

# Vet Call

## Abortions due to IBR and BVD

by **BOB LARSON**, professor of production medicine, Kansas State University

### Abortions due to IBR and BVD

Protecting breeding herds from diseases that can cause abortions is an important goal of biosecurity and vaccination programs for cow-calf ranches. One aspect of protecting the breeding herd is the investigation of abortions in order to identify the cause of the problem, or — often equally important — to determine that certain abortion-causing agents are not likely to be involved in the current problem.

### Pattern of losses

It is often difficult to identify the cause of abortion from a single cow/fetus. A thorough investigation is required to have a reasonable chance of success. The first step in an abortion investigation is to establish the pattern of losses for a herd by examining as many calves by necropsy as possible.

Both you and your veterinarian should keep a written record of abortions or early calf death, recording the number of deaths or abortions. A complete history backed by accurate records allows veterinarians to identify the vaccination program, nutrition during pregnancy, herd exposure to other animals, previous problems, and management practices that affect fetus or calf survivability.

By examining records and history, your veterinarian can determine at what stage of pregnancy the abortions are occurring, risk of abortion by age group (heifers vs. young cows vs. mature cows), and any seasonal pattern to finding aborted fetuses.

Consider the following important information: the vaccination history, movement of cattle into the herd, recent diseases or toxin exposure, access to plants that can cause abortions, whether aborting cattle were bred by artificial insemination (AI) or natural service, and type of feed and pasture. While the history is very important to help direct the diagnostic effort, it is important not to eliminate a disease from the list of possibilities because of history alone. For example, a history of vaccination against a particular disease does not remove that disease from the list of possible causes, because many agents can cause abortion in spite of previous vaccination.

Necropsy examination of as many aborted fetuses as possible allows the best

opportunity to isolate a cause for abortions. The fetus and the placenta should be sent to the nearest diagnostic laboratory, or your veterinarian should perform as complete a necropsy as possible and then cooperate with a diagnostic lab for further testing. The likelihood of success for a diagnostic laboratory to identify an infectious cause of abortion is highest when the fetus, placenta, maternal serum, serum from 10 in-contact cows, and vaginal discharge (if present) are all examined.

### Common culprits

Two important viral causes of abortion are infectious bovine rhinotracheitis (IBR) and bovine viral diarrhea (BVD).

**IBR.** IBR is a herpes virus and, like similar viruses in humans and other animals, carrier animals with latent (hidden) infections are common sources of infection. IBR is considered to usually invade the dam through the respiratory tract and is a major cause of bovine abortion in many parts of the U.S.

Abortions due to IBR typically occur from 4 months of pregnancy to term. Often, no other signs of illness except abortion are noted in infected cows. The source of infection is often weaning-age calves that show symptoms of respiratory disease and/or watery eyes. IBR or BVD as a cause of abortion can sometimes be confirmed by diagnostic laboratory examination of fetal tissues — especially if tissue from a freshly aborted fetus can be examined.

**BVD.** BVD can cause either an occasional abortion or in some situations, a moderate to high loss, depending on the number of susceptible cows, the prevailing stage of pregnancy of the herd, and the virulence of the virus. The BVD virus invades a pregnant cow either through the respiratory tract or by mouth. Most BVD-induced abortions occur in the first trimester, but they can occur later in pregnancy. In addition to abortion, BVD can also cause stillbirths, calves born with birth defects, or the birth of weak calves that die early in life.

The source of BVD virus is usually persistently infected (PI) calves — calves that are born with a lifelong BVD infection that developed when the calf was still a fetus and less than halfway through gestation. In

addition, temporarily infected (TI) cows, yearlings or calves with the respiratory form of the disease can also spread the virus to susceptible cows.

Because BVD will suppress the immune response in cows, some researchers contend that infection with BVD virus may also cause abortions by allowing a dam to be infected by germs that would normally be cleared from the body without causing harm.

### Vaccination, testing

To decrease the risk of pregnancy wastage from these viral diseases, nonpregnant heifers should be given modified-live virus (MLV) vaccines two or more times from weaning to 6 weeks before breeding. Although MLV IBR/BVD vaccines do not likely require a booster to induce a protective response, it is recommended that vaccinations be repeated two or more times because one does not know if nutritional or host factors interfering with immunization are present. Multiple vaccinations allow the maximum number of heifers to develop active immunity to the vaccination. Adult cows may benefit from annual IBR/BVD booster immunizations.

Testing all purchased replacement bulls and females to determine if they are persistently infected with the BVD virus can be done with either a blood sample or tissue sample (usually a skin biopsy from the skin of the ear), and is an important component in controlling BVD on many farms and ranches.

Because the fetus in a pregnant heifer or cow serves as an important risk for bringing BVD into a cow herd, pregnant replacement cattle should not be calved with the original herd and should be separated until the calf can be tested for PI status after being born. Only when the calf is confirmed to not be PI should the calf and dam be admitted to the breeding herd.



E-MAIL: [rlarson@vet.ksu.edu](mailto:rlarson@vet.ksu.edu)