Who’s new in the zoo

Gabrielle Penna is a born and bred Queensland girl who has recently joined the Livestock Industries Development team at the Department of Primary Industry and Resources (DPIR) in Tennant Creek while Casey Collier is on maternity leave.

For the last four years Gabby has attended UQ Gatton where she completed a Bachelor of Agricultural Science Hons, majoring in Animal Science. Her honours project focused on beef phosphorus nutrition in northern Australia which led nicely into working for the Queensland Alliance for Agriculture and Food Innovation and then onto her current role in Pastoral Production.

Since arriving on the Barkly, Gabby hasn’t been sitting around, after being involved in the Barkly Herd Management Forum, she has since been busy conducting cattle and rangelands field work from everywhere between Alice Springs and the Victoria River district.

“I love my job because I get to spend time learning from such a wide variety of people, from station managers to research professionals. Although only new to the team, I am really looking forward to exploring all these opportunities have to offer.”

So say hello to her at the office, Tennant Creek Show or around the district.

Contact information:

Gabrielle Penna
Pastoral Production Officer, DPIR Tennant Creek

Telephone (08) 8962 4486

Email gabrielle.penna@nt.gov.au

Gabrielle Penna, New Tennant Creek DPIR Pastoral Production Officer
DEPARTMENT OF
PRIMARY INDUSTRY AND RESOURCES
Barkly Beef Newsletter

Barkly Herd Management Forum

Jodie Ward, Pastoral Production Extension Officer

DPIR offers a number of training opportunities for station staff with a wide range of previous experiences, for everyone from first year jillaroos and jackaroos right through to managers and station owners wanting to improve specific skill sets. One of our favourite activities to facilitate every two years is the Barkly Herd Management Forum. This event targets the up-and-coming stockmen and women who have been selected for middle management positions such as leading hands, head stockpersons and assistant managers. By targeting people in these positions we hope to be able to provide them, or assist in the development of, skills that they will need as they progress through to more senior management roles.

Starting at Brunchilly Station and moving onto Helen Springs Station at the end of the first day, this year’s event attracted 17 participants (which is about our limit due to logistical constraints), who travelled from right across the Barkly (and even as far as Cloncurry, Queensland) just to attend. The program focussed on a number of key areas including:

- managing heifers to maximise lifetime productivity
- managing the body condition of breeders
- animal husbandry procedures: best practice and pain mitigation
- the key principles of grazing land management
- how to look at day-to-day activities from a business perspective.

Previous event successes meant that we were able to source funding from several avenues, including Meat and Livestock Australia (MLA) and the Barkly Landcare and Conservation Association (BLCA), which allowed us to attract presenters of a high calibre. Presenters at this year’s event included Ian Braithwaite (well-known veterinarian and respected business advisor), Andrew Fisher (Professor of cattle and sheep production medicine from the University of Melbourne), Ian McLean (Director of Bush AgriBusiness), and Geoff Niethe (Animal Production Co-ordinator for Northern Beef, Meat and Livestock Australia).
While the participants rated all the topics presented highly (all rating a four or higher, on a scale in which one is the lowest and five 5 being the highest) in the review survey, one of the highlights for me, was Ian Braithwaite’s demonstration of best practice dehorning and a new castration technique.

Other highlights included insights from Ian McLean regarding what determines profit in the beef industry, and, how to accurately investigate which investment options will give you the biggest bang for your buck and the quickest return on investment. Although having not worked on a station for many years, I definitely understood how knowing about these concepts was important for the forum attendees, which was reinforced by the enthusiasm behind their questions. Ian McLean’s topic also provided me with the opportunity to reflect upon the importance of a sound understanding of economic decision making.

Andrew Fisher discussed a recently conducted survey that found that people who considered themselves as leaders or influencers of others regarding animal rights issues identified that they felt that they knew quite a bit about animal production systems. However, when the same people were asked to complete a test about those systems, such as layer hens, pork production or beef production, the people who identified themselves to be leaders or influencers, were found to be as knowledgeable as the rest of those surveyed – which was ‘know a little bit, but not much’.

Another finding of the research concerned how much trust people put in different sources of information on animal rights and welfare. The research results indicated a low level of trust in information on social media, but a high level of trust in the accuracy of blogs and animal rights welfare websites!

Geoff Niethe raised some interesting points as well. While I’ve had it drummed into me time and time again that weaning is more about preserving the breeder body condition score than about weaner weight, I find it an easy factor to put aside when considering strategies to ensure weaners make sale weight within 18 months. It was great to have the basics reinforced.

Thank you to Brunchilly and Helen Springs stations, MLA and BLCA for allowing us to run the 2017 Barkly Herd Management Forum. Bring on 2019!
Barkly Landcare and Conservation Association Update

Andy Bubb, Barkly Landcare & Conservation Association (BLCA) Acting Coordinator

New acting coordinator, Andy Bubb

Andy Bubb has recently taken over as acting coordinator of the BLCA while Ange Carpenter is on maternity leave looking after Rose. Andy previously worked in the Tennant Creek office for the department from 2003-2007 in the pastoral production team before moving to Alice Springs to work with the Desert Knowledge CRC and Ninti One. This included managing the monitoring and evaluation for the $19m Australian Feral Camel Management Project. Andy is very happy to be back driving around the Barkly and is looking forward to catching up with some old friends and meeting some new people through the work with the BLCA.

Successful funding through Territory Natural Resource Management (NRM):

Earlier in the year there was some applications made to Territory NRM for funding. Two of these were successful with activities to occur on six properties in our region. Through the ‘supporting sustainable land management and biodiversity across the Barkly’ there will be the fencing off of a riparian zone on Lake Nash, the trialling of different burning regimes to control feathertop wiregrass at Newcastle Waters and weed control on Tennant Creek and Epenarra.

Funding through the ‘Collaborative prickly acacia and mesquite management above Lake Sylvester and Lake Tarrabool’ will be used towards weed control on Brunette Downs and Rockhampton Downs. All properties involved committed to making a significant cash or in-kind contributions towards the work which will occur during June and July.

Parkinsonia dieback across the Barkly:

Associate Professor Vic Galea from the University of Queensland will be returning to the Barkly to look at the Parkinsonia dieback during late June or early July. Vic first started looking at Parkinsonia dieback following invitation from Barkly Landcare back in 2005. This helped his research which has led to the biocontrol pellets that used to inoculate the plants and spread the dieback. On his next visit Vic will also testing some new products which are conventional chemicals that have been put into a capsule form and used to inoculate weeds. We will provide a more detailed update of this when the work occurs.
NT Landcare awards:

The NT Landcare Awards are currently open for nominations across a range of categories. The awards will be announced at the Territory NRM Conference in Darwin on 21-23 November. The BLCA is keen to identify some individuals, properties and projects to nominate across the categories to show off the great work being carried out by our members.

A field guide to plants of the Barkly:

The BLCA still has copies of ‘A field guide to plants of the Barkly' available for sale. The book covers the grasses, forbs and trees of the region and can make a great present for new staff as they start to understand a new environment. The book costs $35 and can be ordered online or purchased directly from the office at Barkly House. There will also be copies available for sale at the department stand at the Tennant Creek Show on the 14 July.
Do you know a Territorian doing a great job of looking after a local bushland area, beach or catchment, indigenous protected area, pastoral property or farm?

Say thanks and recognise their achievements by nominating them for a NT NRM Award today!

TNRMCONFERENCE.ORG.AU

NOMINATIONS CLOSE 4TH SEPTEMBER 2017

Awards Gala Dinner 22 NOVEMBER 2017 DARWIN WATERFRONT

2017 NORTHERN TERRITORY LANDCARE AWARDS

Calling for nominations from Landcare leaders working on sustainable farming, Coastcare, Junior Landcare, Indigenous land management, and much more. With nine national categories, there is certain to be one to fit any kind of Landcare project.

LANDCAREAUSTRALIA.ORG.AU/LANDCARE-AWARDS

AWARD CATEGORIES

Best Collaboration in NRM Award
Primary Producer NRM Award
Research in NRM Award
Small Business Initiative in NRM Award
Individual NRM Award
Indigenous NRM Achiever Award
People’s Choice Award

AWARD CATEGORIES

Australian Government Individual Landcarer
Australian Government Partnerships for Landcare
Australian Government Excellence in Sustainable Farm Practices
Australian Government Innovation in Agriculture Land Management
Coastcare Award
Landcare Community Group
Junior Landcare Team
Indigenous Land Management
Young Landcare Leader

For more information contact us:
08 8942 8300 events@territoryrm.org.au www.territoryrm.org.au
2017

Tennant Creek & District Show

Cattle Section

Friday 14th July

Classes:

- Pen of 2 Bulls (2015 season)
- Single Local Bull (older than 2015)
- Pen of 2 Mature Breeding Cows
- Pen of 2 Heifers 180-250kg
- Pen of 2 Heifers 250-350kg
- Pen of 2 Heifers 350-450kg
- Pen of 2 Steers 180-250kg
- Pen of 2 Steers 250-350kg
- Pen of 2 Mickeys 180-250kg
- Led Calf (handler 12 years and under)

It’s that time of year again!

Start drafting off your prize-winning cattle now!

Contact Jane Douglas 08 8962 4483
laine.douglas@nt.gov.au

DEPARTMENT OF
PRIMARY INDUSTRY AND RESOURCES
Barkly Beef Newsletter
Barkly Beef Dinner
Tennant Creek
Friday 14th July 2017
Territory Cocktail • 6.30pm • Sporties Club
• Tickets $85
• 3 Course Meal • Live Auction • Full Bar & DJ
• Award Presentation for Show Cattle
• Prizes to be won
A great night where everyone is welcome!

For Further information please contact:
Emm - 0439189692/ barklybeefdinner@outlook.com
Livestock disease investigations

The Department of Primary Industry and Resources (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 disease for all disease investigations, and subsidies are available to private veterinarians for significant disease investigations in livestock. The Northern Australia Enhanced Disease Surveillance program has been introduced from 2017-2019 on a trial basis providing increased subsidies for cattle and buffalo disease events reported to and investigated by private veterinarians. This program recognises the higher costs and challenges associated with conducting disease investigations in more remote regions.

During January to March 2017, 58 livestock disease investigations were conducted to rule out emergency diseases or investigate suspect notifiable diseases across the Northern Territory (NT). Figure 1 shows the number of investigations by species of livestock.

Berrimah Veterinary Laboratories processed 142 livestock sample submissions, including samples to substantiate proof of disease freedom certifications, for accreditation programs and targeted surveillance to support market access.

The following case reports are a selection of field investigations of livestock disease incidents during the quarter.
Livestock disease investigation case reports

Foot and mouth disease excluded in cattle herd

A property in the Katherine region reported losses in their 12-18 month old cattle after an estimated 20 head out of 60 were found to be missing and presumed dead after a prolonged wet season. Some of the remaining cattle were displaying signs of dehydration and scours at the time of the investigation.

One of the heifers was found to be in very poor body condition. The heifer was euthanised and an autopsy was performed. The autopsy revealed a full rumen with dry contents. There was no evidence of diarrhoea in this animal. Two small ulcerations were found on the inside of the heifer’s mouth, the sores appeared to be healing. Samples were collected from this animal and 30 cohorts for diagnosis and to exclude foot and mouth disease (FMD).

Laboratory tests run on the tissue from the ulcer and serum excluded FMD. Tests on the faecal samples showed no evidence of internal parasites, including coccidiosis. Blood samples from the heifer showed a moderate increase in neutrophils; a type of white blood cells that helps to kill bacteria. There was also elevated urea levels in the blood, likely due to dehydration. Salmonella subsp ser rough: e.h:1.2 was isolated by direct faecal culture and S.montevideo and S.reading was isolated by enrichment culture. Salmonella isolation from direct culture of faeces is often associated with clinical disease. Salmonella isolation from enrichment culture reflects lower numbers of organisms in the faeces and can indicate a carrier or recovered animal.

Severely affected cattle were treated with antibiotics and all cattle recovered with no further illness or death. The presumptive diagnosis is salmonella infection but it is believed to have followed another significant stress event that remains undetermined.
Salmonella is a bacteria that can be found in the digestive tract of humans, mammals, reptiles and poultry. The bacteria can be spread from infected hosts through faecal matter, resulting in illness for previously uninfected animals. There are over 12 different types of salmonella organisms in Australia. The Salmonella bacteria is mainly spread to mammals through food and water that has been contaminated by animals already infected with the bacteria. Wildlife are known carriers of salmonella infections and have been responsible for outbreaks of the disease in cattle. Cattle may not show symptoms until they are exposed to stress factors, lowering their resistance. Such stress factors include lack of food or water, change in diet, extremely hot or wet weather, weaning and transport.

Clinical Signs vary between cases, with some cases resulting in scouring, others in pneumonia or even odd deaths in older cattle. Any of the following may be related to salmonella:

- High temperatures (fever)
- Depression
- Bloody, foul smelling scours that may contain blood and mucous membrane
- Loss of appetite
- Rapid weight loss
- Abortion in pregnant animals
- Significant number of rapid deaths in calves
- Spasms and trembling of muscles
- Salivating and frothing at the mouth

For those animals that do not die, diarrhoea, emaciation and wasting are likely to continue for a while before the animal recovers.

It is important to remember that salmonella poses a threat to humans. Salmonella is spread relatively easily to humans and/or other animals as it can be ingested through direct or indirect contact with faecal material. If you believe your animals have salmonella, please contact your regional DPIR veterinary officer or local veterinarian for tests which can be run to ensure a correct diagnosis is made and appropriate medication administered. There are a number of alternative diseases that can cause the syndrome seen. Salmonella is not a common diagnosis in Northern Territory herds. There should be few consequences for this herd under improved management.

Reference:

Bovine herpesvirus 5 causes mortality in weaner cattle on property in Katherine region

The manager of a property in the Katherine region reported sudden death in 26 weaner cattle from a herd of 2000 over the space of a few weeks. The cattle had been weaned, processed, and transported to the property in multiple consignments during the preceding month. Weaners had access to weaner pellets, hay, and unimproved pasture once they arrived at the property. Conditions had been particularly wet during the previous months.

The mob was in overall average condition, with some very young animals. Dead cattle were generally in poor condition, and had been found under trees and in feed troughs. One heifer was seen to be circling and was found the next day with a head tremor and unable to stand. This heifer and an additional two steers, which were the weakest of the mob, were euthanased for autopsy and 30 animals were blood sampled.

At post mortem the lungs of all three animals were pale, with the bottom sections of the lungs filled with liquid instead of air. The ruminal papillae in the heifer and one steer were smoother than would be expected. Ruminal papillae are the thousands of tiny finger like bumps attached to the inside surface of the rumen which help with absorption. Other organs looked normal.

Tests undertaken at Berrimah Veterinary Laboratory (BVL) found inflammation of the air sacs in the heifer’s lungs. The lung tissue collected from the steers showed severe bronchopneumonia (inflammation of the lungs, particularly in the bronchi). A mixed bacterial growth including Pasteurella sp., was cultured from the steers. Inflammation of the brain was also identified in one of the steers and the heifer, with changes in the heifer being more severe. Laboratory tests found a mild to moderate increase in neutrophils (white blood cells) in all the animals. Muscle damage was also seen in all animals which is commonly associated with downer animals. The Pasteurella infection may have indicated a degree of ‘shipping fever’.

The heifer had a moderate faecal egg count (600eggs/g) but overall egg counts were low as expected. Laboratory tests excluded infection with Kunjin virus, Murray Valley encephalitis virus, Chlamydia and herpesvirus. Bovine ephemeral fever was ruled out, and tests for bovine virus diarrhoea (pestivirus) and coccidiosis infection were negative. Testing of brain tissue specifically for bovine herpesvirus 1 and 5 was positive for bovine herpesvirus 5 in the heifer and one of the steers.

Bovine herpesvirus 5 is present in Australia and may cause inflammation of the brain and neurological disease in young animals. The virus can establish, lay dormant and may be reactivated when infected cattle are stressed; it is then excreted in nasal, eye and genital secretions. BHV 5 is part of the ‘growing up’ phase for cattle with problems rarely seen in adult cattle.

Serological testing for leptospirosis demonstrated a very consistent exposure to a range of Leptospira but particularly Leptospira Pomona. No disease attributed to L Pomona was seen in live or post mortemed cattle. The presumed source was the large number of feral pigs on the property of origin.
The cattle were dipped for cattle tick to exit the Parkhurst Resistant Tick Infected Zone. Amitraz levels in the dip were correct. No other issues were seen in other mobs of young cattle that were dipped.

Multiple stressors are likely to have contributed to the observed mortality of these cattle. In this case, early weaning, processing, prolonged periods of time spent in yards and transport of the large number of young cattle in a very wet season. Further stressors include; the concurrent worm burden, the cattle tick plunge dip, transport and the sudden introduction of the weaners to the new post-weaning hard ration. The level of mortality (approx. 1.3% in this mob) is significant but the diagnosed diseases are difficult to prevent in a cost effective manner other than by strategic treatment of sick animals (anthelmintic, antibiotics) if detected early enough to allow a good chance of response.

The cattle were turned out into a clean paddock for several weeks before being run through the yards again, and there were no further losses reported.

Poultry mortality on remote Northern Territory Island

A report of sudden death in a backyard flock of chickens was investigated in a remote community on an island off the Northern Territory coastline. Eight out of 12 birds on the property had shown signs of weakness, were lying down, unable to get up, and had died over a two day period. There had been no recent management changes, other than herbicide that had been applied to the yard the week previously. The weather had been particularly wet and cyclonic. A hen was euthanased, its carcase frozen and transported to the Berrimah Veterinary Laboratories.

An autopsy of the hen found no evidence of infectious disease. Further examination revealed evidence of a firm mass within the air sac, likely incidental and from a previous passing condition such as mild air sacculitis or serositis, with no active inflammation present. Sacculitis is lower respiratory disease in chickens, where one or more of the air sacs become inflamed. Serositis is the inflammation of the tissues that line the lungs, heart, abdomen and inner abdominal organs. Avian influenza and Newcastle disease viruses were excluded by tests on swabs collected from the cloaca and oral cavities. A presumptive diagnosis of avian botulism was made on the basis of clinical history and lack of gross and histological evidence of other disease.

Cases of botulism in poultry, caused by consumption of maggots containing *Clostridium botulinum*, are seen commonly in poultry during the wet season in the Top End. In this case, maggots were not found in the gastrointestinal tract of the bird on post-mortem, however in subacute cases of poisoning maggots may already be digested. Upon questioning the owner it was discovered that the chickens in this case were regularly fed leftover fish and meat. When decayed, these are common sources of *C. botulinum* toxin and maggots, which concentrate the toxin. The owner was given recommendations to remove decaying food scraps from the birds, and no further losses have been reported.
New industry-agreed NT entry requirements for Johne’s disease management in 2017

The Northern Territory (NT) cattle industry has agreed an assurance level of Johne’s Beef Assurance Score (J-BAS) 6 including five years freedom from Johne’s disease (JD) infection in source herds would best facilitate movement of cattle into the NT while maintaining biosecurity requirements consistent with the live export requirements.

J-BAS

Need a quick catch-up on what has been happening

JD is a serious wasting disease that affects cattle, buffalo, bison, sheep, goats, deer and camelids. The Territory was previously a JD Protected Zone with no known disease. On 1 July 2016, zones were no longer recognised and producers were responsible for risk assessments and assurances for JD prevention and management on their individual properties.

The Johne’s Beef Assurance Score (J-BAS) was developed as a risk profiling tool for beef producers. There is an equivalent tool for the dairy industry – Dairy Score. All NT properties were given a J-BAS of 7 for trading purposes during the 12-month transition period from 1 July 2016-30 June 2017. A J-BAS 7 was also applied as an interim entry requirement for cattle and buffalo into the NT during the transition period. The J-BAS rating is from 0-8 (lowest to highest level of assurance).

The transition period for changing to the new national JD management system was due to end on 30 June 2017, however there has been a change to this date allowing producers until 30 September 2017 to complete and implement a property biosecurity plan in line with the requirement for a biosecurity plan under the Livestock Production Assurance (LPA) program.

What’s happening now?

From 1 October 2017, Northern Territory properties have the following options:

1. **Maintain current low-risk status J-BAS 7**.
   To maintain this status properties will need to:
   
   a. By 30 September 2017 - complete and implement a Property Biosecurity Plan that addresses JD risks, in collaboration with a veterinary advisor, which requires annual review.
   
   b. By 30 June 2018 – complete a Check Test (testing of 50 representative adult cattle from the herd by faecal PCR or culture). This will need to be completed within the past 12 months for properties trading into Western Australia from 1 January 2018.
   
   c. Ongoing – Maintain an annual veterinary review of the property biosecurity plan and a Check Test every three years. The Check Test will need to be done within the past 12 months for properties trading into Western Australia from 1 January 2018.
2. **Move to a J-BAS 6**
   
a. By 30 September 2017 - complete and implement a Property Biosecurity Plan that addresses JD risks. Veterinarian oversight is not required.

   b. Check Testing is not required

3. **Do nothing. Reduce to J-BAS 0**
   
a. By 30 September 2017 – Fail to complete and implement a Property Biosecurity Plan that addresses JD risks

4. **Achieve maximal assurance (J-BAS 8)**
   
a. By 30 September 2017 - complete and implement a Property Biosecurity Plan that addresses JD risks, in collaboration with a veterinary advisor, which requires annual review.

   b. Sample Test (210-300 adult cattle sampled), repeated two years apart

   c. Ongoing – Maintain annual veterinary review of the property biosecurity plan and a Check Test every three years. The Check Test will need to be done within the past 12 months for properties trading into Western Australia from 1 January 2018.

Northern Territory properties trading with Western Australia will need to initiate measures to maintain J-BAS 7 score. To maintain the **J-BAS 7** score, properties need to implement a property biosecurity plan before 30 September 2017 in collaboration with a veterinary advisor, which will require annual review. J-BAS 7 also requires properties to complete a check test of 50 representative adult cattle from their herd. From 1 January 2018, Western Australia requires that the check test is completed within the past 12 months.

Cattle or buffalo entering the NT consigned direct to export must meet the J-BAS 6 score entry requirements and declaration of 5 years with no JD infection on the property of origin. This is to manage the disease risk associated with animals ineligible for export (export rejects). Cattle or buffalo entering the NT consigned direct to slaughter are exempt from J-BAS score entry requirements.

Producers will need to be aware of risk for acquiring JD when purchasing stock from interstate. For interstate movements into the NT and WA, the property's J-BAS, biosecurity plan, JD property of origin status any JD testing results will have to be declared by the vendor.

NT producers are encouraged to apply the J-BAS 6 requirements for intrastate movements to protect their JD status and to seek a higher level of JD assurance for seed stock purchases because of the potential disease risks that apply to importing breeding stock. Animals vaccinated for JD must be identified with the three-hole ear punch to assist with interpretation of any future JD exposure status.

The new national arrangements do not distinguish between bovine, ovine and other strains of JD and biosecurity risk assessment must take this into account. Of particular concern is contact between dairy and beef herds or some extent of co-grazing on contaminated land on a property where the JD status of the dairy animals is less than J-BAS 7 or Dairy Score (DS) 7. The lower level of assurance applies to the potential livestock movement.
What do I need to do to maintain a higher J-BAS?

The table below outlines the conditions a property needs to meet and the dates to maintain or reach the J-BAS 6, 7 or 8.

<table>
<thead>
<tr>
<th>J-BAS Score</th>
<th>Action to be taken and date required</th>
</tr>
</thead>
</table>
| J-BAS 6     | ☐ Complete and implement a **property biosecurity plan** by 30 September 2017  
              ☐ No history of JD infection in herd for a minimum of five years |
| J-BAS 7     | ☐ By 30 September 2017- complete and implement a **property biosecurity plan** in collaboration with a veterinarian  
              ☐ By 30 June 2018- complete a **check test** of 50 adult cattle.  
              ☐ Maintain an annual veterinary review of the property biosecurity plan and a check test every three years.  
              ☐ For entry to WA, the check test will need to be completed within the past 12 months for from 1 January 2018. |
| J-BAS 8     | ☐ By 30 September 2017- complete and implement a **property biosecurity plan** in collaboration with a veterinarian  
              ☐ By 30 June 2018- complete a **sample test** of 210-300 adult cattle, sampled two years apart.  
              ☐ Maintain an annual veterinary review of the property biosecurity plan and a check test every three years.  
              ☐ For entry to WA, the check test will need to be completed within the past 12 months for from 1 January 2018. |

**Property biosecurity plan**

J-BAS requires a property biosecurity plan for all scores from J-BAS 1 to 8. The [grazing manual biosecurity template](#), which incorporates the JD biosecurity checklist, has been developed for producers to use for this purpose. This meets the national industry minimum standards of the [National Farm Biosecurity Reference Manual – Grazing Livestock Production](#). A number of other biosecurity plan templates are also available to help livestock producers develop biosecurity plans for their properties.

- Get the [grazing manual biosecurity template (concise version)](#)
- Get the [on farm biosecurity plan template (comprehensive version)](#)
- Get the [guideline for developing an on-farm biosecurity plan for producers](#)
JD testing

Specific information on the J-BAS and testing requirements can be found at www.animalhealthaustralia.com.au.jd-cattle-tools/

What are the NT JD entry requirements from 1 July 2017?

From 1 July 2017, cattle, buffalo, bison, sheep, goats, deer and camelids imported into the NT will be required to meet the following minimum JD requirements, in addition to existing livestock movement requirements. Cattle or buffalo entering the NT consigned direct to slaughter are exempt from J-BAS score entry requirements.

<table>
<thead>
<tr>
<th>Livestock being imported into the NT</th>
<th>Johne's Disease J-BAS requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle &amp; buffalo (beef)</td>
<td>Property score of at least J-BAS 6</td>
</tr>
<tr>
<td>Cattle &amp; buffalo (dairy)</td>
<td>Property score equivalent to at least DS 7</td>
</tr>
<tr>
<td>Sheep, goats &amp; camelids</td>
<td>Property score of at least J-BAS 6</td>
</tr>
</tbody>
</table>

What are the JD entry requirements for sending livestock interstate from the NT?

The entry requirements for sending livestock interstate from the NT have changed. Producers should contact the relevant state to confirm entry requirements prior to transporting livestock.

<table>
<thead>
<tr>
<th>Destination</th>
<th>Johne's Disease requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>WA</td>
<td>Property score of at least J-BAS 7. Other testing requirements may apply –see WA LB1 form.</td>
</tr>
<tr>
<td>QLD, SA, NSW, Vic</td>
<td>No specific movement controls in relation to JD. Producer obligation not to introduce JD infection.</td>
</tr>
</tbody>
</table>

JD remains a notifiable disease under the Livestock Act and must be reported to the Chief Veterinary Officer as soon as reasonably practicable if known or suspected to be present. Properties will not be placed under quarantine.
Further JD risk management.

NT producers are advised to seek a higher level of JD assurance on stock purchases, particularly bulls and should discuss this with their vendor, agent and veterinarian. Vaccination with Silirum is one measure that can be used. Identification of vaccinated animals with a three hole ear punch is required.

For further biosecurity information please contact Susanne Fitzpatrick
e: susanne.fitzpatrick@nt.gov.au   p: 8999 2123   m: 0407 498 003

For further movement information please contact Greg Crawford
e: greg.crawford@nt.gov.au   p: 8951 8125   m: 0401 118 125

Pregnancy toxaemia in cattle

Pregnancy toxaemia (also known as Fatty Liver Disease), occurs when cows in good condition with high nutritional demands of late pregnancy cannot get enough feed to meet their energy requirements which leads to a state of negative energy balance. This is a situation when a cow's energy requirements are greater than her dietary energy supply. Under these conditions, cows respond by using their body fat reserves to provide the required energy. In some cases this causes serious metabolic changes, liver damage and even death.

Pregnancy toxaemia is not commonly seen in rangeland cattle but can occur on occasion, mainly due to high levels of stress during late pregnancy. Pregnancy toxaemia is usually triggered by a sudden reduction in feed availability or quality. For example, changing paddocks, mustering long distances, transporting and yarding may cause stress and a reduced feed intake in heavily pregnant cattle. This in turn triggers an increase in body fat mobilisation to the liver to meet energy demands.

What causes fatty liver disease?

Pregnant cows require large amounts of energy to maintain their growing calf. This energy comes in the form of glucose from two processes:

- Feed is absorbed in the rumen and transported to the liver where glucose is produced.
- Body fat is also broken down and transported to the liver via the bloodstream where the liver converts it to glucose during times of high energy demand such as late pregnancy.

The negative energy balance is created when the amount of glucose produced by the liver to break down the incoming body fat is not enough. This causes the fat to start building up in the liver. The liver then becomes enlarged, pale and fatty. Another disease that often affects cows simultaneously as a result of these metabolic changes occurring is called ketosis. Ketones are a by-product of this fat burning process to access energy. Excessive levels of ketones build up in the brain and tissues and may cause some of the clinical signs often associated with pregnancy toxaemia. These include:

- depression
- inappetance (not eating)
- ataxia (weak in the hind end)
- recumbent (unable to stand)
- increased respiratory rate
- increased aggression, stubbornness or confusion
Prevention

Pregnancy toxaemia may be prevented by management strategies that maintain a good appetite and supply of adequate feed to meet this demand of energy during the late stages of pregnancy and immediately after calving when milk and energy demands are high. These strategies include:

- minimising stress by avoiding mustering, transport and prolonged yarding of heavily pregnant animals (all of these factors may reduce feed intake and cause an increase in fat mobilisation to the liver). Pregnant cows with a high body condition score seem to be more susceptible to pregnancy toxaemia if they are starved for short periods; for example, if yarded for several hours or transported.
- feeding ample quantities of high-quality forages during the last trimester and post calving to meet energy demands.

It is a major reason for the restrictions in the Land Transport Standards that must be followed:

- **SB4.3 Cattle known to be in the last four weeks of pregnancy must only be transported under veterinary advice unless the journey is less than four hours duration.**

**Diagnosis and treatment**

In extensive field conditions diagnosis is normally confirmed by blood tests and/or a post mortem examination of an affected animal. The liver is normally very large, pale and tears easily. Treatment usually comprises intravenous fluids and oral Propylene glycol over an extended period of time. Treatment options are limited in larger cattle station conditions due to the extensive nursing care and time required for the recovery of affected animals (may be weeks).

*A fatty liver (left) and a normal liver (right)*
Once the metabolic changes of pregnancy toxaemia begin to occur in an animal they are very difficult to reverse. Diagnosis in one or two individual animals may indicate a dietary energy deficiency being experienced by the whole herd or a sudden stressful event. Awareness of this condition, early detection and prevention by providing careful management including; good quality grazing or supplementary feed during the last trimester of pregnancy has proven to be more effective than treatment.

**Leptospirosis - a work health safety issue**

In the past wet season a significant number of NT stock workers have been affected by Leptospira Pomona. Confirmed cases of leptospirosis in humans are reported by the NT Department of Health Centre for Disease Control. Leptospirosis is a notifiable disease in humans, commonly referred to as ‘Lepto’, poses a serious threat to staff working on cattle stations, particularly in the flood plain and rural Darwin/Katherine regions. Leptospirosis is caused by a number of strains of the *Leptospira* bacteria, which have the ability to infect both animals and also cause serious disease in humans. Animals infected include cattle, pigs, sheep, goats, horses, dogs and rats in addition to native wildlife including kangaroos.

Leptospirosis is highly contagious because of the many ways it can be spread from animal to animal, or from animals to humans. The disease can be spread through urine, or at birth or abortion, resulting in the contamination of water, feed, pastures and soil. Once in the environment, the bacteria are able to infect animals and humans through damaged skin or the membranes lining the nose, eyes or mouth. Stock workers are most likely to contract the disease when working in cattle yards or abattoirs with infected cattle. Infection can result from both direct exposure to urine when handling or slaughtering cattle and working in yards where the water, mud, soil or vegetation have been infected. ‘Bang tailing’ and cleaning of water troughs are two key activities which can pose a risk to stockpersons. Handling the foetus of an aborted calf, or assisting with calving can be a further source of infection for humans. Recreational activities that may pose a risk include camping, bushwalking, gardening and hunting.

The clinical signs in cattle will vary depending upon the strain of the disease. In general, animal signs associated with leptospirosis include weak newborns, fever, infertility, mastitis, jaundice, depression and anorexia. Abortion ‘storms’ may also be seen in cows that are greater than five months pregnant. Abortions may occur weeks after initial symptoms, or even in the absence of symptoms. These signs are rarely recognised in the NT.

Symptoms in humans have been found to occur within 10 days; however can range from 4 to 19 days. The length of illness varies, with people being sick for a few days, or as long as three weeks or more. Relapses are common however it is rare for person to person transmission to occur. Symptoms can include any of the following:

- Severe headaches
- Chills
- Sudden onset of fever
- Severe muscle pain (especially in the legs)
- Reddened eyes
- Cough
- Diarrhoea
- Vomiting
Occasionally, people with Leptospirosis will develop Weil’s disease, symptoms include jaundice, bleeding, breathing difficulties and confusion. Although extreme cases can prove to be fatal, most cases involve people with mild symptoms that resolve themselves with little to no complications, or cases where there are no symptoms at all. It is important to reach a diagnosis for proper treatment and to exclude more serious diseases such as melioidosis.

As there is no vaccination against leptospirosis for humans, employers and staff members need to be aware of the disease, take precautions to avoid exposure and know what to do if a staff member suspects that they may have leptospirosis or displays symptoms consistent with the disease. Precautions to take against leptospirosis include:

- avoiding unnecessary contact with water that may be contaminated
- wearing gloves and eye protection when handling the tail end of animals to minimise urine contact (pregnancy testing, bang tailing etc.)
- covering all cuts or wounds with waterproof dressing
- washing hands and arms thoroughly after handling animals, carcasses or other contaminated materials
- avoiding hand to mouth (i.e. smoking), nose and eye contact when handling animals that may be infected
- washing and drying hands thoroughly before smoking or drinking
- controlling rodent populations
- instituting wild pig management programs
- vaccinating livestock with ‘7 in 1’ vaccine against Lepto Pomona and Hardjo strains.

For further information regarding leptospirosis:

https://nt.gov.au/wellbeing/health-conditions-treatments/bacterial/leptospirosis

If you believe that you, or a staff member has leptospirosis contact your local doctor for testing. It is important to mention your risk factors or possible exposure to Lepto.

If you think that your livestock have leptospirosis please contact your DPIR Regional Veterinary Officer.

Darwin  (08) 8999 2035
Katherine (08) 8973 9716
Alice Springs (08) 8951 8181
Livestock movement and identification in the Northern Territory

The last edition of Animal Health News featured a section on livestock movement and identification in the Northern Territory, focusing on Property Identification Codes (PIC), Brands and National Livestock Identification System (NLIS) requirements. This article carries on from that, with information regarding livestock transport standards, requirements for moving livestock within the Northern Territory and for moving livestock into the Northern Territory from interstate. If you have any queries relating to livestock movement or identification, please do not hesitate to contact your local livestock biosecurity officer (see contact information at the end of this article).

Livestock Transport Standards (LTS)

The Livestock Transport Standards (LTS) were incorporated in NT Legislation and commenced in 2012.

The aims of the LTS are to have a consistent approach and responsibility across Australia for all persons involved in the handling, selecting, loading and transporting of livestock.

The LTS is in two sections:

Part A - General Standards (for each species.)

1 - Responsibilities and Planning.
2 – Stock handling competency.
3 – Transport vehicles and facilities.
4 – Pre-transport selection.
5 – Loading, transport and unloading.
6 – Humane Destruction.

Part B – ‘Species Specific' Standards

It is a requirement of the LTS that all persons, who are involved in the handling, selecting, spelling, loading and transporting of livestock at all venues, must only load and handle livestock that are fit for the intended journey.

Further information on LTS requirements can be located at


The standards have been agreed to be enforced under the Livestock Act with some standards subject to infringement notices if non-compliance is detected.
Moving Livestock within the NT

When moving livestock within the NT, the following requirements apply:

<table>
<thead>
<tr>
<th>Animal / species</th>
<th>NT PIC</th>
<th>NT Waybill</th>
<th>Brands</th>
<th>NLIS device</th>
<th>Transport standards apply</th>
<th>Treatment for Cattle Tick (When moving out of tick zones)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle*</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Buffalo</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Horses (incl. mules and donkeys)</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>✓ + permit</td>
</tr>
<tr>
<td>Pigs</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>Poultry</td>
<td>✓</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>x</td>
</tr>
<tr>
<td>Sheep and goats</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Deer **</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>✓ + permit *</td>
</tr>
<tr>
<td>Camels</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Alpacas and llamas*</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓ + permit *</td>
</tr>
<tr>
<td>Honeybees</td>
<td>✓</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>x</td>
</tr>
</tbody>
</table>

* All cattle over the age of eight months must be branded
** Permit from NT Parks and Wildlife may be required

Moving Livestock into the NT from interstate

When moving livestock into the NT from interstate, the following requirements apply:

<table>
<thead>
<tr>
<th>Animal / Species</th>
<th>Health Certificate and Waybill</th>
<th>NT PIC</th>
<th>Brands</th>
<th>NLIS Device</th>
<th>Johne's disease clearance</th>
<th>Transport standards apply</th>
<th>Treatment for Cattle Tick (When moving out of tick zones)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Buffalo</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Horses (incl. mules and donkeys)</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>✓ + permit</td>
<td></td>
</tr>
<tr>
<td>Pigs</td>
<td>x</td>
<td>✓</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Poultry</td>
<td>x</td>
<td>✓</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Sheep and goats</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Deer *</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>✓ + permit *</td>
<td></td>
</tr>
<tr>
<td>Camels</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Alpacas and llamas*</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓ + permit *</td>
<td></td>
</tr>
<tr>
<td>Honeybees</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>✓ + permit **</td>
<td></td>
</tr>
</tbody>
</table>

* Permit from NT Parks and Wildlife may be required.
** Must have health certificate confirming they do not have European foulbrood, American foulbrood and small hive beetle.
You do not need a permit to move pigs, pigeons and poultry.


**Contacts**

**Alice Springs:** Greg Crawford, Regional Livestock Biosecurity Officer  
P: (08) 8951 8125 | M: 0401 118 125 | E: greg.crawford@nt.gov.au

**Tennant Creek:** Tom Haines, Principal Livestock Biosecurity Officer  
P: (08) 8962 4458 | M: 0401 113 445 | E: tom.haines@nt.gov.au

**Katherine:** Josh Haigh, Regional Livestock Biosecurity Officer  
P: (08) 8973 9767 | M: 0467 740 233 | E: josh.haigh@nt.gov.au

**Darwin:** Rob Wait, Livestock Biosecurity Officer  
P: (08) 8999 2034 | M: 0401 115 802 | E: rob.wait@nt.gov.au
**Live Cattle Exports via Darwin Port – MAY 2017**

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

<table>
<thead>
<tr>
<th>Destination</th>
<th>Export of ALL CATTLE (including Interstate) from Darwin Port</th>
<th>Export of NT CATTLE from Darwin Port (estimate only)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2015</td>
<td>2016</td>
</tr>
<tr>
<td>Brunei</td>
<td>4,122</td>
<td>3,376</td>
</tr>
<tr>
<td>Indonesia</td>
<td>341,759</td>
<td>296,230</td>
</tr>
<tr>
<td>Philippines</td>
<td>23,611</td>
<td>4,697</td>
</tr>
<tr>
<td>Sabah</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sarawak</td>
<td>300</td>
<td>1,220</td>
</tr>
<tr>
<td>Malaysia</td>
<td>11,503</td>
<td>10,959</td>
</tr>
<tr>
<td>Vietnam</td>
<td>100,119</td>
<td>36,405</td>
</tr>
<tr>
<td>Egypt</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Thailand</td>
<td>6,154</td>
<td>2,766</td>
</tr>
<tr>
<td>Cambodia</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>487,568</td>
<td>355,656</td>
</tr>
</tbody>
</table>

**May at a glance**

- 39,475 cattle through the Darwin Port during May; 9,341 more than last month and 340 less than in May 2016.
- 28,185 NT cattle through the Darwin Port during May; 12,003 more than last month and 4,177 less than in May 2016.

**Live cattle exports thru Port of Darwin 2016 - 2017**

**OTHER LIVESTOCK EXPORTS VIA DARWIN PORT**

Includes NT and interstate stock.

<table>
<thead>
<tr>
<th>Destination</th>
<th>Buffalo</th>
<th>Goat</th>
<th>Camel</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>YTD</td>
<td>MAY</td>
<td>YTD</td>
</tr>
<tr>
<td>Brunei</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Indonesia</td>
<td>195</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Philippines</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sabah</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Sarawak</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Malaysia</td>
<td>1,474</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Vietnam</td>
<td>794</td>
<td>207</td>
<td>0</td>
</tr>
<tr>
<td>Egypt</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Thailand</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cambodia</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>2,463</td>
<td>207</td>
<td>0</td>
</tr>
</tbody>
</table>

**NT CATTLE MOVED INTERSTATE**

<table>
<thead>
<tr>
<th>Destination</th>
<th>MAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSW</td>
<td>1085</td>
</tr>
<tr>
<td>QLD</td>
<td>24029</td>
</tr>
<tr>
<td>SA</td>
<td>6678</td>
</tr>
<tr>
<td>VIC</td>
<td>1404</td>
</tr>
<tr>
<td>WA</td>
<td>4281</td>
</tr>
<tr>
<td>TOTAL</td>
<td>37,477</td>
</tr>
</tbody>
</table>

**NATIONAL CATTLE PRICES**


**CURRENCY EXCHANGE RATES**

[www.oanda.com/currency/convertor](http://www.oanda.com/currency/convertor)
There is currently a large focus on researching the ground resources of Northern Australia. Over the next four years, the Australian Government will partner with the Northern Territory, Queensland, South Australian and Western Australian Governments to research Northern Australia’s soil, water and rocks. The project is called Exploring for the Future.

There are a number of research projects that will take place over the next 4 years:
- Water bore testing
- Soil testing
- Magnetoelluric surveys
- Seismic surveys
- Airborne electromagnetic surveys
- Gravity measuring surveys

The information collected from these surveys will be publicly available on the Geoscience Australia website for anyone to look at. Some of this data will be very useful for future community development projects, agriculture and other resource development industries.

This project will require vehicle and helicopter access to some pastoral stations and Aboriginal land. **For any immediate enquiries, please contact Peter Campbell on 8951 8170 or Ken Satour on 8951 8176.**
Around the traps...

Dr Andrew Fisher Melbourne University, Ryan Jepson and Peter Raleigh Brunchilly at the BHMF

Victoria River Research Station (Kidman Springs) - Walking cattle out

It’s not all about work, sometimes there’s a spot of fishing on the Victoria River

It’s a tough life doing field work sometimes

Do you have any work and/or play photos from around the Barkly? We want to see what you have been up to! Send them through to BarklyBeef@nt.gov.au

Jane Douglas (DPIR) lighting up the Shrubburn plots at Kidman Springs
The Business EDGE
Growing Business skills and financial literacy for grazing business managers

Is your grazing business providing you with more than just a job?

Grazing businesses require a lot of capital and labour. Is yours providing you with sufficient returns given the capital and time you invest in it... or is it just providing you with a job?

Successful grazing businesses are generating sufficient profits to reward their owners for both their capital investment in the business and their efforts in running the business. This puts these businesses in a position to be able to fund growth, debt reduction, retirement and succession. Growing the business skills and financial literacy of your management team is the starting point to improved financial performance.

What will you take home from The Business EDGE?

During the two days of The Business EDGE you will acquire the knowledge and skills to...

- Determine if all the family needs and aspirations can be funded by the business
- Prepare and understand key financial information on your business
- Assess and manage agricultural business risk
- Understand and manage enterprise performance, including understanding what the key profit drivers are, how to influence them and what effect they have on overall business performance.

And much more...

Comprehensive course notes are provided, along with decision support spreadsheet tools to help you apply the material to your business. Follow up is available to all participants.
“What attendees have said...”

Overall feedback...

“We have been looking at our business through a dirty windscreen for a long time, you guys in two days have cleaned that windscreen for us” Dysart

“Course was exceptional, given me the tools to continue to learn and develop better business skills and improve financial analysis and ultimately profitability” Katherine

“Is a bit above where I was thinking - realised this is where I should be thinking” Springsure

“This course provided excellent tools for learning more about our own business” Roma

“Most relevant workshop I’ve ever been to” Katherine

“I came in with a below basic knowledge of business and am leaving with the confidence to really analyse our business” Rockhampton

Our presenters...

“Very knowledgeable but able to break it down so it was easy to understand” Rockhampton

“Practical and easy to relate to” Mount Isa

“Very good knowledge & delivery. Plenty of time made to detour and answer questions” Dalby

“Presenters know the content extremely well and deliver well” Roma

“Excellent delivery with the ability to engage and hold participants attention” Cloncurry

Benefits in terms of time and money invested in attending...

“Definitely value for money going forward with our business plans” Townsville

“Very good investment in the future for myself as an employee and very beneficial to my employers” Hughenden

“Well & truly worth the investment of time and money” Mount Isa

“Good, relatively small investment considering the benefits that could be achieved” Charters Towers

“A good investment” Toowoomba

The investment...

all prices exclude GST and are fully tax deductable

<table>
<thead>
<tr>
<th>1 person</th>
<th>Full fee</th>
<th>Early bird</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$1500</td>
<td>$1250</td>
</tr>
<tr>
<td>2+ from business</td>
<td>$1250 ea</td>
<td>$1000 ea</td>
</tr>
</tbody>
</table>

Early bird applies if registered & paid 4 weeks prior to course start date

Repeat discount 50%

Attendees of Bush AgriBusiness Business EDGE workshops who do a refresher course receive 50% discount off the applicable rate.

Fully Guaranteed – Unless you are completely satisfied that this workshop has helped you to understand and run your business more profitably, your course fee will be refunded in full, no questions asked.

For more information or to register your interest call...

Ian McLean: 0401 118 191 or Joanne Herley: 0427 118 699

Click: www.babusiness.com.au

E-mail: admin@babusiness.com.au

2017 Upcoming Workshops

June 13-14 Mackay

June 20-21 Darwin

July 18-19 Roma

The BusinessEDGE was developed by Meat & Livestock Australia specifically for extensive grazing businesses. Bush AgriBusiness delivers the Susiebus EDGE across Northern and Rangelands Australia.

DEPARTMENT OF PRIMARY INDUSTRY AND RESOURCES Barkly Beef Newsletter
Barkly House staff

Barkly House
First Floor, 99 Paterson St
PO Box 159, Tennant Creek, NT, 0861
Fax: (08) 8962 4480

Department of Primary Industry and Resources

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Administration Officer    Skye Spence   08 8962 4488

Animal Health

Principal Livestock Biosecurity Officer Thomas Haines 08 8962 4458
M: 0401 113 445
Stock Inspector           Greg Maguire  08 8962 4492
M: 0457 517 347

Livestock Industry Development

Pastoral Production Officer Casey Collier - mat leave 08 8962 4493
Pastoral Production Officer Jane Douglas  08 8962 4483
Pastoral Production Officer Gabrielle Penna 08 8962 4486

Barkly Landcare & Conservation Association

Landcare Facilitator      Andy Bubb  08 8962 4494
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