# Fact Sheet: Bovine enteroviruses

## P2f Infectious Diseases

August 2025

## Bovine enteroviruses (BEVs)

Bovine enteroviruses are viruses that live in the gut of cattle. They are common in cattle all over the world and often found in healthy animals.

Most of the time they don't make the animal sick, but sometimes they cause mild scours or other gut problems in calves.

## Transmission

Transmission is usually faecal-oral: infected calves shed the virus in their manure and it is spread to other calves when they swallow manure usually from dirty teats, feeders or bedding. Enterovirus can also spread through aerosols, contaminated soil or water, and vertically (from cow to calf before birth).

These viruses are widely distributed in cattle populations worldwide and are generally considered to have low virulence, often detected in healthy animals.

Bovine enteroviruses (BEVs) are small, non-enveloped, positive-sense RNA viruses in the family Picornaviridae, genus Enterovirus. There are two species: Bovine enterovirus E (subtypes E1–E4) and Bovine enterovirus F (F1–F6). These viruses are widely distributed in cattle populations worldwide and are generally considered to have low virulence, often detected in healthy animals.

## Clinical signs and pathogenesis

BEVs are usually asymptomatic but can occasionally cause mild diarrhoea, and rarely respiratory, reproductive (abortion, stillbirth), neurological (encephalitis, ataxia), or cardiovascular signs.

Pathogenesis is unclear; experimental infections show inconsistent disease despite viral replication and localization in the terminal ileum, ileocecal and cecocolonic junctions, spiral colon, lungs, and muscle tissue.

## Types of bovine enteroviruses

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### Key points

- Bovine enteroviruses (BEVs) are common in healthy cattle all over the world.
- They occasionally cause mild scours; rarely respiratory, reproductive, neurological, or cardiac signs.
- It spreads mainly via manure but can also spread in the air, contaminated environment, and from cow to calf before birth.
- There is no specific treatment or vaccine. Control relies on hygiene and supportive care.
- It's not clear how this virus leads to illness. Trials show it can grow in parts of the gut, lungs, and muscle, but development of disease is inconsistent.

### 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.*

## Laboratory detection

Detection relies on RT-PCR targeting the 5' UTR. Virus isolation in cell cultures (MDBK, BHK-21, FBK) and electron microscopy can confirm infection. Serological surveys show antibodies in cattle and humans, though no zoonotic disease is confirmed.

## Treatment and control

There is no specific antiviral treatment; care is supportive, focusing on hydration and managing secondary infections. Prevention depends on biosecurity, clean feed and water, as no vaccines are currently available.

## References

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## More info

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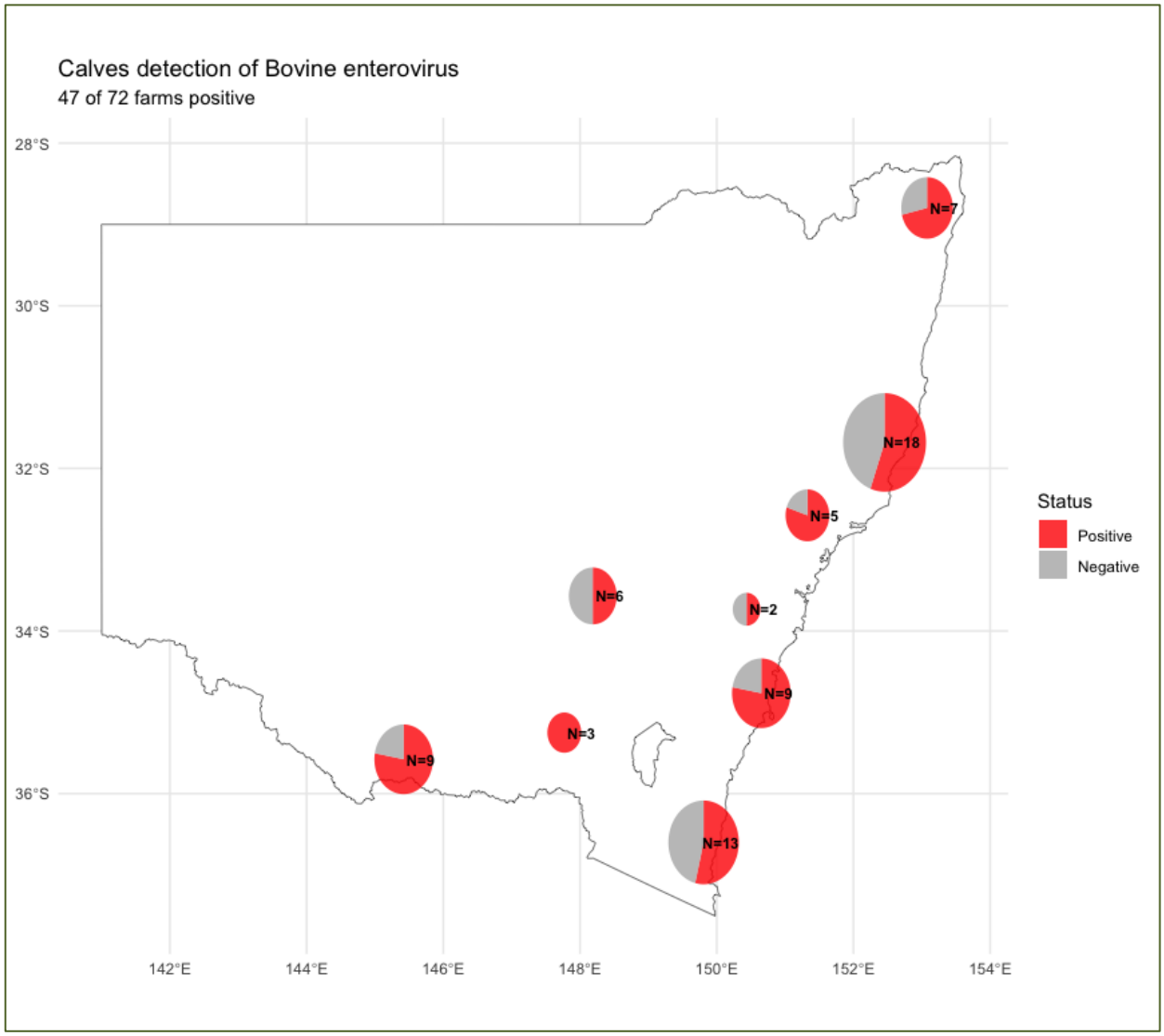

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Unlocking potential

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The University of Sydney – Dairy Research Foundation

NSW Department of Primary Industries

Scibus

Dairy Australia

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Charles Sturt University | DairyBio | DataGene | Eagle Direct | Entegra
Macquarie University | NSW EPA | smaXtec | UC Davis | University of Technology Sydney

Thank you to the following organisations for specific funding for this project

McGarvie Smith Institute

Australian Government – Australian Research Council

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