



## Disease in the dry

Hi all

Across northern Australia the dry conditions continue as our main issue. Little feed and low surface water may combine to set the potential for animal health and welfare issues ahead.

Investigation of significant disease events continues to be an important aspect of understanding and managing disease and contributing to surveillance across the region. The NABS SDI process provides good support for producers to have these investigations done in tough seasons such as this.

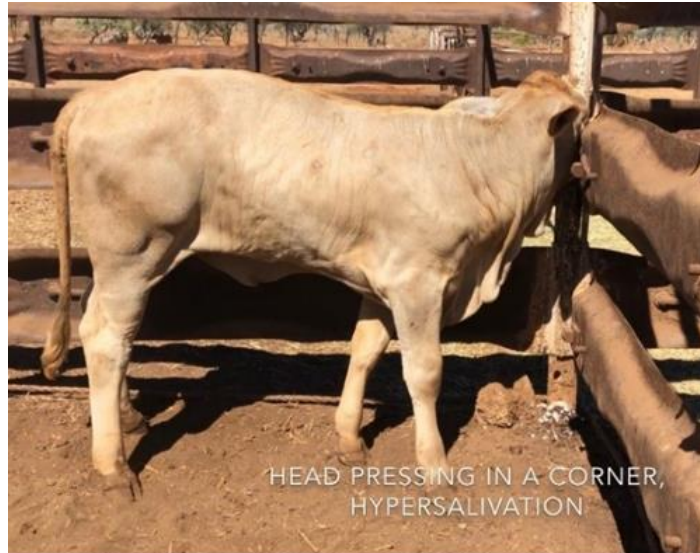
The SDI featured this month had nervous signs and mortality in a mob of 800 well grown weaners. Quick action by the investigating team helped contain the mortality rate to less than 2%. Getting the brain out efficiently and in good shape is essential for investigations of nervous syndromes – check out the tips section.

Best wishes to Lisa who is off on secondment with the Great Barrier Reef until the end of 2019, and welcome to Cass Wittwer as our 'go to' person in the NABS team.

Cheers Kev

Newsletter #13 (30 July 2019)





## Neurological signs and mortality in 15 weaners

In May 2019 in the Katherine region NT, 800 home-bred cattle aged 6-18 months and in good condition were mustered from an area with minimal dry paddock forage and weaned. The animals were not treated with any chemicals, there was no access to licks and no weeds present in the yards. Freshly cut green Rhodes grass hay and water were available.

By day three, when veterinary assistance was requested, 2 animals were dead, 2 moribund and approximately 11 were showing neurological signs including head pressing, drooling, jaw champing, staggering, unusual vocalisation and altered mentation. None of the cows were affected.

Two animals were euthanised and necropsied. No significant gross lesions were seen. Differential diagnoses considered were: polioencephalomalacia (PEM), urea toxicity, lead poisoning, salt poisoning, vitamin A deficiency, viral infections Bovine Herpes Virus 5, Australian Bat Lyssavirus and exotics such as rabies and Aujeszky's disease.

Histopathology revealed mild to moderate degeneration and oedema of the cerebral grey matter, consistent with urea poisoning and PEM. No histological signs of infectious disease were evident and antigen testing ruled out rabies, ABLV and Aujeszky's disease.

Aqueous humour biochemistry was negative for urea. Lead and salt poisoning were ruled out on lack of access. The team suspected that PEM was the result of changed dietary exposure and subsequent ruminal thiaminase production.

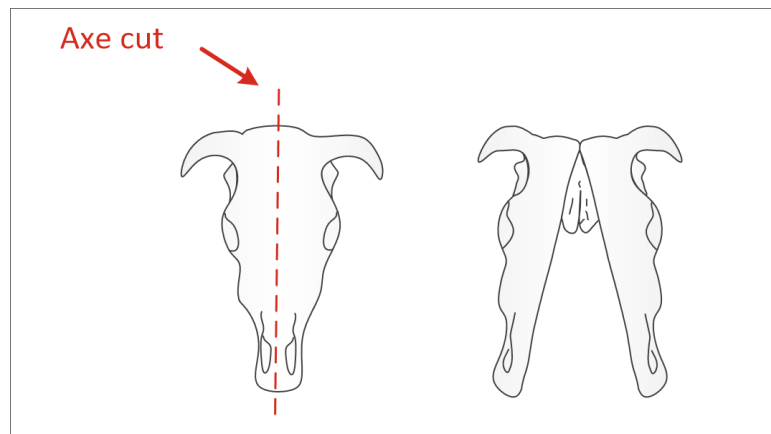
The animals were moved off the hay and later given restricted amounts. Cases ceased by 5 days with mild cases recovering and 15 animals (2%) lost in total.

[See video](#)

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## Getting a brain out intact - longitudinal craniotomy

The procedure can be performed quickly, simply and safely under field conditions with minimal equipment (axe, mallet, boning knife, disposable rubber gloves and safety glasses). With practice the brain can be removed in less than one minute. It is just one of a number of techniques that can be used – all have advantages and disadvantages.



**Split the skull (but not the brain) dorsally and ventrally along its longitudinal axis with an axe.**

- The axe is hit with a mallet for greater control and safety.
- The dorsal skull is split from the nose to the foramen magnum. You don't need to skin the skull but a knife cut along the line helps keep the axe in place
- To expose the hard palate and ventral cranium, split the mandibular symphysis and remove the tongue and soft tissues of the throat before using the axe to split the ventral skull.
- The two halves of the skull can then be levered open from the front to expose the intact brain
- Cut the meninges and nerve roots with a boning knife (or scissors).

DPIRD WA have a good poster with images of a sheep skull – download for your kit and have a go on the next couple of PMs you do.

[Additional resources](#) on the NABSnet website



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## Tips on sending brains (BSL Qld)

- **Collect samples for micro and cytology first** - Obtain samples of cerebrospinal fluid for microbiology and cytology by needle puncture of the dura mater at the foramen magnum before removing the brain from the cranium. Take additional swabs and fresh samples of tissue for microbiology and molecular studies from the brain and spinal cord after exposure but before placing them into fixative.
- **Fix without distortion** - Use enough 10% buffered formalin and a sufficiently large histology pot to enable the brain to 'float' with the cerebrum resting below, so that the caudal brainstem is not bent or twisted. **For cattle use at least a 2L pot filled to the top with formalin.**
- Allow the brain to fix in the formalin pot at room temperature for at least 3 days. Don't put pots containing tissue and formalin in the fridge or freezer.
- **Pour off the formalin for transport** - Once the brain is fixed, pour off the formalin and replace with formalin-soaked gauze swabs before sending. Take care to avoid damaging the fixed brain during handling and transport.

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## NABS Admin - next 6 months

Thanks to all for your enthusiasm and engagement in the NABS SDI Network thus far. We have secured interim funding to maintain the Network (including the NABS subsidies, and Kevin in his role as Vet Adviser) until December 2019. In the meantime, we will continue to seek out longer term arrangements in line with the development of a Northern Australia Biosecurity Strategy. While this occurs we will be operating 'business as usual'.

All participating practices should have received an extension to their NABS Agreements, to formalise continued involvement in the Network. Please return these when you are able.

NABS Admin will temporarily be transferring to **Cass Wittwer** ([cassandra.wittwer@agriculture.gov.au](mailto:cassandra.wittwer@agriculture.gov.au); 08 9194 1224 or 0417 094 633) while Lisa is on secondment with a different agency (22 July-31 Dec).

### Lisa & Cass (NABS Admin)

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Events coming up: [info here](#)

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## Happy to help

Let me know anything you'd like covered here or on the website

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or visit [www.nabsnet.com.au](http://www.nabsnet.com.au)

Newsletter sent on Kevin's behalf from the team at Harris Park Group

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