

Bovine Cysticercosis

As part of its safeguarding mission, the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) works to maintain the health of U.S. livestock. This work includes preventing and controlling livestock diseases that are considered zoonotic, or have the potential to affect both people and animals. By addressing these diseases, USDA helps protect public health as well.

One zoonotic disease livestock producers should be aware of is bovine cysticercosis. This disease is caused when cattle eat tapeworm eggs, the eggs grow into larvae, and the larvae form cysts in the cattle's muscle.

Bovine cysticercosis is a concern because it usually indicates that human feces have contaminated the animal feed system (see "Disease Spread" section on next page). If the source of contamination is not eliminated, the animals can be exposed to more bacteria and parasites, as well as drug residues or toxins. This negatively impacts the wholesomeness of meat products from the exposed animals.



Signs of Infection

In People

People can become infected when they eat raw or undercooked meat containing the tapeworm larval cysts. The larvae then grow into adult tapeworms in the person's intestines. In people, the disease is referred to as Taeniasis. It usually doesn't cause illness in people, but can cause abdominal discomfort, nausea, and itchiness in the anal region. Taeniasis is easily treated by a physician. The disease can be found throughout

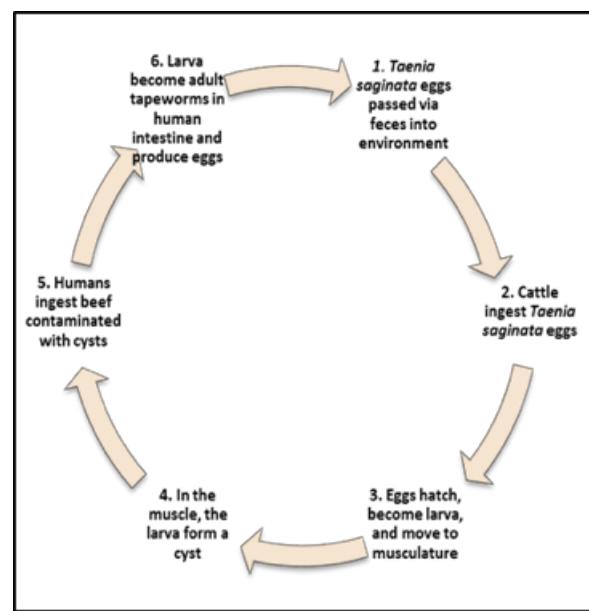


Figure 1. Lifecycle of *Cysticercus bovis/Taenia saginata*

the world, but is mainly seen in Africa, Latin America, Asia, and the Mediterranean.

In Cattle

Outward signs of bovine cysticercosis in infected cattle are rare. The tapeworm larvae live in the animal's muscle tissue, particularly the heart, facial muscles surrounding the jaw, diaphragm, and tongue. Bovine cysticercosis is therefore difficult to diagnose in live animals, but if the animal is heavily infested, cysts may be felt on the tongue and face. The majority of cases are identified during visual inspection at slaughter, with samples sent to a laboratory for confirmation. If infection is confirmed, the meat will be destroyed or frozen to inactivate the cysts and prevent transmission to people.

Reporting and Investigation

When cysts are detected at slaughter, USDA's Food Safety and Inspection Service notifies APHIS. We then use trained veterinarians to conduct an epidemiologic investigation and trace the disease to its State of origin. APHIS will notify the State veterinarian and State public health officials in the animal's State of origin. We also help cattle owners at affected farms identify ways they can prevent the disease from occurring again in the future.

Disease Spread

Cattle can be exposed to tapeworm larvae in a variety of ways, including:

- Consuming tapeworm eggs carried into the feed system by poor biosecurity or sanitation practices.
- Eating feed or drinking water contaminated by human feces.
- Drinking water contaminated by sewage in a pasture, feedlot, or cropland.
- Ingesting tapeworm eggs carried into the feed system by wildlife, insects, or other bugs.

As mentioned previously, people become infected by eating raw or undercooked meat containing tapeworm cysts. They then shed the tapeworm eggs in their feces.

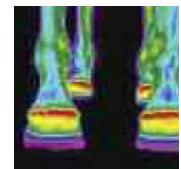
The parasite cannot spread directly between cattle. Cattle only become infected when they eat tapeworm eggs or segments that came from an infected person's feces. The eggs can survive in the environment for many months if the temperature and humidity are favorable.

Treatment

There is no effective treatment for this disease in live cattle. However, a veterinarian can provide a long course of anthelmintics (drugs that act against infections by parasitic worms) to help address clinical signs or offer corticosteroids as a supportive therapy.

Prevention

The best way to prevent bovine cysticercosis is to practice good biosecurity. You should do everything you can to prevent human feces from contaminating your pasture or animal feed system. Some best practices include: providing toilet and handwashing facilities for workers (e.g., portable bathrooms), washing hands with soap and warm water after using the toilet or changing diapers, and not using human feces as fertilizer. Also, if your cattle graze near sewage plants, treat their water appropriately.



For More Information

For more information and assistance, contact the APHIS Veterinary Services office in your State. Visit our Web site for contact information at www.aphis.usda.gov/animal-health/state-offices.

Other Resources

Iowa State University

www.cfsph.iastate.edu/Factsheets/pdfs/taenia.pdf

Centers for Disease Control and Prevention

www.cdc.gov/parasites/taeniasis

World Health Organization

www.who.int/mediacentre/factsheets/fs376/en

World Organization for Animal Health (OIE)

www.oie.int/doc/ged/D12797.PDF