

Animal Health

DEPARTMENT OF PRIMARY INDUSTRY AND RESOURCES

December 2018

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New Principal Veterinary Officer

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

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



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

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

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

Livestock disease investigations

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

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

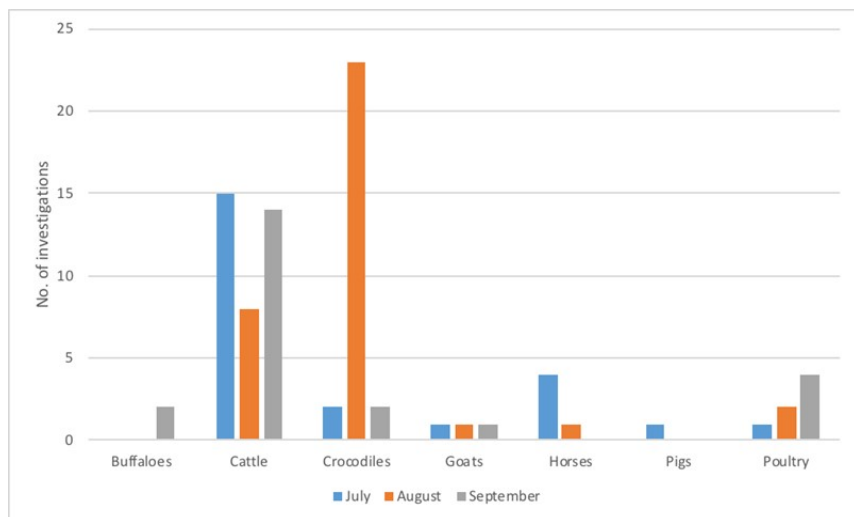


Figure 1: Livestock disease investigations in the NT, July to September 2018

Tick fever in bulls in a holding yard

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

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

Laboratory testing of the decomposed bull showed no explanation for any of the signs noted. Referral testing was performed on brain and kidney samples and was positive for *Babesia bovis* (*B bovis*) and *B. bigemina*. Tick fever was suspected but could not be confirmed due to the lack of findings given the decomposed state of the carcass. Test results for the second case revealed significant parasitism with *B. bovis*, confirming a diagnosis of babesiosis (Figure 3). Due to the neurological signs seen before death, transmissible spongiform encephalopathy (TSE) was excluded in both bulls.

Babesiosis or 'tick fever' is a disease of cattle caused by blood parasites that are transmitted by the cattle tick. On further questioning it became apparent that the bulls affected had originated in a cattle tick-free zone and not been treated for ticks before moving to a holding property, which was in a tick-infested zone.

Cattle born and raised in areas where cattle ticks are endemic can develop natural immunity through exposure to ticks infected with tick fever. Cattle raised in areas free from cattle ticks are at risk of tick fever if introduced into areas where ticks are present. The bulls were vaccinated ('blooded') as young bulls. Juvenile bull vaccination is no guarantee of life-long protection against the tick fevers. Other classes of cattle did not show any apparent disease which may be due to their genetics or some less apparent factor.

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

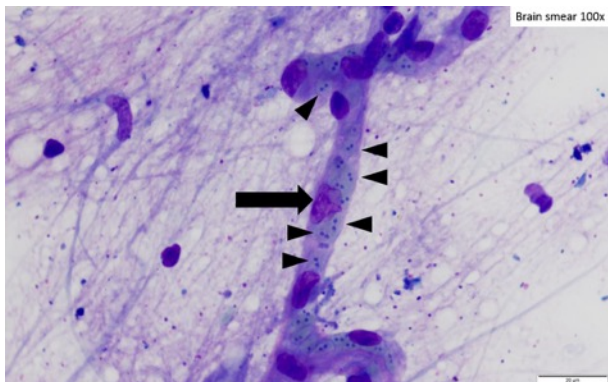


Figure 2: A blood vessel containing red blood cells and basophilic intra-erythrocytic pear-shaped organisms consistent in size and shape with *Babesia bovis*. Arrow heads point to blood cells containing organisms.

Annual Symposium Emergency Animal Disease (EAD) Highlights Report

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

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

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

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

Dr David Williams described the situation with African swine fever (ASF), which is a serious threat to Australia's pig industry especially if introduced into the estimated 20 million feral pigs in Australia. The

southward movement of ASF from China through both direct, and indirect transmission by people, was a major concern. NT livestock biosecurity efforts have focused on ASF awareness in 2018.

Bucks for Brains

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

- changes in behaviour and neurological signs
- excessive licking of the nose and flanks
- poor coordination (circling, staggering and falling)
- muscle tremors
- abnormal posture (abnormal ear position and abnormal head carriage)
- difficulty in rising (downer)
- paralysis
- excitability
- increased or decreased sensitivity to sound, pain, heat, cold or touch.

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

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

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

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

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

Eligible cattle need to meet the following criteria:

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

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

Source: [Animal Health Australia 2016, Bucks for Brains, Animal Health Australia, accessed 20 November 2018](#)¹

¹ https://www.animalhealthaustralia.com.au/wp-content/uploads/2015/11/Bucks-for-Brains_Jun16_WEB.pdf

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

Megan Pickering, Katherine Region Veterinary Officer, DPIR.

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



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

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

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

In northern Australia, beef herds are dominated by Brahman, Brahman cross and Shorthorn breeds, in which Pompe’s disease, or Generalised Glycogenosis², has been documented. Affected calves have difficulty rising, lose condition and typically die by 6-12 months of age. Also known to be heritable in Brahman cattle is Congenital Myasthenic Syndrome⁴; affected calves are normal at birth, but become progressively weak over the first week of life and are generally destroyed within a few weeks.

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

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

Sources:

[Metabolic Storage Disorders and Inborn Errors of Metabolism](#)²

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

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

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

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

² <https://www.merckvetmanual.com/metabolic-disorders/metabolic-disorders-introduction/metabolic-storage-disorders-and-inborn-errors-of-metabolism>

Livestock Biosecurity Branch

2018 audit of NT brands register – commenced July – ongoing

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

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

Please remember to discuss all changes or issues with your Regional Livestock Biosecurity Officer first.
All relevant information and forms are located at: <https://nt.gov.au/industry/agriculture/livestock>

To ensure your NT Brands details are correct, please complete this Audit form and Return to:
LISA / Brands Clerk - Email: adele.kluth@nt.gov.au OR BAW, DPIR, GPO Box 3000, DARWIN NT 0801

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

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

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

Distinctive (symbol) Brand/s: _____

Branding Positions: Cattle: _____ Horses: _____

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

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

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

Telephone: _____ Fax: _____

Mobile: _____ Email: _____

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

Print Name If Company (Director etc)	Print Name If Company (Director etc)
Signature	Signature

2018 Audit paperwork has been sent out to registered owner/s of NT Brands, to the last known address listed in the NT Brands register.

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

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

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

Email: adele.kluth@nt.gov.au

Fax: 08 8999 2089

Postal: Brands Clerk, GPO Box 3000, Darwin NT 0801

Contact the Livestock Biosecurity team

Darwin

Regional Livestock Biosecurity Officer 08 8999 2034

Livestock Biosecurity Officer 08 8999 2030

Katherine

Regional Livestock Biosecurity Officer 08 8973 9767

Livestock Biosecurity Officer 08 8973 9765

Tennant Creek

Principal Livestock Biosecurity Officer 08 8962 4458

Livestock Biosecurity Officer 08 8962 4492

Alice Springs

Senior Field Veterinary Officer 08 8951 8181

Regional Livestock Biosecurity Officer 08 8951 8125

More livestock information can be found on the [NT Government website](https://nt.gov.au/industry/agriculture/livestock)³.

³ <https://nt.gov.au/industry/agriculture/livestock>