

WHAT CAN THE DIAGNOSTIC LAB DO FOR YOU?



Veterinary Medical
Diagnostic Laboratory
University of Missouri

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OUR MISSION

- To provide appropriate and timely diagnostic support to veterinary practitioners, **livestock and poultry interests**, companion animal interests, wildlife conservationists and state and federal regulatory agencies.
- To monitor domestic animals, indigenous wildlife and zoo animals for diseases that are a threat to **livestock health** and public health.
- To support the teaching mission of the CVM.
- To create new knowledge through fundamental and translational research.

WHAT DO WE DO?

- Molecular Diagnostics (PCR)
- Serology and Virology
- Toxicology
- Anatomic Pathology
- Avian Diagnostics
- Clinical Pathology
- Bacteriology and Mycology
- Histology and Immunohistochemistry
- Outreach and Engagement



We perform over 100,000 tests every year to support clients in 110 Missouri counties and 45 US States.

OUR QUALIFICATIONS



American Association of Veterinary
Laboratory Diagnosticians

We are fully accredited by the American Association of Veterinary Laboratory Diagnosticians (AAVLD)

Why is that important?

It ensures that standardized protocols are followed, procedures are documented, and internal audits are conducted regularly. Test results are accepted by other countries for export of live animals or animal products.

In short, you can trust our results. Not all laboratories are created equal!

OUR QUALIFICATIONS



National Animal Health Laboratory
Network (NAHLN)

We are a Level I Laboratory on the National Animal Health Laboratory Network (NAHLN)

Why is that important?

NAHLN monitors and responds to foreign animal disease outbreaks as well as emerging diseases of significant consequence. We are equipped to handle high volume submissions and message the results in real-time to national databases.

We are set up to provide quick and accurate results whether you're experiencing an outbreak, or just surveilling your herd.

NAHLN-REPORTABLE DISEASE TESTING

Swine



- African Swine Fever
- Classical Swine Fever
- Foot and Mouth Disease
- Influenza A (SIV)
- Pseudorabies
- Vesicular Stomatitis

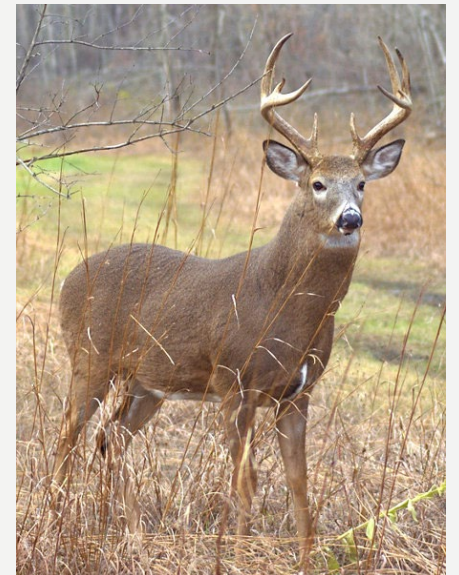


Poultry

- Influenza A (AIV)
- Newcastle Disease

Cervid

- Chronic Wasting Disease
- Foot and Mouth Disease



Ruminant

- Foot and Mouth Disease
- Vesicular Stomatitis



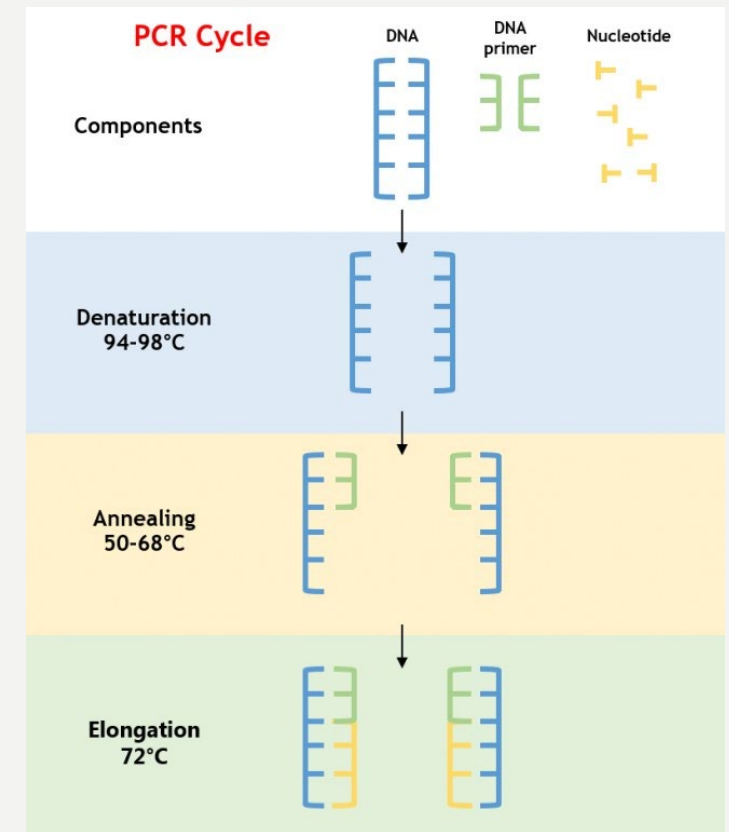
NAHLN- FAD



- If clinical signs consistent with a foreign animal disease (FAD) are seen, the state veterinarian should be notified **immediately**. Examples include: vesicular lesions, increased mortality...
- Federal and state foreign animal disease diagnosticians will be dispatched to collect samples on the farm.
- One set of samples will be tested by the MUVMDL, the other set will be sent to a federal lab.
- MUVMDL staff will work after hours to complete testing as soon as possible (state officials and producers commonly receive results around midnight on the day of sample collection).

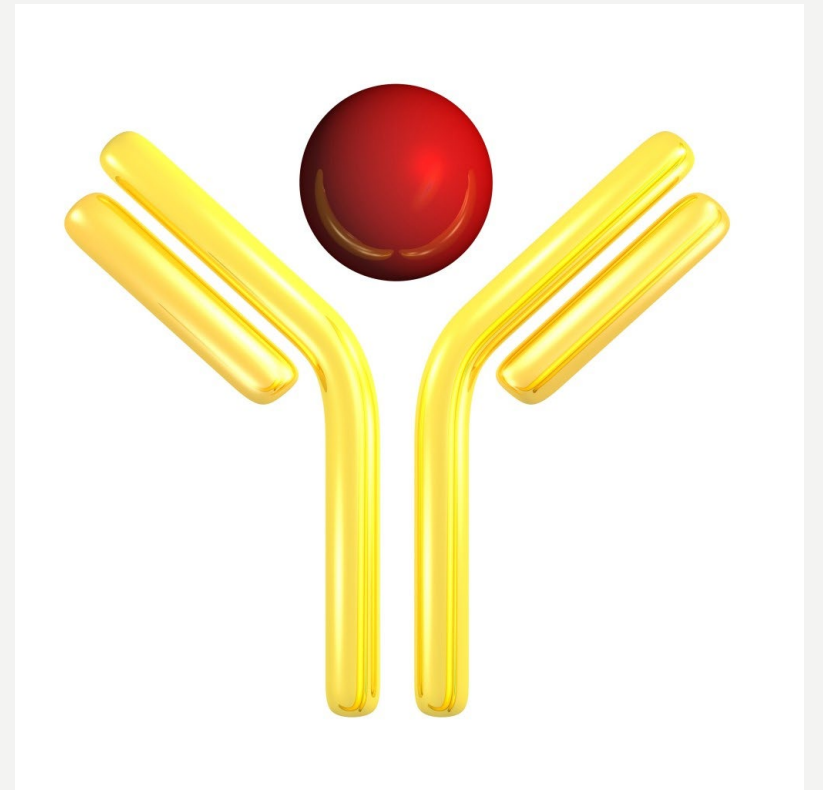
MOLECULAR DIAGNOSTICS (PCR)

- Polymerase Chain Reaction (PCR) detects nucleic acid segments specific to the **pathogen**.
- Sampling should be tailored to the most likely location of pathogen (whole blood, nasal secretions, feces, etc.) Consider the clinical signs!
- Very sensitive, but generally more \$\$ per sample than other testing methodologies.
- Answers the question: “Is the pathogen there?”



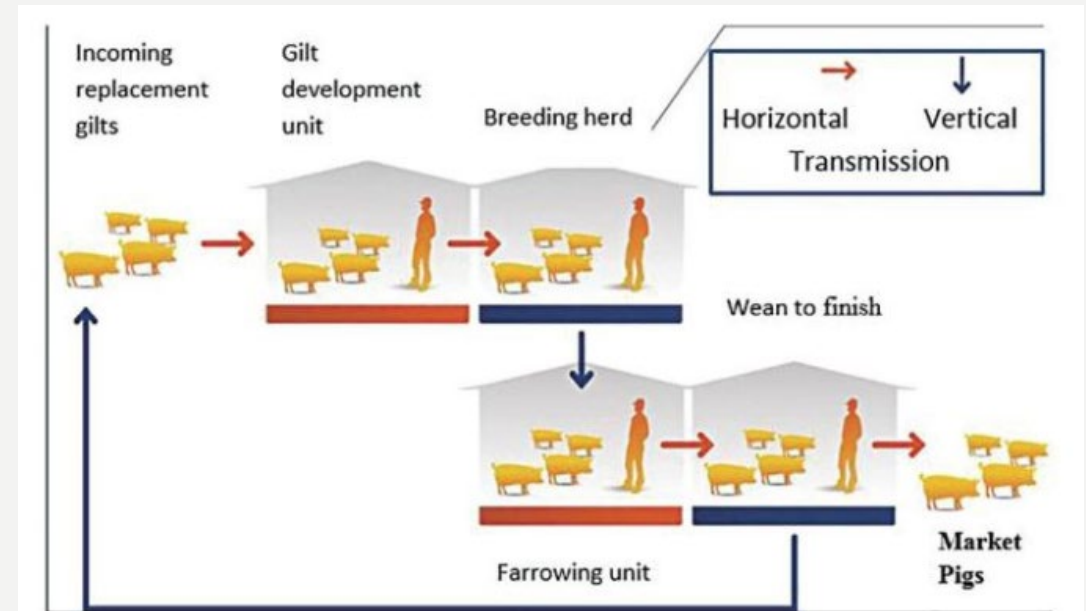
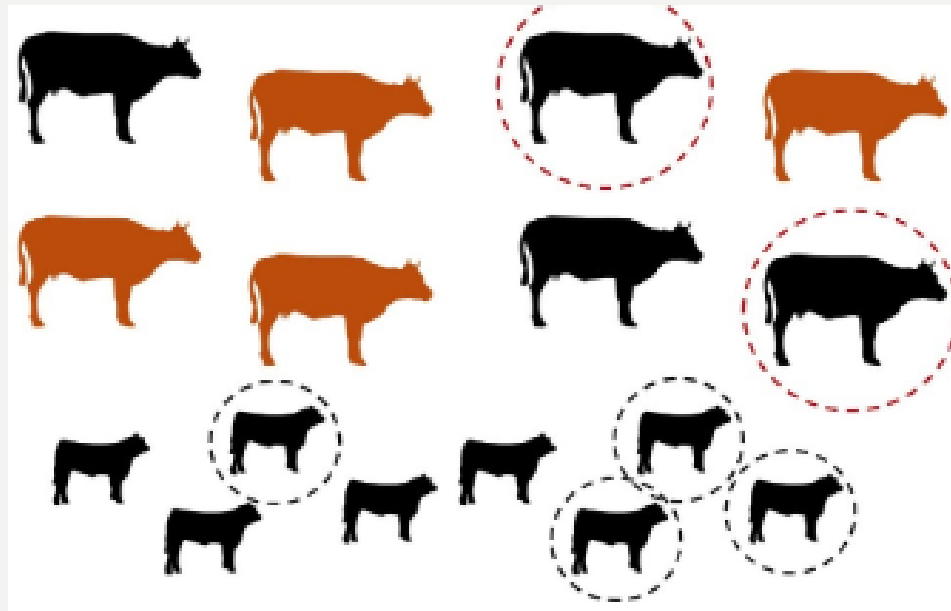
SEROLOGY

- Serology/Immunology usually detects **antibodies** and is used to determine animal exposure to the pathogen.
- Can also detect antigen via antigen-antibody reactions in some cases.
- As the name implies, serum is the usual sample type.
- In most cases, tests will also detect immune system responses to vaccination.
- Usually very cost effective per sample.
- Answers the question: “ Has the animal been exposed?”



TEST SELECTION

- Work with a licensed veterinarian to determine which tests are most appropriate depending on the vaccination status of your herd, the prevalence of the disease, and your management goals.
- Often multiple test types are necessary to fully characterize herd disease status.
- Most PCR and serology results at the VMDL are ready within 24 hours.



BOVINE TESTING

PCR Panels Available:



Enteric (GI) Panel:

Bovine Coronavirus (BCV), Rotavirus group A, Bovine Viral Diarrhea Virus (BVDV) 1 & 2

Respiratory Panel:

Bovine Respiratory Syncytial Virus (BRSV), Bovine Viral Diarrhea Virus (BVDV) 1 & 2, Infectious Bovine Rhinotracheitis Virus (IBR), Parainfluenza type 3 (PI3)

Many individual PCR tests including *Anaplasma marginale*

BOVINE TESTING

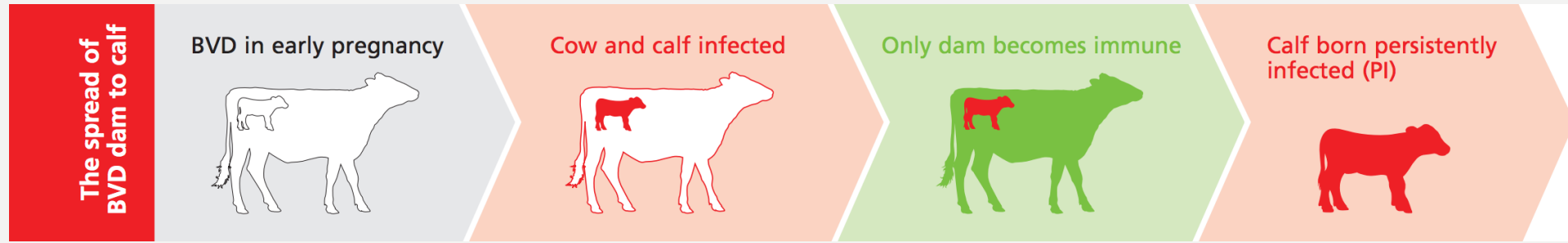
Bovine Abortion Panel



Up to 3 fetuses or a set of tissues (liver, lung, kidney, heart, spleen, brain, skeletal muscle, placenta)

- Gross and microscopic examination
- Selected serological testing of fetal fluid (peritoneal, pericardial, thoracic)
- Aerobic culture and up to 2 susceptibilities
- PCR testing: Bovine Viral Diarrhea Virus (BVDV) 1 & 2, Infectious Bovine Rhinotracheitis Virus (IBR), pathogenic *Leptospira*, *Neospora caninum*

BOVINE TESTING



Testing for BVD-PI animals:

Molecular- PCR:

EDTA blood, nasal swab, or ear notch. Samples can be pooled for up to 10 animals.

Serology- Antigen Capture ELISA:

Serum or fresh ear notch. Samples cannot be pooled.

Immunohistochemistry (IHC):

Fixed ear notch. Up to 6 animals can be examined per slide.

PORCINE TESTING

PCR Panels Available:



Enteric (GI) Panel for younger pigs:

Delta Coronavirus, Porcine Epidemic Diarrhea Virus (PEDV), Rotavirus A, Transmissible Gastroenteritis Virus (TGEV)

Enteric (GI) Panel for older pigs:

Brachyspira spp., *Lawsonia intracellularis*, *Salmonella spp.* (BLS)

Respiratory Panel:

Influenza A, *Mycoplasma hyopneumoniae*, Porcine Circovirus 2 (PCV 2), Porcine Reproductive and Respiratory Syndrome Virus (PRRSV)

PORCINE TESTING

Porcine Abortion Panel



Up to 3 fetuses or a set of tissues (liver, lung, kidney, heart, spleen, brain, skeletal muscle, placenta)

- Gross and microscopic examination
- Aerobic culture and up to 2 susceptibilities
- PCR testing: *Leptospira*, Porcine Circovirus 2 (PCV 2), Porcine Reproductive and Respiratory Syndrome Virus (PRRSV)

PORCINE TESTING

Did you know that we could test oral fluids?

Oral fluid collection is an effective tool for monitoring herd health. It is also stress-free for animals, and cost effective for producers.

The VMDL offers the following tests for oral fluid samples:

- *Mycoplasma hyopneumoniae* PCR
- Porcine Circovirus 2 (PCV 2) PCR
- Porcine Epidemic Diarrhea Virus (PEDV) PCR
- Porcine Reproductive and Respiratory Syndrome Virus (PRRSV) PCR
- Swine Influenza Virus (SIV) PCR
- Swine Influenza Virus (SIV) Virus Isolation
- Porcine Reproductive and Respiratory Syndrome Virus (PRRSV) ELISA



AVIAN TESTING

We are always in a hurry to get it done!

PCR Tests:

- Avian Influenza Virus (AI)
- Newcastle Disease Virus (NDV)
- *Mycoplasma gallisepticum* (MG)
- *Mycoplasma synoviae* (MS)

Serology:

ELISA for chickens: Infectious Bronchitis Virus (IBV), NDV, MG, MS, Avian Encephalitis Virus (AE)

ELISA for turkeys: *Bordetella avium*, NDV, MG, MS

AGID: AI, Hemorrhagic Enteritis (HE)

Other serological tests available



AVIAN TESTING



Necropsy Options:

Up to 6 birds in a case.

- Complete Necropsy: Histopathology, Serology, Virology, and Bacteriology
- Necropsy and Histopathology
- Gross necropsy
- Histopathology only (usually mailed to us)



1-800-UMC-VMDL (1-800-862-8635)
Fax: 1 573-882-1411

www.vmdl.missouri.edu
(Effective July 1, 2018)

Looking for Testing Options?

Visit <http://vmdl.missouri.edu/tests-and-fees-all/> or Call to Have a Copy Mailed to You

Questions?

