DEPARTMENT OF
PRIMARY INDUSTRY, FISHERIES AND MINES

alice springs
Rural Review

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Napperby Field Day

Adrian James, DK-CRC

On 19 and 20 October, Napperby Station and the Desert Knowledge Cooperative Research Centre will host a remote management field day at Tilmouth Well. The event, part of the CRC's 21st Century Pastoralism and WaterSmart projects, will be a chance to observe a range of commercial and prototype remote management technologies for cattle production.

On display for the day:

- A cattle Walk-over-Weighing system used in the field for 6 months
- A large Observant telemetry network connected with tank level sensors, solar pumps, water medicators, rain gauges, cameras and the Walk-over-Weighing platform
- A prototype remote automatic cattle drafter

There's also a chance you'll see a demonstration of broadband telemetry that transmits live video footage from a remote bore.

Some of these are Australian firsts, so you can expect to meet a wide range of people and industry exhibitors from across the country.

In July the 21st Century Pastoralism project staff and local producers Roy Chisholm and Chris Nott travelled to Bourke for a workshop with the Sheep CRC's remote management experts. They also inspected an automatic sheep weighing and drafting tool, and learned about some NSW and

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QLD sheep producers' sophisticated precision management operations.
In other news, Blackmore's Power and Water have installed a GME telemetry network at De Rose Hill station as part of the WaterSmart project. It monitors tank levels and motors, and the information and control is accessed from simple keypads placed on Toyota dashboards, and the office computer. The network will soon be expanded to monitor water levels in some turkey nests too.

You'll be able to see it in action during a field day at De Rose Hill next March. The recent WaterSmart Pastoral Production field day at Mt. Ive station in SA was a big success. There's information and lots of photos of the day (as well as other information and links) on the WaterSmart website:

www.desertknowledgecrc.com.au/watersmart

For any further information, contact Adrian James on 08 8951 8155 or 0427 189 676 or email: adrian.james@nt.gov.au

feed.FIBRE.future

Alice Springs Thursday August 2, 2007

The ongoing drought throughout Australia led to the dairy and beef industries coordinating a response across all drought affected areas of Australia. This response is in partnership with the Federal Department of Agriculture Fisheries and Forestry, Dairy Australia, Cattle Council, ADIC / ADF, and MLA, under the banner feed.FIBRE.future.

As part of this coordinated response a feed.FIBRE.future workshop, adapted for Central Australian conditions, was held in Alice Springs with the assistance of the Northern Territory Cattlemen's Association. The following are the summaries of the presentations from the workshop:

MANAGING DROUGHT IN CENTRAL AUSTRALIA
Mr Phil Holmes, Holmes & Company
Drought is an ever present threat to beef producers in Central Australia. There is no known or accurate method yet devised to predict the onset of drought and in the absence of this, the probability approach can be a useful tool. Since rainfall records began, at least one major drought has occurred each decade and for most of the time the country is dry and the available feed is also dry. Under these circumstances, the most prudent approach is to be in a constant state of preparedness for drought.

A typical Central Australian drought will not send a beef production business broke unless the business is already suffering financial stress. The available evidence suggests that full financial recovery from the drought takes longer than the inter-drought intervals. This means that the productivity of a beef production business is permanently suppressed by the effects of drought. For lifestyle driven producers, drought will be of little consequence because lifestyle is not greatly affected. For profit driven producers, a drought has quite serious short and long-term implications. The major implication is the opportunity cost of lost production and cash flow. If the cash is not there, it cannot be reinvested either inside or outside of the business for the generation of additional working capital.

It can be argued that the major casualty of drought in Central Australia, is the environment. There is sufficient evidence to state that more environmental

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damage is done during drought years than in the inter-drought years. Land degradation during drought renders the country less rain ready and increasing amounts of rain are needed to produce the same pasture response. Eventually this process can proceed to the point where the country does not respond to rain at all and the time taken to recover from this exceeds the management or ownership tenure of most producers.

The key to successful drought management in Central Australia is to be constantly adjusting livestock numbers to maintain perennial plant density and ground cover on the one hand and a breeder condition score on the other. Strategically, the way to approach this is through conservative carrying capacity estimates for the station and even more conservative stocking rate caps on individual paddocks or waters, depending on their potential productivity. Breeders should never be allowed to slip below condition score 2.5 otherwise the time taken for cycling and re-breeding is too long and the cash flow consequences too great. Breeder condition score is best adjusted through stocking rate. The old saying of "sell early and regret later" is a prudent and ultimately more profitable strategy than the "crash or crash through" approach of doing nothing. There are no winners with this latter approach, only losers, the environment, the cattle and the bank account of the owner.

If a conservative approach to stocking rate is adopted, there should be country available for locking up to allow feed to accumulate for droughts. If you like, this is the equivalent of a hay shed or grain silo. If drought sets in, the country can be grazed and if it doesn't, it can be burnt. In terms of feed foregone, it does not particularly matter if it does not rain after burning because the fact that you have had the ability to lock it up in the first place means that you do not need the feed.

The biggest herd health issue in drought is botulism and with this disease it is far better to assume that you have it and vaccinate than to suspect that you don't and not vaccinate. Breeder death rates during drought can be significantly reduced through this low-cost operation.

Rangeland Degradation in Drought
Gary Bastin, CSIRO, Alice Springs
Dry years are the norm for the southern NT. Managing for the dry year should mean that the transition to a drought is a gradual process of adjustment, not a disaster. When relief comes, the next dry year may be just around the corner.

Your best country for cattle production is always your best country be it a good year or a very dry year. These areas have better soils (and hence, soil fertility) and grow more palatable and productive forage. Often these areas are lower in the landscape and receive additional run-on water. This is particularly important in dry years because these run-on areas can often respond to isolated storms and grow useful feed. It is critically important to maintain these most valuable areas in a productive state be it a dry year or a good season.

Palatable perennial species are very important in dry years. These species are generally grasses (e.g. curly windmill grass, silky browntop, umbrella grass, Mitchell grass on cracking clays) but also include the more palatable bluebushes and saltbushes. These plants provide dry feed going into a drought and because they are perennial, they are able to grow new leaf on small falls of rain. Productive perennial plants are one of the key ingredients to surviving drought and it is vitally important that these plants not be overgrazed. Constant heavy grazing of new leaf growth weakens these plants until they eventually die.

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Most of the degradation in drought (and at most other times) is caused by too many mouths munching the feed that is available. It is very important that stocking rate doesn't exceed carrying capacity for the seasonal conditions being experienced and anticipated. Carrying capacity is the number of cattle each area should carry taking account of the type of country, distance from water, current land condition and seasonal conditions. Stocking rate is the actual number of grazing animals on each area. This includes cattle, kangaroos and any feral grazing animals.

It is extremely difficult to match stocking rate to carrying capacity at all times and particularly as seasonal conditions are deteriorating. Being conservative by always managing for a dry year gives considerable flexibility in the nature and timing of destocking decisions that have to be made in drought. I accept that conservative stocking means some production is foregone in better seasons but running lower numbers in these years should mean that your country is in better condition when the dry years return.

In terms of land management, the key to surviving this drought is to minimise degradation so that your country responds well when better seasons return.

The difference between a good manager and a poor manager is not six inches (150 mm) of rain but what you can do with two inches (50 mm) during dry years. This is about having your country 'rain ready'.

Much of the above is embodied in the Central Australian Grazing Land Management course. If you are interested in knowing more about surviving droughts and haven't yet participated in one of these courses, I would urge you to consider doing so.

Keeping the Banks Onside in Drought
Mr Justin Harrison- State Manager Queensland & Northern Territory, Rabobank

The relationship between a producer and their financier is a vital component when managing your business through difficult periods. A successful relationship is built on meeting the mutual needs of both parties.

When preparing a drought management plan the producer needs to consider many factors including:

- Do I feed/agist or sell stock?
- Do I have sufficient funds to cover my requirements?
- What are the full costs incurred prior to full recovery?

In addition to such management decisions the producer must consider the financiers requirements. A financier requires accurate, complete and up to date information in order to make its decision. Prior to making the decision the financier needs to be presented with information which clearly demonstrates the capacity of the business to repay the loan, meet interest and operational costs. This business plan should cover areas of security being provided, income streams and management strategies.

In addition to these reports the financier has a basic need for a full and frank open line of communication with the producer. This ensures that the financier has confidence that the relationship will not produce any surprises.

Both parties are then able to build an enduring partnership which will enable the business to move forward.

The financier actively encourages the producer to seek all forms of assistance be they training related or in the case of an Exceptional Circumstance declaration, by way of government assistance.

Holistic Management

Training Workshop

Coral Allan

The Introduction to Holistic Management workshop was held at AZRI from 16-19th July with facilitator Brian Marshall. Brian is a grazier managing 'holistically' on his current property “Tara” in Gunyra, NSW. He has experience in cropping, grazing and beef marketing and has been training groups in Holistic Management since 1995 in many diverse regions of Australia.

Holistic Management is described by Brian as a collaborative decision making process that seeks to ensure that decisions are always economically, socially and ecologically sound and can encompass couples, families or management teams.

The workshop challenges you to think differently about the land, with discussions on making the most from rainfall events and sunlight, increase productivity with planned grazing, real land improvement supporting “sustainable production” with plant diversity and soil health and on site land monitoring.

The nine participants attending the course covered subjects on: Setting a Holistic Goal, Tools and Testing Guidelines, Decision Making Process, Importance of Biodiversity, Grazing Planning, Financial Planning and Land, Planning, Monitoring & Feedback.

The participants also undertook property planning exercises and there was a lot of lively discussion among the group. This course challenged people's way of thinking and looked at the land in a positive sense. We look forward to seeing future outcomes.

If you want to know more about Holistic Management contact Brian Marshall on 02-6779 1927 or bkmrshl@bigpond.com.

BELOW: Doug Sims, Narwietooma, facilitator Brian Marshall and Wally Klein, Orange Creek

Managing Plant Poisoning

Jocelyn Coventry Pastoral Production Officer & Peter Saville Regional Veterinary Officer

This is the first of two articles on management of plant poisoning in Alice Springs district cattle. Plant poisoning can be a serious cause of cattle deaths on pastoral properties, but can be managed with strategies to detect and avoid poisonings.

Investigation on the NT DPIFM Research Station
At the end of 2006, investigations on the Old Man Plains Research Station provided information on how to avoid native plant poisoning and minimise the associated financial loss in Alice Springs cattle.

Free seminar on plant poisoning
Findings on the investigated plant poisoning of cattle were presented by Jocelyn Coventry at the Townsville conference of the Australian Cattle Veterinarians, in July 2007. These findings have also been presented at a rangeland research seminar in Alice Springs titled "Suspected Solanum quadriloculatum and Solanum ellipticum poisoning in extensively-grazed beef cattle".

For more information on this subject, please contact Jocelyn Coventry on (08) 8951 8142.

Northern Territory Government

Managing Plant Poisoning in Cattle

Plant poisoning can be a serious cause of cattle deaths on pastoral properties... but can be managed.

Avoid poisonings

Limit the potential impact of risks, for example:
- poisonous plants
- hungry or introduced cattle
- very poor or limited rangeland pasture

Collect clues

Identify specific risks, for example:
- inspect paddock or yard
- collect rumen contents
- collect post mortem samples from cattle
- check records of cattle, management and weather

Employ expertise

Use local knowledge and specialists to help identify specific risks, for example:
- risky paddock areas
- poisonous plants
- cattle pathology

WHY?

Many native plants contain high levels of toxins at certain stages of growth, for example the fruits of 'Native Tomato' (*Solanum quadriloculatum*).

WHERE?

Satellite images show green areas where cattle would have been grazing.

WHAT?

Dried rumen samples show large and small pieces of plants that cattle have eaten.

FOR MORE INFORMATION:

CALL YOUR REGIONAL ANIMAL HEALTH OFFICER IN THE ALICE SPRINGS DISTRICT ON 8951 8111

CATTLE STUDY

REPORT AVAILABLE

Jocelyn Coventry Pastoral Production

On July 2007, the Department of Primary Industry, Fisheries and Mines (DPIFM) produced in a single publication, a compilation of 27 past reports and presentations on the Westside Mount Riddock Study (Sept. 1991April 1996). This was a pivotal study, undertaken over five years by Management and Staff of Mount Riddock Station, in co-operation with department staff.

The study looked at aspects of health and performance for a commercial cattle breeding herd in an area of 540 km^2 in central Australia. Data and samples were collected during musters and surveys over the five years, from 118 herd bulls and 2,014 breeder cows. The unique nature and quality of the data reported from this study is a tribute to the dedication and hard work of all who were involved. Findings from the study are still as relevant today as they were ten years ago, and technical issues documented in the compiled department publication will serve as a guide for future cattle research and extension activities.

The study brings valuable and accessible information to the Alice Springs Pastoral Industry .This great work is largely attributable to efforts of the Alice Springs Pastoral Industry Advisory Committee, Alister Trier - Director Pastoral and Peter Saville Manager Pastoral Production Alice Springs.

A copy of this publication has been posted to all Alice Springs Pastoral Properties. For additional copies, please contact Jocelyn Coventry on 08 89518142.

Progressing the Grazing Land

Management Movement

Ellena Hannah

Continued follow up support to graduates of the Central Australia Grazing Land Management (CAGLM) workshop has been guaranteed through a new project “Progressing the Grazing Land Management Movement” recently funded through the National Landcare Program.

As a result Ellena Hannah, the Central Australia Grazing Land Management Officer, will work with participants of the CAGLM workshops to implement the projects and plans they developed for their own business which utilise the tools and principles delivered in the workshop.

The project will cumulate in a Grazing Land Management Exchange; an opportunity for local producers to discuss grazing land management in central Australia as well as hear the experiences of those operating pastoral enterprises in other regions of Australia.

This project continues the partnership established between the Northern Territory Cattlemen's Association and the Department of Primary Industry Fisheries and Mines which received funding through the National Landcare Program for the current “Grazing Land Management Package” project.

Through the Grazing Land Management Package Ellena has been promoting and coordinating the CAGLM workshop and providing follow up support to graduates.

The CAGLM workshop delivers tools, information, and resources directly relevant to Central Australian pastoralists interested in better cattle production and improved land condition. On going support is available to participants as they apply these tools and principles to the decisions and grazing land management issues they tackle e.g calculating carrying capacity of different land types, costing out infrastructure development, when and how to use fire or tackle woody weeds. Six months after the workshop a Follow Up Day is organised as an opportunity to review the workshop and visit with fellow participants on their stations.

If you have not yet participated in a CAGLM workshop one last opportunity remains. A CAGLM workshop will be held at Erldunda Roadhouse from the 11 14 November. Participation in this workshop will also ensure you are eligible for support through the new “Progressing the Grazing Land Management Movement” project.

Please contact Ellena for further details and to register on 08 8951 8143.

The DNRETA

Rangelands Management Branch

Ian Fox

The Department of Natural Resources, Environment and the Arts (DNRETA) Rangelands Management Branch provides integrated pastoral lease administration, monitoring and support services to government, pastoralists and the Pastoral Land Board. We promote the sustainable management of pastoral land to support the continued viability of the industry.

The key objectives of the Rangelands Management Branch include:

- support to the Northern Territory Pastoral Land Board and the Minister in the implementation of the Pastoral Land Act by way of ;
    - executive support to the Pastoral Land Board,
    - reporting on the condition of pastoral land,
    - co-ordination of Pastoral Land Board Advisory Committees,
    - technical advice on remedial measures, applications for subdivisions, clearing and non pastoral use.
- administration of the Pastoral estate through;
    - collection of pastoral rentals
    - processing of lease transfers (fact sheet available)
    - assessment of applications for changes of tenure, non pastoral use and sub-leasing, etc.
    - provision of Native Title advice
- coordination and provision of technical advice on rangelands management through extension services and products by;
    - maintenance of pastoral land monitoring files,
    - provision and updating pastoral lease infrastructure maps,
    - technical assessment of the Pastoral Water Enhancement Scheme,
    - technical input to NT Drought Assessments,
    - pastoral land monitoring program.

The Branch also supports externally funded programs such as Grazing Land Management (GLM) by providing supporting data. GLM participants have recently identified the need for more frequent infrastructure map updates. Pastoralists requiring map updates are invited to contact the Branch to discuss their mapping needs.

Additional services are available from the DNRETA Weed Management, Water Management, Bushfires NT and Vegetation and Land Management Branches. This includes advice on the topical issue of restoring productive pastures that might not be responding as effectively to seasonal rains as they did in the past. In addition a team is available to discuss Community Programs that include Natural Heritage Trust projects and National Landcare.

Contact for all these services can be made through the Rangelands Management Branch or directly to individual Branches.

Rangelands Management:	89519220 (Ian Fox)
Water Management:	89519254 (Mark Pierson)
Weed Management:	89519210 (Chris Brown)
Bushfires NT:	89523066 (Rod Herron)
Vegetation and Land Management:	89519208 (Dave Waterson)
Community Programs:	89519255 (Michelle Rodrigo)

Rain doesn't grow pasture!

Alison Kain

Well, not on its own anyway. Actually soil moisture, nutrient availability, sunlight and palatable, reproductive plants are the things that grow pasture. Maximising soil moisture and vegetation health is easy; you just need to aim for the best land condition that you possibly can.

In the first article we looked at the facts about rainfall. The median summer rainfall for Alice Springs is only 173mm, which is likely to occur as scattered falls with only two pasture growth events and lots of small, ineffective recordings. This month's article explains how good land condition allows managers to maximise the benefit from rainfall anything less than good land condition and you are wasting rain. I often hear people say that pastoral management all depends on the amount of rain that falls but perhaps it would be more accurate to say “It all depends on what I do with the rain I get”.

In this article we will explore why good land condition is important as this is the first step towards describing land condition. It took so long to define good land condition that we will have to explain how to assess it in the next article!

Why is soil condition important for pasture growth?
Soil science may not be very sexy but it is the first thing to look at when growing pasture. Soil captures and stores moisture, making it available for plant growth. It isn't the amount of rainfall that determines plant growth; it is the amount of soil moisture that plants can access. When it rains, individual raindrops land on mulch or plants then dribble onto the soil surface. Once the water is in contact with the soil it can begin to soak in via spaces between the soil particles. These spaces are determined by soil type, organic material and the activity of soil micro-organisms. If the topsoil is thick and porous then it can quickly absorb a lot of moisture. When the surface soil is full, moisture seeps into the lower soil layers where it is beyond the reach of evaporation but still available for plants with healthy root systems. When the soil layers, particularly the topsoil, cannot absorb any more rain, runoff occurs.

When it stops raining, vegetation and mulch also help minimise soil moisture loss through evaporation. This is particularly important in central Australia as our median annual rainfall is 237mm and evaporation is approximately 3000mm! Maintaining ground cover to reduce evaporation means that even small rainfall events are more likely to result in positive soil moisture for plant growth.

Actually, soil moisture is so important that even winter rain can help with early summer pasture growth. A recent study in Arizona found that winter rain stored in the soil was an important component of the water budget for warm season pasture growth (Nagler, 2007).

Soils also have a very important role to play in nutrient availability. Soils contain nutrients derived from their parent material (bedrock) however the majority of what is available for pasture growth is from decaying organic matter and the activity of micro-organisms. These nutrients are at their highest concentration in the top few centimetres of soil where they are readily utilised by plants.

How important is the topsoil! It must be deep and porous to help catch rain and it contains the most nutrients for plant growth.

The problem with degraded soils
Overgrazing quickly leads to soil degradation mostly through the loss of vegetation and the subsequent impact of raindrops on bare soil. When rain falls on bare soil, some of it soaks in but a much larger amount runs away and erodes topsoil. A loss of topsoil means a loss of nutrients (remember, most nutrients are only in the top few centimetres) and it also reduces the amount of porous soil able to quickly absorb and hold rain water. When left bare, some soil types will form a hard 'seal' when impacted by rain drops. This leads to further degradation as it is impossible for water to infiltrate the soil. We all know that runoff also occurs when rain falls more quickly than it can be absorbed. However, maintaining ground cover really helps slow some storm runoff for later infiltration. The aim is to achieve maximum soil moisture because it is soil moisture that grows pasture, not rain!

Whew all that just for soils! But what about the pasture…

What does a healthy pasture look like?
“I'm too busy looking after the cattle to look at the grasses!” Well, it's time to get a copy of the Glovebox guide to grasses in central Australia (Allan and Wilson, 2005), get out in the paddock and look at what makes the money! A healthy pasture has lots of different species and lots of different functional groups (eg. herbage, grass). Different species have different palatability and nutrition. Increaser species (eg. wiregrass, copper burrs) are those that increase under grazing because they aren't palatable. Cattle ignore them until they have eaten all the tasty ones (eg. oatgrass, umbrella grass, windmill grass)! The tasty ones are called decreaser species because they decrease under poor grazing management. Managers need to know what they are looking at so they can truly assess management decisions.

A healthy pasture will also have a variety of functional groups such as annual (short-lived, short rooted) grasses, perennial (long-lived, deep rooted) grasses,

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herbage and trees. A study undertaken by Davies (2007) found that different functional groups used nutrients and moisture from different soil depths (because of root depth) and at different times of the year. It makes sense that land in good condition will have all of these functional groups present as this ensures the best use of all available resources. It also helps to prevent invasion by weeds because all the available resources are being used by useful plants. You will have noticed that herbage grows well in response to winter rain but have you also noticed that some of the native perennial grasses will green up a little in winter whilst the annual grasses wait until the warm summer months? This is a good example of how different functional groups use different parts of the nutrient and water resource.

What species should I expect?
It is possible to accurately describe land types across quite large areas. This is because different soil types have unique properties that determine the amount of moisture and nutrients they make available to plants. Because plant species all have unique abilities to 'pull' water and nutrients out of the soil you can predict what will grow on any given land type. It is also reasonable to expect that the full range of functional groups will occur on each land type in order to achieve maximum use of the resources. In the next article we will look at some land types in detail the Grazing Land Management Workshop also gives you lots of good, property specific information.

Pastures that reproduce like rabbits!
Like all organisms, plants have to be healthy and robust before they can reproduce. The root system in perennial plants (eg. Mitchell grass, umbrella grass) is also a part of its reproductive system. Once the plant has matured it continues to transform sunlight into energy which it stores in the roots. Next time it rains the plant uses this stored energy to regrow. It is also important to allow perennial plants to set seed occasionally however young grasses are very sensitive to grazing, so allow them to become well established first.

Most of central Australia's pastures are dominated by annual grasses (eg. oatgrasses) with scattered perennial grasses. Annual plants regenerate from seed and only live for one season so they need to set seed every time they grow. Continuous overgrazing of annual pastures before they set seed can significantly reduce the bulk of useful pasture species.

Figure 1. Granite woodland in 'A' Condition showing good ground cover, palatable species and a good composition of functional groups.

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These seeds also need to have safe sites (healthy topsoil, mulch) to ensure that seed will be able to germinate next time it rains.

Are root systems important?
Remember that moisture can be stored in the soil at depths beyond which evaporation can occur? Plants that reach maturity before being grazed have a much better chance of being able to reach this water supply because they develop good root systems. Plants that are grazed too much or too early have stunted root systems because they have to keep using energy to grow new leaves. This is why healthy perennial plants persist longer into dry spells and isn't that useful when you are trying to feed cattle!

If you are a “spelling sceptic” then it is hard to imagine how much extra grass you can grow if you allow pastures to reach maturity before grazing! However, if the soil has been severely degraded then spelling on its own will not work. This makes sense if you think about the soil processes that we described earlier. Simply removing grazing from an area that has lost its soil nutrients and water holding capacity is unlikely to be enough. Ponding banks help restore these soil processes but we'll talk about that more in future articles.

Hopefully it is clear how important it is not to let cattle eat all the grass. Standing matter, mulch and robust vegetation is so important to land condition. If you still don't believe it, get out of the car and critically examine the soil. Sure, you might find some areas that don't look so good but walk around a bit and think about what is happening learning about how the soil works is for your benefit! Have a look at the pasture… is it robust and reproducing? Or is it scrappy little plants sitting out in the middle of a hot, bare plain with two scrawny seed heads? If the soil can't store moisture, doesn't have any nutrients left in it and the pasture can't seed or regrow then how on earth will those cows thrive! Accepting that hard, bare country is normal makes it impossible to ever achieve anything else.

In summary, soil in good condition should have;

- vegetation and mulch cover to reduce raindrop impact, evaporation and to catch runoff,
- organic matter and micro-organisms in the topsoil, and
- thick topsoil with a high ability to absorb moisture.

Figure 2. Limestone country in 'C' Condition showing bare ground, increaser species, poor plant growth and domination by functional groups that should be only a minor part of this land type.

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Remember:

- most nutrients are found in the top layer of soil, and
- resting plants from grazing helps them to grow bigger and use rainfall more effectively, through better root systems, more seed production, better establishment etc.

In the next article we will discuss how to assess land condition and later on we will see how management actions directly impact on land condition. Repeat after me, “Soil moisture grows pasture, not rain! Soil moisture grows pasture, not rain!”

Davies, K.W. (2007) Influence of Plant Functional Group Removal on Inorganic Soil Nitrogen Concentrations in Native Grasslands. Rangeland Ecol Management 60:304-310.

Nagel, P.L. et al. (2007) Relationship between evaporation and precipitation pulses in a semiarid rangeland estimated by moisture flux towers and MODIS vegetation indices. Jnl. Arid Environments V70, Issue 3

LAND CONDITION

How can DPIFM help you

In the last issue of the RR we looked at rainfall in an article titled Growing Cattle Feed Harnessing Rainfall and Land Condition. Remember, if you would like to look at your rainfall statistics we have access to the Bureau of Meteorology data and are happy to help you. I'm disappointed that no-one has asked for this yet as it really is fascinating reading!

In this edition read the follow-up article “Rain doesn't grow pasture!” in which we discuss how land in good condition operates.

There is nothing I like more than walking around the bush looking at plants. Give me a call if you want some help identifying plants! Alison Kain, Ph. 8951 8184 or

CLIMATE CHANGE

..an excerpt from
An Australian Guide to the Science and Potential Impacts

A brief review of information available on the internet suggests that temperatures are expected to rise by 1-6 ºC by 2070 over most of Australia (www.greenhouse.gov.au). There are likely to be more days over 35 degrees and also more days over 40 degrees per year. An increase in temperature will increase evaporation. It may be unclear as to whether or not central Australia will receive more or less rainfall but there does seem to be some consensus that the rain is likely to occur as intense storms with increased runoff (and increased erosion hazard).

There is some discussion that an increase in carbon dioxide will lead to greater plant growth however this benefit is likely to be cancelled out by a decrease in rainfall (Pittock, 2003). What all of this means for land condition is that we had better try and get our country in good condition now as it is going to be increasingly difficult to do so as climate change begins to have an impact. If your land is not in good condition it will not be very productive or resilient as the climate becomes more inhospitable.

When pastoralists assess their herd they might try to increase productivity through activities such as buying better bulls or early weaning. Assessing country accurately is equally as important. Ignoring the 'blame' that some may feel is attached to land condition then it will be easier to make a fair assessment of the country. Once you have made the assessment then you can start to work out how you are going to improve land condition and increase productivity. You don't need to tell anyone! Just get to work on some planning.

Pittock, B (Editor) (2003) Climate Change - An Australian Guide to the Science and Potential Impacts Chapter 4, Section 4.3: Potential impacts of climate change: Australia, Agriculture, Forestry and Fisheries, pp 111-129.

DPIFM Bronco Branding

Bryan Gill Pastoral Extension Officer, DPIFM

A team from DPIFM entered the second annual Bronco Branding competition held at the 2007 Alice Springs Show. This followed the runaway success of this event at last year's show.

In the 2006 event our team were only able to catch two of the three calves required to record a time. This year our team comprising of Bryan Gill, Greg Crawford, Ellena Hannah and Sally Leigo, completed their task with three catches. Although our time was not fast enough to place, we did manage to complete the task and managed a not so shabby 'round about the middle place. This was, at least, an improvement on last year's effort.

The event which is organised by Mt. Riddock Station is proving very popular, with two teams travelling over the border from South Australia. In fact, in 2006 and 2007 the event has been won by South Australian teams. Billy Hayes from Ooraminna got the crowd to its feet with an incredible hat-trick of hind leg catches which managed to get them a third placing.

Well done to all competitors and congratulations to Rebecca & Steve Cadzow on another well organised and successful event. And watch-out, maybe next year the DPIFM team can improve again.

1st	-	Lambina
2nd	-	Schmidt Bros.
3rd	-	Deepwell

ABOVE: Bryan Gill was the "Catcher" for the DPIFM team.

RIGHT: Sally Leigo, Ellena Hanna and Greg Crawford prepare to get the beast on the ground.

From the Veranda

The Pastoral Lector

Shows over now back into the mustering!

Haven't had much time to put a book review together for this edition of the Rural Review, so I better get straight into it.

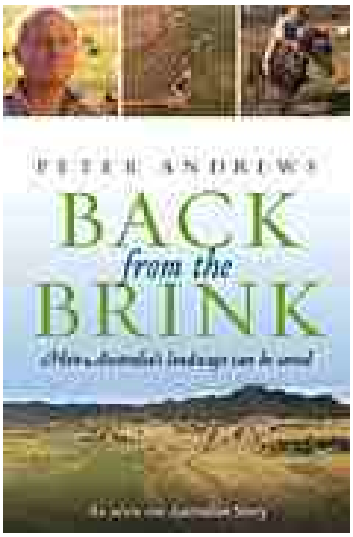
If you haven't heard of Peter Andrews you've obviously been working too hard or on holiday at the moon.

Back from the Brink by Peter Andrews, published by the Australian Broadcasting Corporation (2006), is a farmer's story of how after a lifetime's experience of working on the land, he has noticed the landscape change.

Peter has watched and experimented with the movement of water. He has observed the importance of biodiversity weeds and stock included. From his observations, a radical new approach has developed, which had been long rejected by farmers, scientists and politicians.

Since then, Peter has been on TV a couple of times and has now received recognition from scientists worldwide that his approach to land management is repairing the country.

Where once our country was able to survive long droughts and tolerate salinity, it is now on the verge of irreparable damage. Can we pull ourselves back from the brink?



Central Australia gets mentioned throughout the book, so read it and make your own judgement. Maybe Peter has got it right?

A word from the Editor

Andrea Hill

Well, Sally has pulled her Wellington boots on and set-off for a 12-month trip around Europe. There are quite a few of us here that are insanely jealous to say the least.

Before she left she handed the task of ASRR Editor over to me. It's a big task and one which will certainly provide me a challenge however, I can promise to "take the bull by the horns" and meet the challenge head-on.

I started with the department after moving to Alice Springs from country Victoria with my husband, two boys, two horses and a dog, almost 4 years ago. "Another city slicker" I hear you curse. Well I'm proud to say that I'm more country than city, and have settled into the Territory way quite nicely, thank-you.

I am a keen equine enthusiast and hold a qualification in Equine Myo-functional Therapy.

My role with DPIFM is Executive Assistant within the Regional Management team and our Regional Director's Personal Assistant. My other cap, together with our marketing guru and ASRR Publisher Nanet, is co-organiser of the annual AZRI Open Day.

This role exposes me to information on projects from all the units, and over the coming issues I will endeavour to bring you some updates not only from our pastoral unit and partners, but also some stories on other initiatives and research being undertaken across the region.

I'd love to get some feedback from our readers. What is it YOU want? What is it you would like to see in the Rural Review? I'd welcome some suggestions from you, our readers! If you want to make a suggestion, have a funny photo, short story or some good news you would like to share, please contact me... I'd love to hear from you.

You can contact me by phone on 8951 8101, fax 8951 8112 or email me at andrea.hill@nt.gov.au.

Until next time…….. Cheers! Andrea.

Regional Wrap

In 1951 the Arid Zone Research Institute (AZRI) was secured to advance primary industries in the region. The initial focus was on pastoral industry which later expanded to include horticultural. Research and demonstration. Over the years AZRI has made a major contribution to national disease eradication. To this day, disease eradication is paramount as it allows primary industries to flourish and provides access to overseas markets. For example, a rich tradition of horticultural research and demonstration has enabled substantial industry development in table grapes.

Work at the AZRI site has continued to evolve. Programs carried out by the Department of Primary Industry, Fisheries and Mines (DPIFM) cover biosecurity, pastoral and horticulture as well as including a major part of the NT Geological Survey program and a microbiological laboratory. The laboratory tests all potable water in the region and beyond.

Today, AZRI effectively acts as a campus for a range of NT Government departments. The site currently accommodates the regional HQ for DPIFM and for Parks NT, as well as the weeds and water resource depots in the Department of Natural Resources, Environment and the Arts (NRETA). An area of infiltration basins for the Alice Springs Water Reuse project is leased to Power Water Corporation. The Central Land Management Association and Wild Care have support facilities here as well.

Yet another co-located NT Government unit is about to be established at AZRI. A Global Navigation Satellite System (GNSS) base station, one of two planned for in Alice Springs by the Land Information Division of the NT Department of Planning and Infrastructure (DPI), will soon be in position. (Interestingly, the blocky building assigned to this purpose once housed a still. This produced distilled water rather than alcohol, for use in the veterinary laboratories which operated until about 1991.) This is part of a national network which will provide very accurate positioning information for a wide range of government and industry needs.

AZRI is strategically located adjacent to the Desert Knowledge Precinct and DPIFM is a key participant in a rebid for the next cycle of the Desert Knowledge Cooperative Research Centre. AZRI's linkage to other departments and organisations effectively leverages extra capacity to deliver significant outcomes, ensuring a continuing high level of relevance to the priorities of the NT Government.

Best Wishes,

Phil Anning

AussieGRASS - June/July 2007 Update
Alice Springs Region

AussieGRASS is a spatial modelling framework that estimates pasture growth, total standing dry matter (TSDM), and compares current conditions with historical records. The model uses rainfall, climate, soil and pasture type information to estimate grass growth in 5km square grids across Australia.
For more information about seasonal forecasts and AussieGRASS see www.LongPaddock.qld.gov.au

Past 12-Months Pasture Growth

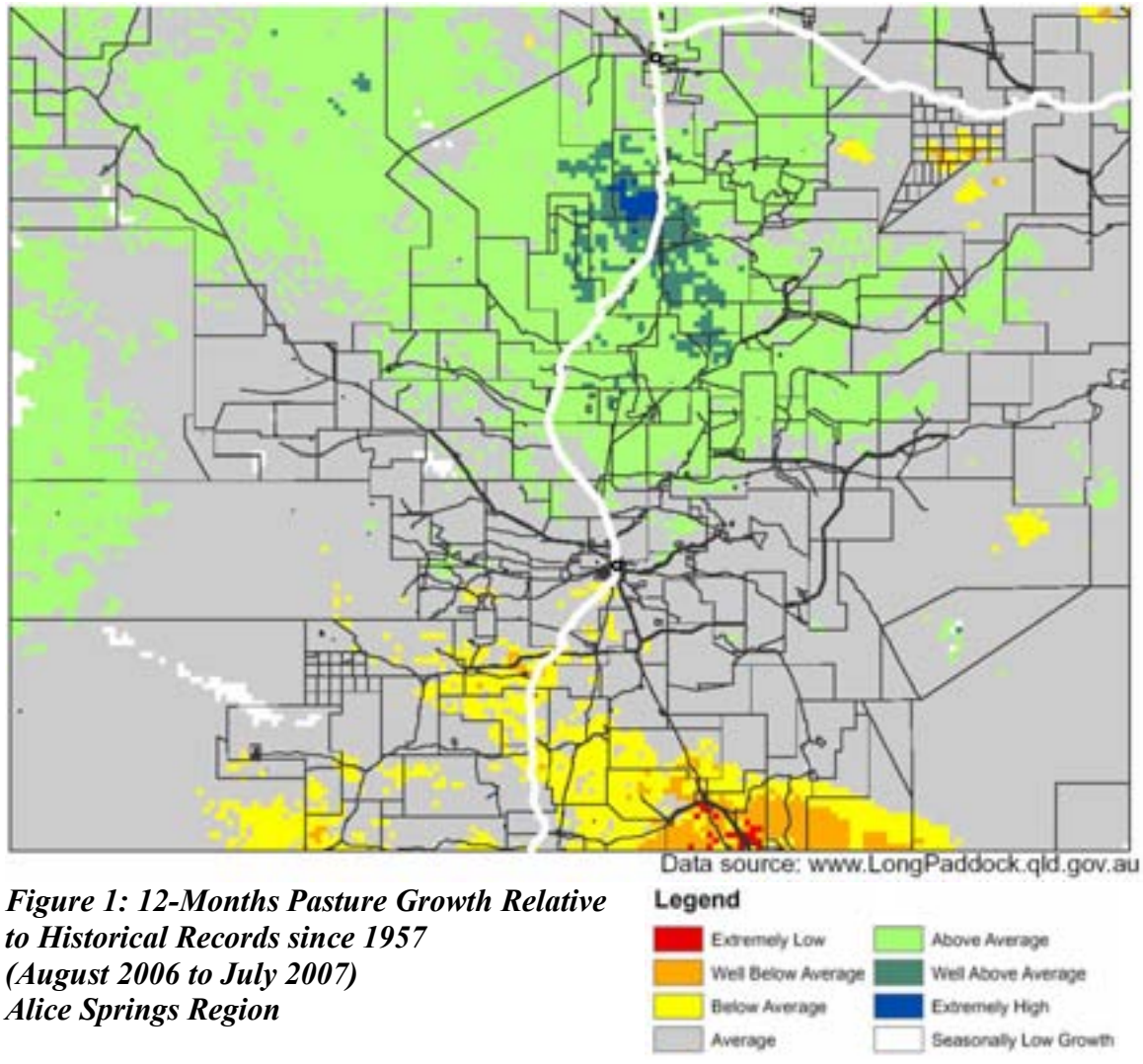
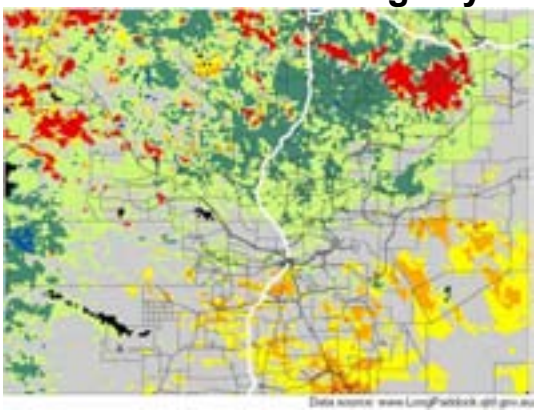


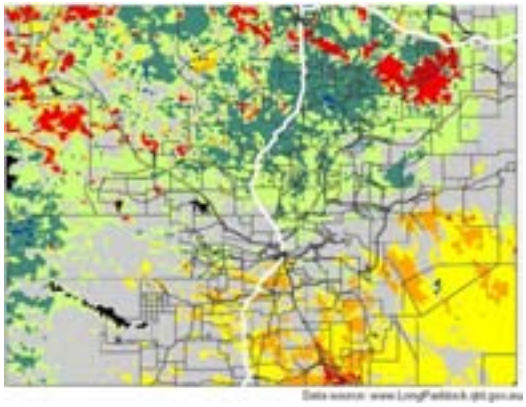
Figure 1: 12-Months Pasture Growth Relative to Historical Records since 1957 (August 2006 to July 2007) Alice Springs Region

Some areas south of Alice Springs are showing below average growth (yellow) over the past 12 months, with the south east being well below average (orange) to extremely low growth (red). Around Alice Springs the past 12 months is considered average. With the exception of extremely high growth conditions (blue) being experienced around Wycliffe Well, the majority of the northern Alice Region indicates above average growth conditions (light green).

Present Total Standing Dry Matter



June 2007



July 2007

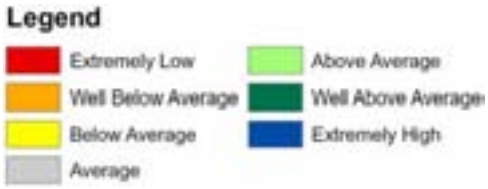


Figure 2&3: Total Standing Dry Matter (TSDM) Relative to Historical Records since 1957
Alice Springs Region

Relative total standing dry matter (TSDM) is estimated by incorporating pasture carried over from previous seasons (less grazing, fire and detachment) and the current season's pasture growth, and comparing it with the past estimations.

Future Growth Predictions

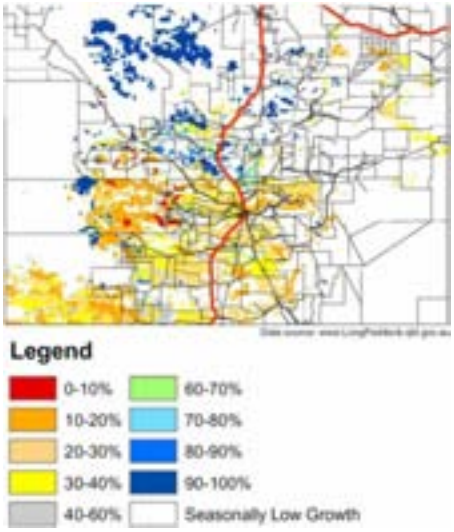


Figure 4: Chances of exceeding Median Growth between August and October 2007
Alice Springs Region

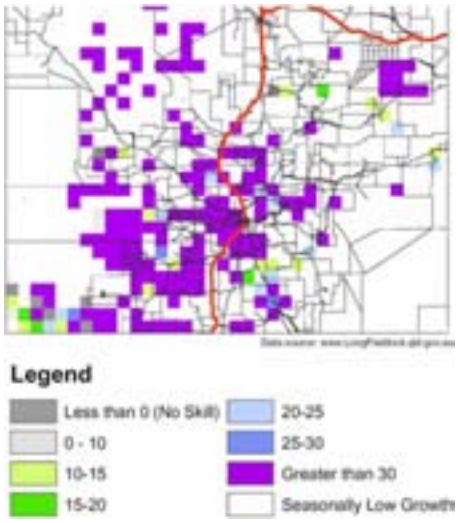


Figure 5: LEPS Growth Forecast Skill – SOI Phase 3 August to October 2007
Alice Springs Region

Figure 4 represents the chance of exceeding median pasture growth over the coming three month period based on the SOI index, and figure 5 shows the level of skill or confidence in that prediction. It shows that between August and October 2007 south of Alice Springs has up to 40% chance of exceeding median growth whilst the north western Alice Spring area indicates many parts have a greater than 80%, chance of exceeding the median growth.

Pastoral Market Update

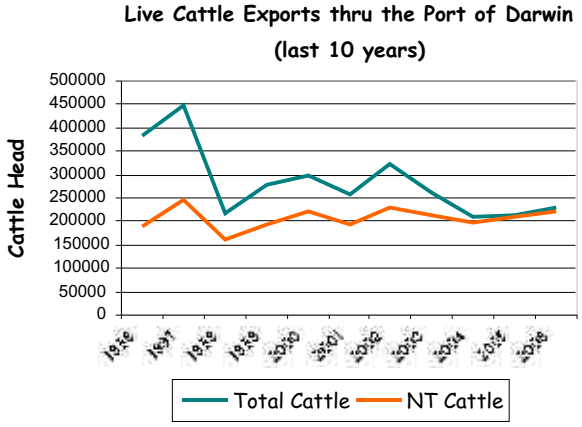
Live Cattle Exports via Darwin Port – June 2007

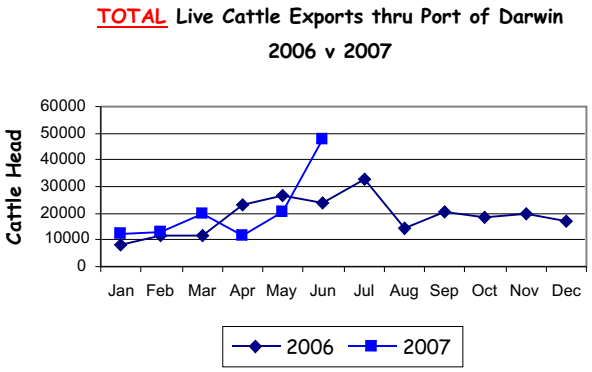
Please note that the "NT CATTLE" figures are NT cattle exported through the Port of Darwin only, some NT cattle are exported through interstate ports.

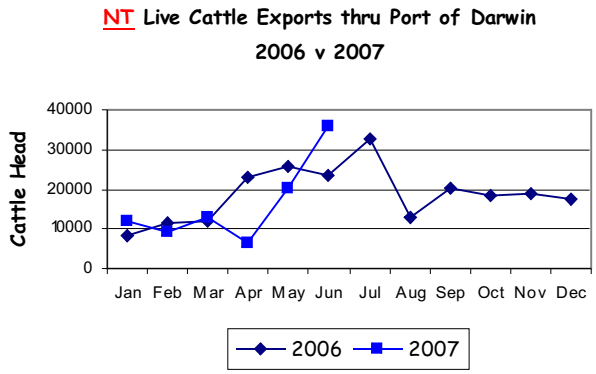
Destination	TOTAL CATTLE (including interstate)							# NT CATTLE						
	2005	2006	Last year 30/6/06	YTD 30/6/07	1-30 JUNE	Previous Month	Difference	2005	2006	Last year 30/6/06	YTD 30/6/07	1-30 JUNE	Previous Month	Difference
BRUNEI	6,642	7,453	4,015	1,500	0	744	*-744*	6,462	7,227	4,015	744	0	744	*-744*
INDONESIA	186,031	190,297	87,306	116,943	46,082	18,689	*+27,393*	184,767	188,419	86,720	92,283	34,282	18,689	*+15,593*
PHILIPPINES	13,052	10,071	7,310	4,417	1,750	0	*+1,750*	12,438	10,071	7,310	2,697	1,750	0	*+1,750*
SABAH	1,905	5,758	1,087	0	0	0	*0*	1,905	4,944	1,087	0	0	0	*0*
SARAWAK	4,893	1,883	1,883	993	0	993	*-993*	4,893	1,883	01,883	993	0	993	*-993*
W-MALAYSIA	93	12,412	3,430	0	0	0	*0*	93	10,583	2,542	0	0	0	*0*
EAST TIMOR	0	0	0	0	0	0	*0*	0	0	0	0	0	0	*0*
TOTAL	**212,616**	**227,874**	**105,031**	**123,853**	**47,832**	**20,426**	***+27,406***	**210,558**	**223,127**	**103,567**	**96,987**	**36,032**	**20,426**	***+15,606***
				+18,822							-6,580			

JUNE at a glance

- 47,832 head of cattle through the Port of Darwin during June, 27,406 head more than May and 21,386 more than May last year.
- YTD figures indicate 18,822 head of cattle more than the same time last year.
- 2,257 goats were exported to Indonesia







PREVIOUS 8 YEARS

Total Cattle, Port of Darwin								NT Cattle, Port of Darwin							
1999	2000	2001	2002	2003	2004	2005	2006	1999	2000	2001	2002	2003	2004	2005	2006
280,011	299,179	258,127	322,602	260,618	211,042	212,616	229,654	192,441	222,669	193,172	229,796	212,520	205,204	210,558	225,413

Pastoral Market Update

JUNE cont.

OTHER LIVESTOCK EXPORTS VIA DARWIN PORT (includes NT and Interstate Stock)

	Buffalo			Camels			Goats			Horses			Sheep			Pigs		
Destination	**2006**	**2007**	**1-30 JUNE**	**2006**	**2007**	**1-30 JUNE**	**2006**	**2007**	**1-30 JUNE**	**2006**	**2007**	**1-30 JUNE**	**2006**	**2007**	**1-30 JUNE**	**2006**	**2007**	**1-30 JUNE**
BRUNEI	492	89		0	0	0	1253	1,000		11	0	0	0	0	0	0	0	0
INDONESIA	820	979	371	0	0	0	57	2,257	2,257	0	9	0	0	0	0	0	0	0
PHILIPPINES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	445	0	0
W-MALAYSIA	5,777	0	0	343	0	0	3702	0	0	0	0	0	781	0	0	0	0	0
SABAH	659	0	0	0	0	0	11284	1,921	0	5	0	0	0	0	0	0	0	0
TOTAL	**7,748**	**1,068**	**371**	**343**	**0**	**0**	**16296**	**5,178**	**2,257**	**16**	**9**	**0**	**781**	**0**	**0**	**445**	**0**	**0**

NATIONAL CATTLE PRICES - W/E 29/6/07

JAPAN OX

	Estimated dressed weight price (cents/kg)							
	SALEYARDS				O.T.HOOKS			
	NSW	QLD	SA	AV (Aust)	NSW	QLD	SA	AV (Aust)
This week	319	326	nq	323	315	325	nq	314
Last week	323	319	nq	322	315	320	nq	314
Year ago	334	329	nq	330	316	326	333	323

MEDIUM STEER

	Estimated dressed weight price (cents/kg)							
	SALEYARDS				O.T.HOOKS			
	NSW	QLD	SA	AV (Aust)	NSW	QLD	SA	AV (Aust)
This week	318	317	351	318	315	315	nq	306
Last week	308	315	349	311	315	309	nq	306
Year ago	331	326	345	328	309	313	323	317

US COW

	Estimated dressed weight price (cents/kg)							
	SALEYARDS				O.T.HOOKS			
	NSW	QLD	SA	AV (Aust)	NSW	QLD	SA	AV (Aust)
This week	272	274	293	292	244	272	250	250
Last week	269	267	284	289	244	268	250	245
Year ago	280	279	299	284	262	274	265	254

TRADE STEER

	Estimated dressed weight price (cents/kg)							
	SALEYARDS				O.T.HOOKS			
	NSW	QLD	SA	AV (Aust)	NSW	QLD	SA	AV (Aust)
This week	361	327	347	356	315	296	383	326
Last week	356	315	343	348	315	295	383	326
Year ago	363	342	344	359	324	304	315	331

LIVE EXPORT QUOTES

	Estimated **live** weight price (cents/kg)			
	LIGHT STEERS (280-400 kg)		HEAVY STEERS (400+ kg)	
	Darwin	Fremantle	Darwin	Fremantle
This week	175	nq	165	nq
Last week	170	nq	155	nq
Year ago	185	nq	165	nq

Prices courtesy of Meat & Livestock Australia

mla market information

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CURRENCY EXCHANGE RATES

Key Currencies *1AUD =*	Current 4.7.2007	Previous month 1.6.2007	4 months ago 1.3.2007	1 Year ago 1.7.2006	Pre-devaluation 01.07.1997
Brunei Dollar	1.31919	1.30356	1.22013	1.19442	1.076
Indonesian Rupiah	7,730.51	7,378.07	7,195.25	6,952.10	1830
Philippine Peso	39.35573	38.71032	38.29628	39.31115	19.84
Malaysian Ringgit	2.95137	2.87482	2.76131	2.71388	1.9
Euro	0.6914	0.62240	0.59620	0.58154	N/A
US Dollar	0.85654	0.84110	0.78788	0.74457	0.752

Prepared by the NT Department of Primary Industry, Fisheries and Mines

Pastoral Market Update

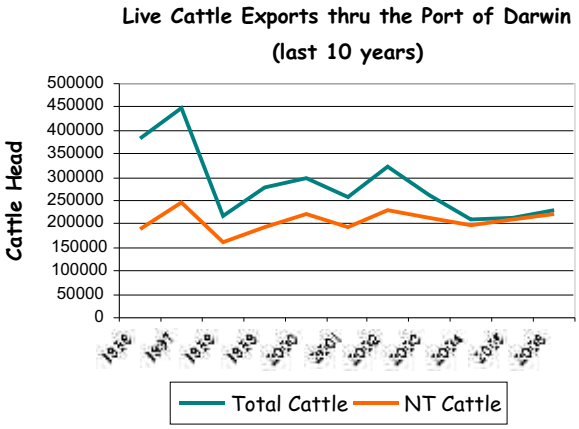
Live Cattle Exports via Darwin Port – July 2007

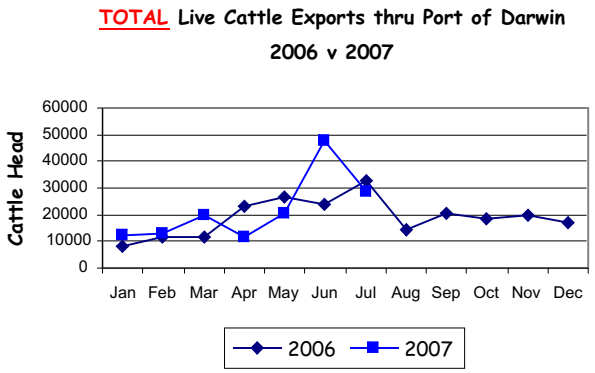
Please note that the "NT CATTLE" figures are NT cattle exported through the Port of Darwin only, some NT cattle are exported through interstate ports.

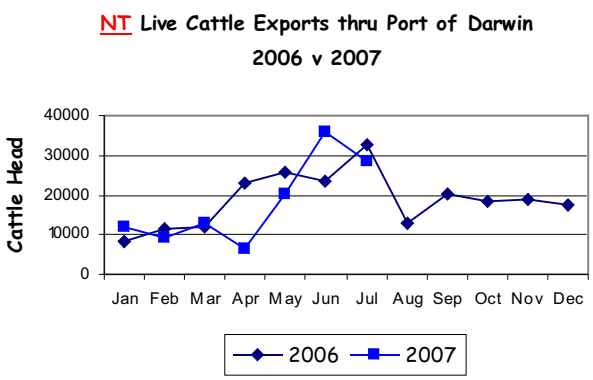
Destination	TOTAL CATTLE (including interstate)							# NT CATTLE						
	2005	2006	Last year 31/7/06	YTD 31/7/07	1-31 JULY	Previous Month	Difference	2005	2006	Last year 31/7/06	YTD 31/7/07	1-31 JULY	Previous Month	Difference
BRUNEI	6,642	7,453	4,875	2,708	1,208	0	*+1,208*	6,462	7,227	4,875	1,952	1,208	0	*+1,208*
INDONESIA	186,031	190,297	115,387	143,748	26,805	46,082	*-19,277*	184,767	188,419	114,801	119,088	26,805	34,282	*-7,477*
PHILIPPINES	13,052	10,071	10,071	4,417	0	1,750	*-1,750*	12,438	10,071	10,071	2,697	0	1,750	*-1,750*
SABAH	1,905	5,758	1,087	355	355	0	*+355*	1,905	4,944	1,087	355	355	0	*+355*
SARAWAK	4,893	1,883	1,883	993	0	0	*0*	4,893	1,883	01,883	993	0	0	*0*
W-MALAYSIA	93	12,412	4,165	0	0	0	*0*	93	10,583	3,277	0	0	0	*0*
EAST TIMOR	0	0	0	0	0	0	*0*	0	0	0	0	0	0	*0*
TOTAL	**212,616**	**227,874**	**137,468**	**152,221**	**28,368**	**47,832**	***-19,464***	**210,558**	**223,127**	**135,994**	**125,085**	**28,368**	**36,032**	***-7,664***
				+14,753							-10,909			

JULY at a glance

- 28,368 head of cattle through the Port of Darwin during July, 19,464 head less than June and 4,069 less than July last year.
- YTD figures indicate 14,753 head of cattle more than the same time last year.
- 1,042 goats were exported to Sabah







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Pastoral Market Update

JULY cont.

OTHER LIVESTOCK EXPORTS VIA DARWIN PORT (includes NT and Interstate Stock)

	Buffalo			Camels			Goats			Horses			Sheep			Pigs		
Destination	**2006**	**2007**	**1-31 JULY**	**2006**	**2007**	**1-31 JULY**	**2006**	**2007**	**1-31 JULY**	**2006**	**2007**	**1-31 JULY**	**2006**	**2007**	**1-31 JULY**	**2006**	**2007**	**1-31 JULY**
BRUNEI	492	129	40	0	0	0	1253	1,000		11	0	0	0	0	0	0	0	0
INDONESIA	820	1,804	825	0	0	0	57	2,257	0	0	9	0	0	0	0	0	0	0
PHILIPPINES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	445	0	0
W-MALAYSIA	5,777	0	0	343	0	0	3702	0	0	0	0	0	781	0	0	0	0	0
SABAH	659	75	75	0	0	0	11284	2,963	1,042	5	0	0	0	0	0	0	0	0
TOTAL	**7,748**	**2,008**	**940**	**343**	**0**	**0**	**16296**	**6,220**	**1,042**	**16**	**9**	**0**	**781**	**0**	**0**	**445**	**0**	**0**

NATIONAL CATTLE PRICES - W/E 3/8/07

JAPAN OX

	Estimated dressed weight price (cents/kg)							
	SALEYARDS				O.T.HOOKS			
	NSW	QLD	SA	AV (Aust)	NSW	QLD	SA	AV (Aust)
This week	331	336	Nq	327	320	316	240	309
Last week	323	318	Nq	325	322	320	250	313
Year ago	350	348	314	347	328	332	272	325

MEDIUM STEER

	Estimated dressed weight price (cents/kg)							
	SALEYARDS				O.T.HOOKS			
	NSW	QLD	SA	AV (Aust)	NSW	QLD	SA	AV (Aust)
This week	331	312	340	323	319	308	nq	304
Last week	323	314	355	318	321	310	nq	305
Year ago	351	349	345	345	320	321	323	324

US COW

	Estimated dressed weight price (cents/kg)							
	SALEYARDS				O.T.HOOKS			
	NSW	QLD	SA	AV (Aust)	NSW	QLD	SA	AV (Aust)
This week	275	256	284	269	248	262	240	245
Last week	270	254	283	264	249	264	250	248
Year ago	301	293	290	293	271	284	272	260

TRADE STEER

	Estimated dressed weight price (cents/kg)							
	SALEYARDS				O.T.HOOKS			
	NSW	QLD	SA	AV (Aust)	NSW	QLD	SA	AV (Aust)
This week	360	351	346	358	311	303	383	326
Last week	361	326	346	358	313	304	383	327
Year ago	381	377	361	376	322	313	315	336

LIVE EXPORT QUOTES

	Estimated **live** weight price (cents/kg)			
	LIGHT STEERS (280-400 kg)		HEAVY STEERS (400+ kg)	
	Darwin	Fremantle	Darwin	Fremantle
This week	175	nq	165	nq
Last week	175	nq	165	nq
Year ago	185	nq	165	nq

Prices courtesy of Meat & Livestock Australia

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Philippine Peso	39.00620	39.35573	39,65257	39.45626	19.84
Malaysian Ringgit	2.96731	2.95137	2.84582	2.80999	1.9
Euro	0.61981	0.6914	0.60851	0.59840	N/A
US Dollar	0.85589	0.85654	0.82980	0.76363	0.752

Prepared by the NT Department of Primary Industry, Fisheries and Mines

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Glossary

ADIC: Australian Dairy Industry Council
ASPIAC: Alice Springs Pastoral Industry Advisory
CLMA: Centralian Land Management Association
CSIRO: Commonwealth Scientific & Industrial Research OrganisationCommittee
DAFF: Department of Agriculture, Fisheries and Forestry
DCQ: Desert Channels Queensland Inc.
DEET: Dept of Employment, Education and Training
DK-CRC: Desert Knowledge Cooperative Research Centre
DNRETA: Dept of Natural Resources, Environment and the Arts
DPI: Dept of Planning and Infrastructure
DPIFM: Dept of Primary Industry, Fisheries and Mines
CAGLM: Central Australian Grazing Land Management
GRASSp: Pasture Growth Model
GNSS: Global Navigation Satellite System
MLA: Meat & Livestock Australia
NABRC: North Australian Beef Research Council
NBRUC: Northern Beef Research Update Conference
NLIS: National Livestock Identification System
NLP: National Landcare Program
NTCA: Northern Territory Cattlemen's Association
PIC: Property Identification Code
RFID: Radio Frequency Identification Device
VRD: Victoria River District

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