

SheepSense

an applied research brief

Q Fever: A Hidden Health Risk During Lambing Season

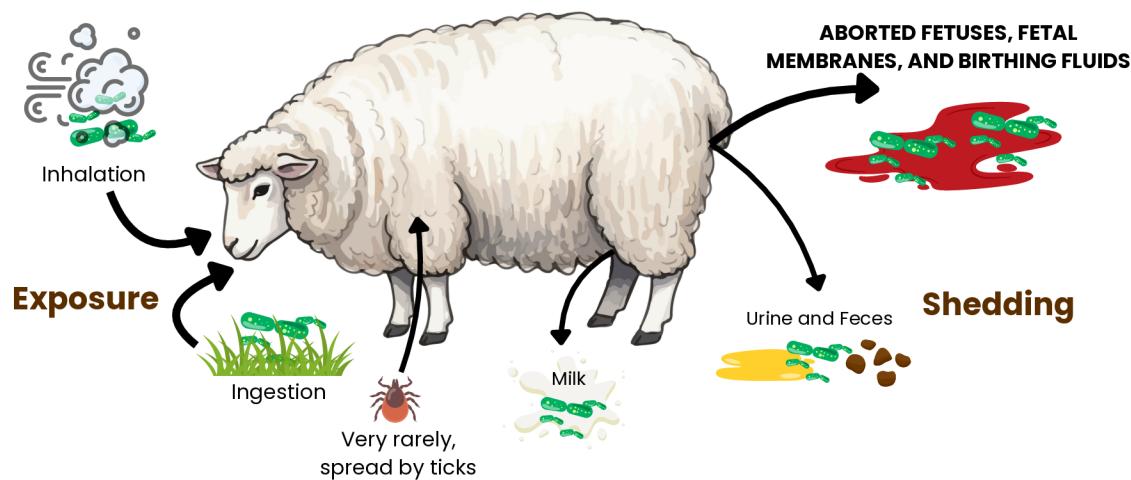
What is Q fever?

Q fever (aka Query fever) is a disease caused by the bacteria *Coxiella burnetii*. Sheep, goats, and cattle are the main carriers of the bacteria, and it is ubiquitous and persistent in contaminated environments. Q fever is zoonotic, meaning that if humans are exposed to the bacteria, they can contract Q fever. (The CDC website offers additional information on Q fever in humans.) Q fever is found worldwide, and environmental factors can play a role in disease outbreaks.

Key Points

- Q. Fever is caused by the bacteria *Coxiella burnetii* (*C. burnetii*).
- *C. burnetii* can cause abortion storms in sheep and goats.
- High concentrations of *C. burnetii* are found in aborted fetuses, fetal membranes, and birthing fluids of infected animals.
- Diagnosis can be difficult and positive results should be discussed with a veterinarian.
- Humans can contract Q fever when exposed to contaminated surfaces or infected animals.
- Biosecurity and enhanced sanitation during lambing are the primary prevention and control measures.

Figure 1. Q fever is transmitted by inhalation or direct contact with infected materials in the environment.



What are the clinical signs of Q fever in Sheep?

Livestock are typically subclinical for the disease, but a flock could experience an increase in abortions or stillbirths. Abortion storms can also occur, but are more common in newly exposed flocks that are naïve to the bacteria (lack immunity). Q fever can also cause other reproductive disorders, such as infertility, metritis, and rarely mastitis. Non-pregnant livestock typically do not show any clinical signs.

Ewes that are infected with the bacteria can have a normal lamb, but can still shed *C. burnetii* into the environment. This poses a risk for other ewes and human health.

How is Q fever transmitted?

The bacteria is transmitted during the lambing and kidding season. High concentrations of *C. burnetii* are found in aborted fetuses, fetal membranes, and birthing fluids of infected animals. Infected ewes and does can continue to shed bacteria a few weeks after parturition. Animals typically become infected through inhalation or direct contact with infected birthing products or contaminated environments. (See Figure 1.)

Rarely, *C. burnetii* can be transmitted from one animal to another via ticks.

How is Q fever Treated?

There are currently no medications labelled for treatment of Q fever. If clinical signs are observed, it is recommended to work with a veterinarian to determine possible treatment options. Treatment will likely be targeted towards limiting effects of reproductive disorders.

How is Q fever diagnosed & what does a positive result mean?

Diagnoses of Q fever as the true cause of reproductive issues in a flock can be difficult. Positive test results should be discussed with your veterinarian.

In general, there are two types of tests that are most commonly used for diagnosing Q fever. There are tests that detect the bacteria itself (i.e. PCR or culture) or tests that detect antibodies to the bacteria (i.e. ELISA). A positive result on either test doesn't necessarily mean that your flock will experience reproductive disorders or that reproductive disorders are due to Q fever. During an abortion storm, aborted fetuses and placenta from affected sheep can be tested for the presence of *Coxiella burnetii*. The combination of clinical signs and detection of the bacteria in multiple samples may make it more likely Q fever is the cause of the abortion storm. Positive test results should be discussed with your veterinarian. The environment can be heavily contaminated with *C. burnetii* and false positives can occur.

Blood tests for antibodies in ewes and does are difficult to interpret, as they can be positive, indicating exposure to the bacteria, while not currently shedding the bacteria. Also, ewes and does can test negative and actually be shedding the bacteria.

Q fever is a reportable disease in Wyoming.



How can Q fever be prevented?

Currently, there are no Q fever vaccines available for livestock in the United States.

Coxiella burnetii can persist in a spore-like form in the environment and is resistant to temperature changes and desiccation. Preventing exposure to the disease can be difficult if environmental contamination has occurred. Thus, biosecurity and enhanced sanitation measures during the periparturient period (a few weeks before and after lambing) are the best tools to utilize for limiting exposure to *C. burnetii* and controlling spread of the disease.

A few biosecurity measures for sheep flocks include:

1. Limiting introduction of new animals or keeping groups separate during the periparturient period

Why? Newly introduced animals may be carrying *C. burnetii* and expose naïve sheep in your flock to the bacteria. On the other hand, new introductions may be naïve and your current flock may be infected, but not showing clinical signs. Maintaining a closed herd or separately managing naïve and exposed groups during the lambing season can possibly decrease the likelihood of a Q fever outbreak.

2. Remove birthing material promptly, especially abortions

Why? During mid to late gestation, monitor the flock closely for evidence of abortions. If any fetuses or fetal membranes are noted in the pasture, it is recommended to wear personal protective equipment (i.e. gloves and a mask), double bag the birthing materials, and dispose of them properly. It is not recommended for immunocompromised or pregnant individuals to handle birthing materials.

3. If a lambing barn and lambing jugs are utilized, replace bedding frequently

Why? Infected animals can shed large numbers of bacteria at lambing (even during normal lambing). Removing and replacing bedding between pairs and cleaning up manure promptly can aid in decreasing environmental contamination. It is recommended to wear personal protective equipment while cleaning.

4. Minimize development of excessively dry and dusty environments in animal housing areas

Why? Misting or gently wetting down dusty areas may help with decreased dispersal of the bacteria and lower environmental contamination.





Extension Sheep Program



This brief was created by UWyo Sheep Task Force, 26.1

Author:

Dr. Rose Digianantonio, DVM, ACVPM. Wyoming Assistant State Veterinarian, Wyoming Livestock Board

Edited by:

UW Sheep Extension Team

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