

Leptospirosis Is A Calf Killer

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Leptospirosis, commonly called “lepto”, is caused by three species and five serovars of bacteria, the genus *Leptospira*. Infected animals, such as cattle, raccoons, skunks, opossums, rodents, deer, swine and dogs, shed bacteria for many months with urine as they urinate. Survival of the bacteria in the environment is favored by moisture and moderately warm temperature; survival is brief in dry soil or at cold and hot temperatures. Therefore, leptospirosis occurs most commonly during the rainy season in the spring, fall and early winter. Although urine of various wild and domestic animal carriers may be sources of infection, likely exposures to baby calves are from urine of subclinical carrier cows stressed at calving and diseased and convalescent calves. Calving cows may shed the bacteria in urine, especially when the possibility of cattle carriers from prior infections exists in the herd.

Transmission to nursing calves may occur from ingesting contaminated urine on teats and hair, on grass and hay and in water. Shallow surface water with alkaline pH values favors the survival of the bacteria and transmission to calves. Getting contaminated urine in calves’ eyes is a means of transmission. The bacteria can invade the body after penetrating water-softened skin.

Newborn calves less than 30 days of age are the most susceptible to the acute leptospirosis. After a variable incubation period (4 to 20 days), the bacteria circulate in the blood for up to 7 days. During this period they enter and multiply in the kidneys, liver, lungs and brain. The bacteria remain in the kidneys and may be shed in the urine for a few weeks to many months after infection. Clinical signs of the disease are very variable and diagnosis may be difficult. Clinical signs in calves include high fever (105-107°F) rapid and difficult breathing, depression, not nursing, bloody urine, incoordination and death. The urine is a clear-red or port-wine color. Although a few adult cattle may show similar signs, the infection is often inapparent. Lepto calves are mistakenly diagnosed and treated for pneumonia or bovine respiratory disease (BRD) complex. Post-mortem signs are anemia, jaundice, lung congestion and inflammation of kidneys, liver, intestines and occasionally brain. The death rate is high and if recovery occurs, convalescence is prolonged. Calf mortality, that may range up to 15 percent, is caused by the bacteria destroying the calves’ red blood cells. Calf morbidity or sickness is 50 percent or more of the affected nursing calves. Diagnosis is dependent on clinical and vaccination history and laboratory testing of blood and tissues. Since the bacteria can kill unborn calves as well as nursing calves, an evaluation of the cow herd’s pregnancy rate and observations for aborted fetuses are suggested.

Vaccination can be combined with antibiotic treatment in the face of an outbreak. In infected animals or cattle shedders, vaccination will not reduce urinary shedding. Unvaccinated cattle should be vaccinated twice, with 3 to 4 weeks between vaccinations; whereas vaccinated cattle should be boosted with a single dose. Immunity is serovar specific. Polyvalent killed vaccines containing three or five common serovars (lepto 3, lepto 5) endemic to cattle and region are suggested. Different vaccines vary in efficacy, and vaccine failures may occur.

Annual vaccination of all cattle in a closed herd, or twice yearly vaccination in an open herd, is the most effective approach to control. Timing the vaccination in the cow herd during the last trimester of pregnancy will provide immunity through colostrum to newborn calves.

People can acquire the disease by contact of broken skin and mucous membrane of primarily the eyes and the mouth with urine from affected calves. Sanitary precautions are necessary in handling an infected calf for physical examination, treatment or necropsy.