

Katherine Rural Review

DEPARTMENT OF PRIMARY INDUSTRY AND RESOURCES



EDITION #336 September 2018

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ISSN 0394-9823

Bull and female sale 2018

Whitney Dollemore, Pastoral Research Officer, Katherine

The annual bull and surplus female auction from the Selected Brahman and Composite programs was held on the 20 – 21 June 2018. The Selected Brahman and Composite programs are designed to objectively select for fertility, functionality and adaptation whilst maintaining growth under extensive Northern Territory (NT) conditions. There were impressive results from both the male and female sales with full clearance of the bulls and Composite females, with only 16 Brahman females passed in due to age.

	Bull Sale	Brahman Female Sale	Composite Female Sale
Average Price (\$)	2,900	1,928	1,500
Top Price (\$)	7,000	3,200	1,500
Numbers offered	83	83	63



Figure 1: Top priced bull from the 2018 sale DRF50160M sold for \$7,000

The bulls and females from this sale are from the Department of Primary Industry and Resources (DPIR) Selected Brahman and Composite herds. These herds have undergone rigorous selection for generations with a particular focus on fertility and adaptability. This can be seen in the figures. The live export selection index, created specifically by NT producers, calculates a single dollar value to enable a quick view of the relative earning capacity of each bull. The index is an estimate of the profit that will be generated from the sale of the bull's male progeny and the longer term profit from the reproduction capacity of the retained daughters. It is a combination of the Estimated Breeding Value (EBV) for growth, carcass and fertility traits. Some of the highest ranked bulls using this selection index in the Brahman breed were presented in this sale. Of the DPIR bulls sold 53 are ranked in the top 20% and two bulls are in the top 1 per cent for profitability in the Brahman breed.

The bulls are bred from heifer and first calf cows at Douglas Daly Research Farm and breeders at Kidman Springs in the Victoria River District. All of these cows are from a line of cows which readily reconceive after calving and produce an average of 152kg live weight per cow per year. The EBVs (Figure 2) give you a picture of the overall genetic trend of how this herd (red) and how the selection has influenced both fertility (in lower days to calving/rebreeding and higher scrotal size) and growth (18 month/600 day weight) in comparison to the Brahman breed average (green).

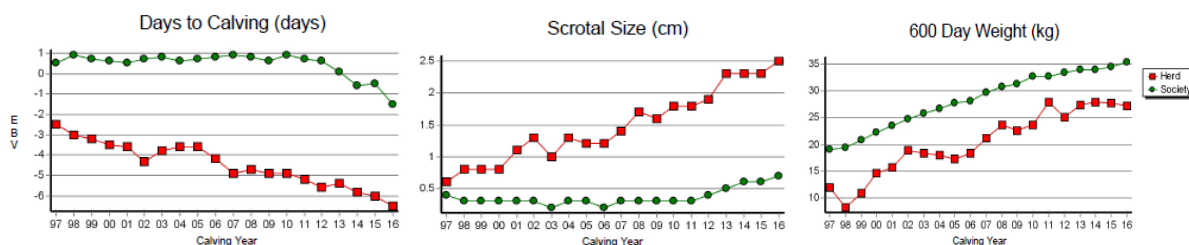


Figure 2: EBV herd averages for the DPIR Selected Brahman and Composite herds and the Brahman breed (Jan2018).

Bull selection is critical for profitability, the number of calves that will be produced by your breeder herd in 10 years' time can be attributed to the type of bull selected and purchased this year. A bull that is selectively bred in an equal or harsher environment than your own is likely to produce daughters and steers that are highly adapted and productive in your environment. A bull and his daughters, your future cows, must fit their environment to stay in the breeder herd; it is much more profitable to select a cow to fit the environment than try to change the environment through supplementary feeding and/or parasite control. Genetic selection is a cheap, cumulative and permanent change which is determined by your breeding goals.

For more information please contact Whitney Dollemore 08 8973 9749 or whitney.dollemore @nt.gov.au.



Kidman Springs Field Day a hit

Whitney Dollemore, Pastoral Research Officer, Katherine

The biennial Victoria River Research Station (Kidman Springs) field day was held in conjunction with Meat and Livestock Australia (MLA) Beef Up forum on the 15-16 August 2018. The field day was well attended by 70 pastoralists and other industry stakeholders. The Kidman field day program highlighted a number of rangeland and cattle production topics including:

- burning regimes for controlling woody thickening on a small and property scale incorporating grazing strategies
- self-herding principles and philosophy
- Senepol crossbreeding
- genetic selection
- donkey research
- calf loss
- post weaning heifer growth
- putting weight on cull cows profitably
- phosphorus supplementation
- telemetry
- telecommunication possibilities and;
- managing post mortems.



Figure 3: Attendees listening to Tim Schatz from DPIR present results on the Senepol cross-breeding project.



Figure 4: Elizabeth Stedman and Ayril Foster from DPIR gave a hands-on demonstration on how to perform an autopsy, what tissue samples to collect and how to collect them.

There was a practical demonstration of ovarian scanning and a station tour which was noted as the best part by the attendees!

On the second day the MLA Beef Up was held with complementary talk topics. There were presentations following on from genetic selection and the future with genomics, the current and future state of the live export market, the power of individual animal identification as well as a productive MLA priority setting and Update session.

All feedback was extremely supportive of the research that is taking place at Kidman Springs and we look forward to another jam packed field day in 2020.

Rotational grazing and wet season spelling at Newcastle Waters

Robyn Cowley, Senior Rangeland Scientist, DPIR

In the mid 2000s Brett and Pippa Krafft ran a cell grazing trial at Newcastle Waters. The Department of Primary Industry and Resources monitored the pastures and helped to write the report which is now available at https://dpiir.nt.gov.au/_data/assets/pdf_file/0011/513983/TB357.pdf.

The Kraffts were happy with the cell system. They recommended spelling the cells over the wet season due to access issues on the black soil and then rotating animals through the cells when they were accessible.

There were positive and negative aspects to the cell system when compared to a larger continuously grazed paddock nearby:

- Cell animals were quieter from regular handling.
- Infrastructure costs were kept low for the cells by using electric fencing.
- The cell system was fully watered with most of the cell paddocks within 3km from water compared to less than half of the larger continuously grazed paddock. This meant that more of the paddock was being utilised for grazing in the cells.
- However the labour and operating costs of the cell were more expensive (eight times more per animal equivalent) than in the larger continuously grazed paddock.
- Liveweight gain per head was lower in the cells.
- Preferred species were still more heavily grazed in the cell system, but grazing was more even out from water due to better water availability in smaller cell paddocks.
- There was improvement in pasture composition near an old water point in the cell paddocks, but also decline near a new water in the cell paddocks. Generally the pasture condition stayed about the same regardless of grazing system, but this was only over a short time period (two years).

Carrying capacity can only increase with more intensive rotational systems by two ways:

1. The additional infrastructure and waters means that cattle can use all the landscape, rather than just the area within grazing range of waters (3km).
2. Pasture condition could improve due to better matching stock numbers to available forage and regular spelling. However pasture recovery can take a very long time, in the order of 10 to 20 years.

It is recommended that when planning more intensive rotational systems:

- Ensure the scale of development is cost effective for the carrying capacity of the land.
- Don't assume carrying capacity will improve due to better pasture composition for at least 10 years, and possibly much longer.
- Factor in the higher operating costs of cell systems.
- If you are wet season spelling cells every year, make sure you have somewhere with enough capacity for the animals when they are being spelled over the wet. If you overgraze another paddock to spell the cells, this could lead to pasture decline elsewhere.
- Training staff to use the new cell system is just as important as training the animals.

If you would like more information, please contact the Robyn Cowley at robyn.cowley@nt.gov.au.

WILD DOG STUDY - call for more 'dog-bite' records

What?

A joint project by the Department of Primary Industry and Resources (DPIR) and the Department of Environment and Natural Resources (DENR) aims to assess the impact of wild dogs on beef cattle and to review the effectiveness of current control strategies across the Northern Territory.

Why?

Wild dogs bite cattle and also kill calves. Fifteen in every 100 pregnancies do not result in a calf for a typical herd in northern Australia, but the level of loss caused by wild dogs is not known. Plus, 1080 baiting programs don't appear to consistently reduce calf loss.

Who?

Kieren McCosker (DPIR Katherine) will collate and analyse dog-bite information. Jane Douglas (DPIR Tennant Creek) has offered to help record dog-bite data when cattle are being worked in the yards. Will Dobbie (DENR Alice Springs) is surveying pastoralists about their wild dog problem, control strategy, and results. A big THANK YOU to those who have already contributed. More information is needed for a meaningful outcome.

Outcomes

Anticipated outcomes from dog-bite records include:

- regional estimates of the frequency of mauled young cattle;
- assessment of the influence of various risk factors (e.g. cow-age class, proximity to unbaited lands, baiting levels, etc.) on calf damage;
- assessment of the effectiveness of different control strategies on attack rates;
- assessment of the predictability of reproductive failure rates using indicators of wild dog activity.



How?

Records can be submitted online:

- `Dog-bite' records <https://www.surveymonkey.com/r/dogbite>
- Management Survey <https://www.surveymonkey.com/r/dogmanagement>
- Or contact one of our team to arrange a visit.

Individual stations will not be identified, but grouped into their region or management style.

Background project support

- The National Wild Dog Action Plan recommends the development and use of ways to record wild dog impacts at regional, state and national levels;
- A field day in the Katherine region in 2014 saw producers concerned about dog-damaged calves, but they had no real guidance on the best strategy to reduce the problem;
- The pastoral-based Review Panel into 1080 use in the NT in 2015 recommended `Conduct research into the impact of 1080 use against wild dogs on pastoral land';
- The NT Natural Resource Management Plan 2016-2020 recommends further research into the impact of wild dogs on biodiversity and pastoral productivity.

Contacts

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Positive results for phosphorus trial at Kidman Springs Research Station

Tim Schatz, Principal Livestock Research Officer, Darwin

Introduction

Much of northern Australia is phosphorus (P) deficient but supplement sales figures and beef extension officers tell us that the majority of properties in deficient areas are not supplementing their cattle with P in the wet season. The most likely reason for this is that producers do not think the expense is justified and that they will not get a good enough return on their investment in P supplementation. However, producers have had limited data to base such a decision on as, while many studies have shown that P supplementation increases growth, there have been few studies that have found a significant improvement in reproductive performance from P supplementation in northern Australia

and quantified the benefit. As a result producers and advisors have had to give estimates of the benefit that producers might expect without hard data to back them up. This may contribute to the low adoption of P supplementation. The Kidman Springs P supplementation project therefore aims to provide producers with definitive data on the effects of supplementing females with P in this environment.



Figure 5: +P 1st lactation heifers at weaning in May 2017

Supplementation research has been conducted previously at Kidman Springs and studies between 1990-1995 showed a dramatic reduction in breeder mortality and improvement in weaning rate. However, this was in response to a range of management changes including dry season supplementation and different weaning practises as well as wet season P supplementation, so it was not possible to separate the benefits due to P supplementation from these other practises.

Method

Following weaning in June 2014, after stratifying for weight, 179 Brahman heifers were randomly allocated to either a +P (n=91) or -P (n=88) treatment (average weight: +P = 171.7 kg, -P = 171.2 kg). The treatments grazed separately in neighbouring paddocks that were acutely P deficient (average Colwell P soil test results: 2.5 and 3.1 mg P/kg) and they swapped paddocks in May each year to minimise paddock effects. The treatments were managed in exactly the same way except that their mineral loose lick supplement either contained P (+P) or did not (-P). The lick was fed year-round in troughs under supplement sheds. The composition of the lick fed to each treatment is shown in Table 1.

Weight (curfewed), body condition score, hip height, P8 fat depth, pregnancy status and lactation status were recorded twice a year (usually in May and September/October). Heifers were mated for the first time (as 2 year olds) between 5 January 2016 and 6 April 2016. Heifers calved in late 2016/early 2017 and were mated for the second time between 3 January 2017 and 22 May 2017. Calves were weighed, mothered up and weaned in May. Heifers that did not get pregnant from two year old mating were not culled but retained so that all heifers remain in their treatment groups for the duration of the experiment.

Results

The research is finding large benefits from P supplementation (see Table 2). A summary of these benefits are:

- The P+ group grew 33 kg more over the first post weaning wet season and 33kg more over the next wet season during mating (Figure 6).
- +P maiden heifers were 66 kg heavier at the end of their first mating as two year olds (+P = 391.8 kg, -P = 326.5 kg).
- Pregnancy rates were 10% higher in +P maiden heifers (+P = 70%, -P = 60%). However this was actually less than expected and ultrasound ovarian scanning found that there were more heifers in the +P group that were cycling than in -P. If all cycling heifers in each group had got pregnant then the difference would have been 23% (+P= 87%, -P = 64%).
- Foetal and calf loss between pregnancy diagnosis and weaning in first calf heifers was similar in both treatments (+P = 20.6%, -P = 20.4%).
- Re-conception rates were 25% higher in +P first lactation heifers (+P = 30%, -P = 5%).
- The average weight of +P first lactation heifers was 120 kg higher when their calves were weaned (+P = 381.8 kg, -P = 262.2 kg).
- The cumulative mortality rate over the three years from weaning to three and a half years old was 7% lower in the P+ treatment (+P = 1.1%, -P = 8.0%). In addition, at the time of weaning of their first calves 18 -P heifers were removed from the study for crisis feeding as they were considered to be at risk of mortality due to low body condition score. Including these heifers in the analysis gave a mortality/morbidity rate of 28.4% for -P heifers.
- The average weaning weight of calves was 34 kg heavier in the P+ treatment (+P = 172.3 kg, -P = 138.6 kg). 50 calves were weaned from +P and 40 from -P.
- The total weight of calves weaned from the treatments was 3,072 kg higher in +P which when valued at the current price (\$3.50/kg) was worth \$10,751. The cost of supplement consumed was calculated to be \$1,744.05 higher in the +P treatment. Just comparing the extra cost of the supplement in the +P treatment (vs the cost of dry season only supplement in the -P treatment) to the extra value of calves weaned from first lactation heifers gave a return on investment of 268%.
- Preliminary economic evaluation (up to first lactation heifer stage) shows that by spending an extra \$41 per head on supplement over the first 3 years the P+ treatment has produced about \$300 per head more so far. If the value of the heavier weight of the females retained is also included then it works out to be around \$513 more per head. A proper economic evaluation will be done in future.
- Performance was again better in the P+ group in the 2017-2018 (when heifers had the opportunity to wean their second calves). It should be noted that only two -P heifers reconceived as first lactation heifers so most -P cows that produced calves in 2018 had either lost their first calf and reconceived, or conceived for the first time as three year olds.
- Calf loss over the 2017-18 calving season was 16% in +P and 21% in -P. 43 calves were weaned from the +P treatment and 30 from -P. The average weight of calves was 13.4 kg heavier in +P (+P = 184.9, -P = 171.5). As a result a total of 2,806 kg more weight of calves was weaned from +P.
- The average weight of cows at WR1 2018 was 69 kg higher in +P in both wet and dry cows and the pregnancy percentage was 37% higher in wet cows in +P (Table 3).

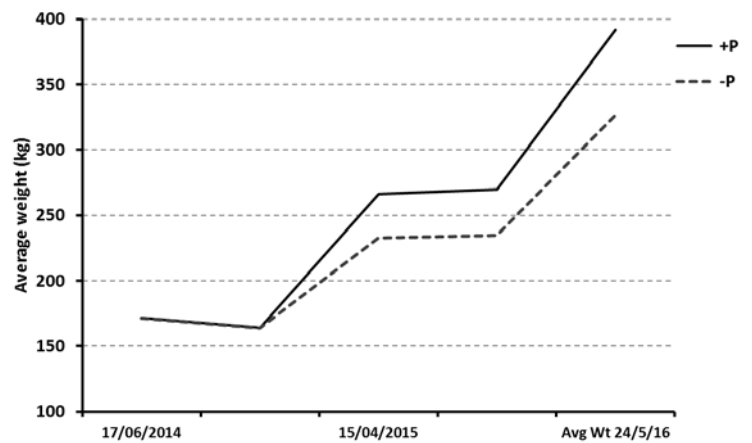


Figure 6: The growth of heifers from weaning to first mating

While this trial is showing large benefits from P supplementation, the response on other properties will vary depending on the level of P deficiency in the soils on which cattle graze. Benefits of this scale may not be seen where P deficiency is not as severe. Producers can get soil tests done if they are not sure of the P status of different land types on their property. Soils with a Colwell P level of less than 4 mg/kg are considered to be acutely deficient, while 5 mg/kg is deficient and 6-8 mg/kg is marginal. However there are often different soil types in a paddock and animals graze selectively so may be able target forage with higher P levels. Therefore while soil testing can give an indication, it is not considered to be a definitive method of determining deficiency. Currently testing blood samples taken from growing animals (eg. 1-2 y.o) at the end of the wet season for Plasma inorganic Phosphorus (PiP) is considered to be the most reliable indicator of the P status of animals. However, as a rough guide, if your first lactation heifers look more like the ones in photo 3 than photo 4 then it is likely that they will benefit from P supplementation (unless you have a stocking rate problem).

It can be difficult to put supplements out during the wet season, but many producers have found innovative ways to do it and usually “where there is a will there is a way”. Some have supplement dumps in shipping containers or under tarps scattered around their properties. It is really up to individual producers to weigh up the costs and benefits in their particular situation. The Kidman Springs P research trial is providing them with new information to do this.



Figure 7: -P first lactation heifers Feb 2017



Figure 8: +P first lactation heifers Feb 2017



Figure 9: -P cow in March 2018



Figure 10: +P cow in March 2018

Table 1. The contents of the loose mix supplement fed in the trial.

	Wet season		Dry season	
	P+	P-	P+	P-
Ridley Biofos MCP	42%		25%	
Salt	50%	73.5%	40%	65%
Ammonium sulphate (Gran Am)	7.5%	7.5%	10%	10%
Urea			25%	25%
Limestone		17.5%		

Table 2. Results from the Kidman Springs P supplementation trial (up until weaning of 1st calves).

	P-	P+	Difference
Weaning weight (kg) (at start of trial)	175	175	0
Maiden heifer pre-mating weight (kg)	238	270	32
Maiden heifer post mating weight (kg)	327	392	65
Pre-calving weight (kg)	324	393	69
Weight when calves weaned (kg)	262	382	120
Maiden pregnancy percentage (%)	60	70	10
Calf loss rate (%)	22	21	-1
1st lactation heifer pregnancy rate (%)	5 (n=39)	30 (n=50)	25
Mortality rate to 3.5 y.o (%)	8	1	-7
Weaning weight of calves (kg)	139	173	34

Table 3. 2018 data (the year after first calves were weaned).

	Dry Cow Preg %	Dry Cow Avg Wt	Wet Cow Preg %	Wet Cow Avg Wt
-P	92% (n=50)	424.3 kg	20% (n=30)	357.3
+P	96% (n=48)	493.3 kg	57% (n=42)	426.2 kg
Diff +P vs -P	4%	69.0 kg	37%	68.9 kg

The trial is ongoing and will compare the kilograms of calves weaned from each treatment over several years. A thorough economic analysis will be conducted to examine the cost effectiveness of the supplementation treatment.

For more information contact: Tim Schatz tim.schatz@nt.gov.au 08 89992332

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.



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The banner features a purple background with a close-up of a hand holding a stalk of grain. The text is white and arranged in a vertical stack on the left side.



2018 Northern Territory (NT) brands audit

The NT Audit of registered brands commenced in July 2018. With approximately 1200 brands registered for use in the NT it is vital that all registration details are correct and that all associated information is current. An NT wide audit of brands is carried out every 5-10 years with the last audit completed in 2010.

All registered owners of NT brands will receive an instruction letter and audit form over the coming months. Please ensure the form is completed and returned as soon as possible after it is received.

Remember owners of brands must give notification to the Registrar in the following events:

- change of postal address/contact details
- transfer brand to a new owner
- change of run/property;
- change of branding position/s;
- cancellation of brand (no longer being used);
- change of name by marriage;
- notification of death;

For more information contact your regional livestock biosecurity office.

Cattle tick collection in the Parkhurst tick zone

The Department of Primary Industry and Resources (DPIR) is currently conducting resistant cattle tick surveillance within the Parkhurst zone in order to establish if there has been any further spread of resistant cattle tick.

DPIR is asking that properties within the Parkhurst zone present cattle for tick collection this season. Please contact Rob Wait, Regional Livestock Biosecurity Officer Darwin, on (08) 8999 2034 to arrange a suitable time for tick collection or for further information.

New Katherine Veterinary Officer

The Livestock Biosecurity Branch welcomes Dr Megan Pickering to the team.

Megan is a long-term Katherine resident, having previously worked in private mixed practices in Katherine, Darwin and the UK since 1994, as well as a previous position with the Department of Primary Industries in 1999. Outside of work, Megan lives with her husband and three busy teenagers on a rural property, from which she enjoys an active lifestyle. She says she seems to spend a lot of money repairing and replacing mountain bikes, canoes, running shoes, camping equipment and First Aid supplies, but they have a great collection of memories and photographs!



Figure 11: Dr Megan Pickering

Megan is looking forward to participating in disease investigations, herd health and surveillance work, and to visiting pastoral properties and establishing new relationships. She is based at the Katherine Research Station and is available for disease investigation call outs; Megan can be contacted on (08) 8973 9716 or 0437 52 7372.

Australian Standards for Export of Livestock (ASEL) review

The Department of Agriculture and Water Resources has commenced a comprehensive review of the Australian Standards for the Export of Livestock (ASEL). These standards ensure livestock are fit for export and help manage the risks to health and welfare of livestock during the voyage.

The review is being conducted by a technical advisory committee made up of an independent chair and experts in animal health and welfare, regulatory design and the livestock industry. The review will finish at the end of 2018. The standards for the pregnancy testing of feeder and slaughter cattle/buffalo and accreditation of non-veterinarians is outlined in ASEL.

For more information visit www.agriculture.gov.au/animal/welfare/export-trade/review-asel

Livestock disease investigations

DPIR 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 April to June 2018, 52 livestock disease investigations were conducted to rule out emergency diseases or investigate suspect notifiable diseases across the NT.

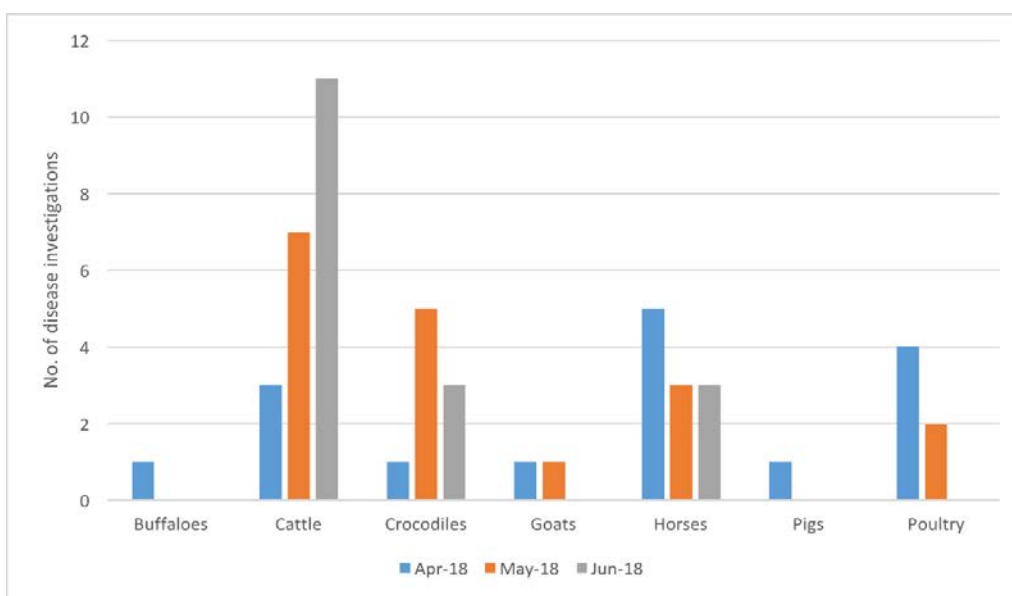


Figure 12: Livestock disease investigations in the NT, April to June 2018

Case report: monensin poisoning in weaners

Monensin poisoning is believed to have caused the death of 15 weaner calves on a property near Tennant Creek in March. The group of 200 weaners had been processed and yarded 7 days before 15 were found dead with no reported signs of illness prior to sudden death.

The producer and vet took samples from three of the dead weaners and sent them to the Berrimah Veterinary Laboratories. Lab testing found damage to cardiac tissue (heart) in one of the weaners, which was consistent with exposure to a cardiac poison.

Common sources of cardiac poisons in cattle in the NT include the ironwood tree and ionophore feed additives. Ionophores are a common feed additive used to control coccidiosis and increase growth in cattle and other livestock species. They are safe and effective when administered to the appropriate species at the correct dose, however administration above the recommended dose can be lethal.

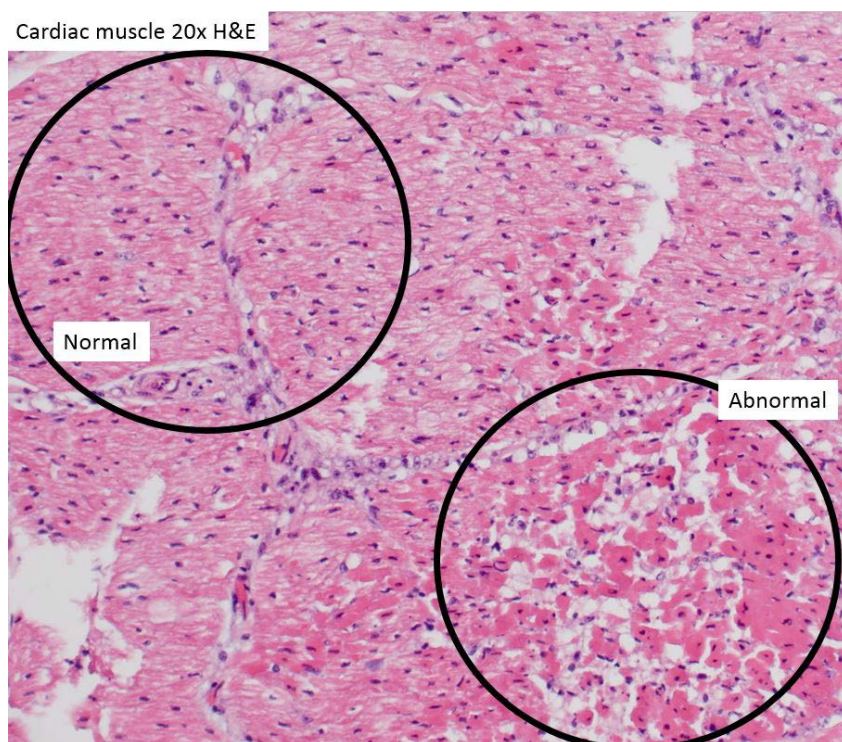


Figure 13: Microscope image of the damaged heart tissue

There were no ironwood trees present on the property, but the manager reported that a supplement feed containing monensin had been fed to the weaners in the yards. While the feed label said the pelleted supplement contained 50mg/kg monensin sodium, lab testing of a sample of the feed showed it contained a much greater level of 220 mg/kg, which would have been lethal to the weaners taken in a large dose over the course of several days.

Cattle can recover from monensin poisoning, but might later die from sudden heart failure, especially if exercised or they become stressed. There were no clinical signs seen in this weaner group except for sudden death, but affected animals may sometimes have watery diarrhoea, dullness and reduced feed intake.

Deaths can occur for extended periods after exposure to toxic levels of monensin has ceased and there is no treatment. In this case, the feed additive was removed and no further losses were reported.

To prevent ionophore poisoning in livestock:

Purchase pre-mixed feed in a pellet form from a reliable source and always read the label

Use feeds containing ionophores only for the species they were made for, and ensure other species are not able to access these feeds

Seek professional advice and ensure your dosage calculations are correct if you are adding ionophores to your own feed mix.

For further information see our factsheet on [ionophore poisoning](#).

Northern Australia Biosecurity Surveillance project update



The Northern Australia Biosecurity Surveillance (NABS) project is part of the Australian Government's Agricultural Competitiveness White Paper, the government's plan for stronger farmers and a stronger economy.

It is a coordinated surveillance program to enhance the early detection of exotic disease incursions and to provide sufficient surveillance information to underpin proof of freedom from trade-sensitive diseases in northern Australia. It is funded by the Commonwealth Government and supported by the Northern Territory, Western Australian and Queensland jurisdictions and Animal Health Australia.

Subsidised disease investigation reminder

Subsidies of up to **\$2,000** are available for disease investigations in cattle conducted by private vets until June 2019. An additional **\$300** is also available for cattle showing nervous signs where a post-mortem is performed and the brain collected for 'mad cow' exclusion testing.

For investigations in horses and other species, subsidies of up to \$250 are available. Contact your regional vet or livestock biosecurity officer for more information.

Have you got your post-mortem kit yet?

NABS recognises that pastoralists may observe unusual signs of disease in their animals and not be able to have a vet collect samples from affected animals in a timely manner. In order to enable samples to be collected at the time of the disease event, pastoralists are encouraged to collect some samples while they discuss the case with their vets.

To obtain a post-mortem kit for your property, contact your regional livestock biosecurity office. Regional post-mortem workshops will also be throughout the season to learn how to approach a post-mortem and sample collection.



Figure 14: Post-mortem kit

Disease investigation workshops

A 3 hour disease investigation workshop was held in Kununurra in May. Eight properties from the NT and WA were represented at the workshop, which covered an introductory approach to post-mortems, laboratory sampling, humane destruction and the importance of having a biosecurity plan.

In August, over 30 NT producers attended a cattle post-mortem demonstration during the Kidman Springs Field Day. The demonstration showed participants how to open a carcass for post-mortem, the signs of some common cattle diseases, what samples to take and who to contact for advice.

Future workshops are being planned across the NT in the coming months. **To express interest in participating in future workshops**, contact your regional livestock biosecurity office.



Figure 15: Set up for post-mortem

Vet student placement subsidies

To introduce vet students to opportunities in northern Australia, NABS recently provided three \$2,000 subsidies to veterinary students. The subsidies are intended to assist students with the cost of travel and accommodation for undertaking placements on pastoral properties, with vet practices and placements with DPIR in northern Australia.

Applications for placement subsidies in 2019 will open later this year; contact your regional veterinary officer or livestock biosecurity officer for more information.

Vet student placement report

Written by Jessica Bammann, final year Doctor of Veterinary Medicine student, University of Adelaide

Having grown up on a farm in the Flinders Ranges, SA, I have always had a passion for working with large animals, especially cattle. Therefore, in July 2018 I organised to complete a two-week university placement at the Alice Veterinary Centre in Alice Springs. I had travelled to Alice Springs once before and fell in love with its stunning scenery, so I was keen to get back there.

Travelling to the Northern Territory (NT) would simply not have been possible without a generous subsidy provided to me from the Northern Australian Biosecurity Surveillance Project. It helped enormously to cover my travel and accommodation costs, for which I am extremely grateful.

During my stay at Alice Springs I was fortunate enough to be offered the opportunity to assist in taking blood samples from sentinel cattle and chooks with Peter Saville and Greg Crawford at the Arid Zone Research Institute (AZRI). I enjoyed learning more about how the regular testing of the blood from these animals is used to prove the absence of diseases in the region and to also detect the spread of local and exotic diseases. It highlighted to me how important sentinels are to maintaining and improving the biosecurity status of the NT.

I was also kindly invited by Jocelyn Coventry to receive a tour of the Old Man Plains (OMP) Research Station, owned by the Northern Territory Department of Primary Industry and Resources. OMP is a 522k square kilometre property near Alice Springs used to conduct research into various areas, such as fertility and reproductive loss in Droughtmaster cattle. Jocelyn explained how she performs regular 'calf checks' in the breeding season to record observations for her research, including matching calves with their mothers and the different behaviours they display.



Figure 16: Jessica Bammann at Old Man Plains Research Station

The time I spent with Peter, Greg and Jocelyn definitely gave me a better understanding of what it is like to work as a veterinarian in the field of biosecurity. It also gave me a greater appreciation of how important biosecurity is to protecting the Northern Territories' environment, economy and community. I would definitely consider returning to the region to work as a qualified veterinarian in the near future, as I enjoyed the challenges of working in a remote location and would like to get involved in working with Indigenous communities. I would highly recommend any veterinary student to undertake placement in northern Australia, as the experience I gained was like none other.

I would like to again thank Peter, Greg and Jocelyn for giving up their time to teach me about the work performed at AZRI and OMP, the Northern Australian Biosecurity Surveillance Project for offering this subsidy and making this unique experience possible for me, and the Alice Veterinary Centre for hosting me for placement.

Don't feed swill to pigs

There are restrictions on what you can feed pigs to prevent diseases entering or spreading in the NT.

You must not feed pigs any swill that contains material from mammals or poultry, or has come into contact with such material. Swill is considered to be a prohibited pig feed.



Swill feeding

What is swill (prohibited pig feed)?

Swill, the traditional name for all prohibited pig feed, is food waste containing meat or any other mammalian products or by-products, excluding milk. This also includes imported dairy products and any foods that have been in contact with meat, such as leftover vegetables on a plate from a Sunday roast, or even the leftover ham and cheese roll.

It is illegal to feed swill to pigs and strong penalties apply. Strict regulations are in place in every state and territory in Australia. These restrictions apply to everyone, regardless of whether the pigs are bred commercially or as pets.

Australia is fortunate enough to be relatively disease free and imported meat products from other countries may contain viruses that are not found in Australia. It is believed that feeding swill to pigs was the cause of the Foot and Mouth Disease outbreak in the UK in 2001.

For more information see our [Agnote J61 Don't feed swill to pigs](#) or visit the [Farm Biosecurity website](#).

Contact the livestock biosecurity team

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Department website: <https://nt.gov.au/industry/agriculture/livestock>

Suspected tetanus in cattle

Megan Pickering, Veterinary Officer, Katherine

Tetanus is an endemic disease but an uncommon diagnosis in cattle in the Katherine region, where cattle are generally not vaccinated. This report describes two cases from a well-run property where the inciting cause for the infection is not known.

Two animals from different paddocks (One male 31 months old, single dose of 5-in-1 vaccine at six months old, one female 14 months old, never vaccinated) were seen with a staggering gait over several weeks; clinical signs progressed in the steer to paresis and collapse. This animal was euthanased and a post mortem examination performed. Clinical signs in this animal included a locked jaw and prolapsed third eyelid in the right eye only. There were no other significant gross post mortem findings apart from impaction of the abomasum and reticulum with dry plant matter; the gastro-intestinal tract was relatively empty, indicating that the animal had been unable to eat or drink in the previous day or two. Samples were submitted to the Berrimah Veterinary Laboratory (BVL) for transmissible spongiform encephalopathies (TSE) exclusion, on the grounds of neurological signs and collapse.

The heifer was observed in the paddock. She was able to graze and swallow at the time the property was visited. A spastic, uncoordinated gait was noted when the animal was prompted to move, with hyper-extension in some movements and generalised neck and trunk stiffness (see Figure 17). The property owner/manager reported that the gait of the heifer was very similar to that which had been observed in the euthanased steer.



Figure 17: A cow suffering from a tetanus infection

Laboratory findings

Diseases suspected included:

- tetanus
- Bovine Herpes Virus V
- plant toxicity
- lead poisoning
- botulism; and
- snake bite.

Examination of the brain and spinal cord found no evidence of TSE or other significant central nervous system pathology. There were no abnormal findings in the other internal organs submitted (lung, spleen, heart, liver, kidney), and hypomagnesemia, lead toxicity and BHV5 were ruled out on serum chemistry.

Serum biochemistry showed azotaemia, consistent with dehydration owing to recumbency and inanition over at least the previous 24hrs. The most significant findings were extremely high levels of creatine kinase (CK) and aspartate aminotransferase (AST) (see table 4); this result indicates severe muscle damage, much more than would typically be expected of a downer animal. Extremely high levels of CK are seen in a limited number of conditions: tetanus and other causes of seizure or increased muscle activity, black and brown snake bites (King Brown or Mulga snakes in particular), or as a result of prolonged exercise (also called exertional rhabdomyolysis or capture myopathy, which results from being chased or hunted). The last two possibilities are considered highly unlikely; snake bite is considered unlikely because of the duration of symptoms (snake bite symptoms develop very rapidly after a bite, not over several weeks) and the rarity of snake bite in cattle, while exertional rhabdomyolysis is not likely given the historical management of these animals. There is nothing to suggest recent chasing or extreme stress in this case history.

Table 4: Significant biochemistry findings

Creatinine 199µmol/L	Normal range: 67-175µmol/L
Urea 9.8mmol/L	Normal range: 2.0-7.5mmol/L
AST 2033 units/L	Normal range: 42-123units/L
CK 120,398 units/L	Normal range: 35-280 units/L

Tetanus in cattle is well described, and a diagnosis is generally made on the basis of clinical signs (spasms, tetanic gait, collapse) and supporting laboratory evidence. This case is highly unusual, in that tetanus cases are commonly seen in young, unvaccinated cattle, shortly after de-horning and/or castration, and often as a result of poor hygiene practices and/or subsequent holding of cattle with open wounds in dirty yards. Tetanus in adult animals without a recent history of injury or management procedures is rare.

However, Hungerford *et al* reports an outbreak of tetanus in weaners in 1964, where “48 yearling heifers were depastured on straw which caused a certain amount of gastric irritation.” The animals developed tetanus, and Hungerford goes on to report “it is postulated that, under certain circumstances, conditions in the bovine stomach may favour growth of *Clostridium tetani* with the production of toxin.” Since tetanus in adult animals is generally sporadic and isolated, it is also considered highly unusual to see two animals in the same time period with similar signs, and from different paddocks. The dry tropical feed available could be considered likely to be capable of causing gastrointestinal damage. Other small penetrating injuries are possible but were not observed.

The surviving heifer has been treated with procaine penicillin, and has been yarded for observation and nursing care. The producer reports that the animal is slowly improving. Based on available literature, it is anticipated that a recovery from clinical signs may be effected within 3 months. The question is; how much does this disease contribute to background mortality in non-immune cattle?

References:

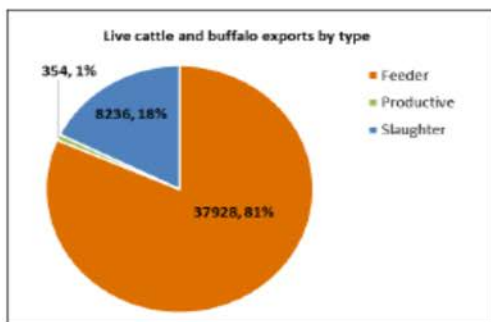
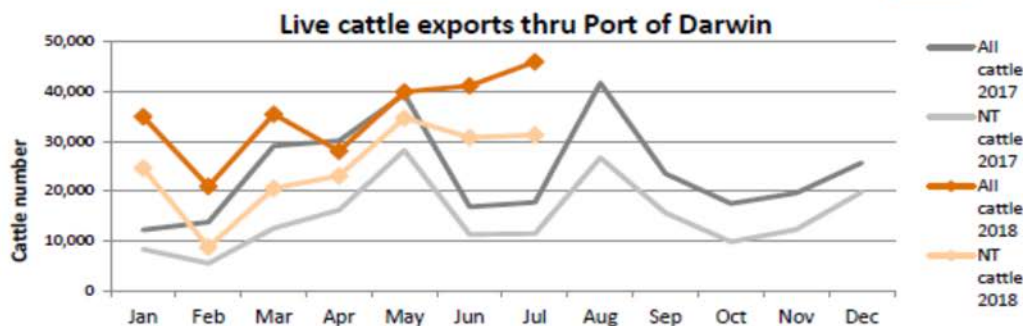
Pastoral Market Update



Live Exports via Darwin Port – JULY 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 31 July 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 30/07/17	YTD to 30/07/18	July	Last month	Difference	2016	2017	Last year to 30/07/17	YTD to 30/07/18	July	Last month	Difference
Brunei	3,379	2,793	896	2,489	0	893	-893	2,314	1,701	481	1,616	0	667	-667
Indonesia	296,230	226,304	125,107	189,959	35,431	27,090	8,341	195,037	138,912	64,864	132,111	24,088	20,236	3,851
Philippines	4,697	0	0	7,430	1,597	4,001	-2,404	3,236	0	0	5,665	1,086	2,989	-1,903
Sabah	0	2,640	1,500	0	0	0	0	0	1,680	0	0	0	0	0
Sarawak	1,220	2,138	340	1,110	0	0	0	843	1,189	183	963	0	0	0
Malaysia	10,959	12,557	7,162	9,447	0	2,238	-2,238	7,476	7,671	2,579	6,599	0	1,672	-1,672
Vietnam	36,405	39,989	23,408	35,467	8,989	6,983	2,006	24,783	25,884	13,308	26,152	6,111	5,216	895
Egypt	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thailand	0	800	800	800	0	0	0	0	535	535	658	0	0	0
Cambodia	2,766	0	0	0	0	0	0	1,936	0	0	0	0	0	0
TOTAL	355,656	287,221	159,213	246,702	46,017	41,205	4,812	235,625	177,574	81,951	173,765	31,284	30,780	504



OTHER LIVESTOCK

Destination	Buffalo		Goat		Camel	
	YTD	July	YTD	July	YTD	July
Brunei	0	0	0	0	0	0
Indonesia	1,312	254	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	788	0	0	0	0	0
Vietnam	871	247	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	2,971	501	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	487,568	355,656	287,221	253,797	234,249	308,784	324,477	287,892	235,625	177,574

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