



BVD Testing

BVD should be taken seriously, so it doesn't negatively affect your herd.

by Heather Smith Thomas

BVD (Bovine Viral Diarrhea) virus is a tricky pathogen that can affect cattle in many different ways. It can cause abortion, mummification of a fetus, birth defects, stillborn full-term calves, normal looking calves with immune deficiencies, and acute or chronic illness. BVD is an indirect cause of numerous other types of disease because it has adverse effects on the immune system. An estimate 20 years ago stated 80% of cattle in the U.S. at that time had been exposed to BVD and 70 to 90% of infections go undetected, without visible symptoms. The only clue BVDV (Bovine Viral Diarrhea Virus) is in your herd may be poor reproductive rate due to pregnancy losses or a higher than normal rate of sickness in calves.

Acute infection, in which a naive animal becomes exposed, triggers an immune response. The body fights off the infection and recovers. This form of BVD is not as much of a concern as persistent infection — in which the animal can never get rid of the virus. PI

(persistently infected) calves are the result of the dam coming into contact with a certain biotype of BVDV during early pregnancy, before the fetus' immune system is fully developed. With this type of fetal infection, the calf is born carrying BVD, and its body can never rid itself of the virus because it cannot recognize it as foreign and, therefore, does not

mount an attack against it.

Acute infections can raise havoc in a herd, resulting in abortions, sick calves and poor performance such as a drop in milk production, less weight gain, reproductive inefficiency and lowered resistance to other

diseases. Persistent infection is the silent, sneaky thief. A PI animal continues to shed the virus throughout its life and is a constant source of infection for the rest of the herd.

Testing

There are several tests a producer can utilize to detect cattle harboring BVDV. Testing for PI

show facility grounds. Seedstock producers who routinely do BVD-PI testing of the cattle they sell build confidence with their customers. Buyers can be assured of this important health verification status of these animals.

Christie Mayo, DVM, a diagnostic virologist at Colorado State University, says it can be a challenge when BVD comes into your herd with a pregnant heifer.

“If she was exposed to the virus in the first trimester, she is at high risk of giving birth to a PI calf,” she explains. “Those calves can look normal, though sometimes they may seem stunted.”

She notes the first indication BVD is present could be higher abortion rates, reproductive problems and some PI calves. The virus can be a silent problem for a while but turn into a huge obstacle quickly.

She says to avoid this issue, producers should test all new animals entering the herd. Good biosecurity programs including

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infection is crucial for seedstock producers to assure none of their animals are carrying BVD. All cattle on exhibit, showed or sold at the National Western Stock Show, for instance, must be tested and confirmed negative for BVD-PI in order to enter the



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quarantine until the test results come back are the best tools.

“If you buy cows or pregnant heifers, or cattle from a sale, quarantine them and do the appropriate testing of both the dams and calves before integrating them into your herd,” Mayo advises. “There are several tests that can be used, including PCR and antigen-capture ELISA. The PCR assay is a bit more expensive, but we can pool a group of ear notches, making it a more cost-effective choice.”

Producers looking to send in ear notches for the PCR (Polymerase Chain Reaction) test should keep the samples separate and labeled with individual animal identification. Mayo says by producers doing this, technicians are better able to identify the cattle which are positive for BVD.

In addition to the PCR test, producers can opt to for the ELISA test. Mayo says this option is effective while also being fairly cost-efficient. Both options are viable for producers, and Mayo says the classic test is still offered, but PCR and ELISA are the most popular options today.

“There are still applications for this test, but the antigen-capture ELISA and PCR tests have increased in popularity and speed of turnaround time,” she says. “The advantage to using the ear notch is the ease of collection while offering a sample that is accurate for testing.”

Among options, Mayo described one more test available called serum neutralization. She says with this test, technicians can see if there is an antibody titer, but, unfortunately, the presence of antibodies only indicates there has been exposure. She says with this test, there is not a clear answer if the calf has an active infection because the titer may be from the vaccine.

“The titer can be useful sometimes, however,” she says. “We may have a producer who is not sure whether the vaccine worked. They may send a serum sample and I’ll do what’s called serum neutralization (SN). Then I can tell if there is a robust titer to BVD type I and II and we’ll

know the vaccine did work to produce antibodies.”

Mayo recommends the ELISA or PCR test to determine if the calf carries BVD versus just exposure or a titer from vaccination.

Spreading BVD

Mayo advises consulting a veterinarian to identify the most effective method and timing for the next steps once problems are detected in a herd. She stresses if BVD is found, the animal should be culled immediately.

“These animals generally don’t thrive,” she says. “Most ranchers get rid of them. If a positive animal is found, some ranchers feed it out to butcher. The worst thing you can do is take it to the sale — because then it generally becomes someone else’s problem.”

Ideally the positive animal will be culled from the herd and potentially go to slaughter, but if

a producer takes it to the auction, someone else might buy it to put with a group of stockers or feeder cattle or to add to his/her cow-calf herd, ultimately bringing BVD into that individual’s ranch.

“We strongly emphasize to producers that they should not pass BVD along to the next person,” Mayo says. “For instance, we call the infected pregnant heifer the Trojan horse heifer because you don’t know what’s coming. Quarantine

until appropriate testing of heifers and calves is complete can make all the difference. If you are buying something at a sale barn, realize it’s at your own risk.”

Mayo says bringing a PI animal onto your place can create a disaster because PI animals are a virus factory, shedding a great deal of virus into the environment. She recommends aiming to prevent PI calves at all cost and strongly stresses the importance of testing yearly and correctly with PCR or ELISA. She says with implementation of a good vaccination program and testing of incoming animals, the herd should remain free of BVD.

Mayo notes in a case where a herd does stumble upon a problem with BVD, it is crucial the producer takes action quickly, and she assures there are tools out there to help.

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“Having judicious biosecurity and then virus-testing calves soon after birth remains the most practical way of assessing neonate BVDV status,” she explains. “After that, you may have to make some decisions regarding culling of positives. It may take a few years to turn it around, but a good testing program combined with a good vaccination program can help. A BVD wreck can put a producer out of business, but we

do have the tools to clear it up, though it takes time and money.”

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continued on page 66...



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...BVD Testing continued from page 65

BVD in your herd

Charlie Davis, DVM, Colorado State University diagnostic lab coordinator, agrees BVD testing should be a part of every good management program.

“Seedstock producers have to do it, for obvious reasons, but commercial producers need to do this, too,” he stresses.

He recalls a producer about a year and half ago who came across PI in his herd and noted how challenging it was to not take advantage of the high cattle prices and just sell the steer at the sale barn. He ultimately made the ethical decision in slaughtering the calf for his family’s own consumption, but not all producers make that call.

Davis says he strongly discourages producers from taking a PI calf to the sale barn because then the problem will infect another herd. For example, he says in another situation, he found a feedlot calf positive for PI. At the request of the owner, the calf was sold at the sale barn. Coincidentally, the owner was also purchasing a load of calves at that sale and inadvertently purchased his PI calf back.

He says this example illustrates that a person can pick up BVD by buying cattle at a sale barn or by purchasing untested cattle

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privately and, again, stresses the importance of taking precaution.

“Testing is essential, along with education of producers,” Davis says. “Many ranchers are aware of BVD and have a working knowledge about it, but there is still a great need for more education — not only with some of the ranchers but also some of the veterinarians. There are practitioners who are not up on this disease as much as they should be.”

The reason being, BVD was not a big concern to the industry years ago, so he says many veterinarians are just not familiar with the idea or the seriousness.

However he did say, a professor once shared with his class that BVD is multifactorial in that the immune system is suppressed and makes the animal more susceptible to other diseases. Because of this susceptibility, Davis recommends producers take BVD seriously when managing health in their herds.

“Ranchers and veterinarians cannot and should not lump BVD into a general health program,” he says. “It’s imperative for individual ranchers to sit down with their veterinarians and go over their entire program.”

He says what works for one operation may not work for another because management of BVD is situational. Another thing to keep in mind for producers is that BVD can be spread on public range and even by across-the-fence contact on private property.

“For instance, on one range unit we have three cooperators who get along well, but it’s human nature to not want other people to know all the details of your herd,” he explains. “We may have some issues there. Even when you are as careful as possible, you can still be challenged by animals across the fence or some that get in with your cattle.”

Davis says producers can’t always choose their neighbor or the way he manages his cattle, and

he may not have a good health program, so that poses another challenge to some producers.

Along with the challenge of comingling cattle, Davis says that with some ranchers not finding BVD in their herds after years of testing, they no longer find it necessary to test and try saving money by not. Fortunately, Davis says testing is becoming more economical and available to ranchers in this scenario.

“There are also some different opinions on pooling samples. It’s been a money-saving tactic for ranchers, and we do a lot of it here at CSU,” he explains. “I think it’s valid and accurate, and being able to save money might be more incentive for a rancher to do the testing.”

With more ranchers taking advantage of this type of testing, Davis says it is crucial ranchers do not attempt to do the pooling at home.

“Identify those samples individually, put them in the freezer, and send them as a group, and we can pool them here,” he explains. “Then if we have 200 animals in eight pools and only one pool includes a positive, then we don’t have to retest them all.”

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Charlie Davis, diagnostic lab coordinator, says ranchers taking advantage of BVD testing should identify samples individually and allow the lab to perform the pooling process.