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**Lyme Disease in Dairy Cattle**

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In this talk we will summarize findings on bovine Lyme borreliosis gleaned from several studies, some of which are in progress. Lyme disease has been reported in dairy cattle (Post et al. 1986, Wells et. al. 1993, Burgess et al. 1986, Bushmich 1992). The most prevalent clinical sign is lameness; erythematous skin rash has also been described. Serologic diagnosis is hampered by cross reactivity with other flagellated flora, as well as a high level of subclinical infection. Our laboratory has conducted several studies to help define this disease in cattle. Our initial study involved experimental infection of neonatal calves with *Borrelia burgdorferi* (*Bb*) culture. Infected calves developed a positive serological response to *Bb* erythematous skin rash at the injection site from which *Bb* were cultured, and shed live *Bb* in the urine. Aside from the skin rash, they were clinically normal. *Bb* were detected (by culture and/or PCR) in urine of all 4 infected calves, as well as synovial fluid from one calf and blood from another. Necropsy cultures from infected calves were positive for *Bb* in spleen and synovial tissue of one calf, and kidney and bladder of another. Control calves were negative serologically and by culture/PCR. A later detailed case study involves a mature Holstein cow with initial clinical sign of severe lameness. Western blot demonstrated *Bb* specific antibodies, and skin biopsy was *Bb* culture and PCR positive. Physical examination revealed no other cause of lameness. The cow responded well to a short course of oxytetracycline treatment, then became lame again. This cow was then moved to a research facility and treated with alternating penicillin and oxytetracycline for over 50 days. Although she improved clinically and returned to the herd, she became severely lame again 2 months later and was euthanized. *Bb* was found in synovial tissue, lymph node, bladder and uterus at necropsy. Studies of natural *Bb* infection in bred Holstein heifers are presented as a separate poster presentation. Preliminary results of experimental infection of bred dairy heifers with *Bb* infected and non-infected control *Ixodes scapularis* ticks will also be presented.

**Notes:**