



NABSnet info

Hi everyone in our NABSnet network

Analysis of the 218 SDIs submitted since NABSnet began shows 'sudden death' as the most common syndrome that has been investigated (see our dashboard below). Of course in our northern environment it can sometimes be difficult to distinguish 'sudden death' from 'found dead' - but there are many causes of rapid mortalities in multiple animals.

The syndrome diagnosis and sampling guides in this newsletter are focused on causes of sudden death.

And the SDI has a great example of using a mapping app to show the locations of deaths - looking for patterns in disease investigations.

When you work through a complex investigation, it can really help to draw up maps and timelines and record the number of animals exposed to the risk factors that you suspect.

Other items featured in this newsletter:

- Welcome to Tom Clune in Broome
- Reports from the vet student placements in WA - with them showing real interest in future work in the north

Looking forward to seeing many of you in March at the Masterclass in Townsville (we have had a terrific response and now fully subscribed). For those who can't come, we'll summarise some of the content in future newsletters and on the website.

Best wishes from me and Bill, Cheers Kev



Kevin Bell



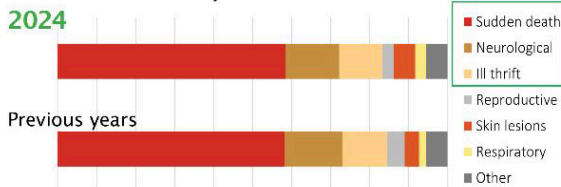
Bill Tranter

NABSnet SDIs for 2024



Average of past years = 30

Syndromes



Definitive diagnoses
 BEF, Botulism, BRDC (*Mannheimia haemolytica*), Blackleg (*Clostridium chauvoei*), Coccidiosis (*Eimeria zuernii*), Helminths, Hypersensitivity reaction, Lantana psg, Lead psg, Malignant oedema (*Clostridium septicum*), Preg tox, Nervous coccidiosis, Ruminitis, Salmonellosis, Tick Fever (*B.bovis*), Enterotoxaemia (goats), Infectious coryza (birds)

Exclusion tests in
 44% cases

Inconclusive Dx
 19% cases

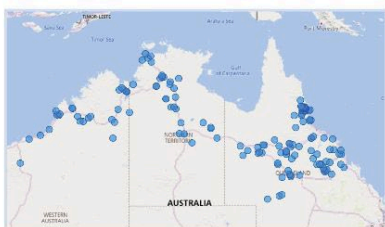
Evidence of absence
 African horse sickness, Bovine babesiosis (in tick free areas), BVDV (type 2), CBPP, LSD, Hendra, Rinderpest, TSE, West Nile (clinical disease), Avian Influenza, Avian infectious laryngotracheitis, Avian infectious bronchitis virus, Newcastle disease, Avian paramyxovirus



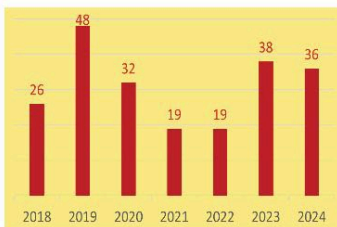
NABSnet SDIs since 2018



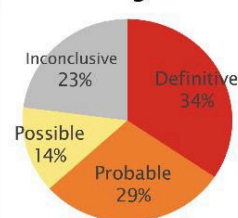
Locations



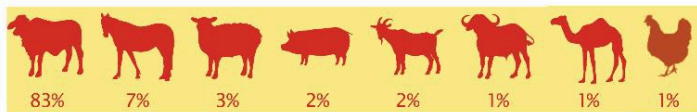
Cases



Lab diagnosis



Species



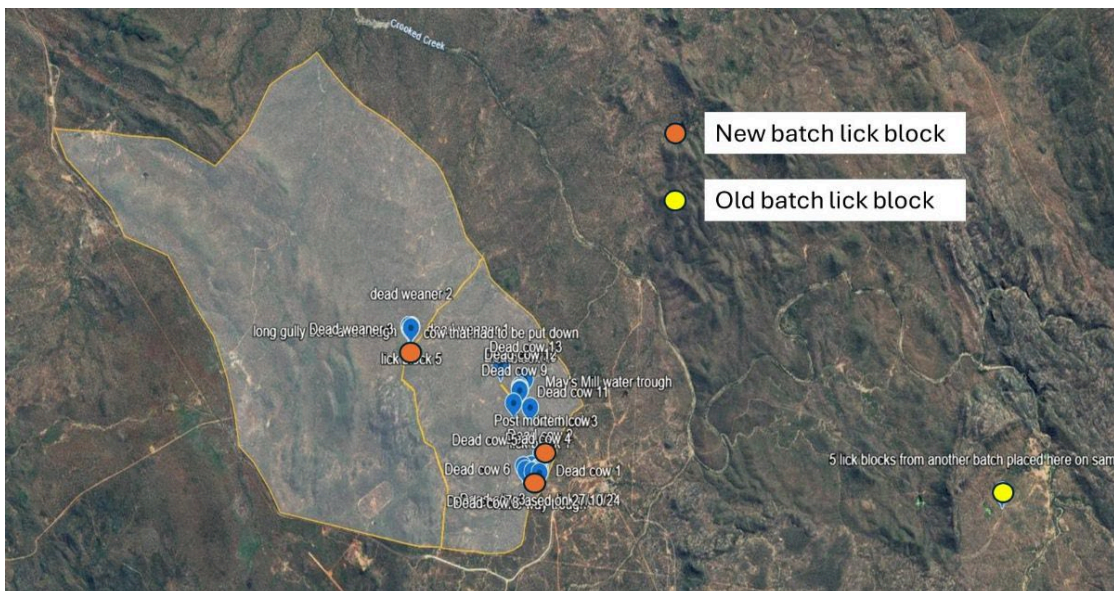
Syndromes



18 of 950 cattle found dead or dying shortly after exposure to lick blocks

In October 2024 on a cattle property in Far North Queensland, 18 of 950 BrahmanX cows and weaners were found dead or down and distressed two days after approximately 500kg of a new batch of urea cattle lick blocks had been distributed across three sites.

Mapping the location of the dead animals in relation to the licks and water troughs showed all had occurred within a few hundred metres of the lick blocks from the new batch. An additional site with lick blocks from the previous batch had no associated deaths.



Outline of paddocks where deaths occurred.

Additional lick site with no deaths on the right of the map.

On examination lick blocks from the new batch appeared unusually soft on top. Consumption rates were estimated for one paddock known to contain 200 head of cattle. Approximately 300 kg of lick blocks were consumed over 48 hours, giving an estimated intake of urea per head of 225 g/day (safe limit: 60 g/day).

A mature cow that was alive but unable to rise, twitching and 10-20% clinically dehydrated was euthanised for postmortem examination.

Gross findings: No significant abnormalities noted.

Samples submitted:

- Aqueous humour
- Bloods (EDTA, clotted and heparin)
- Heart, lung, liver, spleen, kidney, brain, reticulum (fresh and fixed)
- Rumen contents
- Water from 3 sources near the affected sites

Field differentials:

- Urea poisoning
- Unspecified toxicity from lick blocks or water sources

Lab findings:

- Biochemistry and histopathology: No significant findings.
- Rule outs: Negative Haemophilus spp culture; Negative Bovine ephemeral fever virus detection by real-time PCR; Negative Bovine herpesvirus-1 detection by real-time PCR
- Water samples: Normal stock water quality readings. No cyanobacteria (blue-green algae) detected.
- Aqueous humour ammonia levels within normal range. Note: Ammonia concentrations of >1000 uM in fresh plasma / serum / eye fluids are expected with Urea toxicity but may normalize 48 hours post toxic intake.

TEST	NORMALS	UNITS	RESULTS
***** BIOCHEMISTRY			
SAMPLE			P24-03973-1-AH
UREA	2.1-10.7	mmol/L	14.2 H
GLUCOSE	<4.2	mmol/L	13.5 H
BHB	0.00-0.80	mmol/L	0.18
AQ.HU CA	1.00-2.12	mmol/L	1.28
AQ.HU MG	0.61-1.61	mmol/L	0.68
NITRATE	<10	mg/L	<10
NITRITE	<1	mg/L	<1
K	<5.8	mmol/L	5.7
D-LACT	0.0-0.5	mmol/L	0.2
AMMONIA	0-200	umol/L	92

Diagnosis: The likely cause of the deaths was **urea poisoning**, despite inconclusive test results. This is based on:

- Timeline and spatial patterns: Deaths occurred shortly after exposure to the affected batch of lick blocks and ceased immediately after removal.
- Excessive consumption: Estimated daily intake exceeded safe limits by nearly four times.
- Clinical signs and symptoms: Twitching and inability to rise align with urea toxicity.
- Product characteristics: The affected batch's unusual softness allowed for overconsumption.

Recommendations:

Immediate Actions:

- Remove all remaining lick blocks from the new batch.
- Monitor cattle closely for further symptoms of urea toxicity.

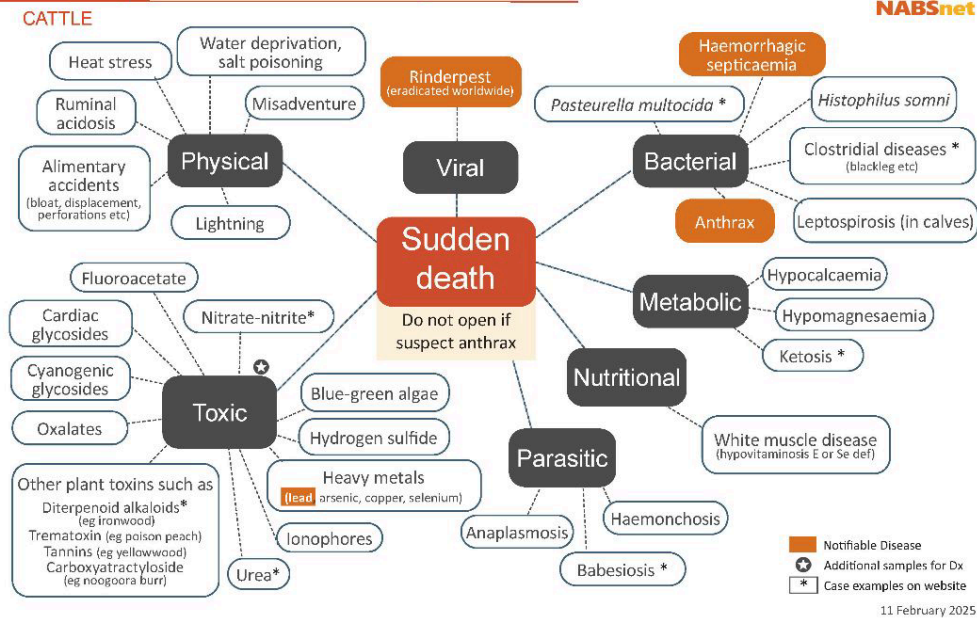
Future Preventive Measures:


- Gradually introduce cattle to new urea-based supplements to allow for acclimatization.
- Conduct batch inspections for abnormalities in texture or consistency before use
- Implement daily or periodic consumption monitoring to detect anomalies early.

Sudden death ddx and sampling guide



Mind map Sudden death syndrome



Post mortem		
	Fresh Individual, labelled, chilled	Fixed Pooled, formalin
Ocular fluids	<input checked="" type="checkbox"/> frozen	
Brain	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Liver	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Lung	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Kidney	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Spleen	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Heart	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Rumen contents	<input checked="" type="checkbox"/>	
Abomasum / forestomachs		<input checked="" type="checkbox"/>
SI / LI / IC valve		<input checked="" type="checkbox"/>
Skeletal muscle	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Any lesions	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Ante mortem (from cohorts)		
Bloods *3		
Blood smear		

Sudden death Sampling

Sampling considerations

- Several significant EADs.
- Need thorough history.
- Differentiate between 'sudden death' and 'found dead'.
- Lab focus is on infectious, parasitic, metabolic and toxic causes.
- Ocular fluids for suspect urea/ammonia, nitrate or phalaris toxicosis and for metabolic disease.
- Some sampling of live clinically affected cohorts may be useful.
- **Do not open carcass if suspect anthrax.** Wear PPE and take thick air-dried smears of bloody exudate and soil.

Additional samples

- ✳ Tick fever exclusion: take organ smears - brain and kidney.
- ✳ Suspect plant poisoning: (1) submit plant sample (or photos), where access by the stock is clear, (2) submit suspect plant fragments from rumen.
- ✳ Suspect feed (eg ionophores): send feed sample, batch label and date, note batch details when problem started.
- ✳ Blue-green algae: rinse container in water source, sample from multiple depths on the downwind side of dam, add 5 mL of formalin to 100 mL water to preserve cells.
- ✳ Other suspected toxins - request tests for these - you may need to check with the lab about what to collect and how.

11 February 2025

[Download the mind map and sampling guide](#)

Finding clusters in SDIs

Disease investigations are puzzles we solve by looking for patterns. Potential key risk factors are identified for testing when they are linked with clusters of cases.

As the SDI in this newsletter shows, maps and timelines really help you to visualise where and when events cluster in space and time. But to find clusters associated with animal characteristics, management factors or environmental factors you need to do some simple number crunching.

There are two calculations to assess the key contributing factors for disease events:

- Attack rate = number of cases / number of animals exposed
- Relative risk = attack rate 1 / attack rate 2

To do them you need to know the number of animals exposed to each factor as well as the number of affected animals. Often we do these assessments 'intuitively', but actually counting and calculating is really helpful to unpick the complex puzzles presented by many SDIs.

Take a simple example: 50 cases (of case definition X) have occurred in a mob of 505 steers.

- If 45 of 225 steers that have been dipped are affected, the attack rate in that group is 20%. If 5 cases have occurred in 280 steers that weren't dipped, their attack rate is 2%. The relative risk is $20/2 = 10$. This means the risk of having the disease is 10 times higher if animals were dipped than if they were not.
- If 10 cases occurred in the 105 Brangus steers, and 40 cases in the 400 Brahmans then the attack rates are both 10% and the relative risk is 1. This means there is no indication that breed has anything to do with the disease event.
- If 15% of the steers in the western yards were affected and 30% of the animals in the eastern yards, the relative risk is 2.

The highest relative risks are closest to identifying the key contributing factors of the disease event – and provide strong pointers for further investigation. Definitely worth going to look at that dip and ask about the dipping process!

Welcome to Tom Clune

It's great to hear that Tom Clune has joined DPIRD as the field veterinary officer at Broome – he's come north for adventure and a new challenge, and it's likely that both are in store for him! Those who have graduated recently from Murdoch will know Tom well, and it's a pleasure to introduce him to all the rest of us.

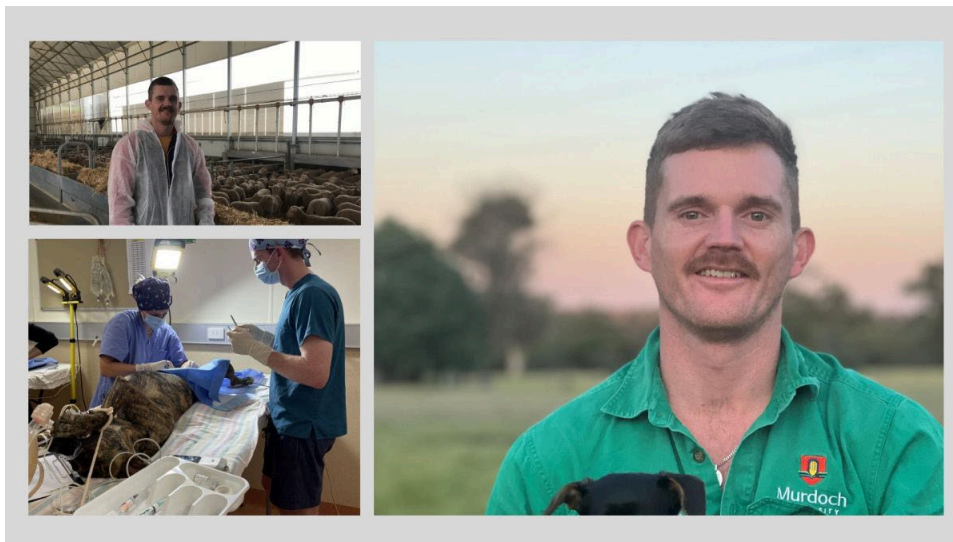
Tom graduated from Murdoch Uni in 2015. After 3 years in mixed practice at Geraldton and in Perth he returned to Murdoch to do his PhD, researching abortion and lamb mortalities in maiden ewes, while also continuing part-time mixed practice. Since finishing his PhD he's been a Senior Lecturer in Livestock Health & Production at Murdoch. Now his focus will be cattle disease investigations and production advice rather than sheep.

Many of Tom's experiences have provided a lead into working in the north. He worked as an on-board livestock export stockman and feedlot hand, and completed a mustering season on a station east of Marble Bar during a gap year from his undergrad

studies. Since 2019 he's organised and led remote community spay trips in the Kimberley and Goldfield regions for final year veterinary students.

Tom's hobbies are running and the beach, and he's looking forward to exploring more of the Kimberley. Broome offers plenty of beach, and gateway to the Kimberley – so that should fall into place very well.

Welcome into the NABSnet network Tom.



Vet student placements in WA – driving interest in working in the north

NABS funding has helped ten veterinary students in their final years at Murdoch University and Charles Sturt University to undergo course placements in northern WA during 2023/24. The 'big picture' aim was to attract vets to Northern Australia.

Most of the students spent their time in the north with Broome Cattle Vets and their feedback highlighted how valuable this experience was for their understanding of our biosecurity programs, *"I was able to see a collaborative biosecurity management and strategy which involves the governments, vets and producers"* – 5th year CSU student.

The logistical challenges of distance, access to resources, the extensive nature of the properties, stock handling, and submitting laboratory samples were some of the unique challenges of veterinary and disease surveillance work that they experienced. *"Vets often*

have to implement creative solutions to overcome these logistical hurdles” - 5th year Murdoch student.

The NABS-funded placement was seen by all students as beneficial in gaining hands-on field experience before graduating. One 5th year Murdoch student stated, *“...seeing theoretical concepts put into practice was invaluable”*. Fieldwork included pregnancy testing cattle, spaying, pre-export inspections and other husbandry practices. *“Developing my pregnancy detection was a major goal which I achieved” - 4th year CSU student.*



*L to R: Caitlin Cawdry Skead, 5th year vet student, Murdoch University
Will Quirico, 5th year vet student, Charles Sturt University
Georgia Ward, 5th year vet student Murdoch University*

Various equine opportunities, including lameness workups, dentistry and taking radiographs were described, with several of the students mentioning the racetrack visits, *“participating in the various activities required at rural racetracks was very enjoyable as it allowed me to be a part of the behind-the scenes activities required on race day” - 5th year Murdoch student.*

The variety of veterinary work experienced during their placements was appreciated by the students, which included camel castrations, lumpy skin disease testing in cattle, horse stitch-ups and poultry post-mortems.

One 5th year student from Murdoch found the experience helped in *“development of both their practical veterinary skills and personal growth”*. Demonstrated fostering of great client-veterinarian relationships was highlighted by more than one student with *“the adaptability,*

grit and resourcefulness of veterinarians in remote Australia is very admirable and has allowed me to see how practitioners are able to think critically to come up with solutions for problems which are both cost effective for farmers and effective in improving animal health and welfare” – 5th year Murdoch student.



Caitlin Cawdry Skead (with Dr Peter Letchford)

Exploring the Kimberley region and the hospitality of the local people was often mentioned in the students’ reports.

“I loved this part of the placement as I could see different parts of northern WA whilst meeting and engaging with different producers, station workers and local community members” - 5th year CSU student

“Engaging with the local community and cattle station workers was very meaningful to me, I thoroughly enjoyed the stay on station” – 5th year Murdoch student

“the hospitality I experienced at all of the stations and getting to meet so many amazing people was an absolute highlight for me” – 5th year Murdoch student.

Half of the students stated they would not have been able to complete the placement without the NABS subsidy, and all said they would consider returning to work as a vet in Northern Australia.

Thank you to all the contributing WA veterinary teams and your clients for making the students NABS placement a rewarding one.

The cattle skin survey continues to June 2025

The funding arrangements for the NABSnet Cattle Skin Survey continue until the end of this Financial Year (24-25). The subsidy has been increased to \$600+GST (+freight if required).



How to participate

- Take photos of the lesions
- Collect punch biopsies (fresh + fixed)
- Collect serum and EDTA bloods (if possible, not critical).
- Fill in the lab submission form AND the Cattle Skin Survey submission form.
- Pack and freight to your relevant state lab, to arrive the next day.
- Submit photos to the state lab email **AND** to Teagan 0466 614 706. **You must send photos to be eligible for the subsidy.**

NT: BVL.DITT@nt.gov.au

QLD: bslclo@daf.qld.gov.au

WA: DDL@dpird.wa.gov.au

[More info and forms here](#)


Is everyone in your practice getting the NABSnet newsletter?

If not, or if they are relying on getting a FW: copy, encourage them to sign up to receive it direct and keep up-to-date with info relevant to cattle practitioners across the north. Super easy to do:

[click here](#)

First name, last name, email - and it's done

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