

# TESTING METHODS TO ELIMINATE BVDV FROM A CATTLE HERD

## FOR CALVES < 4 MONTHS:

Calves < 4 mo. of age should be tested with the PBS/Serum ELISA. Calves > 4 mo. may be tested with the PBS/Serum ELISA or with the BVDV Rapid ELISA (see below). **All calves in a BVDV infected herd must be tested.**

## **PBS/SERUM ELISA**

Collect a sample of skin from the edge of the ear OR collect serum. The skin sample must be 1 x 1 cm. or larger. Place the skin in a 10 ml red top tube containing 2 ml of 0.1 M phosphate buffered saline (PBS) pH 7.4. Be certain all tubes are individually labeled with animal ID number. The samples must remain cool (in a cooler with ice packs is fine) while sampling is taking place. The samples should be immediately sent to the laboratory (same day if possible) or held in the refrigerator and shipped the next morning on ice packs. Ear notchers work fine for sampling. It is imperative that the sampling device be flamed between animals. Flaming prevents BVDV contamination from occurring between animals.

Positive animals must be isolated from all herd mates. Since there is no one-time diagnostic test presently available to distinguish between persistently and acutely infected animals, it is necessary to retest positive animals in 3 to 4 weeks from the original sampling date. For the 2nd test, a purple or green top tube of blood should be submitted for virus isolation (VI) from each positive animal. If the VI is negative, the animal was **acutely** infected and cleared the virus during the 3-4 week isolation period. Those animals that were acutely infected and have cleared the virus may be returned to the herd. Animals that are VI positive at the time of the 2nd testing are not able to clear the virus and are **persistently** infected. These animals should be isolated until they can be disposed of. Alternatively, all animals testing positive on the first sampling can be disposed of. This means that some acutely infected animals may be culled. **DAMS OF ALL POSITIVE CALVES MUST BE TESTED FOR BVDV** (see below).

The PBS/Serum ELISA has an average turn around time of 4 days. Turnaround may be shorter or longer depending on day of arrival and the condition of samples. Cost is \$3.25/sample. Samples are run twice a week.

## FOR CALVES > 4 MONTHS, DAMS OF POSITIVE CALVES, COWS WITHOUT CALVES, BULLS AND ALL REPLACEMENT ANIMALS:

These animals may be tested with either the PBS/Serum ELISA test (see sampling protocol above) or with the BVDV Rapid ELISA test.

## **RAPID ELISA TEST**

Collect plasma or serum from each animal in a sterile purple or green, or a red top tube. Samples should be handled, labeled and shipped as described above. Animals testing positive should be isolated and retested as described above.

The Rapid ELISA has an average turnaround time of 7 days. It may be longer depending on day of arrival and condition of sample. Cost is \$5/sample. This test is run once a week at the WSVL.

## OTHER BVDV TESTS:

### **BVDV IMMUNOHISTOCHEMISTRY (IHC)**

BVDV immunohistochemistry is available for use on animals of any age. A 1 x 1 cm. or larger piece of skin from the edge of the ear should be collected in a red top tube containing 3 to 4 mls. of 10% formalin. The BVDV IHC test has a turnaround time of 1-4 weeks. Cost is \$3.50/sample.

## **VIRUS ISOLATION (VI):**

Virus isolation testing is available for animals of any age and is the preferred method for aborted bovine fetuses. Tissue samples (lung, liver, kidney, spleen, thymus, brain and/or mesenteric lymph nodes) should be sent postmortem. Blood (purple or green top tubes) should be submitted from animals that are still alive. Samples should be kept cool and sent to the laboratory on ice packs as soon as possible. Virus isolation is the gold standard to confirm an animal is infected with BVDV but is too expensive for routine screening of herds. Virus isolation has an average turnaround time of 2 weeks. Cost is \$16.00/sample. Virus isolations are set up once a week.

## **POLYMERASE CHAIN REACTION (PCR):**

PCR is a sensitive test designed to detect the presence of the BVDV genome in tissue, blood and/or milk samples. PCR testing works well on bulk milk samples from dairies being able to detect a single PI animal from a sample of up to 300 animals. This test is also used to characterize the genotype of a BVDV isolate (type 1 or type 2 BVDV). PCR tests have an average turnaround time of 4 days. Costs are: detection of BVDV in blood or tissue \$25.00/sample, genotyping \$60.00/isolate, bulk milk \$50.00/sample. PCR tests are run twice a week.



Can you tell which one is a PI?. Many PI calves look normal and can not be detected without lab testing.

## **SUPPLIES AND SUPPLIERS FOR PBS EAR NOTCH TESTING**

Pre-filled PBS tubes can be purchased from Syracuse Bioanalytical Inc.

Cost: \$25.00/100 tubes + shipping

Tubes must be purchased in batches of 100

You must order tubes 1 week in advance (tubes are shipped 1 week after they're ordered).

To order call:

Roy Huchzermeier 1-877-673-7341 (toll free)

Pre-filled PBS tubes can be purchased from the Wyoming State Veterinary Laboratory

Cost: \$1.00/tube

To order call: 1-800-442-8331 or 1-307-742-6638

### **PBS**

If you would like to make your own PBS tubes:

PBS tablets or pouches can be ordered from Sigma  
PBS Tablet 0.1M, pH 7.4, mix 1 tablet in 200 mls.  
distilled water

Catalog # P4417

Can be ordered in 50 or 100 tablet quantities

PBS Pouches 0.1 M, pH 7.4, mix 1 pouch in 1 liter  
distilled water

Catalog # P3813

Can be ordered in packs of 10

To set up an account or to place an order call:

Sigma Ordering 1-800-325-3010

[www.sigma-aldrich.com/order](http://www.sigma-aldrich.com/order)

### **TUBES**

Tubes (10 ml. red tops) can be ordered from VWR

Catalog # VT 6430

Can be ordered in 100 or 1000 tube quantities

To order call: VWR Ordering 1-800-932-5000

[www.vwrsp.com](http://www.vwrsp.com)

### **If you have questions regarding BVDV or BVDV testing procedures please call:**

◆ Dr. Alberto van Olphen at 307-742-6681  
ext. 161 (alvo@uwyo.edu) or

◆ Jackie Cavender at 307-742-6681 ext. 162  
(todie@uwyo.edu) or

◆ visit the WSVL website at :  
<http://wyovet.uwyo.edu/WSVL/updates.htm>



This is a typical PI calf, but in the front page picture there are several PIs that look perfectly normal.

## **TESTING MEHODS TO ELIMINATE BVDV FROM YOUR CATTLE HERD**

Wyoming State Veterinary Laboratory  
Department of Veterinary Science



University of  
**Wyoming**

**COLLEGE OF AGRICULTURE**