

Bovine Viral Diarrhea Virus (BVDV)
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I hope that everyone had a great time and was able to take away some helpful tips for your farm at last month's TCA convention. Beef cattle veterinarians also held a meeting in conjunction with the convention and received many positive comments on the gathering of producers and veterinarians in the same meeting. One subject that was particularly discussed in the veterinarian meeting was BVD, and we later discovered that the same exact topic was a point of discussion in the general session of the producer's meeting. I have sent this article out previously, but I think this would be a fitting time to cover BVD again and how to protect your cattle from this disease that can seriously impact your animals.

BVDV

Bovine viral diarrhea virus (BVDV) is a potentially serious problem for cow-calf herds and has been implicated as a cause of infertility, abortions, diarrhea, shipping fever (BVD is a huge factor resulting in bovine respiratory disease), immunosuppression (weakening of the immune system which leads to other disease problems), and much more. BVDV infections are classified into three clinical syndromes: acute (transient) infection, fetal infection, and persistent infection.

Acute Infections

Acute (transient) infections can result in fever, depression, diarrhea, respiratory disease, reproductive problems, and much more depending on the age and immune status of the animal infected, as well as the strain of BVDV involved. Some animals will show no outward signs of illness (subclinical disease), but the immunosuppressive effects of the virus weaken the immune system leaving them susceptible to infection by other diseases. Most animals recover from acute infections, but some animals will die.

Fetal Infections

Acute BVDV infections can occur in a beef cow or heifer, but often with no outward signs of illness (subclinical). However, if she is pregnant her fetus can become infected with a variety of consequences. Fetal infections can occur anytime a fetus is exposed to BVDV, but the result varies depending on the strain of virus and the stage of gestation (pregnancy). Abortions can occur throughout gestation, but birth defects and persistent infections occur during specific time-frames:

1. Infection during the breeding season could result in infertility or early embryonic death.
2. Infection during the first half of gestation could result in abortions or the birth of persistently infected calves.
3. Infection during the second half of gestation could result in abortions, birth defects, still births, or weak calves.

Persistent Infections

Persistently infected (PI) calves are created when a fetus is exposed to BVDV during the first half of gestation. During this time the fetal immune system is not developed enough to respond to a BVDV infection. The fetus might be aborted, but if the fetus survives it will likely develop

into a PI calf. Some PI calves are “poor-doers”, while others may look healthy and grow very well, making it impossible to consistently detect PI animals visually. Most PI animals die by two years of age, but some will survive for several years and constantly shed BVDV throughout their life. The prevalence of PI animals is relatively low (0.4 to 2 %), but their ability to shed virus to other animals is tremendous.

Transmission

BVDV does not usually survive in the environment very long (less than 3 weeks), so direct transmission between animals is the most common route of transmission. Acutely infected animals are a temporary source of BVDV transmission, but PI animals shed millions of viral particles every day. PI animals therefore serve as a constant source of BVDV exposure in a herd because they continuously shed virus in saliva, mucous, tears, milk, feces, urine, and any other bodily secretion. Infected herds must therefore identify PI animals and remove them from the herd.

BVDV Control

Control of BVDV currently involves a combination of biosecurity, diagnostic surveillance, and vaccination. Specific BVDV diagnostic testing protocols will differ from one operation to the next depending on herd goals, herd health history, BVDV exposure risk factors, etc. To help create an effective BVDV surveillance program, next month’s Animal Health column will focus on specific BVDV testing recommendations, including the different types of diagnostic tests available as well as what animals need to be tested. In addition, consult with your veterinarian to determine the best BVDV testing strategy for your herd.

If you have any further questions on this, please feel free to contact me at: lstrick5@utk.edu, or 865-974-3538.