



Stop BVDV PI before it hits hard

Neogen®'s genomics laboratory provides highly accurate testing to identify calves persistently infected with Bovine Viral Diarrhea Virus (BVDV) so that they can be removed from the herd as sources of transmission of infection and losses.

Financial impact of the presence of BVDV on the premise:

- BVDV infection very significantly impacts all segments of the industry by causing reproductive losses including conception failure and abortions, high preweaning mortality, unthrifty calves, premature culling, diarrhea, respiratory illness, and death.
- A cow infected with BVDV can cost producers up to \$60. In the feedyard, an individual BVDV-infected animal can cost \$7.60 per hundredweight of gain or approximately \$30 if the animal is expected to gain 400 pounds.¹
- BVDV persistently infected animals become infected as a fetus, during the first trimester of pregnancy. Once they are born, they continuously shed very high amounts of BVDV for the entire rest of their lives. Shedding occurs in all body secretions, including urine, semen, saliva, respiratory secretions, and manure.²
- The losses from this fetal infection include abortions, congenital defects, weak and abnormally small calves, increased death rate, and the potential creation of PI calves in the next calf crop. During outbreaks of acute BVD, financial losses were estimated to be \$50 to \$100 per cow in the herd.³

“The key source of BVDV infection is the BVDV PI animal. PI animals are the result of fetal exposure to the virus prior to the development of its immune system approximately between day 18 and day 125 of gestation. Exposure to the virus prior to day 18 may result in embryonic death and apparent infertility, while exposure after day 125 is more commonly associated with abortion, stillbirths or congenital abnormalities. BVDV not only lessens reproductive performance but also produces disease in cattle including diarrhea, respiratory insult, mucosal ulcers, and death. The virus suppresses the immune system, making the animal more susceptible to infection by other viruses and bacteria. Therefore, those infected with BVDV are less likely to recover.”

*PUTTING BVD CONTROL ON YOUR RADAR SCREEN,
Jim Kennedy, Colorado State University Veterinary Diagnostic
Lab, Proceedings, The Range Beef Cow Symposium XIX,
December 2005.*

A calf persistently infected with BVDV can appear completely normal and grow up to breeding age. It will, however, never be able to get rid of the virus and will constantly shed large numbers of infectious virus into its environment.

- Any time the presence of BVDV on the premise could be suspected, testing makes economic sense. Persistently infected animals are the most important source of transmission of BVDV and, once identified, can and should be removed from the herd. Negative test results will increase peace of mind.
- Producers may use the BVDV PI test for a number of reasons, either as general screening tool, to add value to feeder calves, or as part of a comprehensive herd health protocol.





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Testing for persistent BVDV infection:

Producers can send different sample types (Allflex TSUs or hair follicle cards). Both sample types can be used to test for BVDV and also to order a genomic profile at the same time.

In the persistently infected animal, the virus can be found in all tissues (including in the skin) whereas in the acutely infected animal, the virus is in the blood only. The recommended sample types for testing are:

- Allflex Tissue Sampling units (small tissue pieces from the ear)
- hair follicles (hair pulled from the tail switch and placed in a hair card)

Depending on the sample type, two different BVDV PI tests are run at the lab. The processing for both allows subsequent genomic testing from the very same sample.

Allflex TSUs are the preferred sample type. They are also very strongly recommended for testing baby calves, whose hair follicles, even when collected correctly, are often too small for successful genomic testing.

Sample quality is very important for good results:

- When collecting samples into the Allflex TSU, the collector needs to make sure that there is a good-size tissue piece visible inside the vial.
- When collecting hair follicles, hair from the tail switch is preferred and the collector needs to make sure there are visible follicles at the end of the hair shafts. A good hair sample should have 30–50 hairs with good follicles.

The BVDV PCR for hair follicles was validated with samples from known-positive acutely and persistently infected animals and from known-negative animals. The BVDV ELISA for Allflex TSUs has been extensively used in the field. Both tests are very sensitive and can detect even very small numbers of virus particles in a sample.

In the case a sample tests positive for BVDV, the lab will conduct follow-up testing to confirm the BVDV PI status at no charge. Follow-up samples requested will be a fresh ear notch and whole blood collected in a purple-top tube.

Neogen's GeneSeek Operations lab is accredited by the American Association of Laboratory Accreditation to the internationally accepted quality standards of ISO 17025 and both BVDV tests are under the scope of accredited testing. For more information and the certificate please visit www.a2la.org.

1. Kennedy J. PUTTING BVD CONTROL ON YOUR RADAR SCREEN. Proceedings, The Range Beef Cow Symposium XIX. December 2005.
2. Academy of Veterinary Consultants Technical Brief. BVD (Bovine Viral Diarrhea) Virus Control and Eradication. Cow/Calf Production: Version 1.0. 2006.
3. USDA, BVD Info Sheet, Veterinary Services, Centers for Epidemiology and Animal Health, Dec. 2007.



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