



Veterinary Diagnostic
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WE ARE ON THE WEB!
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VETERINARY DIAGNOSTIC LABORATORY

Featured in this issue: Director's Message, BVDV Testing

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Director's Message

Each year the College of Veterinary Medicine selectively recognizes outstanding faculty, staff, and residents. This year several members of the Veterinary Diagnostic Laboratory (VDL) were recognized. Debbie Cassout, a virology staff member, received the Robert and Lucy Graham Award for Staff Excellence. Amanda Matson, staff secretary to the VDL Director and an individual with answers to all questions, received the Shirley Seets Award for Staff Excellence. Dr. Rick Fredrickson (pathology) received the Dr. Gordon & Mrs. Helen Kruger Service Excellence Award for his outstanding diagnostic service and administrative duties in the pathology, histology, and receiving areas of the VDL. Dr. Anne Barger (clinical pathology) received the Dr. Gordon & Mrs. Helen Kruger All Around Excellence Award for her contributions to clinical service, student and resident instruction, and clinical research. In addition, Dr. Ashlee Urbasic (clinical pathology) received the Resident Teaching Award for her contribution to the training of professional students. The VDL is extremely fortunate and very proud to have such outstanding employees contributing to our service and teaching role.

Walter E. Hoffmann, DVM, PhD, Interim Director

Bovine Viral Diarrhea Virus (BVDV): Dr. Gail Scherba

BVDV infects both bovines and New World camelids. Currently, there are 2 genotypes: type 1 (a and b) that causes classic BVD and type 2 that results in atypical BVD. BVDV 1 consists of 2 biotypes (cp = cytopathic and ncp = noncytopathic). The ncp biotype accounts for 95% of all isolates. An *in utero* infection between 60 to 120 days of gestation can result in a persistently infected (PI) calf. PI calves will experience a continuous viremia, with the virus distributed throughout all lymphoid tissues, continuous viral shedding, eventual mucosal disease, and absence of an antibody response. The cp biotype causes acute infections (enteric disease). The cp biotype appears to be a mutation of the ncp biotype and therefore, it doesn't have to come onto the farm from an external source. Essentially the 2 biotypes must collaborate to induce the fatal mucosal disease.

Acute BVDV infections. BVDV primarily causes significant economic losses in bovine >1 mo of age. During an outbreak, presence of the virus can be detected by either **virus isolation (VI:\$32)** from *tissues* and *whole blood* or **fluorescent antibody (FA:\$20)** on *tissues*. A more rapid and sensitive method for detection of the virus is **BVDV qRT-PCR (\$33)** using *whole blood* or *tissue samples*. This molecular assay will distinguish between BVDV 1 and 2 (performed as separate tests) and has been successfully used for BVDV-status evaluation of alpacas and llamas. Retrospective anti-BVDV 1 or 2 antibody titer determination can be accomplished by the **serum-virus neutralization (SN) assay (\$6.50)**, either for screening (1:4 to 1:256) or specific end point titer, using *acute and convalescent serum samples submitted together*.

Persistent BVDV infections. There is concern about PI animals being born after a BVD outbreak and becoming a source of BVDV in the herd for years. **Immunohistochemistry (IHC:\$17 for 1-6 and \$3 for each additional)** performed on *ear punch biopsies* and **PI screen by VI (\$20)** using *serum samples* from animals >3 months of age are economical approaches when there is need to examine a large number of individuals in a herd. These tests can detect but do not differentiate BVDV 1 and 2. IHC will have an average 3- to 5-day turnaround time while the **PI screen by VI** usually requires 10 work-days. For a definitive identification of a true PI animal, two **PI screen by VI** tests should be performed on *serum samples* from the animal taken at least *five weeks apart*, both of which should yield positive results. Since maternal antibodies may interfere with this assay, if an animal <3 months of age has a negative result, it should be retested when older (5 or 6 months). A highly sensitive molecular **BVDV qRT-PCR assay** is available that differentiates between types 1 and 2 (performed as separate tests). This assay is usually performed on *serum samples*; for animals <3 months of age, *whole blood (WBC)* should be submitted.

NOTE: Please select the testing methodology that best meets your need when submitting samples for BVDV testing. For information regarding BVDV IHC assay and necropsy e-mail Dr. Rick Fredrickson at frdrcksn@illinois.edu. For information on other BVDV tests, e-mail Dr. Gail Scherba at scherba@illinois.edu.