

Is BVD in your herd?

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I often have this picture of these two calves displayed in my cattle health meetings, and I ask; “Which calf is persistently infected with BVDV?” The usual response is; “the one on the right.” Most of the participants say that they answered that way because the calf on the right “looks sick.” While the calf on the right does “look sick”; it is the calf on the left that is persistently infected.

Recently, The Kentucky Department of Agriculture has begun to enforce a law that requires the reporting of animals that are persistently infected with BVD to the State Veterinarian. While Tennessee has not adopted this policy, it is important that the producers of Tennessee understand what role this economically important disease can have on herd production.

What is Bovine Viral Diarrhea Virus (BVDV)? : Part I

Bovine viral diarrhea virus (BVDV) is a potentially serious problem for all cattle operations. It has been a cause of infertility, abortions, diarrhea, shipping fever (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 weakens the immune system leaving them susceptible to 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 (40 – 120 days). 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 contact 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. Identification of PI animals and removal from the herd is key in control of transmission.

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, the next Animal Health column will focus on specific BVDV testing recommendations, including the different types of diagnostic tests available as well as which animals need to be tested. Consult with your veterinarian to determine the best BVDV testing strategy for your herd.