

Cysticercus bovis in Cattle

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Introduction

Cysticercus bovis (formerly known as Beef Measles) causes small cysts in the muscles of cattle and their presence can lead to all or part of the carcass being condemned. Cattle get *Cysticercus bovis* from ingesting foodstuffs contaminated with eggs passed from humans. *Cysticercus bovis* is a notifiable disease under the Stock Diseases Act 1923.

Life cycle of *Cysticercus bovis*

Cysticercus bovis are the intermediate stage in the life cycle of a human tapeworm (*Taenia saginata*). An affected person can remain infected for life unless treated. The human must get the tapeworm from cattle and vice versa.

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. They look like white fleshy capsules similar to a grain of rice.

If the eggs in the segments find their way onto pasture, cattle may eat the eggs which then hatch in the small intestine. Small embryos develop and penetrate the bowel wall. They are carried through the bloodstream to various muscles where they develop into cysts.

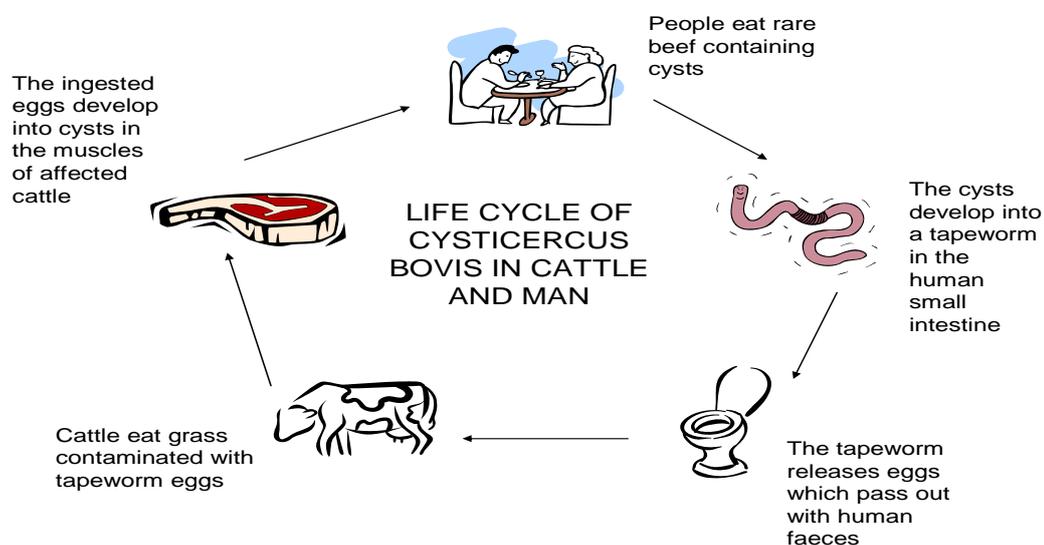
The muscles most commonly affected by *Cysticercus bovis* cysts are the heart, tongue, diaphragm and muscles of the jaw. The cysts may remain infective for up to 2 years. About 10-20% of cysts found at abattoirs are still alive.

When people eat live cysts, the cysts develop into a tapeworm in their small intestine.

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.

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



Risk factors for *Cysticercus bovis* infection

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

1. Human faecal contamination.
2. Overflowing domestic sewage systems.
3. Irrigation with inadequately treated reclaimed sewage water.
4. Bird movements to and from a nearby sewage treatment works. Water birds such as ibis can pick up tapeworm eggs from the sewage treatment works and transfer them to a nearby property.

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

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

Abattoir detection of *Cysticercus bovis*

Meat containing cysts is condemned at abattoirs and is wasted. Exports of meat could be affected if *Cysticercus bovis* is detected.

Cysticercus bovis is a notifiable disease under the Stock Diseases Act 1923, so if *Cysticercus bovis* is detected at an abattoir, an investigation by the Department of Primary Industry in conjunction with the Livestock Health and Pest Authority will follow. This investigation will include a field investigation of the property of origin of the cattle to try to determine the source of the *Cysticercus bovis* contamination.

The property will be given a "CB" status in the National Livestock Identification Scheme (NLIS). The CB status notifies the abattoir of the increased risk of *Cysticercus bovis* so a more thorough meat inspection process is performed on these cattle carcasses.

Prevention of *Cysticercus bovis*

- 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.
- 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.

This Prime Fact replaces "Beef Measles" Agfact A0.9.19, Ed 2nd, 1st September 1999

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