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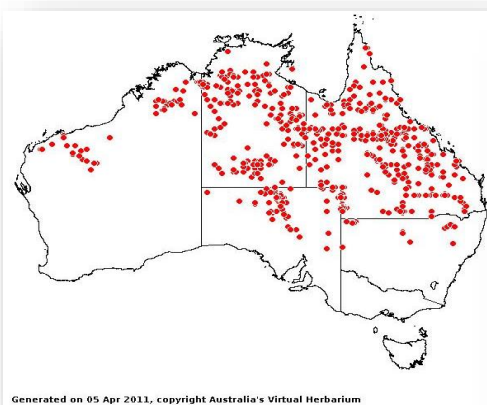


Can fire be used to manage feathertop wiregrass in Mitchell grass pastures?

Dionne Walsh, Rangeland Program Manager, DPIR Darwin

Take home messages

- Even with the right soil moisture conditions, it's not a "sure bet" that you will get a good kill of feathertop wiregrass.
- Some years it will work, some years it won't.
- You need high fuel loads (>2,000 kg/ha) and good fuel continuity to achieve a clean burn.
- Knowing the above can help you make informed risk-based decisions about whether to use fire or not.



Generated on 05 Apr 2011, copyright Australia's Virtual Herbarium



Figure 1: Feathertop wiregrass (Aristida latifolia) is a widespread native perennial grass that grows on clay soils throughout northern Australia

Why do we want to control feathertop?

- It has relatively low palatability.
- It builds up in runs of good seasons.
- It can become dominant in overgrazed pastures.
- It has high seed production.
- It competes well with valued pasture species once established.
- It is hard to manage using grazing management alone.

Why are we investigating fire as an option?

- Fire has been shown to work in western Queensland.
- It is a cheap intervention compared to other options like spraying or re-seeding.

BUT!

- Success is highly dependent on timing – you need low soil moisture for several weeks before and after burning.
- Producers are wary of burning Mitchell grass pastures – it is their best pasture resource.
- High risk of wildfire at the prime time for success (which is July and August in the Barkly).

So we did an experiment on Newcastle Waters Station to see if burning to manage feathertop wiregrass is worth the risk (or not!).



Figure 2: Burning the experimental plots at Newcastle Waters Station. Photo by Gabby Penna

What did we find?

We undertook burns in July 2017 and September 2017 and completely spelled the site from grazing over the wet season. When we returned in April 2018 we compared the burnt plots to unburnt (control) plots and found that:

- burning reduced the plant size and biomass of feathertop
- the fires had only killed 1% of the feathertop plants
- burnt plots had lower pasture yields and ground cover overall
- burnt plots had more “weedy” annuals like sensitive plant (*Neptunia* spp.)
- no desirable perennial grasses were killed

- burning increased seed production in the valued pasture species curly bluegrass (*Dichanthium fecundum*).

We tried to repeat the experiment this year but found that the fuel loads and continuity would not carry a fire. This was despite the site being spelled from grazing for the past 12 months. We conclude that fire can kill feathertop wiregrass, but it's not going to be a "sure bet" every year.

Acknowledgements - This is a collaborative project between NT DPIR, Barkly Landcare & Conservation Association and Newcastle Waters Station (Consolidated Pastoral Company). Funding support was provided by Territory Natural Resource Management (TNRM).



TNRM has been successful in obtaining a Smart Farms Small Grant through the Australian Government's National Landcare Program. The grant will be used to initiate a Northern Territory (NT) Soil Consortium to build land manager capacity and knowledge in soil health and conservation. The Consortium will bring land managers from various industries and soil experts together through workshops, symposiums, and networking, to ensure knowledge passes in an effective manner.

The NT Soil Consortium encourages everyone who has an interest in the land and their soil to be involved. From backyard gardeners, to horticulturists, to pastoralists, the Consortium will benefit everyone. The advantages of peer-to-peer, farm-to-farm learning is the basis of the Consortium. The opportunities that come from networking, training, and learning will allow the NT to become resilient against challenges facing those who work on the land.

For further information and if you wish to be involved, join the Facebook Group '[NT Soil Consortium](#)' or please contact:

Jacob Betros
Territory Natural Resource Management
T: 0438 756 481 E: jacob.betros@territorynrm.org.au



Sweet Spot Project kicks off (gets moo-ving) across the north

Robyn Cowley, Senior Rangeland Scientist, DPIR Darwin

The Cash Cow project found that there was an opportunity to improve breeder performance in some areas of Northern Australia. Previous research has focused on disease, herd management and genetics, but little is known about how different levels of pasture utilisation impact breeder productivity. The Sweet Spot project will address this knowledge gap and find the *sweet spot* of pasture utilisation to ensure long term optimal breeder performance in northern Australia. The project is funded by Meat Livestock Australia (MLA) and brings together pasture and cattle scientists, and modellers from across the north. The \$2M project, over four years, is led by the Northern Territory Department of Primary Industry and Resources, collaborating with Queensland's Department of Agriculture and Fisheries, and Department of Environment and Science.

The project will use existing breeder datasets to ask new questions, increasing the value of previously funded research.

"There is an untapped gold mine of breeder production data from sites across Northern Australia. By bringing together these existing datasets we will gain new insights into how to manage breeders to improve reproduction," Dr Robyn Cowley said.

The project aims to develop tools to predict the impact of pasture utilisation on reproduction, so producers can optimise pasture use to maximise kilograms turned off, while maintaining the resource base.

The project team had their first meeting in August. The first phase of the project is searching across the north for suitable breeder datasets that can be collated and modelled.



For more information call Dr Robyn Cowley, Senior Rangeland Scientist on 0419 829 493 and Dr Kieren McCosker, Senior Livestock Scientist on 08 8973 9771.

The Northern Australia Climate Program – gaining a better understanding of our climate

Alison Kain, Climate Mate for the Barkly Tablelands, University of South Queensland

The Northern Australia Climate Program (NACP) is a new program designed to bring together the best climate scientists, advisors and regional producers to promote and develop the most useful climate forecasting tools possible for the northern beef industry.

NACP is being delivered by the University of Southern Queensland (USQ), in conjunction with the Bureau of Meteorology (BoM) along with regional partners, and the Department of Primary Industry and Resources. The program is funded by Meat and Livestock Australia, the Queensland Department of Agriculture and Fisheries (QDAF) and USQ.

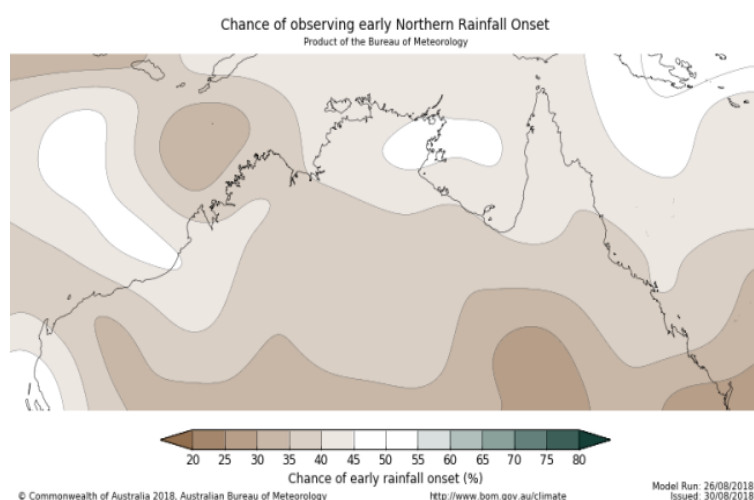
What is this program about?

Climate variability, especially rainfall variability, is a significant challenge for northern beef producers. This project aims to help producers find, understand and use climate forecasting information. Producers can also provide feedback to researchers to help develop the very best climate tools possible.

Eight 'Climate Mates' have been appointed across Queensland, the Northern Territory and northern Western Australia, to liaise with pastoralists. My name is Alison Kain and I'm the 'Climate Mate' for the Barkly Tableland. Over the next two years, I will be spreading the word about climate forecasting tools available specifically for the Barkly. Look out for information in newsletters, on Facebook, field days and workshops.

My role is to help you find answers to your climate questions. So here are some thoughts on the big questions right now!

At this time of year, people are wondering "When is it going to start raining?" and "What is the wet season going to be like?" In the past year, BoM have started to use a new climate forecasting model that is showing greater skill and ability to forecast seasonal conditions. Seasonal forecasts can seem overwhelming initially and sometimes it seems like information overload but they can be useful management tools. Here are some forecasts that might help answer these current questions.



"When is it going to start raining?"

BoM's web-site has a handy model that attempts to answer this question (one way to find it is search *wet season onset* on the BoM home page). Figure 3 shows the likelihood of having an early onset of the wet across northern Australia. The models predict there is a 35 – 45% chance of an early wet in the Barkly. Of course, this also means that there is a 55 – 65% chance of it being normal or late. While this may not be particularly good news for most, it is important to assess the reliability (also known as 'skill') of this forecast before

Figure 3. When will it rain? There is a 35 – 45% chance of having an early wet season break across the Barkly Tableland.

Source: Bureau of Meteorology

making any decisions.

Figure 4 shows the past 'skill', or reliability, of the model based on actual historical observations. For most of the Barkly there is about a 55-65% chance that the forecast for the start of the wet season is correct. So that's a bit better than 50/50.

"Why is it going to be late?"

Perhaps you've heard of El Niño? Well the forecasters are still predicting that an El Niño event is likely to form in 2018. Historically, El Niño years tend to result in drier conditions than normal, including a later wet onset, meaning we are less likely to get early storms across the Barkly. The good news is that once the monsoon begins, it largely overrides the effects of El

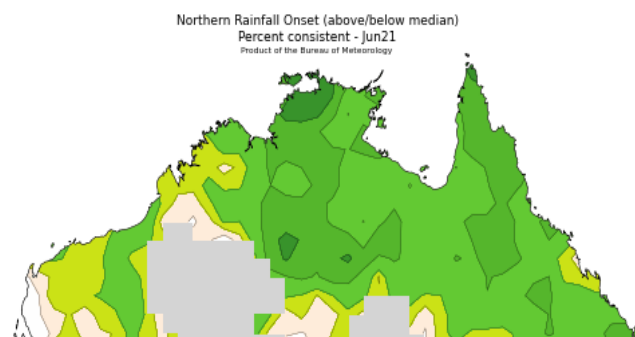


Figure 4. How reliable is this forecast? The past 'skill' is moderate for the Barkly Tableland. Source: Bureau of Meteorology

Niño in northern Australia. Throughout this project I'm hoping you will find out more about these climate drivers and how they affect the Barkly. It can really help when trying to work out what a forecast means!!

"What is the wet season going to be like?"

You can have a look at the forecast for December to February on the BoM website. Search for *climate outlooks*, click on the top link and you should see the page shown in Figure 5. The forecast shows that it is likely that conditions will be drier than normal.

"What is normal anyway?"

Apps such as CliMate (you can download it for free) use long term actual data for your property and you can ask quite specific questions e.g. how often do we receive over 200mm between December to February. Rainman is another very useful program I can help you access as well.

"But what about these early storms?"

The official start to the monsoon happens when the Intertropical Convergence Zone (ITCZ) shifts south creating the monsoon trough near northern Australia. This shift in the ITCZ causes the trade winds to shift from easterlies to westerlies. Early rainfall events can be distinguished from monsoon events because they do not rely on a shift of the trade winds/ITCZ. These early storms just happen randomly due to convection (ie the build-up of heat and moisture due to the difference in temperature between the land and the oceans). It is very difficult to forecast these early storms. Rain is rain though and that's good!

Two things for your action

A half day workshop to understand climate drivers and forecasts.

When I started this project I had heard the terms ENSO, El Niño and the MJO but I didn't really know much about them. Some very enthusiastic climate experts from BoM and the University gave us a really great introduction to the climate drivers that affect northern Australia and how they develop and use forecasts. We gained a greater understanding of all those terms and several more as well! We are looking at hosting such a workshop on the Barkly in early 2019 with experienced climate extension officers from Queensland. If you think it sounds like a good idea or perhaps you would even like to host such an event, send me an email or a phone call.

Seasonal forecasts specific to the Barkly.

As of early December, we will have northern Australia and Barkly specific seasonal forecasts available. If you would like these emailed to you then please get in touch.

Contact details

Alison Kain

Climate Mate for the Barkly Tableland

Facebook: Climate Mate for the Barkly Tableland

Ph: 0409 281 649 alison.kain@usq.edu.au

Please note, the Climate Mate for East Kimberley and Victoria River District is Anne Marie Huey, who can be reached via annemarie.huey@usq.edu.au or by telephone on 08 9191 7069.

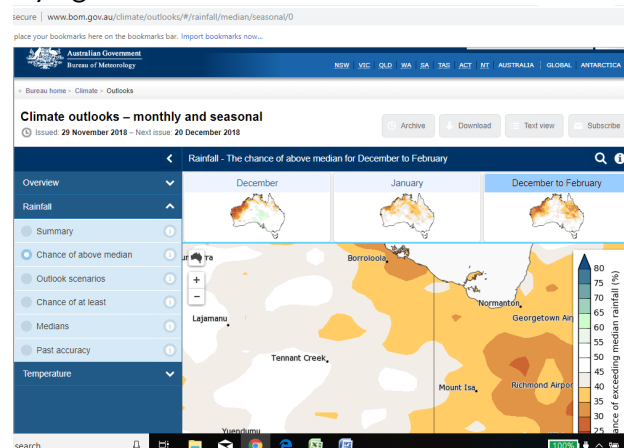


Figure 5. What are the chances of getting above average rainfall between December and February? (There is only a 35-45% chance of getting more than the long term median rainfall) Source: Bureau of Meteorology

2019 BARKLY HERD MANAGEMENT FORUM

DEPARTMENT OF PRIMARY INDUSTRY & RESOURCES

SAVE THE DATE: 9-11th April 2019

Some of our industry's finest will be on hand at the Barkly Herd Management Forum to assist station staff (Head Stockmen/women, Overseers, Assistant Managers) with developing their knowledge base and understanding of the basic principles required to manage a profitable enterprise. The BHMF will help participants develop an appreciation of the region's resources, understand the steps necessary to preserve land condition and expand their knowledge on the factors affecting production in northern Australian beef herds. Attendees will participate in interactive sessions that provide recommendations and key strategies specifically for the Barkly region and allow them to learn from experts in various fields

VENUE: (Brunette Downs TBC)

Numbers are limited, get your booking in quick!

CONTACT NT DPIR TENNANT CREEK OFFICE:

Jane Douglas
Pastoral Officer
Ph: 08 8962 4483
Jane.Douglas@nt.gov.au



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More details including Agenda will be released in 2019.

Profitable Grazing Systems

Over the years MLA and other organisations have run numerous field days, workshops and other training events to share information but many producers have indicated that they would like more support to build their skills and implement what they've learnt into their business. The new 'Profitable Grazing Systems' initiative from MLA is designed to provide that.

The aim of the program is to develop tailored short courses, delivered over 6 to 18 months which allow you to develop and practice your skills with small groups of like-minded producers. The course will be delivered by an accredited coach or facilitator, assisted by specialist technicians where relevant.

Delivery is flexible and may include a mix of online webinars, teleconferences, workshops and one-on-one property visits. There are a number of existing courses already available across the key topic areas of nutrition, breeding, grazing land management, people and business. These can be tailored to meet the needs of a group in the NT or a completely new, unique course can be developed to provide the specific skills you need.

Subsidies are available to help cover the cost of the course.

Three good reasons to get involved in Profitable Grazing Systems:



1. It takes a whole-of-farm business approach to improve business performance and drive profit.



2. It customises and tailors industry research findings and management options to your local environment



3. You work with small groups of like-minded producers with an experienced coach to support you.

What participating producers say

130 producers have already participated in Profitable Grazing Systems and say the benefits include:

- learning new skills and applying them to their individual farming systems
- seeing and hearing what other producers are doing
- making decisions based on tangible numbers.



Stuart and Anja Croft Heywood, Victoria

One of the top learnings from being involved in the program was the identification of loss drivers. We discovered our cattle enterprise is not economically viable because it's not the main focus of the business, but still requires infrastructure and supplementary feeding in hard times



Sam and Cassie Bassingthwaite, Dalby Queensland

One of the key learnings from the program was the importance of pasture identification to determine the percentage of 3P (palatable, productive, perennial) grasses. As a result of the program, we identified areas of non-palatable grasses, and destocked and strategically burned these areas to create a range of palatable grasses to encourage even grazing



To find out more, contact the NT State Coordinator – Rebecca Mohr-Bell

rebecca@argyllconsulting.com.au

08 8977 0134

Nominations open for Rural Women's Award

Territory women can nominate now for the 2019 AgriFutures™ Rural Women's Award.

The Rural Women's Award recognises the essential role women play in rural industries, businesses and communities.

It provides a platform to inspire Australian women to use their skills to benefit their industries and communities and is an amazing opportunity to further your leadership development, make a tangible difference and inspire others.

The Territory winner will receive a \$10,000 bursary for innovative projects, and access to professional development opportunities and the alumni network.

The award also links recipients with a positive and powerful alumni network of like-minded women across the country who are passionate about rural industries and rural Australia.

The award is open to all women involved in rural industries, rural and regional businesses and communities.

Northern Territory applicants have until 10.30pm Australian Central Time on 27 January 2019 to nominate for the award.

More information on the awards and how to submit an application is available on the [Department of Primary Industry and Resources website](#).

The Rural Women's Award is proudly supported by the Northern Territory Government and coordinated in the Northern Territory by the Department of Primary Industry and Resources.

A purple-tinted banner featuring a close-up of a hand reaching down towards a field of tall grass. The text is white and reads: "2019 AgriFutures™ Rural Women's Award Applications open". Below the main text, it says "Learn more agrifutures.com.au/rwa" and "@Westpac @AgriFuturesAU".

2019
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open

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DEPARTMENT OF PRIMARY INDUSTRY AND RESOURCES

BARKLY RANGELAND MANAGEMENT COURSE



An interactive course developed for station staff to enhance their skills & knowledge in the area of land & production system management in the Barkly region.

What: 1 day course covering...Pasture species, dynamics & management | Weed management & poisonous plants | Animal nutrition | Biodiversity

Where: On-station

When: Early 2019

For more information about BRMC or to organise a course on your station, please contact:

Jane Douglas
Pastoral Production Officer
DPIR, Tennant Creek

Tel: (08) 8962 4483
Fax: (08) 8962 4480
Email: Jane.douglas@nt.gov.au

NT Agriculture: Pathways to Potential

DATE CLAIMER - Field Days 2019

More information to be released early in the new year

Mark these dates in your calendar now! Be part of this opportunity to spend the day with local pastoralists, growers and industry experts to get the latest information on: non-pastoral use permits, changes to the water act, promoting agricultural industry development and new research in livestock, cropping, horticulture, and improving your pastures!

There will be something for everyone! A mixture of formal presentations and getting out in the paddock to look at on the ground applications of livestock research, crop and pasture varieties, and horticultural advances. Also there will be trade displays relevant to all industries attending the day.

When: Tuesday 9th April 2019

Where: Katherine Research Station

OR

When: Wednesday 10th April 2019

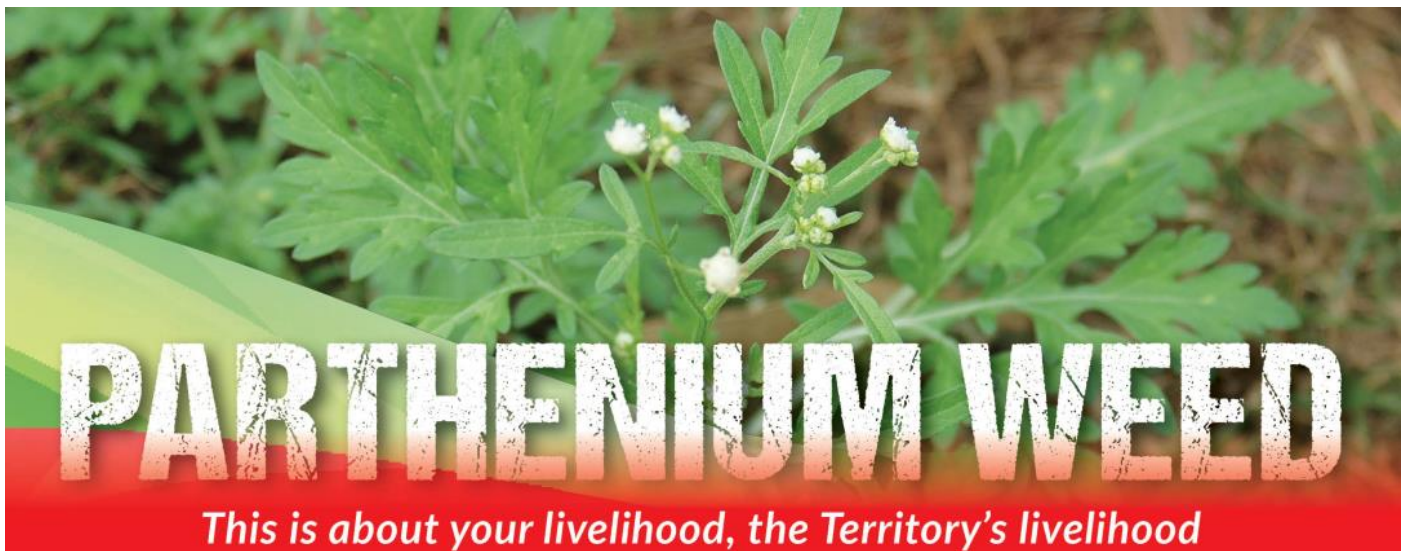
Where: Douglas Daly Research Farm



For enquiries please contact:
Ian Biggs – Katherine Research Station – P: 8973 9711 E: ian.biggs@nt.gov.au
Jo Miller – Katherine Research Station – P: 8973 9730 E: joanna.miller@nt.gov.au



A joint initiative between Department of Primary Industry and Resources, Department of Environment and Natural Resources and NT Farmers Association



Toxic weed alert - we need your help

A parthenium weed (*Parthenium hysterophorus*) incursion has been identified in the Katherine region.

Information about where the parthenium weed could have spread to indicates there is a risk to pastoral properties in the Katherine and Barkly regions.

The Territory Government's Weed Management Branch needs your help. Officers will be in contact with individual properties which may be at risk of parthenium weed exposure to conduct a survey. This will help lessees and managers to understand the areas at greatest risk.

It is important that land managers contact the Weed Management Branch on 8973 8857 if they think they might have parthenium weed.

Did you know?

Parthenium weed easily spreads by water, vehicles and machinery, livestock, feral animals, humans and hay and readily establishes in disturbed areas. It's also toxic to livestock and can cause health problems for humans.

Where to look for parthenium weed:

- Homestead complex
- Cattle yards
- Fence lines
- Watering points
- Areas where hay is cultivated, stored and fed
- Vehicle and machinery storage and wash down areas
- Any other disturbed sites

Remember to protect your property with good biosecurity practices. Parthenium weed has tiny seeds that can hide easily in vehicles, machinery, equipment, socks and boots!

Animal Health

DEPARTMENT OF PRIMARY INDUSTRY AND RESOURCES

New Principal Veterinary Officer

BVSc, BSc, DipSc, MSc, MBA, MRCVS, MANZCVSc

Dr Anthony Kettle (Tony) is a graduate of Massey University in New Zealand and had his own practice in Sydney for 10 years before moving to practice in Brunei for three years, and Oman for four years. He then spent more than 10 years in Dubai involved with the international movement of horses, quarantine and biosecurity in the United Arab Emirates, before joining Equine International Consultancy Free Zone Limited Liability Company in 2015 as the Executive Director.

For the last three years Tony has been advising governments on the conditions for international movement of horses, biosecurity and contingency planning. He is a consultant for the World Organization for Animal Health (OIE) and has served on multiple specialist ad hoc groups for the OIE including Glanders, Surra, Biosecurity and the High Health High Performance (HHP) protocols. Tony is a published author on Glanders (a disease closely related to Melioidosis seen commonly in northern Australia), and Shipping Fever in horses.

Tony is the Secretary of the International Movement of Horses Committee and a member of the Welfare Committee of the International Federation of Horse Racing Authorities in Paris. In addition to science and veterinary degrees, he holds a Master of Business Administration from Heriot-Watt University in Financial Risk Management.

While in Brunei, Tony wanted to buy property in Australia with a similar climate to Brunei and bought property in the Northern Territory (NT) more than 16 years ago. He visited every year before finally making the decision to commit full time to the NT. Tony welcomes the opportunity to contribute to biosecurity, animal health and welfare in the NT through the Department of Primary Industry and Resources.

Livestock disease investigations

The department provides a free disease investigation service to livestock owners for diagnosis of notifiable emergency, exotic and endemic disease, including zoonotic diseases. Berrimah Veterinary Laboratories provide free diagnostic testing for exclusion of notifiable diseases for all disease investigations, and subsidies are available for producers to contact private veterinarians for significant disease investigations in livestock.

During July to September 2018, 83 livestock disease investigations were conducted to rule out emergency diseases or investigate suspect notifiable diseases across the NT.

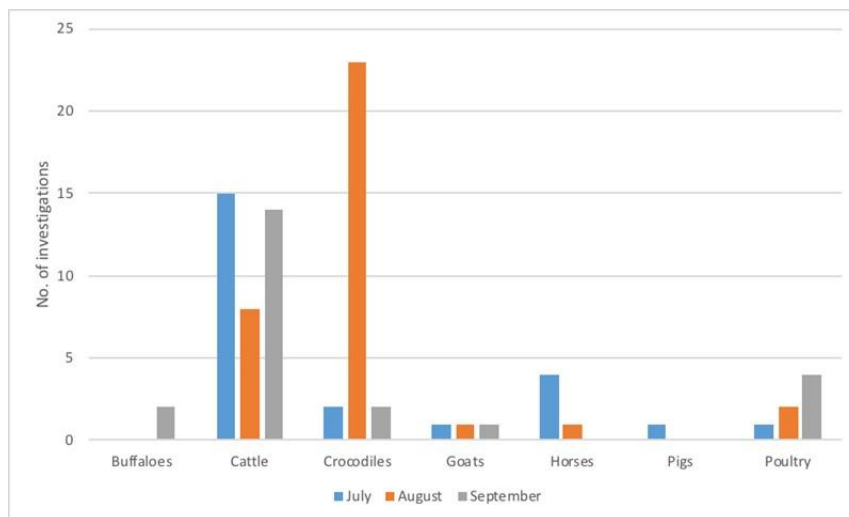


Figure 6: Livestock disease investigations in the NT, July to September 2018

Tick fever in bulls in a holding yard

A large group of age-cull bulls from multiple properties were being held in a holding yard in the cattle tick-infected zone prior to sale during June and July. Over this period, the manager noticed some bulls had diarrhoea, and seemed tucked up and lethargic before showing an uncoordinated gait and tremors. The manager became concerned when a number of these bulls died, and contacted the government who attended the property the same day to conduct autopsies.

A private and a government veterinarian conducted autopsies on two bulls from two consignments. One bull had died over 12 hours previously. The carcase was severely decomposed making it difficult to interpret cause of death. A full range of samples were collected and submitted to the laboratory as the first case. The autopsy on the second bull a week later showed mild jaundice, port wine-coloured urine and haemorrhages on a number of mucosal surfaces. There were small fragments of ironwood leaves in the rumen content.

Laboratory testing of the decomposed bull showed no explanation for any of the signs noted. Referral testing was performed on brain and kidney samples and was positive for *Babesia bovis* (*B. bovis*) and *B. bigemina*. Tick fever was suspected but could not be confirmed due to the lack of findings given the decomposed state of the carcase. Test results for the second case revealed significant parasitism with *B. bovis*, confirming a diagnosis of babesiosis (**Error! Reference source not found.**7). Due to the neurological signs seen before death, transmissible spongiform encephalopathy (TSE) was excluded in both bulls.

Babesiosis or 'tick fever' is a disease of cattle caused by blood parasites that are transmitted by the cattle tick. On further questioning it became apparent that the bulls affected had originated in a cattle tick-free zone and not been treated for ticks before moving to a holding property, which was in a tick-infested zone. Cattle born and raised in areas where cattle ticks are endemic can develop natural immunity through exposure to ticks infected with tick fever. Cattle raised in areas free from cattle ticks are at risk of tick fever if introduced into areas where ticks are present. The bulls were vaccinated ('blooded') as young bulls. Juvenile bull vaccination is no guarantee of life-long protection against the tick fevers. Other classes of cattle did not show any apparent disease which may be due to their genetics or some less apparent factor.

In this case, management advice was given to treat and remove ticks from affected cattle and there were no further losses. The property where the bulls had originated was also given advice to ensure that any at-risk cattle are blooded (vaccinated for tick fever) prior to moving them into the tick zone in the future.

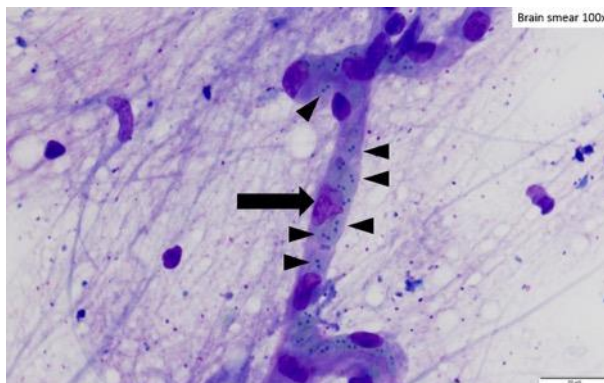


Figure 7: A blood vessel containing red blood cells and basophilic intra-erythrocytic pear-shaped organisms consistent in size and shape with *Babesia bovis*. Arrow heads point to blood cells containing organisms.

Annual Symposium Emergency Animal Disease (EAD) Highlights Report

The 5th Annual Emergency Animal Disease Symposium was held at the Australian Animal Health Laboratory Geelong, on 17 and 18 October 2018 with more than 100 attendees over the 2 days. The following are a few highlights from the symposium which is important not only for updating participants in the latest trends in EAD research, but also for the face-to-face networking opportunity for EAD prevention colleagues and livestock industry participants.

Dr Debbie Eagles highlighted recent trends in vector borne diseases and reminded participants that global warming was likely to have a major effect on vector borne diseases such as Bluetongue. The maintenance of the sentinel herd programs and vector collection in northern Australia is an essential component of our early warning system for transboundary disease incursions.

Dr Cameron Stewart gave a very informative presentation on emerging approaches to disease diagnosis. Recent work on microRNAs in Hendra and mastitis in cattle had produced encouraging results in the early detection of Hendra and mastitis in cattle that could be made before the onset of clinical signs.

Dr Jeff Hammond updated the symposium participants on Foot and Mouth Disease. There was marked long distance spread of the virus, especially from India, with the movement of people as a significant feature. This eastern spread of the virus from India was perceived as a major threat to Australia and constant vigilance was necessary to prevent an incursion of this virus.

Dr David Williams described the situation with African Swine Fever (ASF), which is a serious threat to Australia's pig industry especially if introduced into the estimated 20 million feral pigs in Australia. The southward movement of ASF from China through both direct, and indirect transmission by people, was a major concern. NT Livestock Biosecurity efforts have focused on ASF awareness in 2018.

Bucks for Brains

Do you have cattle that are displaying any of the following signs?

- Changes in behaviour and neurological signs
- Excessive licking of the nose and flanks
- Poor coordination (circling, staggering and falling)
- Muscle tremors
- Abnormal posture (abnormal ear position and abnormal head carriage)
- Difficulty in rising (downer)
- Paralysis
- Excitability
- Increased or decreased sensitivity to sound, pain, heat, cold or touch.

If you do, you may be eligible for an incentive payment under the 'Bucks for Brains' initiative.

Bucks for Brains is an initiative of the National Transmissible Spongiform Encephalopathies Surveillance Project (NTSESP) run through Animal Health Australia. Transmissible spongiform encephalopathies are rare, fatal diseases that cause gradual deterioration in the brain and other central nervous system tissues. Bovine spongiform encephalopathy (BSE), commonly known as 'Mad Cow' disease is the form found in cattle, scrapie is the form found in sheep.

The NTSESP helps Australia meet guidelines set by the World Organisation for Animal Health to demonstrate Australia's freedom from BSE and scrapie. To ensure that these guidelines are met, Australia must continue to collect, examine and test eligible cattle and sheep samples.

The clinical signs of BSE can be common to many other diseases, which is why specific testing is required.

The program provides payments to producers who submit eligible cattle brains for national testing. Producers receive \$300 per eligible cattle submission, for a maximum of two animals per veterinary investigation.

Eligible cattle need to meet the following criteria:

- be older than 30 months
- be less than nine years
- display signs consistent with BSE (listed above).

Please contact your Regional Field Veterinary Officer or Livestock Biosecurity Officer if you have cattle displaying any of the signs.

Source: Animal Health Australia 2016, *Bucks for Brains*, Animal Health Australia, accessed 20 November 2018, < https://www.animalhealthaustralia.com.au/wp-content/uploads/2015/11/Bucks-for-Brains_Jun16_WEB.pdf>

The Golden Calf: suspected novel metabolic storage disease in a Brahman heifer.

Megan Pickering, Katherine Region Veterinary Officer, DPIR.

This report describes the findings in an approximately 6 month old Brahman heifer calf from a property near Katherine, with progressive nervous system signs. The calf first came to the attention of the producer at around 2 months of age when she presented at mustering with an odd coat colouring; this was reported as appearing golden and abnormally shiny. The golden coat faded progressively with age, but was still partly visible on the inner surfaces of the limbs at 6 months. The calf was recognised as a poor doer, and was brought into the house paddock with the dam for supplemental feeding and monitoring. Poor weight gain persisted, despite this intervention. Over the next



Figure 8: Golden calf

four months, the calf was noted in the yard to have increasing difficulty rising, developed a staggering gait and was seen to “plait” the hind limbs. When veterinary investigation was requested, the calf was unable to stand without assistance, and in poor condition despite intense supplementary feeding over the preceding several weeks. The calf was euthanised on humane grounds and a full post-mortem performed.

There are a number of established inherited nervous system diseases in young cattle. In cases where disease results from a genetic fault – also known as an inborn error of metabolism - chemicals that are by-products of normal metabolic processes build up, and are not removed, because cells cannot produce an essential enzyme. Although such faults often occur widely across different cell types in the body, most of the visible abnormalities are due to effects on the brain and spinal cord. Affected animals are typically normal at birth, but begin to show signs of nervous system disease in the first weeks or months of life¹.

In this calf, apart from a lack of body fat, there were no abnormalities that could be seen with the naked eye during the post mortem. Laboratory examination of the tissues however, showed that the calf had severely abnormal fluid regulation in the brain and spinal cord, leading to electrolyte imbalances and swelling in the cells. Swelling of brain cells for any reason is likely to progress to early death of the affected animal, either through progressive damage to the brain and lack of ability to perform basic functions (eating, drinking, standing and walking) or death from misadventure, secondary to disability. Tests performed on other tissues and blood were essentially normal.

In northern Australia, beef herds are dominated by Brahman, Brahman cross and Shorthorn breeds, in which Pompe’s Disease, or Generalised Glycogenosis₂, has been documented. Affected calves have difficulty rising, lose condition and typically die by 6-12 months of age. Also known to be heritable in

Brahman cattle is Congenital Myasthenic Syndrome⁴; affected calves are normal at birth, but become progressively weak over the first week of life and are generally destroyed within a few weeks.

Inherited metabolic storage diseases described in cattle breeds other than the Brahman, include; alpha-mannosidosis (Angus, Murray Grey, Simmental, Galloway, Holstein), neuronal lipodystrophy (Angus, Beefmaster), citrullinaemia (Friesians), shaker calf syndrome (Hereford), maple syrup urine disease (Hereford, Shorthorn)³ and neuraxial oedema (Hereford, Hereford-Friesian X). The course of the disease and the examination of tissues in this case, however, is not consistent with any of these well-described inherited nervous system diseases, and is also inconsistent with bovine spongiform encephalopathy (mad cow disease).

Therefore, this case is either the result of a random genetic fault, or may prove to be a new disease; we would be very interested to investigate any cases of nervous system disease, particularly in young cattle. The “golden” coat colouring is interesting and may perhaps be a visible signpost for identifying future cases.

<https://www.merckvetmanual.com/metabolic-disorders/metabolic-disorders-introduction/metabolic-storage-disorders-and-inborn-errors-of-metabolism>

Aust Vet J. 1981 May;57(5):227-9. Generalised glycogenosis in Brahman cattle.

O'Sullivan BM, Healy PJ, Fraser IR, Nieper RE, Whittle RJ, Sewell CA

Aust Vet J. 1989 Feb;66(2):46-9. Maple syrup urine disease in calves: a clinical, pathological and biochemical study. Harper PA¹, Dennis JA, Healy PJ, Brown GK.

Thompson, P.N. et al 1998: Congenital myasthenic syndrome of Brahman cattle in South Africa, Veterinary Record 143:526-529

DEPARTMENT OF PRIMARY INDUSTRY AND RESOURCES

TENNANT CREEK CHRISTMAS CLOSURE

The department's Barkly House office will be closed from 4:30pm Friday 23 December 2018 to 8:00am Monday 7 January 2019.

Normal office hours will resume on Monday 7 January 2019.

For emergencies during the closed period, please contact:

Animal Health/Stock Movements/Emergencies: 0401 113 445

We wish you all a very happy Christmas, and a safe and prosperous new year!

For further information visit
www.dpir.nt.gov.au





Livestock Biosecurity Branch

2018 Audit of NT Brands Register – Commenced July – ongoing

Please check your details on your Certificate/s of Registration and/or in the NT Brands Directory (please ✓):

- ☐ Is the property listed on your Certificate of Registration and/or in the NT Brands Directory still current? If no longer the property you are using your brand on, then you MUST complete a Request to Change the Run form.
- ☐ Are the names of the Registered Owner/s of the Brand/s still correct or have they changed? (ie by marriage, by death, business or company) If changed, then you MUST complete an Application for Transfer of Brand.

Please remember to discuss all changes or issues with your Regional Livestock Biosecurity Officer first.

All relevant information and forms are located at: <https://nt.gov.au/industry/agriculture/livestock>

To ensure your NT Brands details are correct, please complete this Audit form and Return to:

USA / Brands Clerk - Email: adele.kluth@nt.gov.au OR BAW, DPIR, GPO Box 3000, DARWIN NT 0801

Registered Owner/s of Brand - Please complete ALL relevant details

Brand Registered in the name/s of: _____
(As stated on Certificate/s)

ABN: _____

Three-Letter Brand: _____ Earmark: _____ Distinctive Numeral/s: _____

Distinctive (symbol) Brand/s: _____

Branding Positions: Cattle: _____ Horses: _____

Brand Registered for Use on: _____
(Run/Property where brand used - eg Property Name, NT Portion No., Section No., Hundred of, etc)

I/We have current original Certificates: ☐ Yes | ☐ No | Brands only used on Run/Property it's registered to ☐ Yes | ☐ No

Postal Address of Owner: _____
PO Box or PMB etc Town / City Post Code

Telephone: _____ Fax: _____

Mobile: _____ Email: _____

Audit Completed by Registered Owner/s of Brand: _____ Date Audit completed & returned: _____

Print Name _____ Print Name _____

If Company _____ If Company _____
(Director etc) (Director etc)

Signature _____ Signature _____

2018 Audit paperwork has been sent out to Registered Owner/s of NT Brands, to the last known address listed in the NT Brands Register.

If you have NOT, received the 2018 Audit form please advise via Email adele.kluth@nt.gov.au so that the Audit form can be emailed to you ASAP.

If you have received the 2018 Audit form please ensure you complete all the sections, sign and date, then return form for processing ASAP.

YES even if your details have NOT changed, you still need to complete the Audit form and return it for processing ASAP.

E: adele.kluth@nt.gov.au OR Fax: 8999 2089 OR Brands Clerk, GPO Box 3000, Darwin NT 0801

Contact the Livestock Biosecurity team

Darwin

Regional Livestock Biosecurity Officer	08 8999 2034
Livestock Biosecurity Officer	08 8999 2030

Katherine

Regional Livestock Biosecurity Officer	08 8973 9767
Livestock Biosecurity Officer	08 8973 9765

Tennant Creek

Principal Livestock Biosecurity Officer	08 8962 4458
Livestock Biosecurity Officer	08 8962 4492

Alice Springs

Senior Field Veterinary Officer	08 8951 8181
Regional Livestock Biosecurity Officer	08 8951 8125

Department website: nt.gov.au/industry/agriculture/livestock

Pastoral Market Update



Pastoral Market Update

DEPARTMENT OF PRIMARY INDUSTRY AND RESOURCES



Live Exports via Darwin Port – OCTOBER 2018

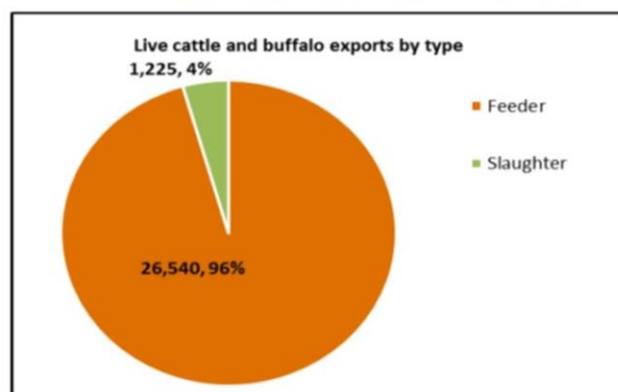
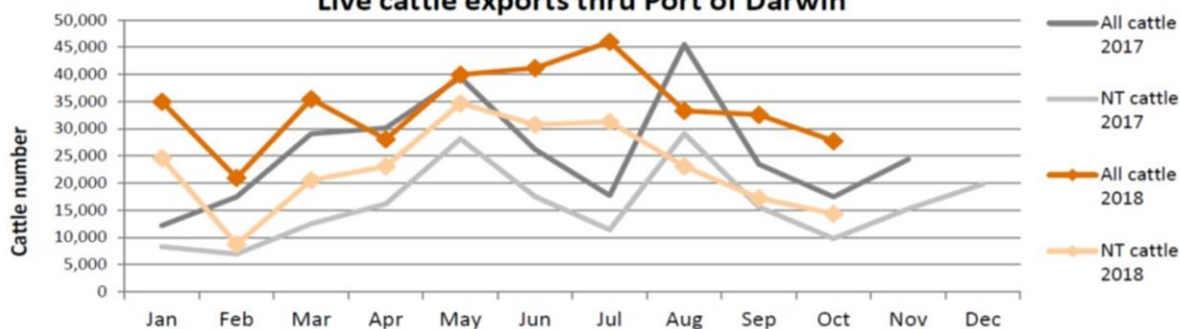
Please note: figures are for stock exported through the Port of Darwin only; some NT stock are exported through interstate ports

Please note: the NT Cattle figures here have been rounded respectively and may not tally to totals.

The figures listed below are correct as at October 31 2018 and are subject to change as further data becomes available.

Destination	Export of ALL CATTLE (including interstate)							Export of NT CATTLE (estimate only)						
	2016	2017	Last year to 31/10/17	YTD to 31/10/18	Oct	Last month	Difference	2016	2017	Last year to 31/10/17	YTD to 31/10/18	Oct	Last month	Difference
Brunei	3,379	3,872	2,972	3,653	0	365	-365	2,314	2,423	1,859	2,292	0	253	-253
Indonesia	305,761	245,544	208,342	271,110	25,211	30,147	-4,936	192,957	150,489	124,313	179,703	13,034	20,924	-7,890
Philippines	7,598	0	0	10,482	1,404	0	1,404	5,179	0	0	7,262	726	0	726
Sabah	0	2,640	1,500	0	0	0	0	0	1,680	967	0	0	0	0
Sarawak	1,200	2,743	2,743	1,110	0	0	0	843	1,594	1,594	963	0	0	0
Malaysia	10,979	13,257	10,934	11,813	0	0	0	7,476	8,109	6,655	7,848	0	0	0
Vietnam	39,107	39,989	31,513	41,408	1,150	2,782	-1,632	24,783	25,884	19,716	29,739	595	1,931	-1,336
Egypt	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thailand	1,461	800	800	800	0	0	0	1,023	535	535	658	0	0	0
Cambodia	2,766	0	0	0	0	0	0	1,936	0	0	0	0	0	0
TOTAL	372,251	308,845	258,804	340,376	27,765	33,294	-5,529	236,511	190,715	145,858	228,466	14,355	23,108	-8,754

Live cattle exports thru Port of Darwin



OTHER LIVESTOCK

Destination	Buffalo		Goat		Camel	
	YTD	Oct	YTD	Oct	YTD	Oct
Brunei	417	0	0	0	0	0
Indonesia	2,884	0	0	0	0	0
Philippines	0	0	0	0	0	0
Sabah	0	0	0	0	0	0
Sarawak	0	0	0	0	0	0
Malaysia	1,465	0	0	0	0	0
Vietnam	1,841	0	0	0	0	0
Egypt	0	0	0	0	0	0
Thailand	0	0	0	0	0	0
Cambodia	0	0	0	0	0	0
TOTAL	6,607	0	0	0	0	0

LIVESTOCK MOVEMENT STATISTICS

Reports for livestock movements from NT to Interstate, within NT and Interstate to NT are updated biannually - see

www.dpir.nt.gov.au/primary-industry/primary-industry-strategies-projects-and-research/livestock-movement-statistics

Total of ALL CATTLE through Port of Darwin							Total of NT CATTLE through Port of Darwin						
2011	2012	2013	2014	2015	2016	2017	2011	2012	2013	2014	2015	2016	2017
269,617	246,990	359,616	493,958	510,860	372,251	308,845	253,797	234,249	308,784	324,477	295,738	236,511	190,715

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www.nt.gov.au





Thomas, Greg, Casey, Jane and Anita wish everyone a wonderful Christmas and holiday season. May the New Year bring with it luck, cheer, rain and lots of it! We look forward to catching up with you in 2019!

To:

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AUSTRALIA

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Department of Primary Industry and
Resources
PO Box 159
TENNANT CREEK NT 0861

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