

Bovine viral diarrhea virus (BVDV) can cause a variety of problems for cattle producers. One of the most important problems associated with this organism is the development of what is known as persistent infection. Persistent infection means that an animal is already infected with the virus when it is born and it remains infected throughout its entire life.

Persistent infection with BVDV can only occur when a specific set of conditions are met. First, only certain strains of the BVD virus can cause this type of infection. Second, the infection must occur at a specific time during pregnancy. A bovine fetus must be infected sometime between 40 and 125 days of gestation in order for persistent infection to occur. Finally, in order to infect the fetus, the virus must be able to cross the placenta to get to the fetus. If the cow has strong immunity to BVDV, her immune system can stop the virus before it can infect the fetus.

During this specific period of pregnancy, the immune system of the fetus is not developed. If BVDV infects a fetus during this time, the developing immune system thinks that the virus is a normal part of the calf and does not recognize it as abnormal. For the rest of that calf's life, its immune system will think the presence of the virus is normal.

Many persistently infected calves are born weak and do not survive the first few weeks of life. Most of the ones that live beyond this period fail to thrive and do not grow well. However, there will be a small number of these calves that appear to be perfectly normal and can have calves of their own. These animals are the ones that are the biggest risk to other cattle because they appear to be just another healthy calf.

An animal that is persistently infected with BVDV poses a significant health risk to other cattle. These animals shed huge numbers of infective virus particles in every body secretion. Bulls can shed the virus in their semen. Every calf born to a persistently infected cow will also be persistently infected.

Researchers have shown that just being in the same pen with a persistently infected calf can reduce the performance of calves in a feedlot. Additionally, BVDV interferes with the function of the immune system and can make otherwise healthy calves more susceptible to other infections such as pneumonia.

There are several testing strategies available for identifying persistently infected cattle. Preventing persistent infection is best achieved by identifying and removing infected animals, effective herd vaccination, and biosecurity. Your best defense is active involvement of your veterinarian in management of livestock diseases. You can also contact the Oklahoma Animal Disease Diagnostic Laboratory or the OSU Veterinary Teaching Hospital for additional information.

This column is provided by the faculty of the OSU Boren Veterinary Medical Teaching Hospital.

###