

DPI Primefact

Bovine Cysticercosis

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Animal Biosecurity

Bovine Cysticercosis is a notifiable disease in NSW

Introduction

Cysticercus bovis (formerly known as Beef Measles) are the intermediate stage in the life cycle of a human tapeworm (*Taenia saginata*). Infections of cattle with *Cysticercus bovis* causes small cysts in the muscles, leading to all or part of the carcass being condemned in order to manage the risk of ongoing human infection.

Bovine cysticercosis is a notifiable disease under the *Biosecurity Act 2015*. This means there is a biosecurity duty, or legal obligation, to notify authorities if you know or suspect that animal has this disease. If unmanaged Bovine Cysticercosis could have significant impacts on human health as well as meat export markets.

Life cycle

Humans and cattle are the only hosts in the *Cysticercus bovis* lifecycle: the human must get the tapeworm from cattle (meat) and cattle only get the infection from humans (faeces).

The tapeworm occurs in the small intestine of humans, and although it is generally 4-8 metres long, it can reach 15 metres. Like all tapeworms, its scolex (head) attaches to the bowel wall and it has up to 2000 body segments. Each segment contains up to 80 000 eggs. The end segments of the tapeworm detach and are passed with faeces where they look like white fleshy capsules similar to a grain of rice. An affected person can remain infected for life unless treated.

If the eggs in the tapeworm segments find their way onto pasture or other feedstuffs, cattle may ingest the eggs which then hatch in the small intestine, develop into embryos and penetrate the bowel wall. They are carried through the bloodstream to various muscles where they develop into the *Cysticercus bovis* cysts.

The muscles most commonly affected by *Cysticercus bovis* cysts are the heart, tongue, diaphragm and muscles of the jaw. The cysts may remain infective for up to 2 years and are most often found during meat inspection at abattoirs. About 10-20% of cysts found at abattoirs are still alive, the remainder have degenerated and, whilst still visible, are no longer infective to people.

If people eat live cysts in rare beef or other bovine meat products, the cysts develop into a tapeworm in their small intestine and the cycle continues.

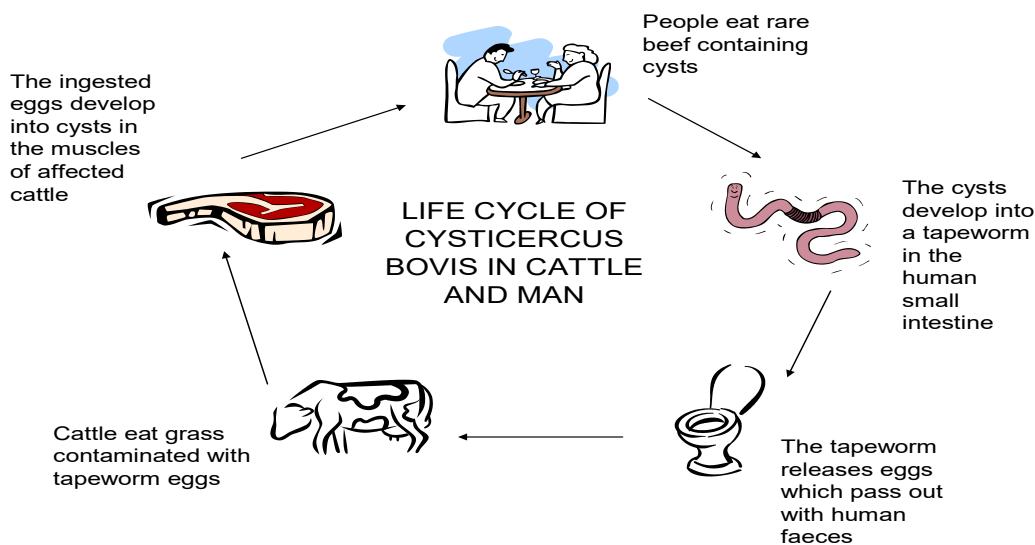


Figure 1: life cycle of *Cysticercus bovis*

Human Health

Sometimes the tapeworm affects human health, but often it goes undetected. In rare cases the cystic intermediate stage can lodge in the brain of people and cause serious disease.

Factors that increase the risk of people being infected with the tapeworm include the consumption of rare beef, particularly in some overseas countries where the tapeworm is more common.

People can minimise their chance of infection through the following actions:

- Cook beef to a temperature of at least 57 degrees Celsius (that is until the meat is cooked uniformly through to the centre) to kill the cysts.
- Freeze beef for 10 days at -8 to -10 degrees Celsius to kill the cysts.

Anyone who suspects they might have a tapeworm should contact their doctor.

Risk Factors for *Cysticercus bovis* infection in cattle

Factors that increase the risk of cattle being infected with *Cysticercus bovis* include grazing on land that has:

- Human faecal contamination
- Overflowing domestic sewage systems
- Untreated wastewater spills from nearby sewerage treatment works
- Irrigation with inadequately treated reclaimed sewage water
- Bird movements to and from a nearby sewage treatment works

Cattle may also become infected by eating foodstuffs or concentrates that have been contaminated by human faeces.

Prevention of *Cysticercus bovis* infection in cattle

- Ensure there is no human faecal contamination of pasture or other cattle foodstuffs
- If cattle graze land that is irrigated with reclaimed sewage water, ensure the reclaimed water is adequately treated

Detection of *Cysticercus bovis* in cattle

Cysticercus bovis is a notifiable disease under the *Biosecurity Act 2015*, so if detected at an abattoir, an investigation by the Department of Primary Industries in conjunction with Local Land Services will follow. This will include a field investigation of the property of origin of the cattle to try to determine the source of the *Cysticercus bovis* contamination.

Depending on the findings of the property investigation, a range of management options may be used to minimise the ongoing risks posed by the *Cysticercus bovis* contamination.

Where the risk of further cases of *Cysticercus bovis* is high, an individual animal may be allocated a “CB” status in the National Livestock Identification Scheme (NLIS) database.

What does a CB status on the NLIS database mean?

The ‘CB’ status notifies the abattoir of the increased risk of *Cysticercus bovis* in that animal, so that a more thorough meat inspection process can be performed on these carcasses to ensure that cysts do not go undetected and enter the food chain.

What is my Biosecurity Duty?

Under the NSW *Biosecurity Act 2015*, any person who deals with cattle has a biosecurity duty to ensure that, so far as is reasonably practicable, the biosecurity risk of *Cysticercus bovis* infection is prevented, eliminated or minimised.

A person may achieve this through a range of actions including:

- Ensuring cattle don’t have access to land or feed contaminated with human faeces
- Notifying authorities where it is known that cattle have accessed land or feed contaminated with human faeces

How can I find out more?

For further information you can contact:

- Local Land Services District Veterinarian: 1300 795 299
- NSW DPI: animal.biosecurity@dpi.nsw.gov.au

Acknowledgements

The Bovine Cysticercosis program is a collaboration between the NSW Department of Primary Industries and Local Land Services

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