Fact Sheet: Adenoviruses

P2f Infectious Diseases

August 2025

Bovine Adenoviruses (BAdVs)

Adenoviruses are a group of viruses that infect cattle. They commonly cause scours and respiratory diseases, usually in calves.

Antibodies for BAdVs are commonly found in cattle, indicating widespread exposure, most likely as young animals.

Clinical signs and pathogenesis

Clinical signs of BAdV infection vary depending on the form of disease. The respiratory form is characterised by coughing, nasal and ocular discharge, fever, and laboured breathing.

The enteric form presents as diarrhoea, which may range from watery to haemorrhagic, often accompanied by depression, recumbency, and in severe cases, sudden death.

Systemic involvement, particularly associated with BAdV-7, can lead to weak calf syndrome and multi-organ disease.

Transmission

BAdVs spread through faecal-oral and respiratory routes, often shed by animals without symptoms. Stressors like weaning and transport can trigger outbreaks.

Diagnosis

Diagnosis of BAdV infection relies on a combination of histopathology, molecular testing, and serology. Intranuclear inclusion bodies in endothelial cells are characteristic findings on histopathology.

Treatment

There is no specific antiviral treatment for BAdV infections. Management involves supportive care, and treatment of secondary bacterial infections if present.

Key points

- Different types of BAdVs, cause different symptoms ranging from respiratory to scours (enteric) and systemic disease.
- There is no specific antiviral treatment for BAdV infections. Management involves supportive care, and treatment if secondary bacterial infections are present.
- Infections may be triggered by stress and worsened by co-infections such as Bovine Viral Diarrhea Virus (BVDV).
- There is currently no commercially available vaccine in Australia.
- Many cattle have antibodies for BAdVs indicating widespread exposure, most likely as young animals.

Microbial surveillance in dairy cattle

This series of fact sheets has been prepared for cattle vets. It covers a range of microbes that were identified by Dairy UP team in samples collected from cattle on NSW dairy farms in 2023 and 2024. As many of these viruses are new, and knowledge about them is still emerging, we have collated current knowledge as a handy reference.

About Dairy UP

Dairy UP is a research and development program to help NSW farmers unlock the potential of their dairy businesses. Led by the University of Sydney's Dairy Research Foundation, Dairy UP is delivered through NSW DPIRD, Scibus, Dairy Australia, and the University of Sydney.

Control and prevention

Control of BAdV infections relies on good hygiene, strong biosecurity, and reducing stressors such as weaning and mixing calves from different sources.

While a vaccine for BAdV-7 is available in Japan, there are currently no widely used commercial vaccines elsewhere.

Epidemiological notes

BAdV-3 and BAdV-7 are frequently linked to bovine respiratory disease complex (BRDC), while BAdV-10 is associated with fatal hemorrhagic enteritis in calves. Co-infections, particularly with bovine viral diarrhoea virus (BVDV), can worsen clinical outcomes.

Seroprevalence studies indicate high herd-level exposure, with up to 82% of cattle testing positive for BAdV antibodies, although specific virus types are not always identified.

References

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More info

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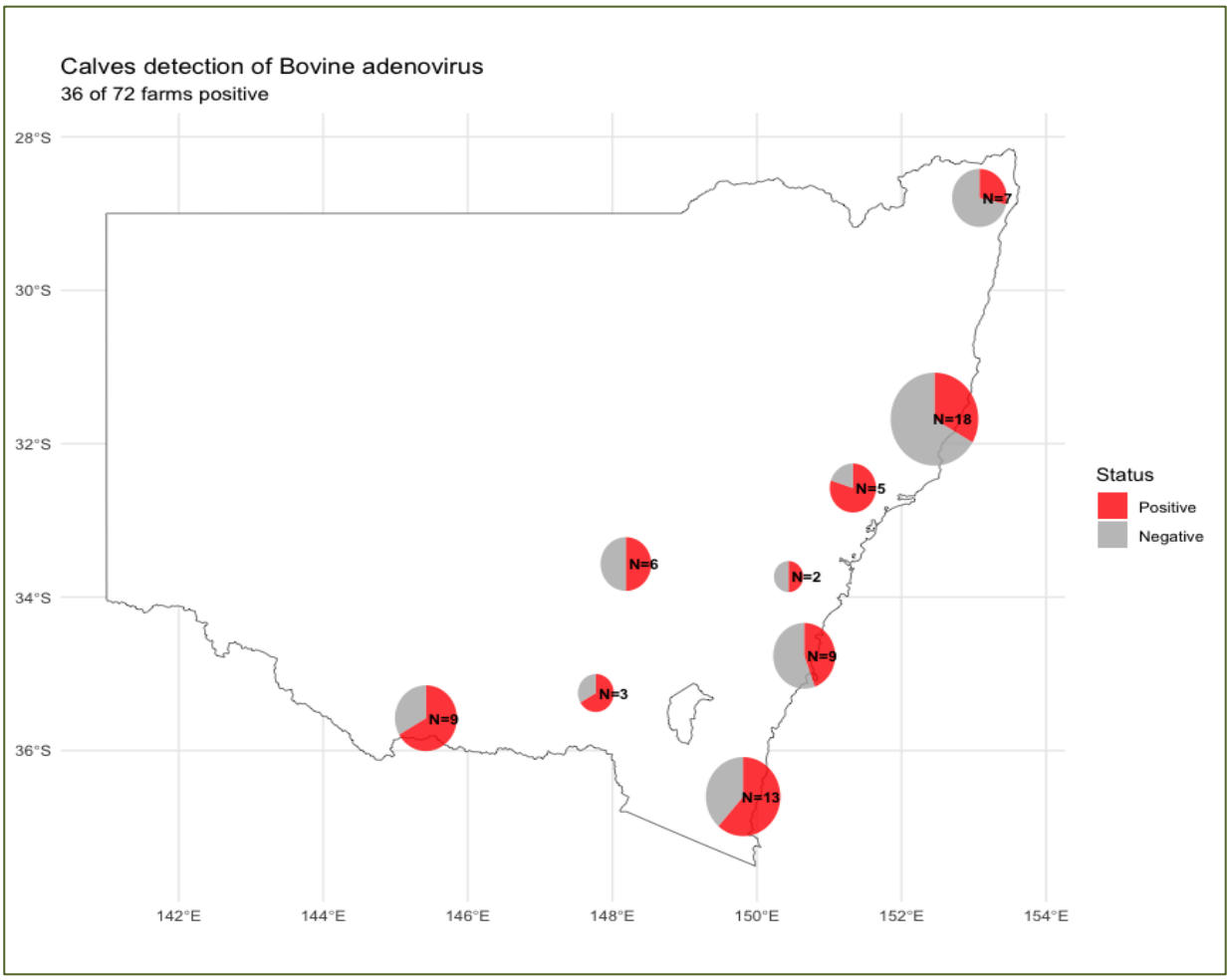

The map shows only BAdV-3, which was the most prevalent. We did not find 7 in samples collected, and only one sample was positive to 6.

DairyUP
Unlocking potential

Delivery organisations

The University of Sydney – Dairy Research Foundation | NSW Department of Primary Industries | Scibus | Dairy Australia

Partner organisations

NSW Farmers – Growing the best | eastAUSmilk | Dairy NSW / Dairy Australia | AFMH | Leppington Pastoral Company Pty Ltd | NSW Local Land Services | Norco

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