

19 March 2024

Bluetongue virus (BTV)

Information for private veterinarians in NSW

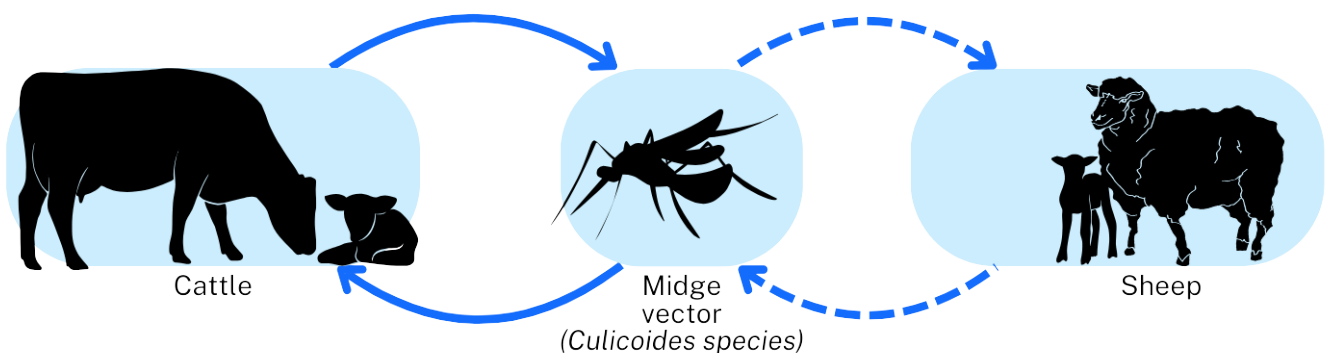
Diagnosis and management of endemic bluetongue strains in NSW.

BTV background

Clinical bluetongue virus (BTV) has been detected on a number of sheep properties within the NSW Bluetongue transmission zone in February and March 2024. This follows the diagnosis of clinical Bluetongue disease on two sheep properties in the NSW Bluetongue transmission zone in May of 2023, which were the first clinical cases of Bluetongue disease identified in livestock in NSW.

The 2024 detections of BTV have been the BTV-1 strain, which is known to occur within the BTV transmission zone. For a map of the BTV transmission zone, see https://namp.animalhealthaustralia.com.au/public.php?page=namp_zone_map&raw=1&aha_program=2%20

Bluetongue is an arthropod-borne viral disease of ruminants. Bluetongue virus (BTV) is spread by biting insect vectors, particularly *Culicoides* midges. All ruminant species are susceptible; however, bluetongue is primarily a disease of sheep. Infection in cattle, although of great epidemiological significance, is usually subclinical. The virulence of different strains of bluetongue varies significantly.



Above: BTV1 disease transmission pathway

Clinical signs

The mortality rate is very variable in sheep and generally ranges from 0-30% depending on the virus strain and genotype of sheep. Goats are affected less commonly and less severely than sheep.

Clinical signs may range from acute to mild and typically involve:

- Variable, fluctuating fever,
- Lethargy,
- Hyperaemia of oral and nasal mucosae,
- Excess salivation,
- Nasal discharge,
- Lips and tongue may become swollen, and the oedema may extend over the face and intermandibular space,
- Respiratory signs including difficulty breathing,
- Haemorrhages occur on oral and conjunctival mucosae,
- Ulcers develop on the gums, cheek and tongue 5-8 days after the onset of fever,
- Feet lesions may appear towards the end of the febrile period,
 - There is reddening and petechial haemorrhages on the coronary band,
 - The associated pain causes the animals to stand with arched backs and be reluctant to move.

The highest concentrations of virus in the blood usually occur during the early stage of disease before antibodies develop but virus can be reliably detected for at least 7-10 days after the onset of disease.



Figure 1: BTV1 affected sheep showing (left) haemorrhages on oral mucosae with ulcers developing on the gums; and (middle) muzzle lesions, scabs secondary to swelling of the nose and lips, (right) BTV affected sheep showing oedema over the face and intermandibular space.

Reporting

There is a duty to notify any awareness or suspicion of notifiable matter or a biosecurity event. The duty to notify is detailed in the Biosecurity Act 2015 (Sections 30 and 38) and the Biosecurity Regulation 2019 (clause 7).

This duty applies to an owner, occupier, or person in charge, care, control or custody of a premises (such as a property), or a carrier or thing (such as an animal, animal product, vehicle or equipment) to which the notifiable matter or biosecurity event relates.

This duty also applies to a person consulting in their professional capacity (such as a veterinarian). There is no requirement to report if you know the matter has already been reported.

If you see signs of disease consistent with BTV or other unexplained signs of disease or sudden death in your sheep, immediately call the **Emergency Animal Disease (EAD) Hotline on 1800 675 888** or your Local Lands Services District Veterinarian via 1300 295 799.

Sampling for BTV

Sampling Plan - required samples for current investigation:

Affected animals in mob	Blood samples (plain and EDTA) should be collected from 12 affected sheep (or all sheep if less than 12 affected). If an animal is available for post-mortem, fresh tissue samples can be submitted.
Unaffected cohorts	Collect blood (EDTA and plain tubes) from 12 randomly selected unaffected sheep less than 12 months old. Collect blood from 12 randomly selected unaffected sheep >12 months old (if possible for the mob / farm size)

While the virology team can work with fresh tissues from post-mortem examination, it is also important to collect blood from affected and unaffected animals (as per Surveillance plan) as virus levels are higher in the blood and easier to work with. Blood collection takes time, but you may be able to request animals be yarded before the property visit.

To allow a definitive laboratory diagnosis and support a timely differential diagnosis, obtain a **full range** of samples.

Collection container	Collect from live animals	Collect from dead animals
EDTA tube (purple top) – full	One full 10 ml vial of blood (refer to the above sampling plan for number of samples to collect)	
Plain tube (red or grey/red speckled top)	10 ml of blood (refer to the above sampling plan for number of samples to collect)	

Separate sterile collection containers (no media) for fresh samples (kept chilled at 4°C, not frozen)

Spleen and lymph nodes from all post-mortem cases

Large collection container with 10% neutral buffered formalin (kept chilled at 4°C, not frozen)

Cardiac and skeletal muscle and other tissues as indicated by gross examination.

NOTE: Separate needles should be used for each animal to avoid cross contamination of blood samples.

- Fees for tests undertaken to confirm or exclude a diagnosis of **Bluetongue** are paid by NSW Department of Primary Industries (NSW DPI).
- Fees for testing to establish an alternate diagnosis are not paid by NSW DPI.

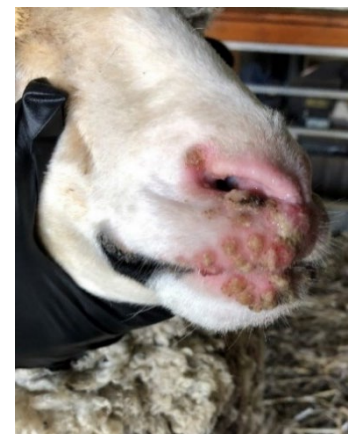
Sample handling and transportation advice

- Completely fill EDTA tubes then mix well by inversion a few times (if not filled the concentration of EDTA can be too high and affect testing)
- Leave clotted bloods at room temp for a few hours
- Place all samples in a refrigerator (but DO NOT freeze)

If sampled late in the week, they will be fine chilled for 4-5 days. When sending to the lab, keep chilled but not in direct contact with a chilling block (put something between tubes and blocks - e.g., wrap tubes in paper or use some cardboard)

Differential Diagnoses

- Scabby mouth (contagious pustular dermatitis)
- Acute photosensitisation
- Lameness due to footrot, foot abscess and other foot conditions
- Acute haemonchosis (with depression and submandibular oedema)
- Facial eczema
- Pneumonia



Right: Scabby mouth

- Plant poisoning
- Salmonellosis
- Sheep pox
- Foot-and-mouth disease
- Peste des petits ruminants.



Right: FMD

Actions where there is suspected BTV on a property

- Complete an animal biosecurity field investigation questionnaire – See Appendix B
- If clinical BTV is suspected, direct the owner/manager of the animals not to move livestock or livestock products (semen, embryos, wool) until further notice. Contact your regional District Veterinarian for further assistance with case management.
- Advise the Animal and Plant Health Laboratory (APHL) at EMAI / EAD Hotline and sheep.labresults@dpi.nsw.gov.au of suspect case samples being sent to APHL at EMAI.

Actions where BTV has been confirmed on a property

Once BTV is confirmed, NSW DPI will advise next steps including issuing an Individual Biosecurity Direction and if any further serosurveillance is required.

Advice to Owners:

As of March 15, 2024, four properties have reported having a small number of sheep affected clinically by Bluetongue virus. As a precaution, the movements of sheep from these properties have been restricted until the end of the vector season (i.e., the first frosts or the end of the 2024 NAMP surveillance testing season). Some movements may still be allowed on a case-by-case basis as determined by NSW DPI (e.g., sheep direct to slaughter or low risk movements within the existing BTV zone). The sheep will be free to embark after the end of the current (2024) transmission period. Your regional LLS District Vet (DV or NSW DPI) will manage the case during this period. LLS and NSW DPI can work with your private veterinarian (if desired) in a mutually beneficial manner that protects your farm and the region's livestock industry.

No ruminants or their products will be eligible for export from the confirmed infected properties during the transmission period. (e.g., cattle, goats, sheep and wool) due to the requirements of importing countries.

There is no treatment for the virus, but supportive therapy may assist the animals whilst recovering – discuss this with your veterinarian. Protection from insect bites may be helpful but may not be practical. If cattle are present on the same farm, separating sheep and cattle may assist in reducing midge attack on the sheep.

Communications and media requests

Communication of clinical Bluetongue disease holds some risk to our trading status. Communications must be managed delicately to minimise trade impacts to Australian products.

If you receive a request for information from media or members of the public, please refer them to NSW DPI Animal Biosecurity team– animal.biosecurity@dpi.nsw.gov.au.

Useful links

National Arbovirus Monitoring Program (NAMP) Bluetongue Virus Zone Map – Animal Health Australia: <https://namp.animalhealthaustralia.com.au/public.php>

NSW Animal and Plant Health Laboratories (APHL) – Bluetongue: <https://www.dpi.nsw.gov.au/about-us/services/laboratory-services/veterinary/bluetongue>

Appendix A

BTV Sampling key list

Date Collected: _____ Collected by: _____

Premises details

Owner/Manager: _____ Contact Ph: _____

Address: _____ PIC: _____

Collect blood (plain and EDTA) from:

- 12 affected animals (if available)
- 12 unaffected sheep <12 months old
- 12 unaffected sheep >12 months old.

Sample number	Eartag/ ID no.	Mob/ Paddock ID	Clinical signs (Y/N)	Clinical signs (list)	Age (<12m or >12m)	Sex & class (ewe, ram, wether)	Breed

Appendix B

Animal biosecurity bluetongue virus field investigation questionnaire

This form is to be used by authorised officers under the *Biosecurity Act 2015* to collect information to investigate animal biosecurity issues. Authorised officers must explain the importance and purpose of this investigation.

NB: Fill in known AOI information (page 1) and print google map images of entire holding and close ups of areas of interest such as sheds or yards before attending premise to minimise question fatigue/ time. Check the validity of pre-recorded information with interviewee and record information on google map images. Photographic or video evidence should be taken on site to support this record.

Note: Tracing information may need to be collected for more than 21 days depending on the potential cause of disease.

Information is collected under the Biosecurity Act, 2015

Authorised Officer:		Visit date: / /	Time: am/pm
Contact Reason: <input type="checkbox"/> Notification (private vet) <input type="checkbox"/> Notification (public) <input type="checkbox"/> Notification (producer) <input type="checkbox"/> Surveillance <input type="checkbox"/> Tracing			
LOCATION / PROPERTY PHYSICAL ADDRESS (AOI = AREA OF INTEREST)			
Property name:		Flat / Unit:	No:
Street number:		Street name:	
Town / Suburb:		Postcode:	State:
Enterprise			
Enterprise and management types: (Specify all enterprises e.g., small commercial beef and free-range egg) Property Type: <input type="checkbox"/> Producer <input type="checkbox"/> Abattoir <input type="checkbox"/> Artificial Breeding Centre <input type="checkbox"/> Knackery <input type="checkbox"/> Saleyards/Scales <input type="checkbox"/> Lab <input type="checkbox"/> Mobile exhibitor including petting <input type="checkbox"/> Public <input type="checkbox"/> Processor <input type="checkbox"/> Retailer <input type="checkbox"/> Showground <input type="checkbox"/> Transport <input type="checkbox"/> Zoo or fixed exhibitor <input type="checkbox"/> Other (specify)			
Assurance program membership: <input type="checkbox"/> Yes <input type="checkbox"/> No Name program/s:			
PIC:	Property ID:	Other identifier:	GPS lat: long:
PRIMARY CONTACT (PERSON)			
Role:	This person is responsible for the animals involved yes <input type="checkbox"/> no <input type="checkbox"/>		

Title:	Given name:	Family name:		
OR	Organisation name:			
Phone:	Fax:	Mobile:	Other:	
Email:				
Website/Facebook:				
Primary contact physical address				
Property name:			Flat / Unit:	No:
Street number:		Street name:		
Town / Suburb:		Postcode:	State:	
Primary contact mail address		<input type="checkbox"/> Use physical address for mail		
Property name:			Flat / Unit:	No:
Street number:		Street name:		
Town / Suburb:		Postcode:	State:	
Contact's other premises/ enterprises (record address and summary)				
Private veterinarian				
Name:		Contact:	Last visit date:	

- Attach google map images indicating where species and infrastructure are located on the AOI.
- Draw a mud map to provide enhanced detail where required.***
- Label items to identify components (including entry & exit points within & onto/off)
- Mark the **North point**.
- Record GPS coordinates for mud map site.
- Take photos representative of the mud map site
- Identify direction/location of neighbours with animals

Location (AOI) mud map of relevant features		Case No.
Coordinates (specify units preferably decimal degrees)	Lat: [S]	Long: [N]

Map drawn by

Name:	Phone:	Mobile:
-------	--------	---------

SURVEILLANCE DETAILS – FOR PREMISE (AOI)

Observation details re all susceptible animals (use maps to record where each mob or group located)

Species								
Age (specify days,	Breed	Class stock e.g. ram, ewe, wether,	Vendor bred (VB) or Non-vendor bred (NVB), if NVB	Total #	# inspected	# affected	# dead	# sampled

months or years)		hogget, lamb	how long on property					
Number (D/M/Y)				number	number	number	number	number
Number (D/M/Y)				number	number	number	number	number
Number (D/M/Y)				number	number	number	number	number
Number (D/M/Y)				number	number	number	number	number
Species or class stock	Clinical signs (include severity – mild/moderate/severe)							
Name species or class of stock	Insert symptom		number	Insert symptom		number		
Name species or class of stock	Insert symptom		number	Insert symptom		number		
Name species or class of stock	Insert symptom		number	Insert symptom		number		
Additional comments including general health in last 60 days, include details (age, number/ percentage):								
What was the date of first clinical signs or first case?								
Are animals infested or exposed to ectoparasites (ticks, mites, biting flies, other arthropods)? <input type="checkbox"/> No <input type="checkbox"/> Yes ► If yes specify details of any recent treatments:								
Field diagnosis, estimated date of first clinical signs and any comment								
Preliminary field diagnosis:								
Estimated date of first signs: / /								
Comment:								
Any external stressors on the animals? e.g., change in feed, extreme weather, recent introduction...								
Additional questions								
What is the pasture type?								
What is the vegetation cover? Open / Wooded								
What is the water source for livestock? Dam / Creek / Trough / Other: _____								

What is the stocking rate? Low / Medium / High (See <https://www.mla.com.au/extension-training-and-tools/feedbase-hub/persistent-pastures/grazing-management/stocking-rate> for more info)

Have there been midges observed on the property? Low / Moderate / High / Absent

Have you observed any extreme weather events on the property this year?

Disease Treatment

Record details of any treatment: what used, when, what administered to

Laboratory submission summary (attach copy of submission form)

Date collected: xx/xx/xx

Submission date: xx/xx/xx

Submission reference: Mxx-xxxxxx

Other animals/ livestock currently on the premise & numbers of each

Type of livestock	Numbers	Date introduced to property

What animals or other livestock are in vicinity of the AOI? (ie direct neighbours)

Address	Type of stock, comment enterprise or numbers

ARTIFICIAL BREEDING

Has Artificial Insemination or embryo transfer been used during the past 30 days? No Yes If yes provide details

Date	Animal group	Source of genetic material	Comment

Has any reproductive product (semen or embryos) left the property within the last 60 days? No Yes If yes provide details

Date	Animal group	Destination	Comment

MOVEMENTS ONTO & OFF THE FARM (last 60 days)

Animals onto

Date	Species	Age/sex etc	Numbers	Source/ phone no.	Delivered by/ phone no.

How does the delivery truck decontaminate onto or off the premises? (Any difference from the general biosecurity measures above?) Are trucks clean before loading and after delivery if owner transported? Are there any isolation or treatment protocols for animals on arrival?

Animals off (include information on animals that culled or die and moved off site)

What happens to culled animals/mortalities?

Destination/ phone no:	Transported by/ phone no:	Date/ frequency:

Have any animals from the property been sent for live export or required export certification for product in the previous 6 months?

Animal products

Where do all the **animal products** go that leave this premise and who delivers them? - Including farmers markets, private sales and product given away

Animal product	Destination/ phone no:	Transported by/ phone no:	Date/frequency:

If applicable, list all sources of **animal products and associated packaging** delivered to the premises for use, processing, or sale?

Animal product or packaging material	Source/ phone no:	Transported by/ phone no:	Date/frequency:

How do the animal product truck(s) decontaminate onto or off the premises? Private sale vehicles? Is all your packaging material new?

If shearing occurs, what are the approximate shearing dates for the year?

DECLARATION

I declare the information provided about the AOI premises listed above is true and accurate. I acknowledge that it is an offence to provide false and/or misleading information to an Authorised Officer under the *Biosecurity Act 2015*.

AOI representative name:		Authorised officer name:	
<i>Signature:</i>		<i>Signature:</i>	
Date:		Date:	
Legal Instruments			
Name order issued:		Date and time issued: / /	
Duration:			
Team leader			
Date of departure (team): / /		# in team:	Time start: / /
Signature:		Name:	Date: / /

Control Centre Action

Debriefed by:	Signature:	Date: ... / ... /
Investigations Manager Status Assessment: <input type="checkbox"/> Infected <input type="checkbox"/> Suspect <input type="checkbox"/> Trace <input type="checkbox"/> DCP <input type="checkbox"/> DCPF <input type="checkbox"/> At-risk <input type="checkbox"/> POR <input type="checkbox"/> Resolved <input type="checkbox"/> Unknown <input type="checkbox"/> Zero susceptible <input type="checkbox"/> ADS Approved disposal site <input type="checkbox"/> NA		
Investigations Manager Qualifier (if applicable): <input type="checkbox"/> Vaccinated <input type="checkbox"/> Assessed Negative #		
Rationale:		
Investigations Manager:	Signature:	Date: ... / ... /
Revisit: <input type="checkbox"/> No <input type="checkbox"/> Yes, in days	Data entered by:	Date: ... / ... / Time: am/pm
Alert to: <input type="checkbox"/> Surveillance <input type="checkbox"/> Tracing <input type="checkbox"/> IP Ops <input type="checkbox"/> Epidemiology <input type="checkbox"/> Other		Completed: ... / ... / am/pm

© State of New South Wales through Regional NSW 2024. The information contained in this publication is based on knowledge and understanding at the time of writing March, 2024. However, because of advances in knowledge, users are reminded of the need to ensure that the information upon which they rely is up to date and to check the currency of the information with the appropriate officer of the Regional NSW or the user’s independent adviser.