

## Q-fever in Wyoming Goats

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The first diagnosis of Q fever in Wyoming livestock was made at the Wyoming State Veterinary Laboratory in January 2001, in several Boer goats from Crook County. The diagnosis was made based upon the history of numerous abortions, stillbirths, and births of weak kids in the herd, together with gross and microscopic lesions observed in the placentas of aborting animals. Placental lesions included necrosis and the presence of intracellular organisms within cells of the placenta, and the diagnosis was confirmed by immunohistochemistry for the causative agent of Q fever. Many of the goats were brought to Wyoming from Texas, a state where Q fever is fairly common in small ruminant species.

Q fever, also known as Query fever, is a zoonotic disease (capable of infecting humans) caused by the rickettsial organism *Coxiella burnetii*. Infection in ruminant species (goats, sheep, and cattle) is relatively common in some other states, but has not been confirmed in Wyoming until now. Infection of ruminant species often is subclinical, but may be associated with late term abortions, stillbirths, or birth of weak offspring that may die. Abortions typically occur during the first pregnancy, and are less common with ensuing pregnancies. The organism may be shed in large numbers in placentas and fluids during abortion or delivery of offspring. Organisms also may be shed in milk from lactating females. Following contamination of the environment with infectious organisms (which are resistant to many common disinfectants and temperature extremes) other ruminants, people, and a variety of other species of animals (including dogs and cats) may be infected. Infection may occur by inhalation of contaminated dusts or other aerosols, by ingestion of raw milk or other products, or by tick or other arthropod bites. Some animals may shed organisms in placentas, fluids, and milk in subsequent pregnancies without aborting. In areas where the disease is endemic (many animals infected) abortions and other clinical signs are uncommon as herd immunity is high.

The disease in people is associated with non-specific clinical signs resembling influenza. Common symptoms include fever, aches, malaise, headache, chills, and nausea. Many people recover spontaneously from infection, but a few will progress to more serious disease including pneumonia, hepatitis, endocarditis (inflammation of the heart valves), and meningoencephalitis. The disease is treated with doxycycline or other tetracyclines in humans and mortality is very low when the infection is diagnosed and treated early. People working with sheep, goats, or cattle that become ill should be seen by a physician if they suspect any exposure to Q fever.

Treatment of livestock is aimed towards reducing shedding of the organisms at parturition, and thus reducing contamination of the environment. Tetracyclines are the most common drugs used, and can be given parenterally or in the feed or water (consult your veterinarian for appropriate route, dose, and length of administration for these drugs). Animals that are to be shipped or transported to other premises may be tested for antibodies to the agent of Q fever (a serological or blood test) prior to shipping. There is no commercially available or approved vaccine for Q fever in the United States. If you have questions about Q fever in livestock or require further information please contact us at the Wyoming State Veterinary Laboratory. Questions about regulations concerning Q fever in livestock may be directed to the State Veterinarian's Office [Dr. Jim Logan, (307) 777-7515]. Questions about Q fever in humans may be directed to the Wyoming Department of Health at (888) 996-9104.