

Leptospirosis

Margaret S. Kipps, VMD—Uniondale, Pennsylvania

Leptospirosis is an important infectious disease of domestic animals, humans, and wild animals. Spread by contaminated urine, it has been responsible for significant economic losses, primarily due to abortion. In humans, Leptospirosis takes on variable manifestations including: flu-like symptoms, ie. fever, headache, chills; vomiting; infection of either the eyes, kidneys; or blood dyscrasias (abnormalities).

All leptospires are now classified into one species, *Leptospira interrogans*. With over 100 serotypes, to date seven leptospira serotypes have definitely been isolated from livestock in the United States. Pathogenic leptospires actively invade exposed mucous membranes and abraded skin. After penetration, the organisms multiply rapidly in the liver and then migrate to and can be isolated from the peripheral blood for several days. After this, organisms begin to appear in urine and antibodies to the leptospires are detectable in the blood. With leptospires in the blood, it is easy to understand how

both the blood and major organ systems supplied or filtering blood would also be affected. Therefore, septicemia (blood infection), kidney infection, encephalitis (inflammation of the brain), and abortion occurs. Abortion generally occurs in the second half of pregnancy, due probably to the greater ease of invasion of placenta at that time.

A correlation of clinical signs and serologic tests leads to the diagnosis of leptospirosis. Several signs may be evident including: initial elevation of temperature, hemoglobinuria (bloody or 'coffee colored' urine), anemia, jaundice, weakness, mastitis, abortion, encephalitis, and death. In bulls, orchitis (testicular inflammation) may occur. This will effectively reduce spermatogenesis, leading to fertility problems. During the acute phase of the disease, organisms may be found in the milk, semen, or urine. Paired serologic tests, performed by your veterinarian, are considerably diagnostic.

If Leptospirosis is diagnosed, dihydrostreptomycin (antibiotic) ad-

ministered during the acute phase is an effective treatment; especially if administered daily for five days. If the disease has progressed too far (for instance if severe infection has led to renal/kidney failure), one must weight the capability of providing extensive supportive therapy against the cost of the animal. Also, during early phases of the disease a leptospiral bacterin may also be incorporated into the treatment regimen to reduce dissemination of the infection, *within the herd*.

NOTE: this procedure will only be effective if the bacterin is the same serotype as that causing disease, and if the bacterin is given to animals *prior* to exposure.

Strict adherence to disease preventive management procedures will significantly reduce leptospiral infections. The organism is susceptible to drying and will survive several months in neutral, stagnant water. Therefore animals should be fenced away from marshes or streams that may be contaminated by leptospires. Control of rodent/wildlife populations is critical. These animals can harbor and spread the organism by contamination of feedstuffs or the water supplies of your herd. Administration of leptospiral bacterins can result in the development of protection against homologous serovars for six months to one year. Best results have been achieved with semi-annual vaccination in the fall and spring. With this schedule the Lepto vaccine can be combined with IBR, BVD, PI3 in the fall and be given alone in the spring. Don't forget to vaccinate the bulls! Also be sure to use the cattle vaccines that contain the most serovars - most range from three to five. An added benefit is that these Lepto vaccines are killed, making them relatively safe.

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