

Bovine Virus Diarrhea: An Important Biosecurity Threat to Your Herd

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Is BVD a problem I need to be concerned about?

An acute BVD outbreak can easily cost a producer \$170 per cow in the herd. These losses primarily are the result of reproductive failures. In the last six months in Georgia, we have seen several herds with BVD problems. One herd of commercial cows lost 11 adult cows, another herd had only 35% of the heifers pregnant after a long breeding period, and another herd had an abortion rate of 23% in cows that were diagnosed pregnant. These are just samples of the reported cases of BVD in Georgia and many cases go undiagnosed and unreported. Therefore, BVD is a serious threat to the beef cattle industry in Georgia and you should be concerned as a producer.

Can't I just vaccinate my herd for BVD and be safe?

BVD vaccines have been extensively utilized over the years. Modified live virus vaccines have been used for some 40 years while the inactivated virus vaccines have been utilized for the past 15 years. While vaccines help, the BVD problem cannot be controlled with vaccinations alone. In a cow/calf operation, the major economic result of a BVD infection is reproductive failure yet there is no vaccine on the market today that protects the fetus. Clearly, we need a fresh look at the BVD threat to our herds.

What is BVD anyway?

Bovine virus diarrhea (BVD) is a disease caused by a virus that most commonly infects cattle, but also may infect other ruminants such as sheep, goats, and deer. While the virus is classified in several ways, there are two basic types of BVD virus (type 1 and type 2) based on viruses isolated from outbreaks in cattle. The virus has the ability to mutate or change rapidly and there is considerable strain variation among isolates of the virus. The current thinking is that it is advantageous to have both type 1 and type 2 BVD viruses in the vaccine we use.

What are the signs of BVD infection?

One of the problems in diagnosing BVD is that it affects so many different parts of the body. Most BVD infections do not produce any obvious clinical signs in adult cows. What we see with a BVD infection depends on the age of the cattle, immune status (resistance) of the herd and the type of BVD virus involved. BVD has two categories of infection: fetal or reproductive and acute BVD in cattle. The acute form is when adult cows die of a sudden severe diarrhea. This is what occurred when the type 2 BVD was first identified in the US. The signs of the reproductive form depend on the stage of development of the fetus at the time the cow is exposed to the virus. If the fetus is exposed in early development, the fetus may be absorbed and the cow will look she just did not settle. If exposure to the virus occurs later in fetal development, abortions might occur or the calf could be born weak and die shortly after birth. If the fetus survives the infection, it could be born with a brain defect, blind or persistently infected with BVD virus. Because the fetus is developing its nervous system at about 150 days of gestation, BVD causes brain and eye problems in calves that were exposed in that time frame. A BVD persistently infected calf occurs when the cow is infected with BVD when the fetus is less than 120 days along. This is the time period when the fetus' immune system is developing. While the cow may not show any signs of BVD, the virus easily crosses into the

uterus and gets into the fetus. Because the fetus has not developed its immune system at that time, the fetus accepts the BVD virus in its body as being "normal" and will not develop any immunity to it. Therefore, when the calf is born it has a BVD infection and will never develop resistance to it. These persistently infected calves may look normal but they are shedding BVD virus from every part of their body. When they breathe, urinate or cough they shed BVD to all of the other cattle they are around. These persistently infected calves have been identified as the main source of BVD infection in many cattle herds. If these calves are exposed to a different strain of BVD later in life, they develop an acute form of BVD called mucosal disease. In this form of BVD, the calves develop a diarrhea, oral ulcers and die from the infection. BVD has also been shown to decrease the effectiveness of the immune system in adult cattle making them more likely to become ill from any number of diseases.

So how do I protect my herd against BVD?

Most herds do not currently have a BVD problem and should concentrate their efforts on keeping BVD out of their herds. If your herd is experiencing a low reproductive rate or you have occasional calves born blind or with brain problems, you should ask your veterinarian to send in samples to identify your problem. Research has shown that the single most important factor in controlling BVD is to identify and eliminate persistently infected calves. This approach was used in Denmark and they have eradicated BVD from the entire county. Purchasing new cattle is the most common way BVD is brought into a herd. When cattle are purchased, it is recommended they be isolated from all other cattle in your herd for 30 – 60 days. During that time, new cows, heifers, or bulls should be tested to see if they are persistently infected with BVD, and they should be vaccinated for BVD, IBR, and Lepto, and dewormed. Herd vaccinations for BVD do protect cattle from BVD infection and BVD should be a part of a routine vaccination program.