
BVD

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Bovine Viral Diarrhea, or BVD, is caused by a virus which can cost the cattle industry \$35 to \$65 million from every one million calves born each year, according to the National Animal Disease Center. Only five percent of those animals infected with BVD show clinical signs. The other 95% that become infected may not show signs

directly from the BVD virus, but will cause the animals' resistance to other infections to be reduced. The disease can cause several different types of diseases, depending on which cattle it affects. As a reproductive disease, it has a huge economic impact causing early embryonic deaths, fetal abnormalities, abortions, and the birth of BVD persistently infected (BVD-PI) calves. These calves can shed the disease and infect other animals. BVD has also been identified as one of the most significant organisms causing respiratory disease in cattle. Subclinical infection of BVD, or an infection that we cannot see, allows the cattle to become more susceptible to infection from other disease organisms. The symptoms seen are a result of the secondary infection rather than BVD.

Transmission: The BVD virus is introduced into a herd by an infected animal or a healthy animal that is persistently infected with BVD (BVD-PI) and shedding the virus. The virus is easily transmitted through the air or by direct contact of an infected animal with a noninfected animal via bodily excretions such as manure, saliva or nasal discharge.

Symptoms: Signs of BVD are dependent on the immune status of the exposed animal. The incubation period is three to five days. There are three types of BVD: peracute, acute and chronic. Animals with peracute BVD will have high fevers (107-110 °F), occasional diarrhea, respiratory disease and loss of appetite. It can affect cattle of all ages and often results in death within 48 hours of onset. Acute BVD usually occurs in animals 6 to 24 months of age and is less severe than peracute BVD. Animals with acute BVD may have a fever of 104-106°F, yellow discharge from the nose and eyes, erosions of the muzzle or mouth, bloody or mucous-like diarrhea. However, most animals survive acute BVD. Chronic BVD is associated with a prolonged infection. The symptoms are similar to acute BVD, but more severe. The chronically infected animals appear rough-coated and starving and the result is usually death.

BDV-PI: The most severe problems as a result of BVD occur when pregnant cows or heifers are infected within the first 125 days of gestation. When pregnant cows or heifers are exposed to BVD within the first 125 days of gestation, the BVD virus can cross the placenta and infect the fetus. If the fetus survives, the immune system of the fetus then recognizes the

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BVD virus as a natural part of the calf's body and makes no effort to eliminate the virus. The calf is born with a detectable antibody titer and is "persistently infected" (PI), meaning it is infected with the BVD virus. The BVD-PI calf may be weak at birth, grow poorly, be susceptible to respiratory diseases and often die at an early age due to a secondary disease such as pneumonia. However, the BVD-PI calf may appear normal and grow normally, reach breeding age, and produce more BVD-PI calves. What is so detrimental about the BVD-PI calf is while it may appear healthy in the herd and go unnoticed, it is carrying the BVD virus and continually shedding it via manure and/or secretions from the nose or mouth infecting other susceptible herd mates. BVD-PI animals are a major source of BVD infection in dairy herds.

If the cow becomes infected with BVD 150 days or later in gestation, most calves develop an antibody response to the BVD virus and eliminate it from the body. Once a calf is born, it cannot become persistently infected.

Under special circumstances, a BVD-PI animal can become sick from a second strain of BVD. The clinical signs of Mucosal BVD are similar to the chronic BVD but are more severe with little chance of recovery from the disease.

There are two types of tests that can be utilized to screen for BVD-PI animals. The easiest test for the dairy producer is to take an ear notch from the calf using pig ear notchers and submit the sample through the herd veterinarian to a diagnostic lab. The second way is to collect a blood sample. Once an animal is identified to be persistently infected, it should be culled from the herd immediately to prevent the spread of the disease.

Treatment and prevention: Since there is no effective treatment for BVD, prevention and control are the keys to managing BVD. Work with your herd veterinarian to implement a strict biosecurity plan which includes:

- Maintain a closed herd
- If purchasing animals:
 - Purchase only open animals that are known to be BVD-negative before purchase
 - Quarantine all new purchases from the rest of the herd up to 21 days
 - Test all purchased animals for BVD-PI
- Screen all calves for BVD-PI
- Eliminate all animals identified as BVD-PI
- Protect pregnant animals during early gestation from potential sources of infection
- Increase resistance to the disease by:
 - Maximize colostrum management program for calves
 - Initiate a vaccination program using modified live (requires one shot) or killed vaccine (requires two doses to initiate a high level of resistance followed by an annual booster). Consult your farm veterinarian for the proper vaccination program for your farm.
 - Reduce stress on cattle caused by other diseases

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