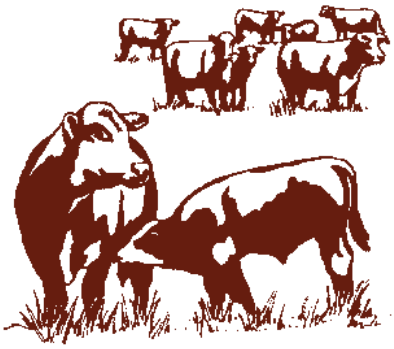
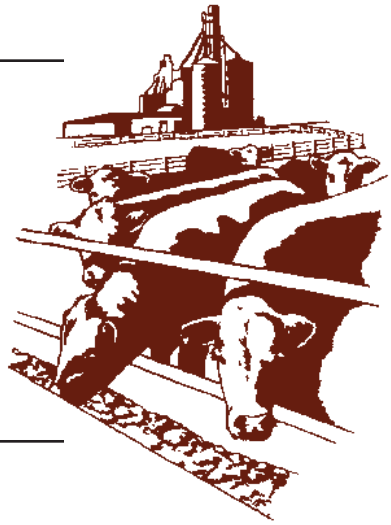


Beef Cattle Handbook



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BVD-MD Infection

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Bovine viral diarrhea-mucosal disease (BVD-MD) virus is one of the world's most significant viral infections of cattle. At least two different serotypes of the virus are implicated in the disease. One serotype causes diarrhea, reproductive disorders, and immune suppression; a dual infection with both types causes the acute form of mucosal disease.

Epidemiology

Serologic surveys in the northwest have detected BVD-MD antibodies in 60 to 90 percent of the cattle population, indicating a widespread subclinical infection caused by the virus.

In vaccinated herds, calves are usually born free of BVD-MD antibodies and receive antibodies from the colostrum of the dam at first suckling. These antibodies survive a relatively short time and reach undetectable levels by 3 to 8 months. After this time, unvaccinated calves are susceptible to infection from BVD-MD.

Persistent BVD-MD infection is possible even in a closed herd. Though adults may be protected through exposure to the field strain, 1 or 2 percent of the animals may actually shed the virus, thereby acting as a reservoir of BVD-MD infection for the rest of the herd.

The subclinical form of the disease may also have significant consequences. Research has shown that BVD-MD infection causes immune suppression. This suppression of the animal's immune system may cause infected animals to become highly susceptible to secondary diseases, especially pneumonia.

Enteric (Diarrhea) Disease

Enteric disease from BVD-MD may be acute or chronic. Cattle suffering from the acute form develop a fever, go off feed, drop in milk production, and then develop diarrhea. In other cases, congestion and ulceration of tongue, gums, and other mouth tissues may occur. Ulceration may also occur on the eye, teats, feet, vulva, or prepuce. During this time the virus may be found in the nasal passages, feces, eyes, and lungs. Many times these animals do not have antibodies for BVD-MD, thus making serology an unreliable diagnostic tool. Cattle suffering from the acute form seldom live; if they do, some develop the chronic form of BVD.

Cattle that are chronically affected show signs of intermittent diarrhea, bloat, lack of appetite, and depression. Treatment for this form of the disease is usually supportive. Fluid replacement therapy to counteract dehydration from diarrhea and antibiotics to counter secondary bacterial infections are recommended. Treatment is seldom successful. Cattle that survive are usually stunted and develop chronic problems.

Reproductive Disease

The BVD-MD virus in a pregnant cow infects the fetus and may cause reproductive disorders depending on the virus strain and the time of infection during the gestation period.

Infection during the first 3 months may cause fetal death and abortion. Experimental information seems to indicate that the incidence of this occurrence is not high. Seronegative (having no BVD-MD antibodies in their blood) cows given BVD-MD virus at the time of breeding did not have a lower conception rate (65 percent) than the seropositive control cows (60 percent).

Infection from the 3rd to 6th month of pregnancy usually causes birth defects, not abortion. These defects include degeneration in the brain and optic systems. Some researchers believe that calves at this stage may become tolerant to BVD-MD and discharge (shed) virus throughout their lifetime. Infection of the fetus during the final 3-month period usually results in active immunization by the calf—therefore it develops antibodies to BVD-MD virus.

Immune System Effects

BVD-MD virus may suppress the immune system in the affected animal. This has some clinical significance. Both the field strains and the modified-live vaccine strains can cause immune suppression. Further, research has demonstrated that BVD-MD infection before an IBR infection results in a prolonged recovery from the IBR infection. Other research has shown that calves infected with BVD-MD virus had a higher percentage of bacterial infections than non-infected calves, and that subclinical BVD-MD is associated with an increased incidence and severity of shipping fever.

Recommendations for Prevention

Prevention programs must be tailored to lower the health risk to cattle as well as fit with the type of operation involved (i.e., cow-calf and feedlot).

Basic recommendations for good health are:

1. Avoid overcrowding, stressing, and mixing of cattle.
2. Isolate newly-purchased and sick cattle from the herd.

Using a modified-live BVD-MD virus vaccine is a controversial subject. Using modified-live vaccine tends to stimulate higher immunity, but can result in outbreaks of the disease following vaccination. Caution should be used in vaccinating very young animals or highly stressed animals. Modified-live vaccines are not to be used in pregnant animals. Use of a killed virus vaccine will reduce the risk associated with BVD-MD vaccination, but the resulting titer of antibodies may not be as high as desired.

The controversy surrounding BVD-MD vaccination makes it difficult to give specific recommendations. You should consult your veterinarian regarding the most appropriate recommendations for your particular situation. The following procedures are suggested:

1. Vaccinate cows and heifers 30 days before breeding.
   a. To help prevent infection of the fetus during the first 6 months of gestation.
   b. To provide antibodies in the colostrum for the newborn calf.

2. Vaccinate young stock twice between 6 and 10 months of age.
   a. Passive antibodies decrease to a low level at this period and will allow active immunization.
   b. Avoid stressing the cattle at this time.
   c. Adverse reactions may occur when using a modified-live vaccine in feedlot cattle.

3. Vaccinate replacements to the herd. An initial dose and booster dose 15 to 30 days after are recommended.

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