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Leptospirosis in California Beef Cattle

Most all of us vaccinate our cows and heifers with a Leptospirosis vaccine once a year or sometimes more often. Why do we make this part of our routine and what are the medical reasons behind this procedure? We will explore these questions in this month's article along with some new data from California and five other states that were part of a national survey looking at Leptospirosis.

What is Leptospirosis?

Leptospirosis is simply an infection caused by one of the various types of *Leptospira* organisms. The leptospire is a spirochete bacterium (so named because of their appearance under the microscope as a spiral or elongated coil) that causes a number of diseases in animals and man. The leptospire is related to the spirochete organism that causes syphilis in man. *Leptospira* organisms usually require a host (animal or man) for all or part of their life cycle. Many are "host-adapted" and cause little or no disease in their specific host(s), while others cause severe disease whenever they infect an animal. There are many different species (or serovars [sero varieties]) of leptospire and the more common ones of concern in cattle are *L. pomona*, *L. grippityphosa*, *L. icterohemorrhagiae*, *L. canicola*, and *L. hardjo-bovis*. The most important of these are *L. pomona* and *L. hardjo-bovis*. It makes sense that these are the organisms found in the best commercial vaccines.

What problems can Leptospira cause in cattle?

The most common problems are associated with reproduction—particularly in cows and heifers. These include abortions and infertility in the female. In a California survey from 1998-2003 Leptospirosis was the third most common cause of abortion in beef and dairy cattle. Another syndrome is hemolytic anemia with bloody urine in young cattle, heifers, steers and bulls less than 2 years of age (often yearlings). Young cattle having these symptoms or dying quickly should be examined by your veterinarian. *Leptospira* organisms can also colonize the kidneys of cattle and while this may not cause disease symptoms it aids in the spread of the organisms as they are excreted in the urine. The *Leptospira* organisms can survive in water such as stock ponds for extended periods of time. This further facilitates transmission from one animal to the next.

What were the results of the survey?

The Leptospirosis survey in beef cows was carried out in California, Texas, Missouri, Florida, South Dakota, and Mississippi. In each state 8-12 herds were randomly selected for sampling. Herd veterinarians collected serum and urine samples from 10-15 cows in each herd and submitted them to a diagnostic laboratory for

sampling. The urine was examined for the presence of leptospires, the serum was assayed to determine previous infection history, and each herd owner completed a questionnaire to identify risk factors. The percentage of herds with at least one cow shedding leptospires in her urine in the six states was 42%. California results were very similar to the national average and 45% of the California herds were determined to be infected with *Leptospira hardjo-bovis*. The risk factors that were determined to be important were higher average temperatures, ponds used as water sources for the cattle, and longer breeding seasons. The higher temperatures and ponds as water sources makes sense from what we know about leptospires surviving outside the animals. The longer breeding season is a “What came first, the chicken or the egg?” question. As Leptospirosis can cause infertility, did the disease cause the need for a longer breeding season or did the longer breeding season allow more time for possible exposure to the organisms? We can’t tell from the present study but both are possibilities.

What should I do to prevent problems from Leptospirosis?

Talk with your veterinarian and specifically review your current vaccination program to be sure you are doing all you can to prevent Leptospirosis. This includes the timing of your vaccines as well as the specific products you are using. The surprisingly high number of herds infected with *L. hardjo-bovis* in California is an added consideration for you and your veterinarian. This particular organism is not in every vaccine and if your veterinarian is concerned about this agent it may be wise to add one of these newer vaccines to your program. Some of the California herds that participated in this study and found they had *L. hardjo-bovis* infections have reported significant improvements using the newer vaccines. If you experience reproductive problems or abortions, be sure to have your veterinarian take samples and get a diagnosis for you. Don’t just assume it is Foothill Abortion or some other familiar disease.

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