Western Beef Resource Committee

Third Edition

Cattle Producer's Handbook

Animal Health Section 662

Leptospirosis

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Leptospirosis is an important bacterial infection of rodents, cattle, horses, dogs, and swine. Leptospirosis in animals is generally silent or sub-clinical. Clinically, leptospirosis in cattle causes milk production losses, kidney and liver infections, and reproductive failures. Infected animals routinely shed the organism contributing to the maintenance and transmission of this organism in nature. Leptospira infections require specialized media and techniques for culture and for confirmatory diagnosis.

Before the development of leptospiral vaccines, leptospiral abortion in cattle often exceeded 10 percent on infected premises. Vaccination decreases the clinical severity of the disease in domestic animals but does not prevent infection or eliminate the shedding of the organism.

Leptospiral vaccines do not produce long lasting immunity and require multiple vaccinations per year coupled with a strategic vaccination program for the control of the disease. Cattle vaccination programs for leptospirosis must be regular and routine to prevent the re-emergence of leptospiral diseases in cattle either by importation of susceptible animals into an endemic area or infected animals into a susceptible, unvaccinated herd. Veterinarians and producers are encouraged to include leptospiral vaccines into vaccination programs—especially for cow-calf operations!

Leptospirosis is an important zoonotic infection transmitted to humans primarily through water sources contaminated by infected rodents, dogs, and cattle.

The Organism

Leptospira are small corkscrew or spiral shaped, gram-negative bacteria (Fig. 1). They require a moist, humid environment to survive **and** to be transmitted from infected to uninfected individuals. There are seven major species of *Leptospira* encompassing over 200 individual serovars of leptospira. The species of importance in the cattle are *L. interrogans* serovar Hardjo strain hardjoprajitno and *L. borgpertersenii* servor Hardjo strain hardjobovis.

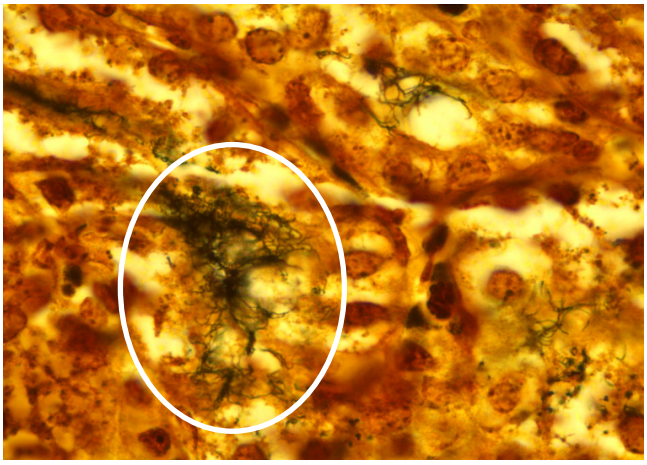

Fig. 1. Photomicrograph of kidney tissue from an aborted bovine fetus. The black central area is a colony of Leptospires (magnification approx. 1000X).

Serovar Hardjobovis is one of the most frequent leptospires associated with reproductive disorders in the U.S. Until recently, vaccines used in the U.S. contained serovar Hardjoprajitno, the most common leptospire associated with reproductive disorders in the United Kingdom. Other lesser significant leptospire strains of cattle include grippotyphosa, hardjo, icterohemorrhagia, canicola, and pomona, which are routinely included in most cattle vaccines.

The Infection

Two forms of infection can result from exposure to leptospira: host-adapted or non-host-adapted. In the host-adapted form, the infected host exhibits minimal signs of disease, is a maintenance or reservoir host, and is a major source of environmental contamination or