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Bovine Virus Diarrhea

As we enter February it may not yet be a new season on the calendar, but we are entering two “seasons” in the cattle world... calving and bull buying season. Flipping through bull sale catalogs, it is not uncommon to see breeders noting that bulls have been tested BVD PI negative. BVD is a big deal to the industry, so today let’s dig in and take a look at this viral disease.

Bovine Virus Diarrhea (BVD) is one of the most significant viral infections of cattle. BVD was first recognized as a disease syndrome in 1946. Most BVD virus (BVDV) infections are subclinical, but the clinical disease can be grouped into three categories: acute BVD, in utero infections, and diseases in persistently infected (PI) animals. Acute BVD can vary greatly in presentation from fever, depression, and runny nose and eyes, to diarrhea to respiratory disease, and can end in complete recovery or death. Infected cattle are more susceptible to many respiratory and intestinal pathogens. In utero infections of BVDV can result in abortion, persistently infected animals, congenital defects, or normal, immunized calves depending on the stage of gestation the cow is in and her immune status when she is infected.

Persistently infected animals can result from in utero infection or by birth from a PI dam. The prevalence of these cattle is low, but their potential to shed large quantities of virus and infect other animals in the herd is tremendous. Persistently infected cows always give birth to PI calves, and cows that have not expressed an immune response to BVDV are much more likely to give birth to PI calves. PI calves often are “poor doers”, and are more susceptible to other calf hood diseases due to the immunosuppressive effects of BVDV. Sometimes, however, PI calves may appear normal and healthy. PI calves reportedly have death rates of 50 percent in the first 12 months of life.

BVDV rapidly loses infectivity outside the host, and is very susceptible to detergents, light, temperature changes and other environmental conditions. It is mainly transmitted by close contact with persistently infected or acutely infected cattle via the oral or nasal routes. Acutely infected animals only shed the virus for about 2 weeks, whereas PI animals shed constantly in all bodily secretions for life. Needles, rectal sleeves, water troughs, feed bunks, and other equipment can aid in viral spread.

Adding persistently infected animals to a herd should be avoided as they are the primary method of introducing BVDV into a herd. Replacement animals should be purchased from herds with accurate records of disease prevention and vaccination. All new animals, such as bulls and replacement heifers, should be isolated and tested for BVDV before entering the herd.

Vaccination programs are essential to decreasing losses to BVD. The goal of any vaccination program is to prevent fetal infection and increase colostral immunity from the mother. This may not always work, depending on the strain of vaccine and the field strain, but it is the best weapon currently available. Vaccination does not clear persistent infections from a herd, but the virus does not spread as quickly through a vaccinated herd.

The two types of vaccine available are modified live (MLV) and inactivated (killed), and controversy exists over which is better. Neither MLV nor inactivated vaccines give lifelong protection, and yearly boosters are required with both. There is no one vaccination program for all situations. Producers should consult their veterinarian for a program tailored to their herd.

The above information comes from the K-State Research and Extension publication “Bovine Virus Diarrhea” MF-2435. This publication is available on the Kansas State Research and Extension website or in your local Extension office. Always work with your local veterinarian on herd health issues.