



# NABSnet

# Newsletter

#46 | 18 December 2023

## NABSnet info

Hi everyone

The next NABSnet Masterclass will be in Darwin on 15-16 March 2024. The Masterclass is a fantastic opportunity to meet up and extend your knowledge and skills. More details down below on how to put in an Registration of Interest.



The SDI featured in this newsletter is a great workup between the practitioner and the lab for an unusual outcome with a common agent. It is excellent to share these cases so others can benefit from the experiences. Thanks to Ayril Foster at Berrimah Lab for the info on the haematology.

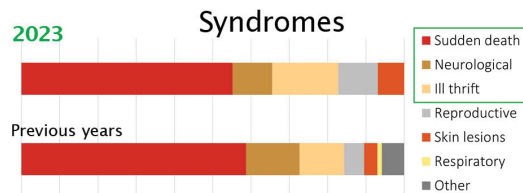
The 'dashboard' infographic below summarises our SDIs for 2023 - excellent contribution to industry-level surveillance as well as support for the individual producers involved.

And congratulations to Beth Cookson on her recent appointment as Australian Chief Veterinary Officer. Beth was one of the people who initiated the NABSnet concept. She 'launched' our first Masterclass in 2018 and very much has had a northern focus in her recent role.

Best wishes to all for the festive season and looking forward to connecting again in 2024.

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## NABS SDIs for 2023



**Definitive diagnoses**  
BEF virus, Black leg, BVDV, Coccidiosis, Hypersensitivity, Intestinal strangulation, Acute pleuritis, Lantana /plant toxicity, Tick burden, Urea poisoning

**Inconclusive Dx**  
38% cases

**No exclusion tests**  
51% cases

**Evidence of absence**  
ASF, Bovine babesiosis (in tick free area), BVDV (type 2), Brucella abortus, BSE, CBPP, EHV-1, Flavivirus (JE, MV, WN), FMD virus, Hendra, Lumpy Skin Disease, Peste des petits ruminants virus



## NABSnet Masterclass Darwin, Northern Territory

**When:** Friday 15<sup>th</sup> and Saturday 16<sup>th</sup> of March 2024  
(accommodation check-in available from Thursday 14<sup>th</sup> March)

**Where:** Novotel Darwin CDB – 17 minutes to the airport by car  
**Who:** Large and mixed animal veterinary practitioners in Northern Australia - the NABS network

**What's on:** The two day NABSnet Masterclass 2024 will be a great opportunity to get together with like-minded peers, start interesting conversations, and will focus on skin conditions in cattle and getting the most from disease investigations

Participation at the Masterclass, accommodation, food and air travel will be subsidised by NABS for up to two veterinarians from each clinic.

**Next step:** Download the form [here](#) to register your interest and send to Stacey Carnogoy by 8<sup>th</sup> January (details on the form).

[Registration on Interest here](#)

## Thrombocytopenia with tick infestation

In October 2023 on a floodplain station in NT, 19 of 1600 Brahman heifers died over 2 days after routine speying or processing. Similar lines of average 4500 heifers have been Willis (Dropped Ovary Technique) speyed at this location for the previous 7 years with repeatable mortality rates not exceeding 0.3%.

The heifers were 10-18 months of age (150-270kg) and BCS approx. 3/5. They had been brought to the station over the previous 4-8 weeks.

The heifers were fed good quality hay whilst in the yards. There was no unusual or adverse behaviour or events on handling. They were speyed by the Willis technique, backlined, vaccinated, dehorned (some animals) and given Metacam 40 at the required dose as pain relief. They were noted to have high burdens of immature ticks.

Most affected animals appeared weak and staggering, became recumbent and died within hours of surgery. 3 animals that died had not been speyed but had been processed through the headbail.

### Post mortem examination

Two heifers were examined and gross findings included:

- Significant abdominal haemorrhage with no clots present and blood with the consistency of weak red cordial.
- Generalised petechial and ecchymotic haemorrhages present in one heifer, and endocardial haemorrhages in both.
- Normal spey surgical sites with no other trauma evident from the Willis tool.



### Field differentials:

- Babesia/Anaplasmosis (the heifers were from a tick region but were now further north with much higher tick burdens, and may not have had sufficient immunity)
- A clotting defect to be determined (possibilities considered were some reactivity to the NSAID injectable, some other toxic or infectious response).

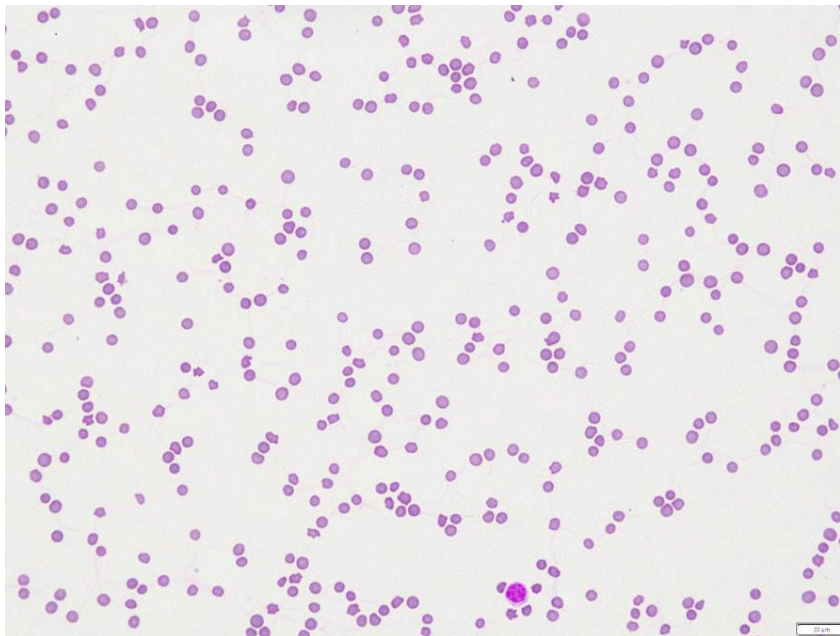
Samples submitted included:

- A full set of fresh and fixed tissue from two animals
- Pre-mortem bloods from two animals, and a blood smear from a third animal.

### Lab findings

**Haematology: Severe thrombocytopenia (low platelets) confirmed by smear examination**

– no platelets observed on smear (including clumps at periphery) and severe normocytic, normochromic anaemia with evidence of regeneration. **No evidence of haemoparasites.**



**Blood smear, 40x Diff-Quik**  
Severe normocytic anaemia,  
with severe  
thrombocytopenia.

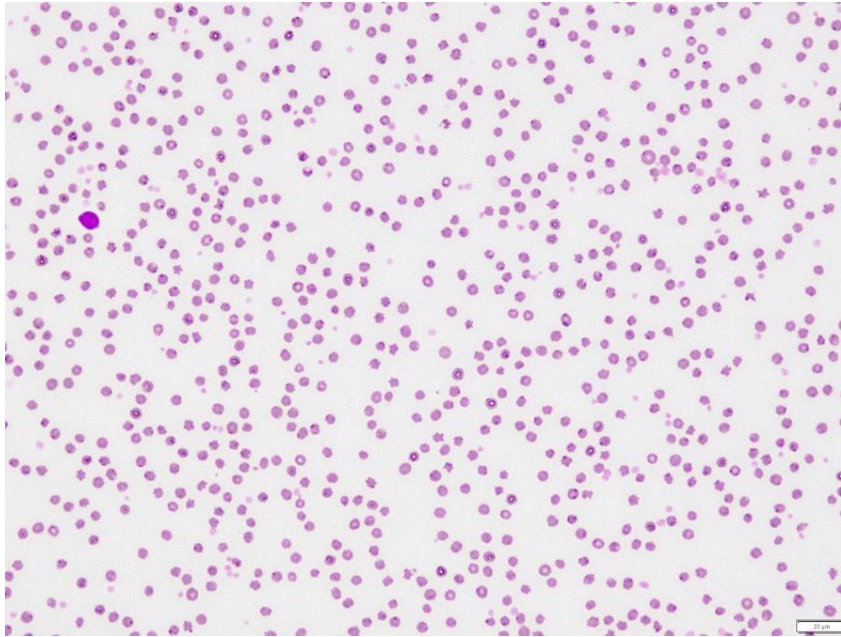
**Note lack of platelets.**

A small degree of anisocytosis  
is normal in cattle.

**Smear technique**

**Fresh smear** - some  
acanthocytes (irregularly  
spiculated red blood cells)  
present, not of diagnostic  
significance, possibly an  
artefact of delay in making a  
blood smear from a freshly  
collected, stored EDTA sample.  
Note the lymphocyte (bottom  
middle) is well preserved.

*Compare the smear from this case (above) where no platelets are visible,  
with a smear with normal platelets (below)*



**Blood smear, 40x Diff-Quik**  
Moderate microcytic anaemia  
with adequate numbers of  
platelets.

**Smear technique**  
Moderately fresh smear -  
some echinocytes (regularly  
spiculated red blood cells)  
present, as well as refractile  
bubbles on erythrocytes. Both  
are artefacts of delay in  
making a blood smear from a  
freshly collected, stored EDTA  
sample.

Note the lymphocyte (left  
middle) is fairly well  
preserved.

The profound thrombocytopenia is the likely cause of insufficient clotting/a bleeding disorder. Thrombocytopenia can develop due to: increased consumption of platelets, decreased production of platelets, or reduced lifespan/increased destruction of platelets.

In this case, animals were heavily burdened with biting/blood sucking ticks. This can cause a consumptive thrombocytopenia, where platelets are consumed at sites of tick attachment, and normal attempts at regeneration cannot maintain adequate numbers of circulating platelets.

Another, relevant, cause of thrombocytopenia is BVDV infection, however this is not suspected as infection results in bone marrow exhaustion and therefore low leukocytes are expected (not demonstrated in this case).

**Histopathology:** No significant infectious disease detected.

**Diagnosis:** Consumptive thrombocytopenia due to heavy tick burden resulting in clotting insufficiency.

### **Recommendations**

When a tick fever organism was initially suspected the manager was advised to ensure that a high quality parasite treatment be administered to cattle either prior to loading at the breeding blocks further south or upon unloading at this block. This recommendation remains appropriate with the final diagnosis.

## **Add blood smears to your routine sample set**

Examination of blood smears is an integral step in assessing blood cell morphology and identifying blood-borne parasites.

Making and sending smears (in addition to the blood tubes submitted), can make the difference for a diagnosis, especially when transport times or conditions for blood tubes are not optimal (often a concern in the north).

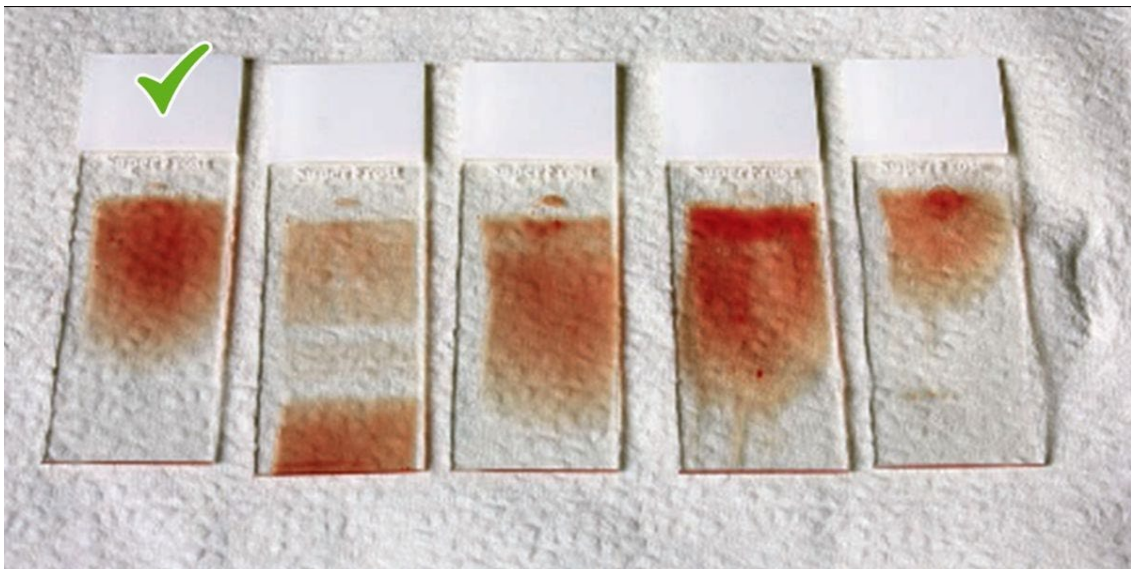
**Add blood smears to the sample set you routinely submit to get the best results in a disease investigation.**

Making good smears is easy after a bit of practice. Blood smears made in the field can be stored at room temperature, and remain unfixed and unstained until submission. Air drying is sufficient. Keep smears away from formalin and other liquid including condensation. Do not put smears in the fridge or ice box.

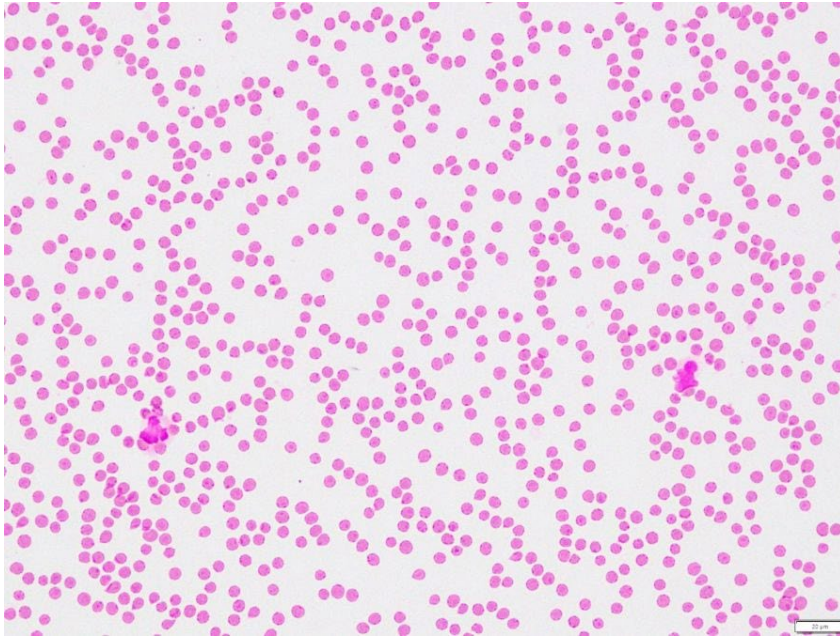
**Tips from the WA and NT labs for preparing smears include:**

- **Collect in an EDTA tube**
- **Blood drops ~4 mm (not too big)**
- **Angle (at 30-40 degrees)**
- **Steady speed (not too fast, not too slow)**
- **Even contact**
- **Air dry, do not stain**
- **Keep dry, at room temperature and away from formalin.**

[More resources](#)



*Smears left to right: 1 perfect, 2 interrupted, 3 skewed, 4 droplet too thick, 5 too short*



Blood smear, 40x Diff-Quik, **non diagnostic**

**Smear technique**

**Poorly preserved blood smear, made with blood that was aged** - collection delayed by 5 or more minutes after death, OR fresh sample stored 24+ hours before making smear.

Distorted and swollen white blood cells (most likely neutrophils). Meaningful comment on erythrocyte morphology unwise, no platelets observed, however may be due to clumping or dissolution.

## Skin survey – contributing to industry confidence



*Skin cases submitted, diagnoses: Insect bite hypersensitivity (left); Demodicosis (right)*

We have seen Skin Survey samples continue to roll in and we are starting to put together a picture of what common skin conditions are present in northern Australia. The Survey will continue until June 2024, so **NABSnet vets are encouraged to continue to sample cattle they see with skin lesions due to endemic causes.**



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.

**DON'T FORGET** to take photos of the lesions - this is an important and required step. Email them to the lab OR text direct to Teagan Fitzwater (NABSnet project manager) on 0466 614 706.

[How to participate in the cattle skin survey](#)



## Key NABS SDI network contacts

Kevin Bell, NABS Vet Adviser

Contact at: [nabsvetadviser@gmail.com](mailto:nabsvetadviser@gmail.com) / 0427 433 244

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

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