

## Q Fever Antibodies in Sheep and Goats and in Farmers on Sheep and Goat Farms

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This article is not intended to alarm sheep and goat producers but instead to make them aware and more knowledgeable about a disease of sheep and goats (Q fever) that can also infect humans. Much of the information in this article comes from an article that appeared in the March 2013 issue of Ontario Sheep News, “Prevalence of Q fever Antibodies in Ontario Sheep and their Farm Families” by Shannon Meadows (pages 14-15)

(<http://www.ontariosheep.org/PROGRAMSANDSERVICES/OntarioSheepNews.aspx>).

“Q fever is caused by *Coxiella burnetii*, a bacterium which often infects a wide variety of animals and commonly sheep, goats and cattle. Infected animals often do not show symptoms of disease, but it can cause abortion, stillbirth, and early lamb mortality in sheep. Infected sheep and goats with and without signs of disease may shed the organism in the birth fluids, products of pregnancy, milk and feces. The bacteria may also be aerosolized and spread in the dust. Most infections in people are not associated with any illness (~ 60%). The most common signs when illness develops are fever, headaches and [muscle pain]. A small proportion of people are so ill they require medical attention to treat pneumonia, less commonly hepatitis and rarely meningitis. Acute Q fever is very responsive to a course of antibiotics . . . . . A small percentage of people may develop more serious symptoms like heart and liver disease, as well as chronic fatigue syndrome. Since the symptoms of infection are not specific to Q fever, serological tests are used to aid in diagnosis in both humans and animals.”

In 2010, researchers from the University of Guelph, Guelph, Ontario, Canada collected blood from sheep and goats on farms in Ontario and from farm workers on these same farms, and tested the blood for antibodies to *Coxiella burnetii*, which, if present, would indicate that the animal or person had been infected with the organism at some time in their lifetime. Two thousand, three hundred, sixty three sheep were sampled on 72 farms, 2,195 goats were sampled on 76 farms, and 172 people were sampled on 75 of these same sheep and/or goat farms. The results were:

Sheep: 14.7% of sheep tested positive, 48.6% of sheep farms had at least 1 positive sheep

Goats: 32.5% of goats tested positive, 63.2% of goat farms had at least 1 positive goat

People: 67.4% of people tested positive, 78.7% of farms had at least 1 positive person.

These data strongly suggest that the incidence of Q fever in Ontario sheep and goat flocks/herds is high and that a majority of Ontario small ruminant farmers have been infected sometime in their lifetime. While there are case studies reported in the scientific literature of individual flock and regional incidences of Q fever in sheep and infections of Q fever in people working with infected sheep, I'm not aware of state or national surveys that would provide us with an estimate of the prevalence in the U.S. The USDA National Animal Health Monitoring System (NAHMS) study of sheep in 2011 was conducted in 22 states, including Wisconsin, and blood samples were collected from cooperating flocks to examine for evidence of presence of

several diseases. The results of the serological tests have not yet been published, and, hopefully, Q fever will be one of diseases monitored.

At any rate, sheep and goat producers with any of the symptoms of Q fever would be well-advised to indicate to their physician that they work with small ruminants and that a test for Q fever may be warranted. I have heard from one Wisconsin sheep producer this year who tested positive for antibodies to *Coxiella burnetii*.

Since a very high number of the infectious organisms are passed from infected ewes during lambing time in placental fluids and tissues, persons working in the lambing barn should wear disposable gloves (arm-length OB gloves when assisting ewes with a difficult lambing) and coveralls and boots that stay in the barn; and practice good sanitation and frequent hand-washing.