

# Quality BVD Testing

Researcher stresses the need for high-quality testing, despite the costs.

by Kasey Miller

**H**ow important is quality?

Bill Johnson, pathology professor and director of the Oklahoma Animal Disease Diagnostic Laboratory, asked the question to the Emerging Health Committee at the 2012 Cattle Industry Convention. Beef producers know that consumers demand quality, but producers should also demand quality, especially when disease testing.

Johnson said skipping on the cost of bovine viral diarrhea (BVD) testing by running tests on pooled samples can significantly reduce the quality of the results.

He explained that there are four different types of tests for BVD: virus isolation, antigen capture ELISA testing (ACE), polymerase chain reaction (PCR) and immunohistochemistry (IHC). Virus isolation, ACE and PCR all use

serum or an ear notch from a calf, while the IHC uses an ear notch in formalin.

Unfortunately, all of these tests on individual samples are pretty costly, and not much can be done to make virus isolation and IHC cheaper. Technically, ACE and PCR can be pooled to lower cost, Johnson said, but ACE was not made to be pooled, and the manufacturer advises against it.

He explained using as an example a study done on pooled PCR tests. On 2,424 stocker calves, two ear notches were taken from each calf and one notch per calf was sent to two different labs — one to do an ACE with one calf per test, the other to do a PCR pooling 28 calf samples per test. The ACE test identified 12 calves positive for BVD. The pooled PCR identified only four positives. The 12 positive

by ACE were then tested by PCR using only one calf per test, and all 12 were found positive.

The pooled PCR tests did not detect 67% of the positive samples, meaning that price was lowered by performing pooled tests, but quality was also lowered considerably. Is the saved money worth eight missed positive calves? Johnson said he feared that many cattlemen would grow frustrated with the lowered accuracy and quit testing altogether.

“What’s important? Obtain a good understanding of what test methods are being performed and know the limitations of that method,” he recommended. By knowing the kinds of test methods available, producers can decide whether speed, price or accuracy are the most important factors and choose a test accordingly.

In order for any diagnostic test to be performed by a laboratory accredited by the American Association of Veterinary Laboratory Diagnosticians (AAVLD), the test must meet rigorous criteria for quality. This means that the test must have recognized consistent procedures that have been performed against known positive and negative samples and that consistent results have been found.

There must be records of all work performed on a test to include who did the work, reagent or test kit lot numbers, and equipment used performing the test. The test must also be performed by a person with documented competency for that test. The laboratory performs annual audits on each test section and the AAVLD does inspections every five years using peer auditors from outside accredited laboratories.

There are many AAVLD accredited labs across the country. All AAVLD accredited labs across North America are associated with a veterinary college, animal science department or a state department of agriculture.

Johnson concluded by quoting Donald Rumsfeld: “There are known knowns ... there are known unknowns ... and also unknown unknowns.” The goal is to decrease the number of unknown unknowns and not sacrifice quality in the process.



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