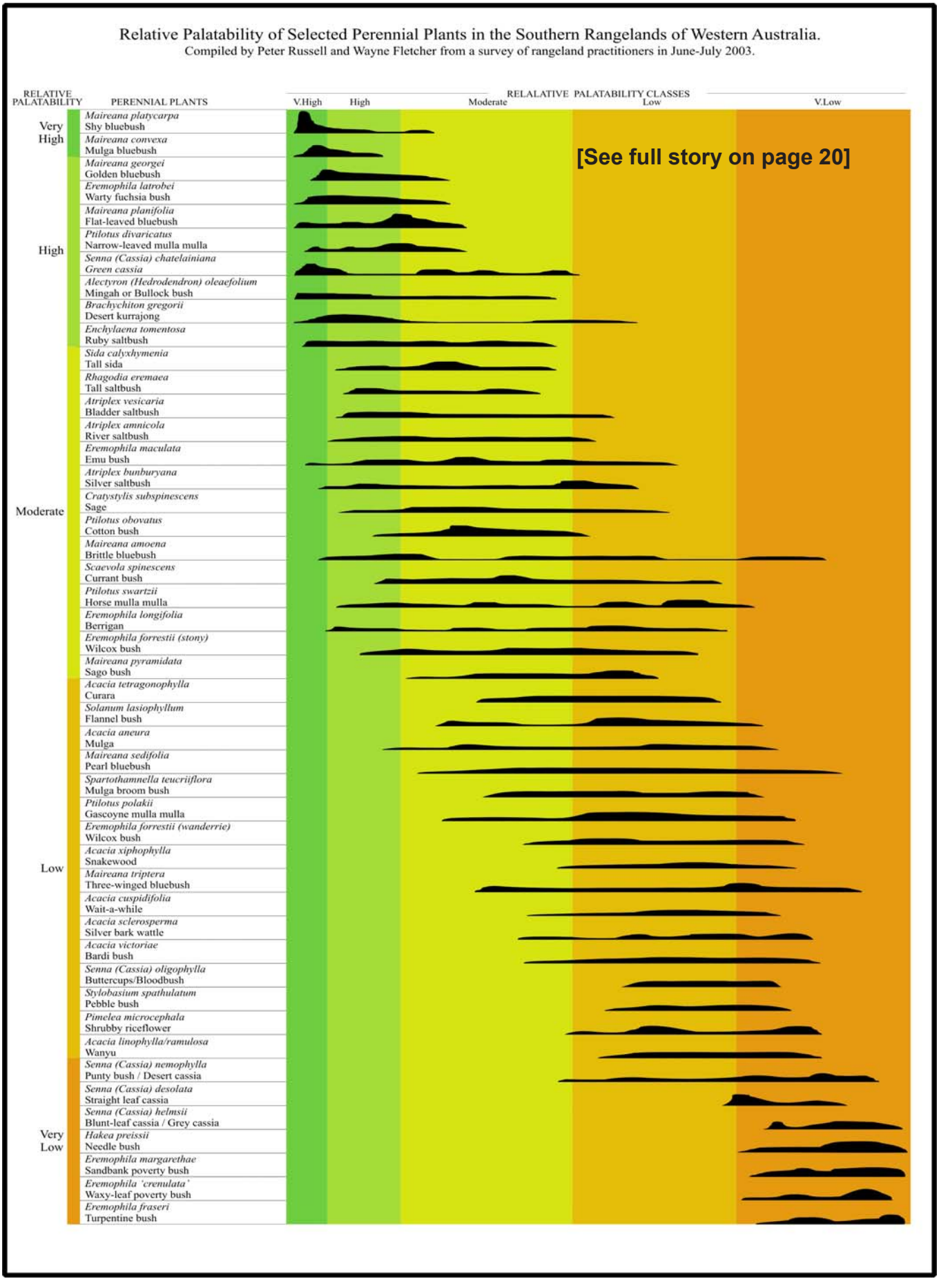
Issued: 28/10/2010



[See full story on page 20]

MANAGING THE DRY SEASON

Greg Brennan, Operations Manager of
DAFWA's Dry Season Response in the rangelands

Dry season management in the Pilbara and Southern Rangelands has been challenging for many sectors of the industry, not least the pastoralists. The unusually dry seasons in the WA agricultural regions have seriously reduced opportunities for moving cattle south.

The Commonwealth and WA State Government have directed funds towards the Drought Pilot which is providing the resources to enable producers to effectively manage the risk of dry seasons. A Drought Pilot project is planned to commence in the Carnarvon district in late November.

The Department of Agriculture and Food WA (DAFWA) has worked closely with the Main Roads Department WA (MRD) providing supporting information to justify the triple road train permits through to 1 December 2010. Information is being provided to MRD on numbers transported out of the drought affected areas. These figures demonstrate that the decision has assisted in the cost-effective movement of livestock.

DAFWA does not underestimate the pressure many pastoralists face in extremely dry seasons given the challenges of managing the livestock, finances and land. After consultation with industry DAFWA is offering pastoral communities the opportunity to combine a technical session to discuss managing the current challenges with a discussion on the human dimension of staying on top of the stress. Funds are available to cover food costs so these sessions can become a social occasion for all the family. Workshops can be tailored to suit the needs of each group. Department specialist staff will be available and experienced private veterinarian Paul Wynne-Houchin has been contracted to provide livestock, nutrition and animal welfare information at these meetings. See notice on page 7 for more information.

If there are issues regarding support of any kind required for managing the dry season, please call those mentioned at the bottom of the notice for the Dry Season meetings on page 7.

DROUGHT MANAGEMENT MEETINGS

Purpose: To support producers managing current drought conditions and discuss management strategies to optimise post-drought opportunities. These free workshops are available on request and can be tailored to meet specific needs of producers and families attending. They can be run jointly with the Regional Men's Health initiative advertised on page 16.

What is available?

Livestock, land and business management decisions

- Department specialists and commercial veterinarian with extensive rangelands experience (Dr Paul Wynne-Houchin) are available to discuss issues of concern regarding managing livestock, budgeting for pasture and feeding of different livestock classes, etc.
- Challenges of managing the animal welfare issues in current conditions.
- Land and business management strategies to ensure optimum rate of post-drought pasture and business recovery.

Keeping on top of the stress in extreme situations: for managers and partners

- Managing the personal challenges under the stress of long exposure to difficult livestock, land and business management decisions. Professionals from a range of social support agencies including Men's Health are available.
- Strategies for communities to ensure people in their district who are in difficult situations feel supported in times of extreme stress.

Funds available to cover food costs to enable a social occasion for all the family.

Contact Jim Addison (9088 6017), Greg Brennan (9956 8554), Kaz Johnson (9956 3328) or Richard Watkins (9143 7001) or your local department office to discuss how these workshops can be designed to meet the needs of your community.

STOCK IN POOR CONDITION – IT'S NEVER TOO LATE TO TAKE ACTION

Charlotte McIntyre, Albany

There have been large numbers of livestock travelling from WA to the eastern states in the past two months, and much of this has been due to pastoralists making some very tough decisions.

Affected by an exceptionally dry season, and staring down the barrel of more dry to come, many people have been proactive in managing this situation by sending stock east for sale or agistment before options run out. While not easy to stomach at the time, this action serves to highlight the exceptional management skills and consideration for the industry that currently exist within the WA pastoral industry.

Due to a range of circumstances, livestock numbers have not been reduced on a few properties. The opportunities to muster, sell or agist livestock are fading fast due to a number of different factors, including declining cattle condition, increasing temperatures, closing markets or movement restrictions due to disease.

The picture looks bleak for those left in this position. Available feed is likely to be of poor quality and not sufficient to sustain livestock until the next likely and significant rainfall event. Bought-in feed is going to be difficult to obtain and, in many cases, unviable due to cost and logistical difficulties.

The single most important message is to keep managing the business, no matter how bad it gets. If animals cannot be adequately fed to survive, and cannot be moved, they must be monitored regularly and humanely destroyed onsite. **Doing nothing is not an option.**

Not only is it socially unacceptable, and a risk to the reputation of the pastoral industry —it's against the law. Under the *Animal Welfare Act 2002*, there are heavy penalties for those guilty of an offence. The Codes of Practice for the welfare of animals declare that cattle, sheep or goats must not be allowed to starve to death. There is no exception, even for pastoral properties, even in drought.

Following is some information which can help pastoral managers decide how to deal with weak cattle. Many of the same principles apply to sheep or goats. It is also important to make sure anyone destroying animals does so humanely. Check the DAFWA website under 'Dealing with the dry season' for guidelines on the correct way to humanely destroy livestock.

For information and advice on managing issues related to the dry season, contact the Department of Agriculture and Food on 1300 725 572 or visit www.agric.wa.gov.au 'Dealing with the dry season 2010'.

Welfare decisions for cows

Cow condition	Score 1	Poor	Very poor
			
Brief description	Lean but strong and healthy and with no significant muscle wastage. Unlikely to conceive.	Healthy but with significant muscle wastage. Able to recover in time if adequately fed.	Weak, with very low body reserves. At risk of death from cold, wet weather or other stress. Recovery dependent on high quality care and will be slow.
Transport, sale	Suitable for transport and sale but with minimum time off feed.	Unsuitable for sale through saleyards or transport over long distances.	Not fit to travel.
Backbone	Easily seen.	Spines of backbone individually identifiable.	Spines of backbone individually identifiable.
Short ribs	Visible. Fairly sharp to touch.	Prominent and very sharp to touch.	Very prominent and easy to see individually.
Inside pin bones	Slightly sunken.	Sunken.	Deeply sunken to the bone.
Muscle wastage	Rump muscle concave (between hooks and pins).	Rump muscle concave. Muscle wastage in loin and leg muscle evident.	Muscle wastage obvious over whole body. Rump and leg muscles deeply concave.
Stifle joint		Stifle joint not identifiable.	Stifle joint identifiable.
Tail bones	Individual bones not identifiable.	Individual bones just able to be felt.	Individual bones easily felt.
Skin	Pliable.	Less pliable.	Tight.
Appearance	Bright and alert.	Healthy.	Lacking energy or dull.
Mobility	Normal gait.	Mobile, able to lie down/rise with ease.	Unsteady gait, may drag hind feet or plait hind legs. Difficulty lying down/standing up.
Actions required	• **Must be fed adequately to prevent further weight loss.** • **Suitable for transport to agistment.** • **Suitable for sale but must not be kept off feed for extended periods.**	• **Must be fed adequately to prevent further weight loss.** • **Suitable for direct transport to agistment but must not be kept off feed for extended periods.**	• **Must be given high quality feed, water and care OR** • **Destroy on farm.** • **Do not transport.**

WEAN PASTORAL CALVES AS DRY SEASON TAKES HOLD

Peter Smith, Senior Beef Development Officer, Karratha

Pastoralists in the Southern Rangelands are urged to wean their calves as soon as possible, as the dry season continues. Station managers should consider weaning all calves to help maintain the condition of both the calf and the cow. Cows making milk for their calves have a 40% higher energy requirement than non-lactating cows. This is equivalent to around 3 kilograms of grain for an average cow.

Well fed and managed calves will also perform better than when they are following a cow around very dry pastures and getting a few sips of milk occasionally.

It is important for pastoralists to develop a management plan and a feed budget for calves and young weaners. A key part of that plan will be a realistic estimate of the likely length of the feeding program. Feeding and managing young calves is expensive in both time and money and needs to be thoroughly thought through.

Calves weighing less than 70 kg require about 2 kg of 18% protein calf pellets per day, which costs about 70 cents per head per day ex-Perth in September 2010.

Stock managers also need to consider whether the weaners being fed are going to be retained as future breeders or sold as soon as they reach a market weight. The market specifications, genetics, weight and other factors of the target market should be considered in the planning process.

Managers would be wise to investigate sale options for calves that aren't likely to return the cost of feeding, before a lot of time and money is invested in feed for stock that are unlikely to recover the cost of feeding. It may be better to sell at a small loss now, rather than spend significant dollars and sell at a bigger loss later.

For more information about weaning calves the Farmnote 123/99 *Cattle production: weaning methods in the Southern Pastoral Region* is available on the department's Dealing with the Dry Season 2010 website, which can be accessed via a link on the homepage www.agric.wa.gov.au.

Pastoralists are urged to wean their calves early and consider feeding options carefully as the dry conditions continue.

WA RANGELANDS – LEARNING FROM HISTORY

Kaz Johnson, Carnarvon and Greg Brennan, Geraldton

Whilst it is recognised that landscapes and ecosystems change throughout time, the rate and extent of change in the WA rangelands is of greatest concern to the public right now.

The pastoral industry is constantly facing economic uncertainty due to inconsistent export markets and changing monetary policy, as well as highly variable climatic conditions that greatly dictate production levels.

The recent Northern Beef Industry Analysis Final Report (initiated by MLA), found those enterprises with maximised profits:

- did not rely on prices received for product
- had slightly higher production per large stock unit (LSU)
- had lower stocking rates when adjusted for rainfall
- had significantly higher gross margins, and
- significantly lower overheads in the business.

The report noted that the major issues facing the pastoral industry included inadequate scale in the more closely settled areas, significant cost escalations in both overheads and direct costs, doubling of debt per LSU over the last decade while the return on assets (ROA) has declined to very low levels of 0.3% to 2.0% on average. Approximately half of the producers involved had spent more than they earned for six of the last seven years, indicating the northern beef industry was generally in a very unprofitable and unsustainable state.

Resulting from the Gascoyne Murchison Strategy (GMS) pastoral business benchmarking initiative conducted in 2001–2003, several groups of pastoralists analysed business performances, identified and set priorities for areas of improvement together with the appropriate actions required to improve their business operations. The findings of the benchmarking study indicated that in the GMS region, the major drivers of profits were overhead costs, closely followed by gross margins. It was widely believed at the time that the main concerns facing the pastoral industry was the size of the leases relative to the number of livestock carried. Higher labour costs and high vehicle, plant and infrastructure costs were recognised to be the main contributors to the greatly increased overhead costs.

There was a general lack of understanding of the rainfall patterns around which decisions (particularly stocking rates) must be made. This resulted in the 'hope for rain', and hence managing for rain, at times of the year when there were very low probabilities of actually receiving it. The current situation in 2010 indicates that some businesses have progressed from past paradigms and have successfully managed stock numbers to the carrying capacity of the land, while there remains need for improved knowledge and support in decision-making in many businesses still.

Productivity of a pastoral business is driven by nutrition, and the major driver of nutrition is matching stocking rate to carrying capacity. If stocking rates exceed carrying capacity, the nutrition of animals is compromised, which in turn leads to low weight gains and wool cuts, low reproductive rates and high mortalities—leading to low profits. In the longer term it leads to poor range condition and an ever-decreasing spiral to lower and lower profits (Bartle 2003).

The very broad issue of degradation of the natural ecosystems within the pastoral zone of WA as a result of increased total grazing pressure, and the inevitable heavy damage caused in periods of drought, raises serious concerns often supported by the results of condition surveys. The economic costs of rangeland deterioration are ultimately passed on to the wider community through declining production (input into the state's economy), costs of rehabilitation, drought relief, taxation relief and income soothing (Centrelink payments) and the loss of biodiversity.

A discussion by Wilcox and McKinnon in 1972 highlighted that *pastoralists are not in a financial position to fence their country to exclude grazing pressure and encourage regeneration. Indeed, financial pressure conspires to encourage them to increase the number of stock that they carry without delay once a period of drought appears to have broken***.**

In 2004 a national survey was conducted examining the impacts of eight of the country's most severe rangelands droughts in 100 years of records and identified the environmental, social and financial impacts. *The extended drought periods in each degradation episode have provided a test of the capacity of grazing systems (i.e. land, plants, animals, humans and social structure) to handle stress. Evidence that degradation was already occurring was identified prior to the extended drought sequences. The sequence of dry years, ranging from two to eight years, exposed and/or amplified the degradation processes.* Concluding from the study were four outstanding components necessary to prevent further degradation of the pastoral industry and its necessary resources:

1. A commitment of land managers to manage grazing (and fire), against a background of high climate variability, to prevent degradation of the perennial pasture resource.
2. Government policies which facilitate and value land managers' actions in moving to more sustainable grazing systems.
3. Financial systems that allow land managers to maintain cash flow during drought and support management actions aiding pasture resource recovery after drought.
4. An alert system based on climatic understanding, ecosystem response and resource monitoring which provides warning before damage occurs rather than a retrospective analysis after the event (pivotal for both on-ground managers and government bodies).

These experiences of the past have rolled out the carpet of challenge for the future. Loss of scale has been caused by lost carrying capacity, particularly in the southern rangelands. There is plenty of evidence that 60-odd years ago, country in the southern rangelands carried at least double the numbers of today. That lost carrying capacity has largely come from exposing the vegetation to a continuous grazing pressure that it was not equipped to withstand. The challenge of controlling the total grazing pressure of domestics, kangaroos and goats is enormous, but a necessary first step if the desertification process is to be turned around. It will require a concerted effort by the people who know best how to do it, with strong support from both the Commonwealth and State governments.

The challenge now for the leadership of the pastoral industry, is to present these challenges and the opportunities clearly to government. **With landscape ecology principles and total grazing pressure control, the turnaround of the looming desertification process can then commence.** (See the article on page 19 describing the national initiative to control total grazing pressure.)

Reference

Bartle, R 2003, *Report on the outcomes and highlights of the Gascoyne Murchison Strategy: Benchmarking, financial advice and business review project – conducted by Resource Consulting Services – 1999/2000, 2000/2001 and 2001/2002.*

RANGELAND SURFACE WATER AND HOW IT INFLUENCES CARRYING CAPACITY

Jim Addison, Kalgoorlie

The circumstance

One of the major issues facing the WA pastoral industry is the reduction over time of carrying capacity. Discounted carrying capacity has resulted in lower livestock productivity levels and reduced drought resilience.

The issue

Rainfall creates soil moisture and soil moisture generates plant growth; and less rain results in less plant growth—nothing profound there. The quantity, timing and intensity of rainfall cannot be influenced by land managers but the conversion of rainfall to plant growth is largely within management's influence.

Many rangeland landscapes have soils with low infiltration rates, hence some rainfall is redistributed (transferred) overland rather than absorbed where it falls. Higher rainfall intensity results in increased run-off. Even small rainfall events, if intense enough, can lead to run-off. The transfer of this run-off into patchy reserves of soil-water (sinks) has a profound influence on the intensity, duration and location of plant growth. The transfer of rainwater within landscapes results in some portions receiving considerably more water for forage production than others (see Table 1). Redistribution of small rainfall events may initiate growth in patches within sinks, or in whole sink, while there may be no growth in water-shedding areas.

Table 1 **The redistribution and infiltration of a 37.5 mm rainfall event across landscape zones at Lake Mere (90 km west of Bourke NSW), as measured by final soil-water contents (Greene 1992)**

	Landscape zone		
	Source (bare slope)	**Sink 1* (grass zone)**	**Sink 2 (tree zone)**
Soil water (mm)	15.7	33.7	51.6
% of 37.5 mm	**42**	**90**	**138**

* The narrow grassy zone that typically occurs just upslope of mulga tree groves (Sink 2).

Although the above data refers to events in a mulga grove landscape, there are similar source-and-sink occurrences in most rangeland types. Sinks are formed by obstacles or retardants to overland water flow and generally consist of plant communities (including litter) with or without soil surface micro-relief.

As landscapes become degraded through over-utilisation the sinks tend to become reduced in number and size. This leads to increasing areas of run-off with commensurate increases in water volume and increases in the speed of overland flow. Salt lakes and oceans then become the final destination of larger and larger percentages of the run-off. Forage plants are thus denied the full use of even small rainfall events.

This image illustrates the loss of water/nutrient sinks in a mulga landscape (Ranch land system). Note how increased overland flow 'sweeps' away litter from under trees.

Water and nutrient cycles are linked. Increased overland flow on bare ground often results in soil loss. The majority of soil nutrients are in the top 30 mm. Soil loss means that both rainfall effectiveness and soil nutrients are discounted for plant growth. The demise of landscape sinks manifests itself in less forage production (carrying capacity) and longer droughts. If appropriate landscape function through surface water management is not achievable it might be concluded that in some landscapes conventional pastoralism is unsustainable.

Options and challenges

- Maintaining and/or regenerating sinks to hold water and nutrients on-site is the primary objective. This means keeping stocking rate (including feral grazers and kangaroos) far enough below carrying capacity to encourage perennial pasture plant recruitment and establishment.
- Assess feed on offer by completing a feed budget and monitor livestock condition trends through body condition scoring.
- Mechanical earthworks solutions are generally not cost-effective—especially in the absence of total grazing control.
- Management of feral grazing pressure is largely achievable but that of kangaroos is more problematic.

Some material in this article has been sourced from 'Landscape Function' authored by David Tongway and John Ludwig.

Reference

Greene, RSB 1992, 'Soil physical properties of three geomorphic zones in a semi-arid mulga woodland', *Australian Journal of Soil Research*, 30:55–69.

VIEW FROM THE SHED
LOOKING TO THE FUTURE – WHY IT MATTERS

Grief is often narrowly focused on the loss of a loved one. It is also true that grief is often much worse when we lose that loved one unexpectedly either through a sudden illness or an accident. It is also significantly increased if we lose someone through suicide as we start to blame ourselves for what we may have missed or been able to do to prevent it happening.

One of the problems about the type of season we are experiencing is that we can underestimate the amount of grief we suffer because of our changed circumstances. The emotional stress from a bad season is very similar to the emotions felt when we lose a loved one. When we realise this we can start to work on how to manage these emotions in appropriate ways.

The first thing we need to acknowledge is that these grief feelings are a normal and appropriate response to any significant loss. In the case of this season the loss of income, the failure of our crops, the increasing financial liabilities, etc.—all valid reasons to slip into a grief state of mind. There is also a tendency to feel guilty; as we reflect on the time leading up to this point we agonise over every detail to see if there was something we could have, or should have, done to prevent what has happened. For most of us it hasn't been our fault at all, but we put ourselves through the wringer to see.

If we compare what happens when we lose a loved one, particularly unexpectedly, there is a period of intense grief (very normal) and we put ourselves through the same scrutiny. We then move to a period of recovery which involves changing our focus which has been on the past, to looking to the future. Our lives must be focused on the future as we cannot alter the past. We learn from the past but we must always live for the future.

Right now we need to switch our attention from what is, or has been (our focus in recent times) to where to from here; how do I move away from my current grief to getting on with my life?

For many this will mean regrouping and starting to think about next year's program. For others it could mean I don't want to do this any more, how can I exit farming with dignity?

If we consider these two positions, it is very similar to losing a loved one. We need to reorder our lives to move forward; there is no way back. Each of us must consider where we are in the process. The process is different for everyone but when we work through it in our minds we can start to give due consideration to our future options.

Although this year has been a shocker for many, looking forward will help to put the year behind us quicker than you think.

Regards

Julian Krieg

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BACK TO BOURKE

Ben Forsyth, Three Rivers Station, Meekatharra

After experiencing Bourke during a visit in May 2009, an iconic outback town in the grips of one of their deepest recorded droughts, I was keen to get back to Western New South Wales for the Australian Rangelands Society 16th Biennial Conference and see the spectacular transformation in the landscape and community mood. After two good seasons and the mighty Darling being constantly topped up from the upper reaches and the paddocks full of lush feed, producers and those with a more conservational focus were in high spirits.

Thanks to the support of Rangelands NRM WA, I was in Bourke to both attend and to take part in a dedicated Producer Session on the first morning, titled 'Rain on the Rangelands – The Practitioner's View'. It came as a breath of fresh air to share the stories of the other presenters and know that producers in other areas shared similar vision to those of us in the Southern Rangeland who have previously been involved in initiatives dealing with catchment ecology such as the EMU and ESRM projects.

The Session commenced with the Keynote Address of Guy Fitzhardinge, who gave a sound overview of some of the drivers for change since the golden years of pastoral Australia. A key message, which came up throughout the conference, was the need for a united front in developing

a sustainable future. The rest of the presenters in order were: Douglass Lillecrapp, Todmorden Station, Oodnadatta, SA; Robyn Cadzow, Mt Riddock Station, Alice Springs, NT; David Pollock, Wooleen Station, Murchison, WA; Robert Bartlett, Toonborough, Wanaaring, NSW; Graham Finlayson, Bokhara Station, Brewarrina, NSW; myself; Deb Kaluder, Naree Station, Hungerford, NSW; Andrew 'Bean' Schmidt, Wallen Station, Cunnamulla, Qld; and taking us to lunch, Kevin Mitchell, Florida Station, Canbelego, NSW. Among the wealth of individual information, the two most common themes I picked up on was the self-recognition of the need for change and the personal drive to carry out that change. Several delegates mentioned there was an unplanned but encouraging continuity between most of the talks in demonstrating the strengths of the EMU Project principles, and it must have been most encouraging for Hugh Pringle to sit in a crowd and hear interpretations of his and Ken Tinley's own words coming back to him from around Australia.

Papers presented at the conference can be seen at www.austrangesoc.com.au.

It is very hard to do justice to such an extensive pool of rangelands knowledge and experience in a short article. However, to identify three which made me sit up and think; firstly, geomorphologist Dr Gresley Wakelin-King, nominated as the best presentation on her topic 'Rivers are more than just water: Landscape, ecology and geomorphology in rangeland management', provided me a fresh perspective on what has become for me a fairly familiar subject through EMU and ESRM, sharing new examples to reinforce what was being underlined in much of the earlier Producers' Presentations. Dr Wakelin-King also presented a case for greater education and awareness of the role of geomorphology (study of landforms and the processes that create them) in the rangeland sciences.

Following on the education theme, Dr John Taylor, President of the ARS and Head of Rangelands Australia, informed the forum of the worrying decline in education investment and participation in the rangelands, in management, research and extension pathways. Dr Taylor challenged all delegates to be part of the solution in encouraging people into the industry, promoting opportunities for students and engaging with learning institutions before we reached a critical tipping point as many of our senior eminent industry leaders reached retirement. Looking around the audience, apart from the keen young students who presented and the impressive local contingent who helped make the conference a success, as with many rural crowds it was a deflating sight. Not so much how many of the older generation were there, but how many younger generation either weren't there to share that willingly offered knowledge or were not in the industry.

The third presenter was one of several overseas guests in Sheldon Attwood, Founder and Chief Executive Officer of Carrus Land Systems, LLC, Utah, USA. Carrus Land Systems, LLC, 'is an organisation of experienced land management professionals who share a common vision for improving ecological outcomes on a large scale'. Similar to the Quivira coalition, (www.quiviracoalition.org), who I have had experience with in New Mexico, Carrus Land Systems work with the stakeholders and draw out achievable common goals that don't mean locking up country and the producer going broke. Much of what Mr Attwood spoke of was about mutual respect in our dealings and leaving a positive legacy from our actions.

Other events of the week included Welcome Drinks, BBQ on the Bourke Wharf, the Official Dinner and a variety of Pre-Conference Tours. I was fortunate to be able to catch up with my 2008 Nuffield peer, Graham Finlayson, finally seeing the amazing regeneration that has occurred at Bokhara, just north of Brewarrina. Graham and Cathy are strong advocates for Holistic Management and have implemented an intensive rotation system across their property, running mobs in excess of 500 on agistment arrangements. The change that has occurred on previously scalded claypans is quite remarkable and the principles behind this transformation have implications for other dry landscapes.

Graham Finlayson explains his management strategies at Bokhara Plains, Brewarrina.

In the afternoon our particular tour went on to visit Tony Thompson of The Angle Station, just out of Bourke, to look at the walk-over-weighing project he has been pursuing with the Sheep CRC since 2004. Through a vast learning experience, Mr Thompson admits to be starting to get things right. The system used currently runs on a solar powered battery bank and is able to record NLIS tags to weight, while drafting to predetermined weight ranges. One example given was being able to draft off the tail of a mob to a small pen for access to a grain feeder to encourage extra growth each day. As a cattleman, it did mean squinting a little to picture it all on a bigger scale. However, I am aware of similar work being trialled in Central Australia with cattle.

In summary, the greatest message overall that I can share with you is the benefits of getting off our own 'islands', especially when times are tough like the current run of years, to share knowledge with each other. Being able to talk to so many people with such a variety of views, but all with a common love of the rangelands, is such a dose of motivation for all of us who attended. It provides new ideas and encouragement for the good things you may already be doing. With the next conference being held in Kununurra in October 2012, I would encourage you all to seriously consider giving an ARS Conference a try. What have you to lose, if all else fails you can try and catch a Barra!

Tony Thompson demonstrating his Walk-Over-Weighing platform at The Angle, Bourke.

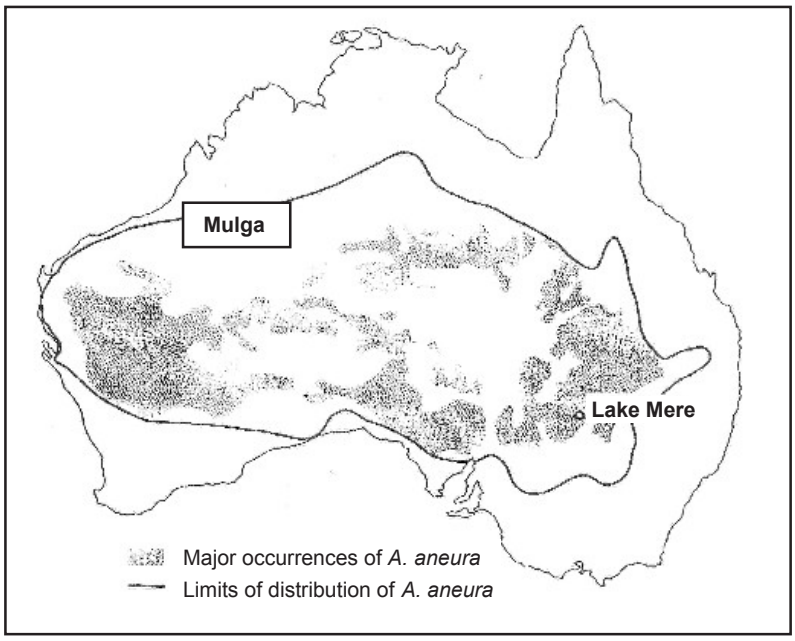
TOTAL GRAZING PRESSURE CONTROL – A NATIONAL INITIATIVE CREATED AT THE AUSTRALIAN RANGELANDS CONFERENCE

Greg Brennan, Geraldton

The members the Cue Landcare District Committee and the Meekatharra Rangelands Biosecurity Association (MRBA) worked over 18 months and three workshops to come to the conclusion that their future would be determined by three factors:

- controlling wild dog predation
- holding rainwater in the landscape by managing catchment ecology processes
- controlling total grazing pressure (with initial emphasis on kangaroos).

I was invited by the Australian Rangelands Society to present the case of the MRBA (representing producers across five shires) to the national stage of their conference at Bourke in October. I focussed on the third point, arguing that the Mulga area of Australia, like the southern rangelands of WA, was losing productive capacity, topsoil and heading towards desert status if total grazing pressure (TGP) could not be controlled.



Outline of the limits of distribution of Mulga, with shaded areas the major occurrences of Mulga—adapted from Anderson and Hodgkinson (1997).

I challenged those present to join with the MRBA and develop a national initiative to address the 'wicked problem' of achieving TGP control. It is 'wicked' because this thorny problem, like many other problems in society, has resisted solutions for decades and requires an alternative approach to problem solving. The following link looks into what a 'wicked problem' is and how to deal with them: www.apsc.gov.au/publications07/wickedproblems.htm

More than thirty people from around Australia responded to the challenge and put their names forward at the conference to be involved. The Cooperative Research Centre at Alice Springs is keen to lead the charge and a phone conference was held on 29 October with the steering committee. The initial focus of the group is to work to ensure that control of TGP in the Mulga:

1. is recognised as an issue of national significance
2. that it warrants appropriate funding support, and
3. is supported by a process that enables people working on TGP control around Australia to share their experiences. Plans are being developed to hold a meeting of representatives early next year to further develop strategies to progress the issue.

A strong direction from many of the volunteers at Bourke was that any group formed to take this issue forward must include practical land managers in the decision making process. The need for 'local governance' was a theme of the conference at Bourke and Ben Forsyth of Three Rivers (a member of the steering committee) argued strongly during the phone conference that land managers' contributions would be essential if effective progress was to be made.

Reference

Anderson, V J & Hodgkinson, KC 1997, 'Grass-mediated capture of resource flows and the maintenance of banded mulga in a semi-arid woodland', *Australian Journal of Botany*, 1997, 45, 331–342.

RANKING PLANT SPECIES FOR PALATABILITY (SOUTHERN RANGELANDS)

Wayne Fletcher, Northam

To quantify the palatability of a plant species is no simple task. Palatability of a plant species will vary with locality, maturity, species genotype (different plants that are similar enough to be classed as the same species, e.g. golden bluebush (*Mariana georgei*)), grazers, rangeland condition and more. Even without these complications, it is quite a subjective concept, though there is no doubt that some species are more sought after by grazers than others.

Russell and Fletcher (2003) produced a ranking of palatability for 47 common shrub species found in the Southern Shrublands. This was done by consulting experts in the field of rangeland science. If you asked any one expert to produce such a rank, the result would be questionable, but Russell et al. (2003) asked 17 rangeland practitioners and averaged the result. Because of the broad range of expertise called on, the ranking should be reliable, bearing in mind those complications mentioned above.

The chart on page 5 lists the 47 species, ranked from most palatable to least palatable. On the right of the species name in the chart is a diagrammatical representation of the spread of opinion of the 'experts'. This shows relative consistency with the highly palatable and the less palatable species. In other words, for the highly palatable species like shy bluebush (*Mariana platycarpa*), most experts ranked that species highly. Similarly for some of the *Eremophila* spp. the ranking was consistently very low. There was a range of opinions for many of the intermediate species.

Given that many managers will be taking more interest in vegetation monitoring in the future, the information presented in this chart may be useful in selecting important indicator species and interpreting changes observed on monitoring sites. If species are close together on the chart, you can be reasonably confident those species have a similar attractiveness to grazers. For species well separated on the chart, you can assume the grazing animal will regard the two species differently when it comes to dietary selection.

Reference

Russell, P & Fletcher, W, 'Relative palatability of selected perennial plants in the southern rangelands of Western Australia – results of a survey of rangeland practitioners', *Range Management Newsletter*, 2003/3.

TAKING STOCK WITH STOCKTAKE

Anne Marie Huey, Broome

Producers managing country along the Eighty Mile Beach area south of Broome attended a Stocktake workshop at Nita Downs Station in June. The workshop was funded by Rangelands WA as part of a project aimed at minimising erosion in the sensitive dune regions.

The participants, who ranged from Thangoo in the north to Wallal Downs in the south, spent the day learning how to critically assess land, pasture and forage condition. This was achieved by a mixture of PowerPoint presentations to explain the theory, followed by hands-on field exercises to implement the practice. Procedures demonstrated in the field included species identification, forage budgeting and calculating seasonal carrying capacity, estimating tree basal area, assessing soil condition and estimating groundcover.

Another significant component of the workshop involved the importance of installing and regularly assessing monitoring sites. Participants were introduced to a user-friendly database that allows them to maintain thorough records, including photos, in one easily accessible place. This will build a comprehensive record through time that will reflect the condition of their country and the impact of the management strategies. The database also allows producers to quickly and easily generate information that will assist in making key management decisions.

For example, the forage budget calculator allows producers to enter the amount of pasture they have at the end of the growing season and the number of days until they expect the break-of-season. This will then generate a report indicating how many cattle that particular paddock will sustainably carry for the dry season. This allows producers to take advantage of good seasons and plan for poor seasons. If the season has been poor and it is likely that feed will run out before the next wet, producers are able to make decisions early and adjust their management accordingly. As an example, it may be possible to sell excess cattle, move cattle around the property or implement a strategic weaning program to reduce grazing pressure, thereby looking after the country and minimising production losses.

If you would like any more information on Stocktake workshops, forage budgeting or calculating carrying capacities, please contact:

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Lachlan Foreshaw (bottom of photo) double-checking presenter Col Paton's calculations to ensure an accurate pasture budget is completed.

THE KIMBERLEY MEANS BUSINESS!

Anne Marie Huey, Broome

Pastoral businesses in the Kimberley recently received a much-appreciated helping hand when Meat & Livestock Australia (MLA) held their first EDGE Business Management pilot in Broome. The course, which was run by Phil Holmes, was used to 'road-test' the content of the final workshop which will be available to all next year.

In total, 13 producers representing nine leases attended the workshop which covered a range of topics including:

- basic accounting principles
- business performance and benchmarks
- business risk
- capital allocation
- business analysis
- obtaining finance.

While it was a jam-packed couple of days, the feedback was overwhelmingly positive, with some producers even indicating they would be back for a second go once the package is finalised.

The recurring theme of the workshop was the necessity of having a really clear understanding of how your business is performing. As the participants found out, this is not something that can be done simply by examining bank statements. Phil was able to explain the importance of—and difference between—compliance (tax) and management accounts, livestock inventory change and how it impacts gross profit and the balance sheet. He also described the key indicators of business financial health (and stress). A summary of these can be found below.

Key indicators of financial health

- The business is consistently profitable and has positive cash flows.
- The business is able to fund ongoing normal operations from retained earnings.
- Expense growth is close to the inflation rate over time.
- The business pays tax every year and is not using up tax credits from previous loss years.
- There is a steady and consistent growth in net assets.
- There is a safe level of equity, evidence of debt reduction and evidence of provisioning for future liabilities.

Key indicators of financial stress

- No principal is being paid off the debt.
- Liabilities continue to increase, particularly the overdraft.
- Core debt starts to appear in the overdraft.
- Equity is either eroding or holding constant.

Phil also outlined the key performance indicators for the herd. The most important of these is the operating margin which is the price received per kilogram minus the cost of production per kilogram. For example, if the price received was $1.90/kg and it cost $1.20/kg to produce, the operating margin would be $0.70/kg. Other factors to consider include kilograms of beef produced per breeder and labour efficiency.

A good way to determine how well your business is performing is to use benchmarks. A recent benchmarking pilot activity in the Pilbara saw three businesses establish herd performance

benchmarks which allowed them to compare their businesses. They were also able to compare their performance with other businesses participating in similar benchmarking activities across northern Australia. This helped identify areas where each business was under-performing and highlighted strategies they could use to improve business efficiency. The producers involved in this pilot found the experience to be very beneficial and are now looking to expand the Pilbara group to 8–10 businesses.

The Department of Agriculture and Food, in conjunction with MLA, is establishing a similar Beef Production Group in the Kimberley. This will allow the pastoralists involved to highlight areas of concern in their beef businesses and identify areas where they can make significant economic gains.

If you would like any more information on business management courses or benchmarking in general, please contact:

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PARTING THOUGHTS FROM AN OLD-TIMER

I have recently left the Department of Agriculture and Food after a relatively long innings as a Research Officer within the rangelands group, based in Kununurra. I would like to thank the many pastoralists, community members and colleagues who have encouraged and assisted me during my time in the Kimberley. My work has been both varied and challenging, encompassing a mixture of regulatory, monitoring and research activities. In each case, the underlying aim has been to provide soundly-based advice and information to the Pastoral Lands Board and lessees that will help them to maintain or, where necessary, improve the condition of the vegetation and soil resources they are responsible for. Most would agree that keeping these resources in good order is essential to ensure the long-term viability of grazing and other enterprises that they support, and to protect the many other community values associated with the magnificent landscapes of this region.

Bringing fire regimes under better control is obviously a continuing and daunting challenge to land managers across much of northern Australia, given the potential human, economic, and environmental costs of not doing so. In my opinion, the Ecofire project in the Kimberley has shown that the coordinated efforts of landholders, communities and government departments, when supported with sufficient resources, can lead to promising results on the ground. The essential next step is to find ways to fund this type of work on a continuing basis; beyond that we should consider the benefits of developing similar initiatives for parts of the Kimberley not yet included.

As readers may be aware from previous Memo articles, DAFWA has been studying the effects of fire in different pasture types, at sites on a number of properties in different parts of the Kimberley. Most of these sites were established in areas affected by recent fires known to station managers; changes in vegetation were then tracked over a number of years and through subsequent fires. More work is needed to interpret, write up and communicate the results of this work, and in due course I hope to be able to contribute to that task. For now though, I will say goodbye to all and return to my packing!

Andrew Craig

HAYLEY EASTER – 2010 WA TRAINEE OF THE YEAR

Spring Creek stockwoman Hayley Easter has won the 2010 WA Trainee of the Year award for her excellent leadership skills and general all-round ability when it comes to working on a cattle station.

Hayley Easter, 2010 WA Trainee of the Year.

The WA Training Awards were held in Perth in late August at a gala presentation. After months of interviews and short-listing, Hayley and three other finalists found themselves on the stage waiting for the winner to be announced. Hayley was thrilled to be named the WA Trainee of the Year and proudly accepted the award, thanking family, friends and colleagues for their support and encouragement throughout the selection process. Hayley particularly thanked Mike Shaw for the time and effort he has put into her professional development over the past three years.

Working as a stockwoman on Spring Creek Station in the East Kimberley for the past three years, Hayley has been able to combine her passion of horses and the outdoors to successfully complete a Certificate IV in Agriculture. Completing the certificate will formally recognise Hayley's skills, open up other employment opportunities and provide a stepping stone into further studies such as a diploma or degree.

As part of the award Hayley was presented with a $7000 study grant from the Government Employees Superannuation Board (GESB) which will be used to further Hayley's interest and skills in horse riding coaching and maybe start up a business.

Where to from here? Hayley will now represent Western Australia at the Australian Training Awards in Sydney. We wish Hayley the best of luck at the national awards.

KEEP AN EYE ON YOUR BLACK SOIL PASTURES!

Andrew Craig and Matthew Bullard

During the 1994 dry season a fungus growing mainly on Mitchell grasses (*Astrebla* spp.) was found to be responsible for cattle deaths on two stations in the southern East Kimberley and two in the Victoria River District. In all, more than 500 deaths were suspected to have resulted from the intake of infected forage, and thousands of animals were affected to some degree. All classes of cattle were involved, with the exception of 'suckling calves'.

As part of its life cycle the fungus produces white, dry, coral-like galls on the grass stems, loosely termed 'corals' (see Photo 1). Similar infections were found elsewhere in the Kimberley on curly blue grass (*Dichanthium fecundum*) and Flinders grass (*Iseilema* sp.), although the prevalence of corals was low. The main symptoms observed in the cattle that died were the onset of blindness, and rapid death thereafter—hence the term 'black soil blindness'. It was found that the toxin(s) produced by the corals caused damage mainly to the kidneys, liver and fore-stomach.

Photo 1.

Coral fungus was next reported in 1997, this time from a property in the Kununurra area—Mitchell grass and curly blue grass were again affected. Nothing more was heard of the organism until August 2006 when DAFWA staff noticed corals on some bull Mitchell (Photo 2) and barley Mitchell tussocks on one of the originally affected properties. This followed a wet season with well above average total rainfall. Fortunately there were no reports of unusual stock losses in either 1997 or 2006.

It is possible that the unseasonal rainfall during this year's dry season, and the resulting extension to the growing season, could be favourable to the formation of corals. At Halls Creek monthly rainfalls in both May and July (70.6 and 64.0 mm) would be classified within the top 10% of historical records. Rainfall in the Fitzroy Crossing area was well above average in May, July and August, with totals of 42.8, 67.8 and 15.6 mm recorded at the airport. Pastoralists should be on the lookout for anything unusual, particularly on black soil country. Should paddocks be found to be carrying significant numbers of corals, it would be prudent to move stock.

If you would like further information or come across any unexpected stock deaths, please contact the District Veterinary Officer, Matthew Bullard, on (08) 9194 1420.

Further reading

Jubb, TF et al. 1996, 'Black soil blindness: a new mycotoxicosis of cattle grazing Corallocytostroma-infected Mitchell grass (*Astrebla* spp.)', *Australian Veterinary Journal*, 73 (2), 49–51.

Photo 2.

BLACK SPEAR GRASS IN THE KIMBERLEY

Matthew Fletcher, Kununurra

Black spear grass (*Heteropogon contortus*) is a native perennial grass present across northern Australia. In the Kimberley it is commonly found on red sand and loam soils in open eucalypt woodland, and is rarely found growing on cracking clay soils or in spinifex dominated pastures.

Plants grow to 1 metre tall, and are green to blue-green when actively growing and display a unique reddish tinge when mature. Seeds are dark brown and have an awn (or 'spear') up to 10 cm long that is hygroscopic, meaning it can absorb moisture (rainfall or dew). Moistening the awn rotates the seed and augers it into the soil. Black spear grass seeds appear tangled and matted in clumps, suspended in grass-tops early in the dry season.

Frequency of black spear grass across the Kimberley

The Western Australian Rangeland Monitoring System (WARMS) monitors 378 grassland sites in the Kimberley and 205 in the Pilbara. Monitoring began in 1994 and each site is visited on a three-year cycle. Sixty-two sites in the Kimberley recorded black spear grass in the last cycle between 2006 and 2008. The graph below displays the average frequency of black spear grass recorded between 1994 and 2009. The current three-year cycle, which started in 2009, is not yet complete and only considers data recorded in 2009.

Based on data collected from WARMS sites, average frequency has generally increased since 1994 across all sites, although a decline was recorded in 2006. It is unknown what has caused this general increase in average frequency; however it could be due to a number of factors including altered fire regime, grazing pressure or seasonal conditions.

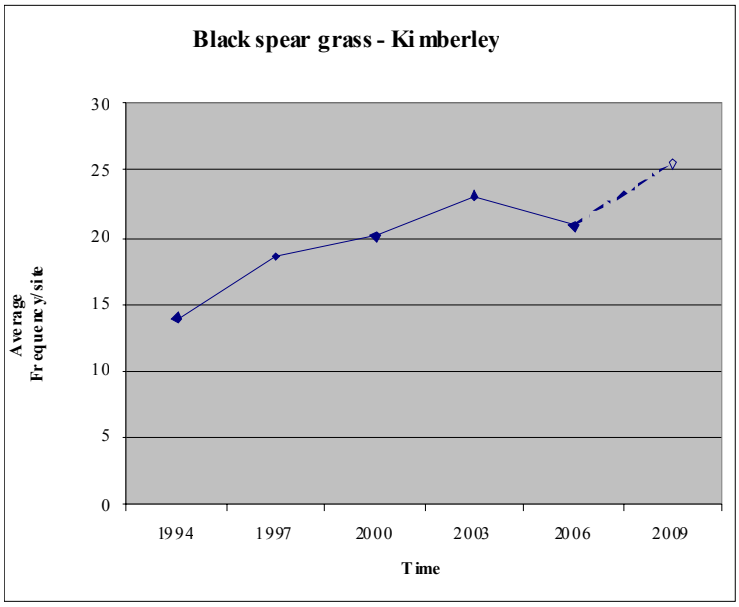
Grazing and fire

A black spear grass pasture community in good condition generally has few other species present and there is rarely evidence of grazing in a mature stand. In a restricted management area, stock will preferentially graze other more palatable pastures if available, such as black soil plains, ribbon grass or frontage pasture. In paddocks dominated by black spear grass, stock tend to utilise the resource by patch grazing; keeping areas well grazed down and returning periodically to graze any re-growth.

Tiller growth of black spear grass is staggered, so reducing its exposure to grazing. Also, some tillers are relatively prostrate (close to the ground), limiting stock access. This is more common in heavily grazed patches. In contrast, tiller development in kangaroo grass (*Themeda triandra*) and plume sorghum (*Sorghum plumosum*) is in sync, with a generally upright growth habit, reducing tolerance to grazing when compared to black spear grass.

Observations indicate black spear grass is resistant to fire as it is common to see coarse burnt stems remain after a fire event (depending on fire intensity and plant greenness). In ribbon (*Chrysopogon fallax*) and bundle bundle (*Dichanthium fecundum*) grasses, all the above ground biomass is generally burnt to the ground. The remaining unpalatable stems in black spear grass obstruct stock access to growing leaf, driving them onto other plants with fewer obstructions. Grasses are particularly sensitive to grazing in their early growth phase (0–20 cm) when transferring stored nutrients from roots to leaves. Any habit that minimises nutrient loss through loss of leaf during this critical period greatly improves the plant's chances of survival and ability to reproduce.

Black spear grass seeds tolerate fire through their capacity to auger into the soil and avoid the heat of a fire, rather than remaining in the litter (and being damaged by fire) as occurs with many other grasses. Augering into the top soil also improves seed/soil contact, providing better access to soil moisture.



Forage value

Black spear grass is very palatable when young and green. However, it is generally unpalatable in its mature state and stock need to rely on other grasses to meet their nutritional requirements. The table below lists crude protein levels in wet and dry seasons for other grasses commonly found growing with black spear grass.

Species	Crude protein (green) %	Crude protein (dry) %
Buffel grass (*Cenchrus ciliaris*)	8	2–4
Ribbon grass (*Chrysopogon fallax*)	9	3
Bundle bundle (*Dichanthium fecundum*)	10	3.7
Black spear (*Heteropogon contortus*)	4.5	2
White grass (*Sehima nervosum*)	4	na
Plume sorghum (*Sorghum plumosum*)	7	2
Kangaroo grass (*Themeda triandra*)	5.8	1.2
Curly spinifex (*Triodia bitextura*)	6	2

Source: Petheram and Kok (2003).

Comparing plant crude protein percentage is a starting point when identifying the most palatable species in a paddock. However, this also needs to be considered in light of other important factors such as, but not limited to, the stem/leaf ratio, leaf tensile strength and plant digestibility.

References

Petheram, RJ & Kok, B 2003, *Plants of the Kimberley Region of Western Australia*, revised edition, University of Western Australia Press, Perth.

Further reading

Grice, AC & McIntyre, S 1995, 'Speargrass (*Heteropogon contortus*) in Australia: dynamics of species and community', *Rangeland Journal*, 17:3–25.

Ryan, K, Tierney, E & Novelly, P 2009, *Pasture condition guide for the Ord River Catchment*, Department of Agriculture and Food WA.

Tothill, JC 1969, 'Soil temperatures and seed burial in relation to the performance of *Heteropogon contortus* and *Themeda triandra* in burnt native woodland pastures in Eastern Queensland', *Australian Journal of Botany*, 17:269–275.

GOOD RAINFALL OR NOT, IT DOESN'T PAY TO OVERSTOCK

Peter O'Reagain & John Bushell, DEEDI, Charters Towers, QLD

In December 1997 we started a long-term grazing trial on the Lyons' family property 'Wambiana' near Charters Towers, comparing the profitability and sustainability of different stocking strategies. The trial is stocked with Brahman X steers supplemented with dry season urea and wet season phosphorus. Molasses and urea are provided in extreme drought situations.

Here we present some results from the moderate stocking rate (MSR) treatment (8 ha/animal equivalent (AE)) and the heavy stocking rate (HSR: 4 ha/AE)—equivalent to stocking at long-term carrying capacity (LTCC) and twice the LTCC respectively. Results from the rotational wet season spell and the two variable stocking strategies will be presented in a later article.

The first 10 years of trial results showed that heavy stocking led to pasture degradation and was unprofitable in the longer term. This occurred due to high costs resulting from drought feeding, interest costs on livestock capital and reduced meatworks prices for poorer condition stock in bad years. The stocking rate in the HSR also had to be reduced by about 30% in 2005 due to reduced carrying capacity. Moderate stocking at LTCC in contrast, was sustainable, maintained pasture condition and ensured long-term profitability due to lower costs and meatworks premiums in most years for better condition cattle.

These results were, however, from 1998 to 2007, which included six consecutive below-average rainfall years (Figure 1). With the good rainfall over the last 3 years are these conclusions still valid?

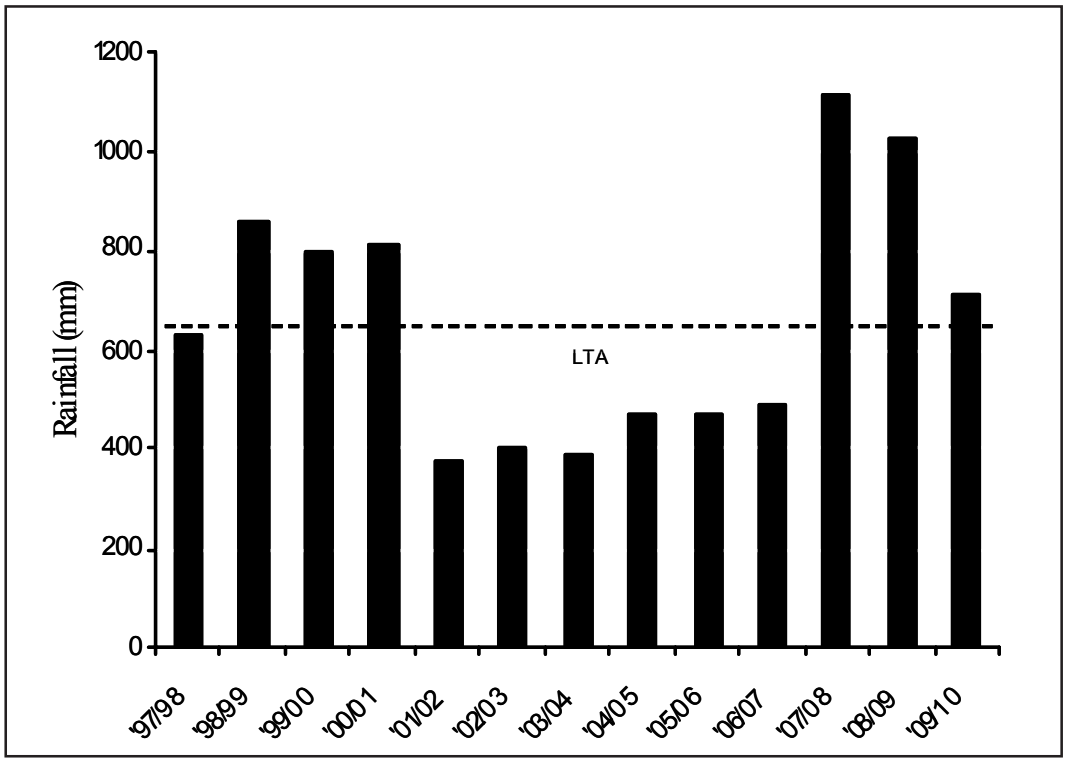


Figure 1 **Annual rainfall between 1997/98 and 2009/10 at the Wambiana grazing trial and long-term average rainfall (LTA)**

The very good rains in 2007/08 and 2008/09 followed by the above average rainfall in 2009/10 allowed pasture cover and productivity to rebound significantly in the HSR. Stocking rates in 2009/10 in the HSR were also increased back to their original levels. Animal performance in these wetter years was very good and individual animal production in the HSR in 2007/08 was higher than the MSR for the first time in 12 years. This occurred because of the extended wet seasons and shorter, higher quality pasture in the HSR. Annual gross margins also recovered strongly in these wet years and in 2007/08, the gross margin in the HSR was the highest of all treatments. This is a dramatic change given that the HSR had run at a net loss for the previous six years (Figure 2).

This recovery is impressive, but does not alter the conclusions reached in 2007 before the better seasons started. First, after 13 years the HSR is still $9500 to $10 000 per 100 ha in accumulated gross margin behind the MSR. Assuming a property size of 20 000 ha, over 13 years this equates to an advantage of more than $2 million in favour of the MSR, relative to heavy stocking.

Second, the density of 3-P (palatable, perennial and productive) grasses in the MSR is still three to four times greater than in the HSR. This suggests that the increased production and profitability in the HSR reflects the recent good seasons and the flush of short annuals and weaker perennials, and will not continue in the longer term when the inevitable drier years return.

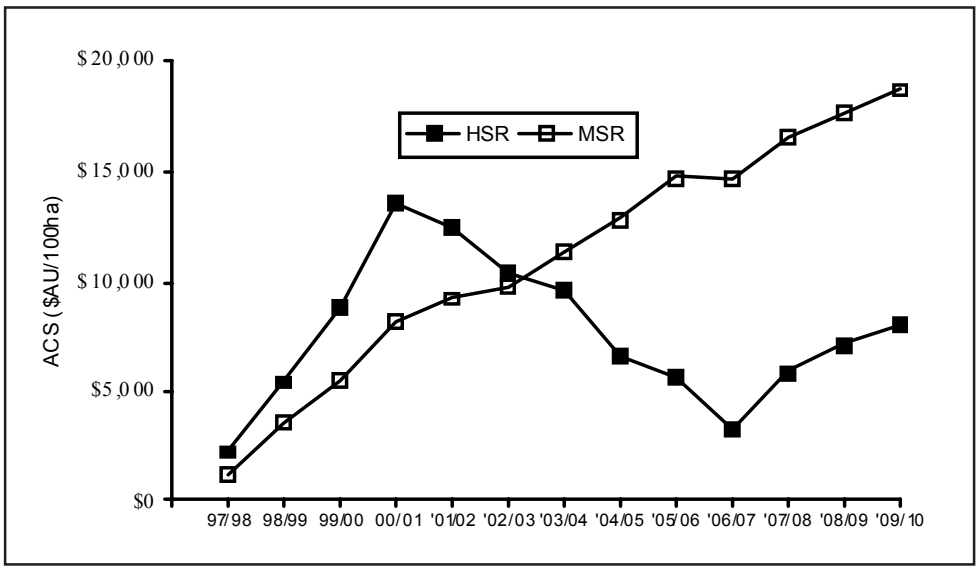


Figure 2 **Accumulated gross margin (AGM) at the Wambiana trial from 1997/98 to 2009/10. HSR = heavy stocking rate, MSR = moderate stocking rate, interest at 7.5%**

Despite these recent good seasons, after 13 years it can still be concluded that:

(1) moderate stocking at LTCC is sustainable, profitable and maintains pasture condition

(2) heavy stocking at twice LTCC is generally not profitable, is unsustainable and leads to pasture degradation.

Results from the other treatments at the trial will be presented in more detail at a later date, but briefly, both the variable and rotational spell strategies performed substantially better than the HSR.

The Wambiana trial will be continued with ongoing MLA funding. In this new phase, the heavy and moderate stocking treatments will remain unchanged but some modification to the variable stocking and spelling treatments will occur. We look forward to sharing these results with the grazing industry both in future editions and in field days at the site.

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DON'T RELY ON A GOOD WET TO GET YOU OUT OF TROUBLE

Peter O'Reagain & John Bushell, DEEDI, Charters Towers, QLD

It is amazing what rain can do to country after a run of dry years. And it is easy to think that given a good season, even the most overgrazed country will recover. But long-term research at the Meat & Livestock Australia-funded Wambiana trial near Charters Towers shows that this is not necessarily the case and that the path to recovery can be slow and painful.

The trial started in 1998 and is comparing the effects of different grazing strategies on a range of factors, including animal production and land condition. Strategies being tested are moderate stocking (MSR), heavy stocking (HSR), variable stocking (VAR) with cattle numbers adjusted with available pasture, and rotational wet season spelling (R/Spell).

As is common in north Queensland, rainfall over the last 11 years was extremely variable: while the early years were wet, the period from 2001 to 2005 was very dry. Since then, rainfall has improved, with the 2007/08 season being particularly good and receiving 1028 mm of relatively well distributed rainfall.

One key pasture variable measured is the density of 3-P grasses, which gives a simple but reliable indicator of both land health and productivity. 3-P species are the palatable, productive, perennial grasses and include desert bluegrass, Queensland bluegrass, Mitchell grass and black spear grass.

After a run of dry years, measurements taken in 2006 (Figure 1) showed that there were big differences in 3-P density between strategies: overall, the density of 3-P grasses was far greater in the MSR, VAR and R/Spell strategies than in the HSR. In particular, 3-P density in the MSR was four to five times that in the HSR.

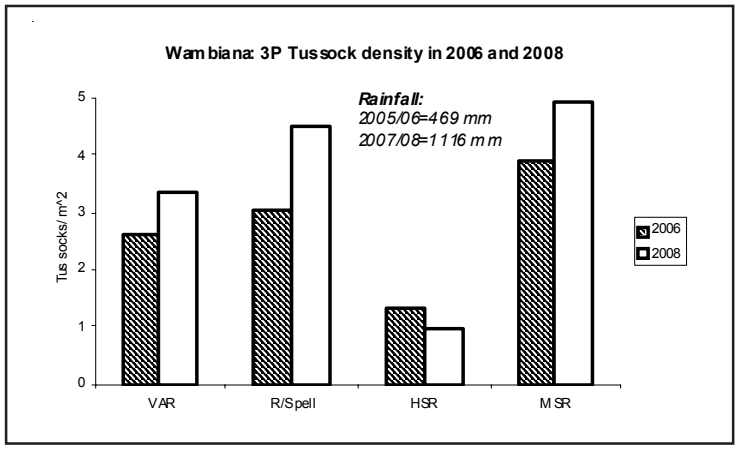

Figure 1 **The density of 3-P tussocks in four different grazing strategies in 2006 and 2008**

This is because heavy grazing prior to and during drought led to the death of many 3-P tussocks, reducing their density in the HSR. In contrast, the lighter grazing pressure in the other treatments, particularly in the dry years (as well as the wet season spelling in the R/Spell), allowed a large proportion of 3-P tussocks to survive, even under very low rainfall.

In some ways, this was all to be expected. However, the real story has been the change in tussock density with the better seasons from 2006 to 2008. Overall, 3-P density increased in the MSR, VAR and R/Spell over the last two years. In complete contrast, no recovery has occurred in the HSR, with tussock densities actually declining since 2006. This is despite the better seasons and the fact that stocking rates were reduced in the HSR by about one-third in May 2005 due to a drop in carrying capacity.

From a production point of view, these observations show that the ability to grow forage in the MSR, VAR and R/Spell is many times greater than in the HSR. This is graphically illustrated by the paddock yields and pasture composition recorded at the end of the wet in May 2008—not only is total yield far lower in the HSR, but the proportion of yield made up by 3-P grasses is far smaller than in the other strategies.

So the bottom line is, if you want to grow lots of feed for your stock, look after your better grasses by lighter stocking, adjusting stock numbers with the seasons and some form of wet season spelling.

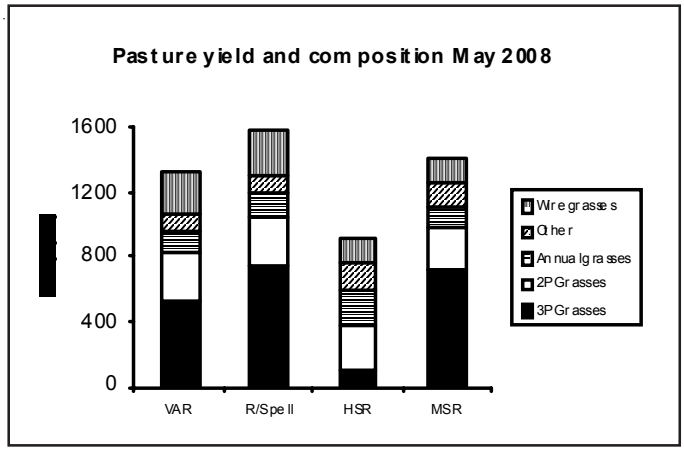

Figure 2 **Pasture yield and composition in four different grazing strategies at the Wambiana trail after 11 years**

If you get it seriously wrong, things will not recover overnight simply because of a few good seasons or even reduced stocking rates—when that happens both your land and bank account could be in trouble.

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UNDERSTANDING DECLARED PLANT CLASSIFICATIONS

Jessica Paterson, Kununurra

Understanding declared plant classifications can often be difficult. The purpose of this article is to outline the five different declared plant categories and provide current examples of declared plants commonly found across the Northern Rangelands.

The following summarises the declaration categories for plants under the 'Agriculture and Related Resources Protection Act 1976'.

P1 – Introduction of the plant into, or movement of the plant within, an area is prohibited. This prohibits the movement of contaminated machinery and produce including livestock and fodder.

P2 – Plant to be eradicated in the area. Treat all plants to destroy and prevent propagation each year until no plants remain. The infested area must be managed in such a way that prevents the spread of seed or plant parts on or in livestock, fodder, grain, vehicles and/or machinery.

P3 – Plant to be controlled by reduction in number or distribution of the plant or both.

P4 – Spread of plant beyond where it currently occurs to be prevented.

P5 – Particular action to be taken on public land or land under the control of a local government.

Information about requirements relating to the introduction, movement, eradication and control of declared plants is available from the Department of Agriculture and Food.

Bellyache bush (*Jatropha gossypifolia*)

P1 – for the whole of the state.

P2 – for all the municipal districts in that portion of the state south of the 26th parallel.

P4 – for all the municipal districts in that portion of the state north of the 26th parallel.

Calotropis (*Calotropis procera*)

P3 – for the municipal districts of Ashburton, East Pilbara, Port Hedland and Roebourne.

P1 – for the rest of the state north of the 26th parallel of latitude, except the municipal districts of Ashburton, Broome, Halls Creek, Derby–West Kimberley and Wyndham–East Kimberley.

Candle bush (*Senna alata*)

P1 & P3 – for the whole of the state.

Candle bush, leaves divided with 8–11 pairs of large and oblong leaflets.

Chinee apple (*Ziziphus mauritiana*)

P1 & P5 – for the municipal districts of Broome, Derby–West Kimberley, Halls Creek and Wyndham–East Kimberley.

P1 – for the remainder of the state.

Gamba grass (*Andropogon gayanus*)

P1 & P2 – for the whole of the state.

Lantana (*Lantana camara*)

P1 – for the whole of the state.

Chinee apple leaf and fruit.

Mesquite (*Prosopis glandulosa* x *velutina*)

P1 – for the whole of the state.

P2 – for the whole of the state, except for the area on Mardie Station bordered by the coast, the boundary between Mardie and Karratha stations, the North West Coastal Highway, Peter's Creek and the boundary between Yarraloola and Mardie stations.

P4 – for the area on Mardie Station bordered by the coast, the boundary between Mardie and Karratha stations, the North West Coastal Highway, Peter's Creek and the boundary between Yarraloola and Mardie stations.

Mesquite (*Prosopis* – all other species and hybrids)

P1 – for the whole of the state.

P2 – for the whole of the state, except for the area on Mardie Station bordered by the coast, the boundary between Mardie and Karratha stations, the North West Coastal Highway, Peter's Creek and the boundary between Yarraloola and Mardie stations.

P4 – for the area on Mardie Station bordered by the coast, the boundary between Mardie and Karratha stations, the North West Coastal Highway, Peter's Creek and the boundary between Yarraloola and Mardie stations.

Hybrid mesquite flowers.

Mimosa (*Mimosa pigra*)

P1 & P2 – for the whole of the state.

Noogoora burr (*Xanthium strumarium*)

P1 – for the whole of the state.

P2 – for the whole of the state, except for the municipal districts of Broome, Derby–West Kimberley, Halls Creek and Wyndham–East Kimberley.

P4 – for the municipal districts of Broome, Derby–West Kimberley, Halls Creek and Wyndham–East Kimberley.

Parkinsonia (*Parkinsonia aculeata*)

P1 – for the whole of the state.

P2 – for the municipal districts of Ashburton, Carnarvon, Coolgardie, Cue, Dundas, East Pilbara, Exmouth, City of Kalgoorlie–Boulder, Laverton, Leonora, Meekatharra, Menzies, Mt Magnet, Murchison, Ngaanyatjarraku, Port Hedland, Roebourne, Sandstone, Shark Bay, Upper Gascoyne, Wiluna, Yalgoo.

P4 – for the municipal districts of Broome, Derby–West Kimberley, Halls Creek and Wyndham–East Kimberley.

Parthenium flowers are small, creamy white and hold 4–5 black seeds.

Parthenium weed (*Parthenium hysterophorus*)

P1 & P2 – for the whole of the state.

Rubber vine (*Cryptostegia grandiflora*)

P1 & P2 – for the whole of the state.

Rubber vine (*Cryptostegia madagascariensis*)

P1 & P3 – for the whole of the state.

Rubber vine seed case.

KRISTIE PARKER – WOOLWORTHS 2010 AGRICULTURAL BUSINESS SCHOLARSHIP WINNER

The 2010 Woolworths Agricultural Business Scholarship Program is run in partnership with the Royal Agricultural Society of NSW and the University of Western Sydney. The 12-day course, which gives students a broad perspective of the fresh food retail supply chain, is offered to 30 young agricultural and horticultural enthusiasts across Australia each year. With over 300 applications received, the program's applicants were short-listed and a diverse group were selected. Kristie Parker was one of the 30 applicants to be given the opportunity to attend and represent the Department of Agriculture and Food (DAFWA).

Kristie Parker shares her experience…

'The course, based out of Sydney, included a combination of field trips, lectures and workshops with Woolworths' business leaders, industry experts and academics. The course program provided participants with a chance to meet and work with like-minded people and experts from all over Australia and New Zealand. During the course participants gained valuable insights into: business strategy and planning; agricultural value chain; successful business leadership; business finance, logistics and supply chain management; the role of government; doing business with retailers; and sustainability and environmental issues.

'The program highlighted to me, the value of developing good relationships throughout the supply chain as well as gaining a better understanding of market access, opportunity and the importance of understanding your consumer.

'Participants represented a wide range of agricultural backgrounds. I found it extremely valuable being part of this diverse group, which included a field marketing agronomist from NSW, a rural Queensland organic farmer and others involved in all aspects of production and marketing. This diversity meant that all discussions included different views and helped to keep our opinions open to inspiration and thinking outside one environment and industry. I gained a better understanding of the bigger picture of agriculture, its markets and supply chains, and the importance of networking across different sectors. I now look at the industry in a broader context and feel I can better connect with the people I work with in the industry.

'The Woolworths Agricultural Scholarships are one part of Woolworths' commitment to regional and rural Australia which will see them invest $3.25 million this year on farming programs with two core areas of focus—to advance agricultural sustainability and help build leadership capacity in the sector.

'The course content was very relevant to the challenges facing the industry and it has motivated me to learn more about current issues facing the agricultural industry and undertake further tertiary study with a focus on agribusiness.

'I am very grateful for the opportunity to have met such a diverse group of people. The experiences shared and knowledge gained has been invaluable and I thank DAFWA for the support to attend and Woolworths for the experience of a lifetime.'

From Broome to the top of the Sydney Harbour Bridge—Kristie Parker

If you are interested in applying or would like more information on the scholarship please give Kristie a call on 9194 1426.

POST-MORTEM DEMONSTRATION AT BIDGEMIA STATION

Kath Ryan, Carnarvon

Livestock veterinarian Dr Paul Wynne-Houchin came to Bidgemia Station in July at the request of lessee Lachlan McTaggart and demonstrated post-mortem procedures on two cows and one calf for those present. The cattle had been on feed (hay and export nuts) for some time in response to the prevailing dry conditions in the Gascoyne. The cows euthanased for post-mortem demonstration were 'poor do-ers' (i.e. had not improved in condition with the feed provided); and the calf had expired for unknown reasons. Each animal examined was diagnosed to have had an unrelated problem to the others examined on the day as the probable cause of poor health or poor response to feed. Dr Wynne-Houchin gave practical advice during the demonstration on cattle feeding and suggestions for improving effectiveness when feeding and shifting cattle.

Key points on cattle feeding and suggestions for improving effectiveness are summarised below:

- If there is no other option and calves must be weaned early, this can be addressed at six to eight weeks of age.
- When starting calves off green tucker onto nuts, give hay first and introduce nuts on about the third day.
- Urea licks/supplements are not effective for improving condition unless cattle are getting roughage as well.
- The general rule-of-thumb is a minimum of five days for the rumen bugs to adapt to each new feed introduced, but dissimilarity between feed types can cause this process to take longer or break down altogether.

Livestock veterinarian Dr Paul Wynne-Houchin commented that the feed mix and particle size observed in the rumen was about as good as it gets.

- Introduce cattle to export nuts gradually over a 7–10 day period, increasing from 10% to 50–60% of the total ration during that time.
- When trucking/moving cattle, remember that:
  - four hours off food can start a shut-down process in the rumen; and
  - after 12 hours there is a 70% reduction in the rumen bug population
  - the suggested procedure for when cattle are off-loaded to pasture after trucking varies with each individual case
  - seek professional advice on the recommended order of introduction to feed and water to minimise losses and get the rumen back to operational levels.
- 'Matchstick' is the magic minimum length for roughage to provide the necessary 'tickle-factor' to keep the rumen operating when feeding cattle in yards or feedlots.

There are many ways of performing a post-mortem, depending on what information you want to get out of it. The ability to collect samples for analysis can significantly reduce the time it takes for a vet to diagnose serious issues. Diagnosis requires professional help from a qualified veterinarian;

however, correctly followed post-mortem procedures carried out by a confident person who has been shown the techniques can help to overcome some of the challenges of distance. A clear description of the observations can help a vet formulate an initial list of possible diagnoses and a potential course of action. A camera (and someone to operate it) can be worth its weight in gold.

Onlookers at the Bidgemia post-mortem demonstration.

If you have a group of pastoral land managers interested in learning how to perform post-mortem procedures on cattle or other livestock, contact the Department of Agriculture and Food or a reputable vet in your area.

LOW HEIFER FERTILITY

Matthew Bullard, Veterinary Officer, Broome

Low heifer fertility in northern herds can be the result of an infectious disease. Vibriosis, Trichomoniasis and Pesti are among the most common to be found in the Northern Rangelands of WA. All are characterised by causing low fertility in heifers.

Vibriosis and Trichomoniasis are bacterial diseases where infection is by venereal transmission, i.e. by sexual contact, usually by infected bulls which can carry these organisms in their prepuce. Where these infections are endemic, i.e. is found to be chronically embedded within the herd, overall female fertility may be only slightly depressed below normal, but have the greatest effect in heifers.

Pesti is a widespread viral disease and is considered to be of increasing significance in the Northern cattle areas. Transmission is by direct and close contact, spread via body fluids and expired air, especially at times of close contact and stress, e.g. mustering and yarding.

Other infectious causes of infertility in females include other bacterial causes such as Brucellosis, Leptospirosis and *Neosporum caninum* but are no longer nor thought to be significant and will not be discussed further in this article.

Vibriosis

Caused by *Campylobacteriosis fetus type 1* and *subtype 1,* commonly referred to as ‘Vibrio’. Where infection occurs, there are few outward clinical signs or symptoms. There may be increased vaginal mucus, sometimes cloudy in colour for a short time. What is commonly noticed is repeated return

to service, i.e. continued bulling as the animal fails to conceive successfully. This becomes evident as an overall lower level of conception with a lengthened spread of pregnancies in those that do fall pregnant. This is especially noticeable at pregnancy testing and later with a prolonged calving period. Even in the event of a successful conception, up to 10% of females can abort, most commonly between 5 to 7 months of gestation.

In summary, the overall effects of infection include:

- permanent changes in the oviducts in some cows leading to permanent infertility
- females when infected can develop a resistance to the disease over time, so that where the condition is endemic, the overall disease rate drops but reinfection can occur. Heifers exposed to infected bulls will show the highest rate of infertility
- a high proportion of heifers return to service for 3 to 5 months and may eventually become pregnant
- a variable number do not become pregnant. Pregnancy diagnosis should be used to eliminate these animals, as they can be considered reservoirs of the infection
- bulls can be chronically infected. There appears to be no natural immune response in the bull. Mickie bulls should be especially noted as potential carriers and spreaders
- bull vaccination involving two doses 4 to 6 weeks apart with annual revaccination has been shown to clear infection and greatly reduce their susceptibility to reinfection.

Recommended control measures

- Vaccinate maiden bulls twice, 4 to 6 weeks apart with the second dose being given 6 weeks before joining.
- Vaccinate all herd bulls annually.
- Heifer vaccination can lead to significant improvements in fertility in infected herds. However, there are often practical difficulties in following the two vaccination recommendation at 6 weeks apart with the second being given about 6 weeks before mating. An alternative program in heifers that are sexually mature is to give a single 5 mL dose, (as opposed to 2 x 2 mL doses) of Vibriovax (CSL), 4 to 6 weeks before the commencement of mating.
- Maiden heifers should only be joined to maiden bulls.
- Where possible bulls should be culled at 6 to 7 years of age.
- Pregnancy diagnosis should be carried out following the joining of maiden heifers to eliminate the non-pregnant, which are likely to be reservoirs of infection. This pregnancy test is also used to identify less fertile animals that conceived late. These heifers will not wean a calf on the first round in the following year and will have little or no chance of becoming pregnant during the wet season.

Trichomoniasis

Trichomoniasis is caused by *Trichomonas fetus.*

- It is also prevalent on extensive properties in the Rangelands with an unknown, but thought to be significant, level of lost pregnancies.
- Infections do not normally persist for more than a few months in non-pregnant females.
- Abortions occur in the first five months of gestation and have the effect of lengthening calving patterns.
- Sometimes an odourless discharge with particles of mucus/pus is seen.

- Chronic uterine infectious and mummified foetuses are seen in herds with trichomoniasis.
- In bulls the organism lives in secretions around the penis and prepuce.
- Older bulls do not readily eliminate infection and are therefore more significant in perpetuating the disease.

Recommended control measures

- Maiden heifers should only be joined to maiden bulls or at least bulls less than 4 years.
- Elimination of non pregnant heifers using post joining pregnancy diagnosis.

Pesti

'Pesti' is the common name given to a group of Pesti viruses within the Bovine Pestivirus Disease Complex group.

- The Pesti virus is responsible for a variety of production diseases including early embryonic loss, abortion, ill-thrifty calves and infertility.
- Transmission occurs often by the aerosol route during close contact between individuals, usually where one is chronically infected. (This animal is commonly known as a PI or Persistent Infection. This is where the infection is contracted in utero during early pregnancy before the animal has become immunologically competent in recognising the virus as a foreign agent.) PIs can survive for up to 10 years of age though most will succumb well before this.
- Pesti virus has long been recognised as endemic in the cattle herd, i.e. continually present with, what some say, a 7-year cycle for more severe outbreaks. In those herds that are more closely controlled, i.e. have better infrastructure and more intensive cattle management systems, the potential for natural exposure is more limited and these cattle may be considered naive and at greater risk to the virus in the event of infection being introduced across a fence or the unwitting importation of a PI.
- During infection, the animal again may exhibit mild symptoms of being 'unwell' with a slight fever. Effects of a Pesti infection though can be devastating as transmission is rapid and can affect the whole mob, especially when held together in close proximity to each other. Again, the consequence is often unnoticed until low pregnancy rates at pregnancy testing and/or low calving/weaning rates. In excess of 80% calf losses can be expected in a typical 'abortion storm', with many affected animals failing to reconceive.

Recommended control methods

- Vaccination of heifers, again preferably with two shots 4 to 6 weeks apart within 6 months of joining to protect heifers at their most vulnerable time, especially if no prior exposure. Administration of a single dose is thought to be adequate, though the two vaccination regime again gives better protection. May be administered at the same time as Vibrio vaccine.
- May rely on natural exposure for continued protection rather than annual revaccination.
- Use of clean bulls, PI tested negative especially if acquired from an external source.
- Identifying a PI once in a herd is difficult as it may be any animal, not just the bull.

GETTING SOME MUSCLE FOR YOUR BUCK: KEY PRINCIPLES WHEN DESIGNING HGP PROGRAMS

Trisha Cowley, Pastoral Production Officer, Pastoral Production

Hormone Growth Promotants (HGPs) are a cheap method of increasing liveweight gain if used correctly. In previous articles we have looked at the importance of matching the active ingredients (androgens and oestrogens) and delivery system (compressed pellets or silicon) with different management systems, and also correct implantation procedures. In this article we will look at some of the broader considerations when developing a HGP program.

Key principles of implant programs

There are several key principles underlying successful HGP strategies in northern Australia which are important to understand when designing your program.

1. Animals need to be growing

HGPs increase the growth rate of the animal. If the animal is only maintaining or losing weight, the HGP will not be effective—that is, it will not increase the animal's growth rate. Weaners will typically go through weight loss or maintenance (in the Katherine region) from weaning until the wet (see table below), so HGPs will not be effective until they start growing again. Research has found that while HGPs will not negatively impact on liveweight loss (i.e. increase weight loss), neither will they slow it.

Average daily gains (ADG) for round one weaner males at Kidman Springs

	2003	2004	2005	2006	2007	2008	Average for all years
Dry ADG (May to Sept.)	-0.02	-0.01	-0.07	-0.15	0.02	-0.05	-0.05
Wet ADG (Sept. to May)	0.50	0.60	0.64	0.40	0.56	0.43	0.52
Yearly ADG	0.30	0.34	0.37	0.22	0.36	0.25	0.31

2. The rate of hormone release declines over the life of the implant

HGPs typically release large amounts of hormone in the first days and weeks of implantation, with the rate of hormone release declining over the life of the implant. To get the most bang for your buck it is recommended, where possible, to try to time peak hormone release with peak growth rates.

3. Once you start, don't stop

Once a HGP program has been started on an animal, it should be maintained until slaughter to ensure that any liveweight gain advantages are not lost. Studies have found that the liveweight gain advantage of implanted cattle over non-implanted cattle dwindles once the implant's functional life is over.

Tough chewing

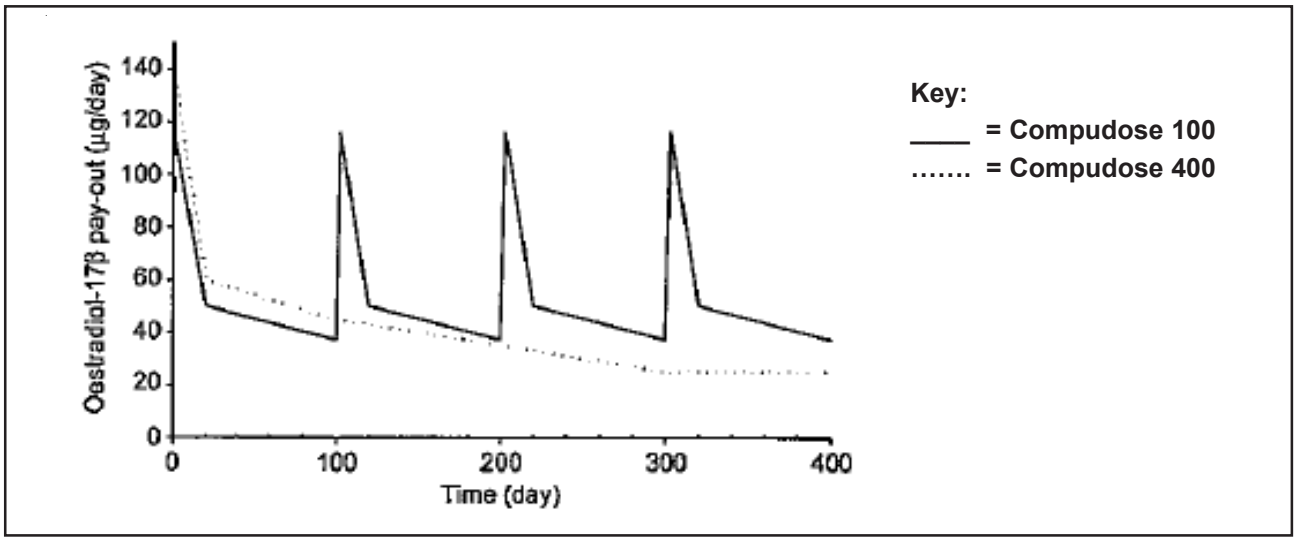
While HGPs are effective in increasing growth rates, they do have a negative impact on meat quality. Research has shown that the greater the cumulative dose of hormone, the larger negative impact on meat tenderness. This is particularly relevant for those supplying niche markets which highly value traits such as marbling.

For example, a study in Queensland compared animals implanted for the whole year versus those only implanted during the wet or not at all. While the group implanted for the wet season grew more rapidly during the wet, by the end of the dry their weight was similar to those that were not implanted at all and was significantly less than those implanted all year round. This suggests that one-off implants of animals will be a waste of time and money unless the animal is turned off shortly after the end of the implant's functional life, as any liveweight gain advantage will be lost.

The problem with lifetime strategies is hormone wastage during periods where the implant is functional but not impacting on growth due to poor nutritional conditions. If animals are going to be turned off after the wet, it may be best to implant them just prior to the wet. Obviously it won't always be possible to re-muster animals specifically for this purpose; hence the use of a long-acting HGP at handling will ensure that an active implant will take immediate advantage of any positive change in seasonal conditions.

4. Use more shorter-acting implants

Liveweight gain response to implantation is greater when implantation is more frequent, providing animals are under continual growth. Queensland research found that four Compudose 100 implants compared to one Compudose 400 led to a 19 kg weight gain advantage for the more frequent implant program. The graph below shows the hormone release from the two HGP strategies used in the Queensland trial. This trial clearly demonstrated that HGPs typically work by releasing large amounts of the hormone in the early stage of implantation, and then plateau. Using the shorter acting HGPs effectively increased the time period where larger amounts of hormone are being released. Obviously, the costs of extra musters and handling must be taken into account when determining if this is a more profitable strategy than using longer acting products.



Estimated daily output of oestradiol from implants over the experimental period
[Source: RA Hunter et al. 2000, 'Sustained growth promotion, carcass characteristics and meat quality of steers treated with oestradiol-17B', *Australian Journal of Agricultural Research*, 51, 133–138.]

What is the most profitable strategy?

The best way to determine what will be the most profitable program involves actually comparing the weight gains and costs of different HGP strategies. Obviously this involves some time and effort, but as the old saying goes—you can't manage what you don't measure. Little work has been done on HGPs in the NT, particularly comparing the cost effectiveness of different strategies. A producer demonstration site is commencing this year at Hayfield Station which will compare profitability of the following strategies:

- No HGP
- Compudose 400 implanted in round 1
- Compudose 200 implanted in rounds 1 and 2
- Compudose 200 implanted in round 2.

The project has been funded by Meat & Livestock Australia, Department of Resources and Elanco and will measure the weight gains of 440 steers over two years while also doing an economic analysis.

Some recommendations…

There is no 'one size fits all' HGP program, as current management, markets accessed, seasonal conditions and mustering costs will determine what best suits individual situations in a given year. However, some broad recommendations can guide decisions:

- Where weight gain is expected throughout the dry, then the use of a greater number of shorter acting implants will lead to superior weight gains compared to fewer longer-acting implants. NB: Costs of mustering and rehandling must be taken into account when determining if this is actually a more profitable strategy.
- Weaners will typically go through weight loss or maintenance (in the Katherine region) from weaning until the first rains, so HGPs will not be effective until the animals start growing again. Where re-mustering of animals before the wet is not feasible, the use of long-acting HGPs will still lead to improved weight gains.
- Don't let a significant time lapse occur between the end of an implant's active life and re-implantation or sale, otherwise the weight gain advantages will be lost.
- Where possible try to time peak hormone release with peak nutrition to get the highest weight gains from the HGP.
- Decisions whether to, what to and when to implant should be based on the animal's weight and the expected time until turnoff. For example, during round one cattle expected to be turned off that year could be given a shorter-acting implant, while those not expected to be turned off until the next year could be given a longer-acting implant.

For more information please contact:

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KEITH ANDERSON 2010 NABRC WINNER

Keith Anderson from Jubilee Downs Station via Fitzroy Crossing was awarded the North Australian Beef Research Council (NABRC) Producer of the Year Medal in early August. Nominated by Paul Novelly on behalf of the Department of Agriculture and Food, Western Australia, Keith easily fit the criteria to receive the award. Keith is a strong proponent of the industry's involvement in research and development and readily employs these outcomes on his properties, enhancing productivity while ensuring the sustainability of the land.

Keith and Karen Anderson run 12 000 Droughtmasters (including calves) across 222 000 hectares on two properties in the Fitzroy Valley of the Kimberley Region, WA.

Keith Anderson accepting his award from The Hon Tim Mulherin, MP Minister for Primary Industries, Fisheries and Rural and Regional Queensland and NABRC Medals selection panel Chair, John Stewart.

Keith has been involved in pastoral and beef R&D for many years. In the late 1980s, a producer demonstration site at Jubilee Downs Station was set up in conjunction with the then Meat Research Corporation and the WA Agriculture Department to show that the productivity gains claimed on the research station were just as possible on a commercial cattle station. Keith agreed to run part of the cattle herd according to recommendations from the Department of Agriculture. These included weaning the calves at 3–4 months old and putting the calves into a paddock of the best pasture, injection against Botulism, culling of cows that failed to produce a calf in two years, introduction of Brahman bulls (*Bos indicus*) to cross-breed with the Shorthorn cows (*Bos taurus*), and implementing Department of Agriculture recommended stocking rates according to land type and land condition. Cow pregnancy rates rose from a mean of 50% to 75% in the first year of the demonstration. By the early 1990s Keith was convinced that this package of management techniques could improve the productivity of his station. So, believing that the research results warranted implementation, he cut livestock numbers on Jubilee Downs Station from 17 000 to 11 000 head. Since then he has dramatically reduced numbers further, yet has continued to increase productivity.

Keith is a member of the Kimberley Beef Research Committee. Most recently, he formed part of the Steering Committee for the development of the Kimberley Grazing Land Management (GLM) package. Keith's involvement was very 'hands on', including travelling to Katherine in the NT to attend their GLM training package to get a sense of what the project was about, and then hosting, on Quanbun Downs Station, the initial presentation of the Kimberley GLM package. He has also been involved in the EcoFire project and Steering Committee of the Fitz Cam project, which is aimed at developing a framework and agreement on the management priorities for the Fitzroy River Catchment in the Kimberley.

Other medal winners

- **Robert Shepherd**, DEEDI, Charters Towers was awarded the Communicator/Extension Medal. Bob has been involved in the northern beef industry for 35 years. His contribution in promoting to producers a balance between business profitability and sustainable land management practices is exemplary. Throughout his career Bob has developed and delivered workshops,

conducted field days and authored many industry publications. He is highly regarded by producers who value his contribution to the industry.

- **Kieren McCosker**, DoR, Katherine was awarded the Young Achiever Medal. Kieren has already demonstrated a long-term commitment to the Northern Territory beef industry and shows no signs of slowing down. His scientific ability and practical skills have helped add to a growing reputation based on his understanding of cattle and his keenness to communicate with producers.
- **Dr Richard Holroyd**, DEEDI, Rockhampton was awarded the Scientist/Researcher Medal. Richard has dedicated his working life to the northern Australian beef industry. His career, spanning 40 years, has had a focus of improving the production and profitability of beef enterprises and has been crowded with examples of programs that have had an enormous positive impact on both the industry and its producers.

'Flung to Kingdom Come'

By Keith Anderson

The horses stood within the chutes,
The Chute Boss called each rider's name.
Syd's draw was just a pony
With wild eyes and weedy frame.

"This horse is far too small" said Syd,
"I need something big and stout".
The Chute Boss replied, "Get on him Lad,
You'll soon sort each other out".

The chute gate swung and out they come,
The pony airborne like a plane,
He bucked real wild and western
As he went ballistic in the brain.

Syd was flung to Kingdom Come
And landed like a brick,
All over in three seconds
By a weedy pony's flick.

He landed by the arena's rails,
Below the station's Governess.
He said "I landed there on purpose,
To peep up the Govie's dress".

Actual photo of the moment taken at the Fitzroy Crossing Rodeo.

AUSTRALIAN GOVERNMENT DEPARTMENT OF AGRICULTURE, FISHERIES AND FORESTRY

NATIONAL ADVICE, TRAINING AND ASSISTANCE PROGRAMS

FarmReady Reimbursement Grants

Up to $1500 each financial year for primary producers and Indigenous land managers to cover the cost of approved training activities that aim to improve the capacity to adapt to climate change and increase self-reliance and preparedness. Additional support is available for associated expenses such as excess travel, accommodation and child care. Information about the approved training courses in WA can be found at www.farmready.gov.au/ApprovedCourses/WACourses.html.

Criteria for eligibility

Primary producers, wild game harvesters and Indigenous land managers.

Support provided

Eligible individuals may receive up to $2000 per financial year consisting of:

- $1500 for participation in approved training courses
- $500 for associated reasonable costs (travel, accommodation, meals and child care).

Other information

To find out about course availability or apply for a FarmReady Reimbursement Grant, visit www.farmready.gov.au or call 1800 087 670.

FarmReady will cease on 30 June 2012 and all funded activities must be completed by 31 May 2012 to ensure that all grant payments can be made prior to the program end date.

Climate Change Adjustment Program (CCAP) – Advice and Training Grant

A grant of up to $5500 is available to eligible farmers to receive professional advice and training from recognised professional advisers and registered training organisations, TAFE and universities.

The grant may be used for financial assessment and planning, legal and personal advice, succession planning, etc. and advice and training activities that are directly or indirectly related to climate change impacts.

Criteria for eligibility

Available to farmers who have not received assistance from the Farm Help Advice and Training or Exceptional Circumstances Professional Advice and Planning Grant in the two years prior to lodging a CCAP claim. For a continuous period of at least two years immediately before applying, the farmer must have:

- derived a significant amount of their gross income from the farm enterprise
- contributed a significant amount of capital to the farm enterprise
- contributed a significant amount of their labour to the farm enterprise.

Support provided

Farmers who receive the $5500 grant must:

- obtain a Farm Business Analysis and Financial Assessment of the farm enterprise
- develop an Action Plan with the assistance of a Rural Financial Counsellor
- access professional advice and undertake training activities identified in the Action Plan.

Other information

For more information and to apply call Centrelink's Farmer Hotline on 1800 050 585. Applications for the CCAP Advice and Training Grant will be accepted until 30 December 2011.

Rural financial counsellors

The purpose of the Rural Financial Counselling Service (RFCS) Program is to provide free financial counselling to primary producers, fishers and small rural businesses who are suffering financial hardship, and who have no alternative sources of impartial support, to manage the challenges of change and adjustment.

Criteria for eligibility

Primary producers, fishers and small rural businesses who are suffering financial hardship and who have no alternative sources of impartial assistance can access the RFCS Program. 'Small rural business' for the purposes of the program is defined as a rural business that employs no more than 10 full-time-equivalent (38 hours per week) employees and provides the majority of its services to primary producers and is directly involved in primary production (e.g. fencing, harvesting, spraying or stock management).

Support provided

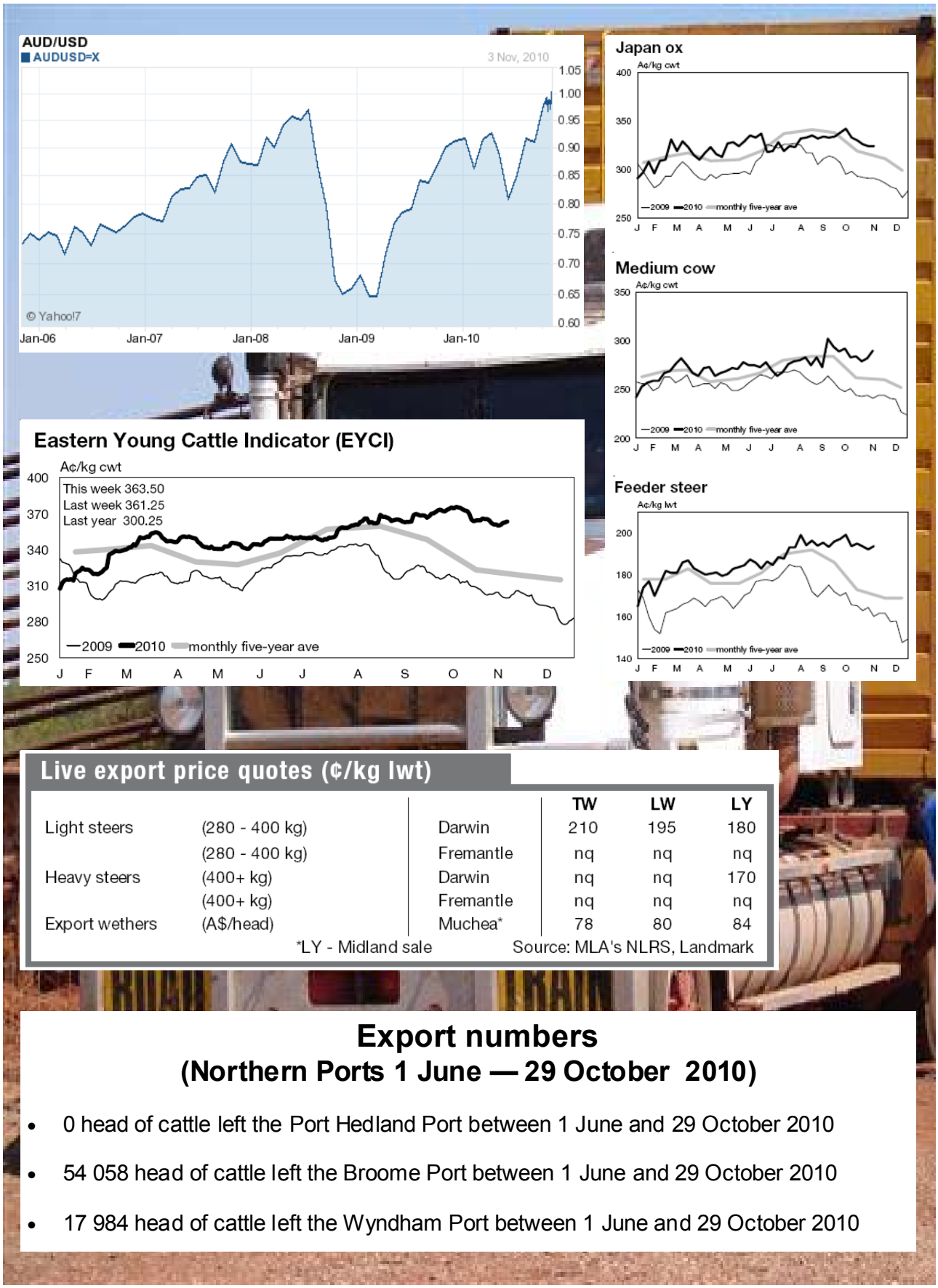
The RFCS Program:

- provides clients with access to financial information, options, decision support and referrals to other sources of industry, professional and government assistance
- empowers clients to make their own decisions on how to most effectively manage change and adjustment issues
- delivers effective, flexible and responsive services to those in need of assistance.

Other information

For more information visit www.rfcs.gov.au or call 1800 686 175 to get the contact details of your nearest rural financial counsellor.

CATTLE MARKET UPDATE – 5 NOVEMBER 2010



Live export price quotes (¢/kg lwt)

			TW	LW	LY
Light steers	(280 - 400 kg)	Darwin	210	195	180
	(280 - 400 kg)	Fremantle	nq	nq	nq
Heavy steers	(400+ kg)	Darwin	nq	nq	170
	(400+ kg)	Fremantle	nq	nq	nq
Export wethers	(A$/head)	Muchea*	78	80	84

*LY - Midland sale Source: MLA's NLRS, Landmark

Export numbers
(Northern Ports 1 June — 29 October 2010)

- 0 head of cattle left the Port Hedland Port between 1 June and 29 October 2010
- 54 058 head of cattle left the Broome Port between 1 June and 29 October 2010
- 17 984 head of cattle left the Wyndham Port between 1 June and 29 October 2010

PASTORALIST SURVEY ACROSS PILBARA AND KIMBERLEY

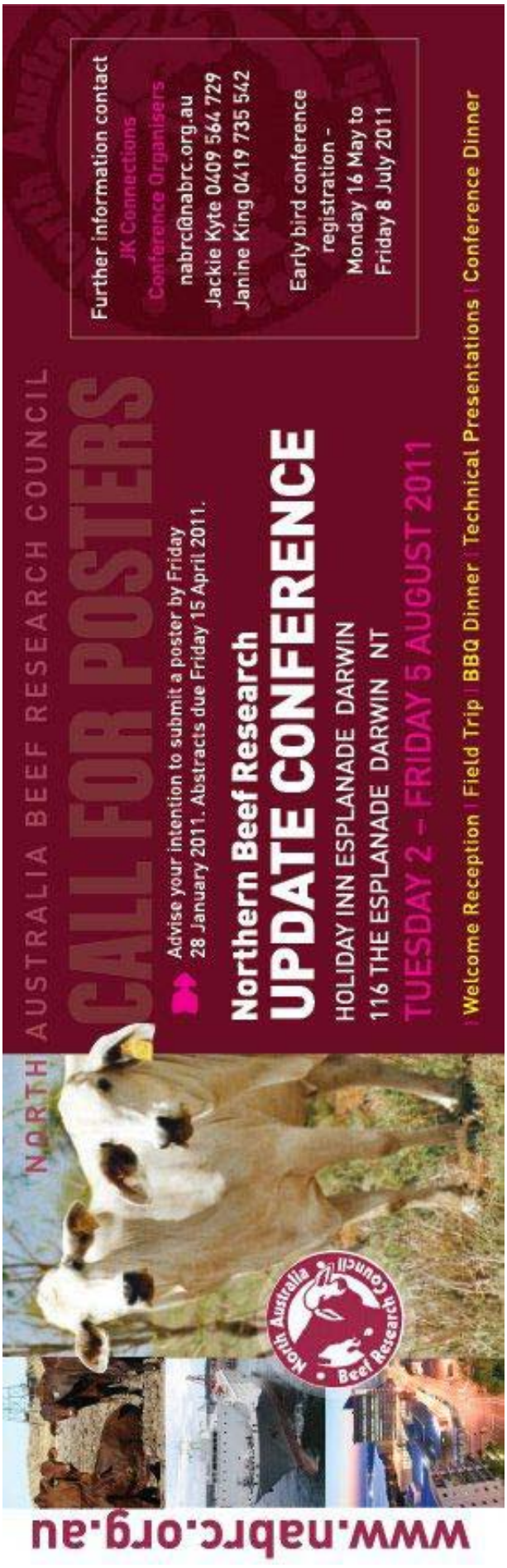
A majority of pastoralists in the Kimberley and Pilbara have now completed the pastoralist survey. Interviews have generally taken about three hours and the level of cooperation from interviewees has been appreciated. It is planned to have all surveys completed by the end of November 2010. The survey is part of a larger project called '**Beefing Up the North**' which includes the Business Pilot Workshop, Northern Grazing Systems Project, and a number of Producer Demonstration Sites. This larger project will play an important role in determining DAFWA's future direction and priorities in regards to investing time and money in the Northern Pastoral Industry.

Over the 2010/11 wet season, recorded survey data will be analysed and a summary report completed. This report will be available to the public and points of interest will be discussed in the Memo. Thank you to all pastoralists who contributed; your hospitality and willingness to participate has been greatly appreciated.

There have certainly been some unforgettable interviews, moments and one-liners. Those who have completed the survey will recall the last question—'Why do you choose to be a member of the pastoral industry?' Responses to this question so far include:

- 'I ask myself that every day.'
- 'I don't think there is a better industry to be part of.'
- 'Because my husband wants me to be.'
- 'I like cows—they depend on us.'
- 'Lifestyle—certainly not for the money.'
- 'Not smart enough to be a doctor.'
- 'Good to live and work in the bush.'
- 'Enjoy the ongoing challenge of improving what I am doing.'

Great to see that both deep thought and humour are alive and well in the industry.



Pilot of Drought Reform Measures in Western Australia

Farm planning & Building farm Businesses 1800 198 231
Drought Assistance hotline 13 23 16

General Health

Health Direct **1800 022 222**
24 hour health advice

Information Services

Commonwealth Care Link **1800 052 222**
Aged Care and Youth Disability Services

Department for Child Protection
1800 622 258

Disability Services **1800 998 214**
Commission *(Monday to Friday 8am-5pm)*
TTY (hearing impaired) **9426 9315**

Parent Information Centre **1800 654 432**
www.parenting.wa.gov.au Free Library and Parent Information Service for people in rural areas

Women's Information Service **1800 199 174**
General Information & referral service for all people on all issues Mon-Fri 9-5

Men's Advisory Network www.man.org.au

Men's Health - Midwest **9921 8512**
Relationships Australia - Pilbara **9160 2900**
Community Health - Murchison **9981 0636**
GP Network - Goldfields **9021 6610**

Regional Men's Health Initiative
provided by Wheatbelt Men's Health (Inc) **9690 2277**
Further information contact Sally Naughton WMH (Inc), email menshealth@agric.wa.gov.au

Emergencies

Police, Fire, Ambulance **000**

Police **131 444**
Police assistance nearest station

Local Police -*Please refer to telephone directory*
Crime Stoppers **1800 333 000**

FESA (regional offices)

Fire Emergency Services Australia

Mid West and Gascoyne	**1800 207 627**
Karratha	**1800 631 227**
Port Hedland	**9173 2333**
Kalgoorlie	**9026 4100**

Poisons Information Centre **13 11 26**
24 hour service—seven days a week

* *Help for children, adults and animals*
* *Inquiries regarding-any ingestion, inhalation, skin & eyes, bites & injected substances, drugs,*

YOUR DOCTOR _____

LOCAL HOSPITAL _____

Compiled with the support of:

* *Department of Agriculture and Food WA*
* *Department for Community Development*
* *Wheatbelt Men's Health (Inc)*
* *Lotteries House Carnarvon*
* *GP Network*
* *Men's Advisory Network*
* *Women's Information Service*
* *Rural Financial Counselling Services of WA*
* *Local Shire offices*
* *Centacare*

CONTACT NUMBERS FOR FREE SUPPORT AND ASSISTANCE

PILBARA, GASCOYNE, MURCHISON & GOLDFIELDS-NULLARBOR PASTORAL AREAS

Agricultural, Health, Financial and Information Support Directory

Updated September 2010

Agricultural Advice

Rangeland Management

Gascoyne & Murchison -
Greg Brennan **9956 8554**
Pilbara - Rebecca Dray **9143 7006**
Goldfields - Jim Addison **9088 6017**
ESRM team **9956 3333**

Livestock

Dr. Helen Blake **9956 8512**
Peter Smith **0429 087 647**

Pilbara, Gascoyne, Murchison and Goldfields Pastoral Areas Health, Financial & Information Services

24 Hour Care

Crisis Care 1800 199 008
TTY (hearing impaired) 9325 1232

Mensline Australia 1300 789 978
Offers information support and referral

Lifeline 13 1114

beyondblue 1300 224 636

Family Helpline 1800 643 000
Counselling and information service for families

Kids Helpline 1800 551 800
Counselling service

Alcohol & Drug Information Service 1800 198 024
Information and advisory service

Samaritans 9381 5555
Countryline 1800 198 313
support@samaritanscrisisline.org.au
When crisis calls, call the Samaritans

Domestic Violence 1800 353 122
Helpline (free, confidential support)

Men's Domestic Violence Helpline 1800 000 599
Non-judgment phone line for men

Women's Domestic Violence Helpline 1800 007 339
Support and counselling for women experiencing domestic violence

Counselling & Support

FAMILY COUNSELLORS—RURAL

Confidential counselling and personal support for any individual, couple or family group (free services)

All areas drought enquiries & information
Centacare Tollfree **1800 139 332**

Pilbara Relationships Australia Port Hedland **9160 2900**
Well Women's Centre South Hedland **9140 1124**

Gascoyne Centacare Carnarvon **9941 4070**
Centacare Exmouth **9949 2225**

Murchison Meekatharra **9981 0625**

Goldfields-Nullarbor Centacare Kalgoorlie **9091 1833**

Midwest Geraldton **9921 1433**

Family Relationship AdviceLine 1800 050 321
Monday to Friday 8.00 am to 8.00 pm
Saturday 10.00 am to 4.00 pm
(except National public holidays)

Anglicare Counselling Service 1800 812 511

Indigenous Counselling Service
Pilbara 9172 0441

ANCILLARY SERVICES

Carnarvon Youth Outreach 9941 3388
Support information and referrals for young people, young mothers and their families in life issues

Friends of Citizens Under Stress 9941 2310
Books, clothes etc.

Carers WA 1800 007 332
Provides a "safe place" to express emotion, needs and wants

Community Drug Service Team
Counselling for people and their families experiencing drug or alcohol problems

Midwest 9956 2424
Gascoyne 9941 0495
Murchison 9194 2640
Pilbara 9158 9222
Goldfields-Nullarbor 9091 1833

Counselling & Support

Centrelink
Confidential counselling and personal support for any individual, couple or family group (free service)
Drought Assistance Hotline 13 23 16
TTY (hearing impaired) 1800 810 586

Mental Health Services
Free confidential service for people of all ages

Midwest Geraldton **9956 1999**
Gascoyne Carnarvon **9941 6600**
Exmouth **9949 2584**
Murchison Meekatharra **9981 0625**
Pilbara Port Hedland **9158 1400**
Newman **9175 8333**
Tom Price **9189 1199**
Karratha **9143 2346**
Goldfields-Nullarbor Kalgoorlie **9088 6200**
After Hours (Rurallink) 1800 552 002
TTY (hearing impaired) 1800 720 101

Carnarvon Family Support Service 9941 1251
Emergency relief, family assistance, financial counselling, home support service, women's refuge

Financial Services

Centrelink
Financial Information Services 13 2300

Rural Financial Counselling Services of WA
Freecall 1800 612 004
Main Office 9964 7033
Pastoral 0439 984 539

Carnarvon Family Support Service 9941 1251

CWA (drought emergency relief) 9321 6041
www.cwaofwa.asn.au/emergency_relief.html

Centacare Exmouth 9949 2225