



NABSnet

Newsletter

#44 | 22 August 2023

On the frontline

Welcome to another NABSnet newsletter. Quite a lot happening around the traps at the moment – busy season and lots of focus on the north - we are the frontline.

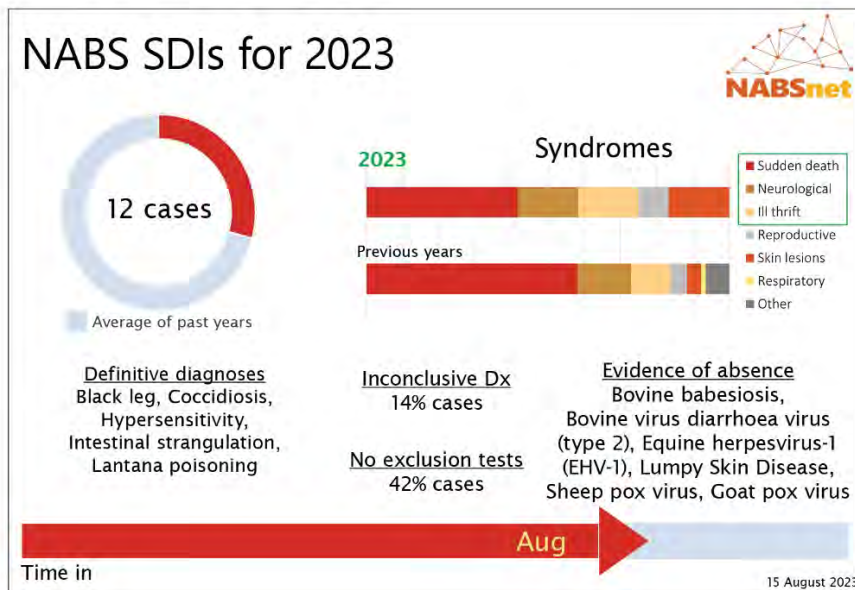
Our NABS SDIs are often complex cases - syndromes not seen before or multifaceted aetiology - it is great to share them. The NABSnet partnership between field vets and labs is really critical - thanks to all the pathologists contributing to SDI workups, surveys and challenges.



Things featured down below:

- Heifers collapsing with necrotic myositis
- The cattle skin survey - progress report and reminder to join in
- Gross path challenge – how are your skills in observation and description?
- Vet student placements – could be in your practice
- New funding for biosecurity messaging – the Northern Australia Coordination Network now operating
- Changed arrangements for SDI payments – single place for invoices

Cheers Kev



Weaners collapsing with necrotic myositis

In May 2023 in north Queensland, 5 calves were observed collapsing in the hind quarters shortly after weaning. Three died and one was euthanised for post mortem examination.

A mob of 300 Brahman 4-7 month old calves were weaned off floodplain country backing onto basalt ridges. They were kept in yards overnight and the next morning were trucked to the home yards 150 Km away where they were held in yards and let out the next morning. Included in the mob was a handful of mickey bulls from last year.

Two days after weaning a heifer was found dead. Two heifers were observed having trouble walking on their hindquarters and two were found dead the next day, each down on their sternum with hind legs splayed behind.

Clinical findings

Three days later one heifer that could not use her hind legs was examined. She was BCS 3, bright, alert, 'standing' on her front legs. Her hind leg was almost straight from the hip to the hock and she was only able to lift the hock 10 cm from the ground. The heifer could lift her tail to urinate and defecate with no neurological abnormalities. See a short [video clip](#)



Affected heifers bright and alert and 'walking' on both hocks

Clotted blood was collected from 5 male and 5 female random weaners.

Autopsy

The abdomen, intestines, kidneys, liver, spleen, lungs, heart, uterus, and ovaries (inactive prepubertal) were all grossly normal.

The hocks were easily flexed. The Achilles tendons were intact. There was a large amount of haemorrhage and bruising posterior to the tibia. The gastrocnemius muscles on both legs were 100% torn at mid-body with large areas of white muscle fibres on both sides of the muscle injury site.



Haemorrhage behind the tibia and ruptured gastrocnemius muscle

Histopathology:

- **Skeletal muscle** from right and left gastrocnemius muscles showed moderate to marked myofiber necrosis and degeneration which was multifocal to coalescing, and sub-acute to chronic. In some areas there was concurrent haemorrhage of muscle and adjacent fascia.
- **Kidney** showed interstitial nephritis moderate to marked, subacute; and renal tubular injury, moderate, subacute.
- **Liver** showed generalised hepatic lipidosis.
- **Heart** No significant findings.

Biochemistry

Parameters that were found to be abnormal were:

- CK Elevated 8/10 Up to 3102 U/L - 5/5 heifers elevated
- ALB Elevated 7/10
- GLOB Low 6/10

Serum Se: normal in 5/5 heifers (1.6, 1.0, 1.4, 1.1, 1.0 umol/L - Lab normal = 0.3-6.5)

Liver Se: 4.6 umol/Kg. This is above the lab's low limit, but low within their normal range.

Discussion

These weaners came from a Flinders River flood plain that backed onto basalt ridge country. The wet season started early in late 2022 and the Flinders River reached a minor flood level in early February 2023 with regular significant rain events through to the end of March. Selenium deficiency has not previously been recognised in soils in this area, but it is quite possible that the Selenium in the root zone on the flood plains had been leached down and low Selenium intake was a factor in this case.

There were a number of 2021 mickey bulls with the weaners. All the weaner heifers tested had elevated CK levels compared to the weaner bulls, and the injuries were only seen in weaner heifers. It is likely that riding injuries led to rupture of the heifers' gastrocnemius muscles.

Treatment and recommendations

- All heifers were treated with 5 ml Cobalife B12 plus Selenium, and Selovin LA. No further injuries occurred
- Lick blocks with Selenium were provided for the weaners and will be fed routinely in the future in the breeding paddocks on the floodplain.
- The owner will make sure no mickey bulls are missed at weaning every year.

Northern cattle skin survey

State and territory veterinary laboratories have received 28 sets of skin samples since the NABS Masterclass in March 2023, to determine the reason for skin lesions in cattle in the north. Most of the submitters attended the 2023 Masterclass.



The Department of Primary Industries and Regional Development WA has received 13 sets of skin samples. All samples were tested for lumpy skin disease using the Realtime PCR for the detection of Capripoxvirus (Bowden et al 2008) at both the WA laboratory and the Australian Centre for Disease Preparedness in Geelong. All samples were negative.

None of the submissions were associated with observed illness in the cattle and the prevalence of skin lesions in all instances was less than 5% of the mob and more commonly just an isolated animal. Cutaneous histopathology was largely characterized by inflammatory skin disease involving the epidermis and dermis. There was no evidence of necrosis, vasculitis, panniculitis or cytoplasmic viral inclusion bodies, as would be expected with lumpy skin disease.

The most common cause of disease was identified by histopathology as probable insect bite hypersensitivity due to the presence of multifocal eosinophilic perivascular dermatitis. This accounted for 54% of the cases, 15% of the cases were diagnosed with Dermatophytosis (Ringworm), 8% with Bovine Herpes virus-2 (Pseudo lumpy skin disease), 2 samples had no confirmed diagnosis while one is still pending histopathology at this time.

Similar findings have been seen at Berrimah (NT) where 5 of 6 sample were identified as hypersensitivity and one sample confirmed as Pseudo-LSD.

Biosecurity Sciences Laboratory (Qld) has received 9 skin lesion submissions from the northern part of the state since the end of March 2023. LSD was excluded in all cases by PCR at both BSL and ACDP. Five were diagnosed with dermatophilosis, one was a suspected allergic reaction, one a suspect heat/chemical burn, one with no confirmed diagnosis (limited samples provided) and one has pending results. Most cases involved multiple animals though only low percentages of the herd were affected and most had extensive skin lesions.

Vets are encouraged to sample cattle they see with skin lesions to continue to define the endemic causes of skin conditions in cattle in northern Australia and provide evidence of absence of lumpy skin disease in Australia. Sampling kits are available from the primary industries department in your jurisdiction all diagnostic testing is conducted charge exempt and a NABSnet subsidy is currently available.



[More info on how to participate in the cattle skin survey](#)

Gross path - the challenge

Oral cavity of a yearling bovine: how would you describe the pathology here? [Answers below]



Vet student placements – in your practice?

Vet students in years 4 and 5 have been invited to apply for \$3,000 subsidies from the NABS program to complete veterinary course placements in the Northern Australian livestock industry in 2023 and 2024. The aim is to introduce them to the north – with the anticipation that some will return after graduation!!

The subsidies are to assist with travel / accomdn costs for undertaking livestock orientated:

- a) farm placements on pastoral properties, and/or
- b) clinical extramural placements with veterinary practices or abattoirs, and/or
- c) placements with the state Departments of Agriculture.

- There are 40 subsidies available - northern WA (10), the NT (10) and northern QLD (20) until Dec 2024.
- The subsidy will be paid directly to the student on completion of the placement.
- Students are responsible for sourcing their own placements.

The applications have now closed and selection is happening. Students will be notified if they are successful by the end of August. BTW - there has been a lot of interest from students.

If you would like to host a student in your practice, contact the organiser for your state/territory (below) and they will pass on your details to the students.

- WA Marion Seymour marion.seymour@dpird.wa.gov.au
- NT Cindy Dudgeon cindy.dudgeon@nt.gov.au
- QLD Nina Kung nina.kung@daf.qld.gov.au

Northern Australian Coordination Network (NACN)

We're super familiar with the catch cry 'It's everyone's business' when it comes to biosecurity – and in the next couple of months NACN will undertake communication and media messaging targeting our livestock industries, national and international travellers and non-traditional stakeholders including members of our local communities such as hunters who may be the first to see unusual signs in animals.

Funded by the Federal Government, the Northern Australian Coordination Network (NACN) has brought together northern Queensland, Northern Territory, Western Australian and Commonwealth governments, in conjunction with key livestock industries and local communities, to help further develop our capabilities to protect Australia from emergency animal diseases (EADs).

All NACN partners are working together to increase northern Australia's awareness, surveillances, prevention and preparedness capabilities for EADs

The NACN group are keen to identify any opportunities for training and promotion of the work that is occurring. If you are interested to know more or be involved in training or promotion for producers or others, contact Robbie Dalton or Lucy Morrison to discuss.



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New arrangements for invoicing NABS SDIs

The NABS team have updated the process for invoicing approved NABS SDIs effective 1 July 2023. The payment of invoices is being returned to DAFF (i.e., will not be completed by the state representatives in WA, NT and Qld going forward). Some of you will remember that this was the original arrangement for SDIs, when the project was first established.

The only change from your perspective will be that once your SDI report is approved by Kevin Bell, the request to issue an invoice will come from NABS@aff.gov.au (not your state contact).

Invoices will need to be clearly labelled as a NABS SDI, include your ABN, email, work address and bank details, and addressed to:

The Department of Agriculture, Fisheries and Forestry
GPO Box 858
Canberra ACT 2601
Attn: Teagan Fitzwater

The NABS team will make payment on the invoices either by credit card or bank transfer.

Don't hesitate to reach out to Teagan, your state contact, or the NABS@aff.gov.au inbox if you have any questions.

Gross path - the answers



Description

The gingiva and dental pad display multiple well demarcated, irregularly shaped, foci of oral epithelial loss exposing reddened submucosa (oral ulceration)

The incisors display multifocal yellowing and irregular pitting of the enamel surface (enamel hypoplasia).

There is diffuse periodontal reddening (periodontitis).

Dx = Mucosal Disease.

Actual case: A single yearling from a herd of 20. This animal also displayed melaena and diarrhoea.

- PCR testing at DDLS Perth, WA detected pestivirus in both the EDTA blood sample and faeces. Bovine pestivirus antigen capture testing was also positive, supporting this result.
- BVDV strain specific PCRs were applied to the sample and were positive for BVDV-1. This test was negative for BVDV-3 (Hobi-like virus) and the exotic BVDV-2. This is highly suggestive of persistent infection with bovine pestivirus, with the mucosal lesions reflecting development of mucosal disease.
- Antibody testing for bovine pestivirus was negative; a lack of humoral immune response against bovine pestivirus is a common finding in persistently infected individuals and this finding is consistent with a diagnosis of mucosal disease.
- PCR testing of faeces for rotavirus and coronavirus was negative. PCR for Malignant Catarrhal Fever was also negative.
- Electron microscopy of the oral epithelium did not detect viral particles.
- Bacterial culture did not detect significant organisms.
- Faecal parasitology did not detect ova or oocysts.
- Foot and Mouth Disease and Vesicular Stomatitis PCR testing was negative at CSIRO ACDP in Geelong. FMD serological testing and viral culture were negative at ACDP. FMD testing by PCR was also negative at DDLS.

Note on the teeth - Intra-uterine infection with BVDV may result in viral infection of ameloblasts, resulting in enamel hypoplasia of the deciduous teeth. Such enamel hypoplasia would be an indicator lesion that in-utero BVDV infection should be further investigated.



Key NABS SDI network contacts

Kevin Bell, NABS Vet Adviser

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or visit www.nabsnet.com.au

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

Let us know any topics you'd like to see covered here.