UNDER THE SCOPE WINTER 2019

MU VMDL Newsletter

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A MESSAGE FROM DIRECTOR ZHANG

Welcome to the MUVMDL Winter 2019 Newsletter! I hope everyone is enjoying spending time with family and friends this holiday season.

In October 2019, many VMDL faculty, staff, residents and graduate students attended the 62nd Annual AAVLD Meeting. Our personnel presided over committee meetings, moderated scientific sessions, and presented projects and posters. These activities reflect the VMDL's involvement in the scientific community as well as our high diagnostic standards.

This year, our chronic wasting diease season was busier than ever. In partnership with the Missouri Department of Conservation, all of the samples from opening weekend in CWD management zones were screened at the MU VMDL. We were able to maintain quick turnaround times, especially for Share the Harvest submissions, which is a program that lets hunters donate meat to their fellow Missourians who are in need.

As always, your feedback is important to us because the VMDL is here to serve all of you and the state of Missouri. Stay warm!

Best regards,
Shuping Zhang, Director,
Veterinary Medical
Diagnostic Laboratory
Professor, Veterinary Pathobiology

Winter Forage Quality: Is Yours Safe to Feed?

It's starting to get cold; now is the time to evaluate your winter forage. Make sure that you're comfortable with the source of your hay and the conditions under which it was produced, harvested, and stored. If you don't know, ask your supplier.

Testing for toxic substances before you feed is also a great way to ensure that the forage is safe for your livestock. The VMDL can test for ergot/fescue alkaloids, which have been reported in some Missouri grasses this year, as well as nitrates and mycotoxins. Please feel free to contact our veterinary toxicologist, Tim Evans, DVM, PhD, with any questions about forage testing. Be proactive to keep your livestock healthy and well-fed this winter.

Recent and Future Meetings

VMDL faculty and staff attend various meetings and events throughout the year to connect with our clients and the veterinary community. Please say hi and let us know how we're doing!

- Come visit our booth at the 128th Annual MVMA Convention, Jan. 23-26, 2020.
- Tim Evans, DVM, PhD, spoke at the Academy of Veterinary Consultants Winter Meeting in Kansas City, Missouri, on Dec. 7. Rosalie Ierardi, DVM, and Lauren Delaney, DVM, were also in attendance.
- Lauren Delaney joined members of the MU Extension Swine Focus Group at the Passion for Pigs Seminar and Tradeshow on Dec. 10 in Columbia, Missouri.

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Mycotoxin Research Testing

Feed companies look no further! The MU VMDL has a long history of working with commercial groups to test their products for mycotoxins. Our new analytical chemist, chemist in the VMDL. Xiangwei (Shaun) Du, PhD, is excited to continue this work. We can perform routine sample analysis as well as custom research work related to mycotoxin binders. Please feel free to contact Du or George Rottinghaus, PhD, about your mycotoxin testing needs.

Attention Equine Practitioners: New EIA Testing Requirements

By Lauren Delaney, DVM

On Oct. 15, 2019, USDA-APHIS VS released a new guidance on EIA testing. Laboratories have six months to comply with the new regulations (must be in compliance by April 15, 2020). For the VMDL, this means more frequent reporting of summary data, and stricter approval standards.

For submitters/veterinarians, this means stricter form completion requirements. The notable changes are summarized as follows:

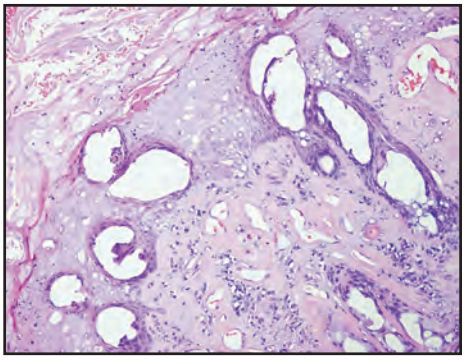
- Unofficial forms will not be accepted after the end of the grace period. Forms other than VS 10-11 must be specifically approved by USDA-APHIS VS to be considered official.
- All fields must be completed. Write "none" or line through, do not leave blank.
- A written narrative description of the animal's unique identifiers is required.
- The submitter must sign a statement affirming that they are a Category II federally accredited veterinarian in the state that the sample was obtained.
- Samples accompanied by incomplete forms may be tested, but results will not be released until they are properly completed.
- We are required to reject any samples older than 30 days, as they do not reflect current exposure status.
- Changes to the forms may only be made prior to distribution of final results. Forms requiring changes after results have been reported must be resubmitted with a new sample.

Please contact the VMDL with any questions about the new requirements. Thank you for your support.

Keep Your Biopsy Samples From Freezing

When temperatures plummet this time of year, samples are at risk of freezing during their transit time to the laboratory. While this isn't a big deal for some types of specimens, it can be disastrous for fixed tissue. When fixed tissue is inadvertently frozen, large ice crystals produce irreversible spaces within the tissue that make it difficult to evaluate.

To prevent this from happening, the freezing point of the fixative solution can be lowered by adding alcohol. Several different types of alcohol can be used, but the most common one in the average veterinary practice is isopropyl (freezing point -128˚ F). Methanol (freezing point -143˚ F) and ethanol (freezing point -173˚ F) can also be used, but tend to be less readily available. Add alcohol to your biopsy jar in the amount of 10% of the total liquid volume, or one-part alcohol for every nine-parts formalin solution. Bear in mind that most commercially available isopropyl alcohol is a 70% solution, so you may need to add a bit more; up to 15% of the total liquid volume.



Skin mass from a dog. Large irregular spaces are freezing artifact.

Bovine Respiratory Disease Summary

By Rosalie Ierardi , DVM

The MU VMDL diagnosed 65 cases of bovine pneumonia received May 1 through October 31, 2019. Results include whole carcasses submitted for necropsy and field specimens collected by practitioners. A viral PCR panel (BRSV, BVD, IBR, PI3) was performed in 56 of 65 cases.

Results can be found on page 3

VMDL Holiday Hours

The VMDL will be closed on Dec. 25 and Jan 1. We will maintain normal hours of operation (8 a.m.-5 p.m.) all other days.

Complete Bovine Respiratory Panel Results (Bacterial Culture + PCR Panel)

Number	Percent	Bovine Respiratory Panel Results
22	39.3%	Identification of bacterial pathogen(s) only
19	33.9%	No primary baterial or viral pathogens identified
11	19.6%	Identification of primary bacterial and viral pathogens
4	7.1%	Detection of virus only
56	**100%**	**Total**

Bacterial Culture Results

Number	Percent	Culture Result
20	30.8%	No significant pathogens isolated
13	20.0%	*Histophilus somni*
9	13.8%	*Mannheimia haemolytica*
9	13.8%	Two or more of *M. haemolytica, P. multocida, or H. somni*
8	12.3%	*Pasteurella multocida*
3	4.6%	*Salmonella**
2	3.1%	*Trueperella pyogenes***
1	1.5%	*Bibersteinia trehalosi****
65	**100%**	**Total**

*These isolations are usually a feature of generalized septicemia.

**This number includes only those cases from which *T. pyogenes* was the only significant organism recovered. If a primary pathogen (*M. haemolytica, P. multocida, H. somni)* was also recovered, the *T. pyogenes* was considered secondary and the case was assigned to the category of the primary pathogen.

***This case had the features of acute bovine pulmonary edema and emphysema and a history of perilla mint exposure in the herd.

PCR Panel Results

Number	Percent	PCR Result
41	73.2%	No virus detected
8	14.3%	BRSV only
4	7.1%	BVD only
1	1.8%	P13 only
2	3.6%	Two or more of BVD, BRSV, or IBR
56	**100%**	**Total**

Cases in which multiple viruses are detected simultaneously should be interpreted with caution, as this can sometimes reflect recent administration of a multivalent vaccine.

Finally, within these 65 cases of bovine pneumonia, *Mycoplasma bovis* was detected in 17 of 25 cases (68%) in which PCR was performed.

Bovine Viral Diarrhea Summary

By Rosalie Ierardi , DVM

Bovine Viral Diarrhea (BVD) Tests 05/01/19 through 10/31/19

Test	Positive Results
BVD RT-qPCR*	6/250 = 2.4%
Ear Notch BVD-PI**	3/271 = 1.1%
Type I Antibody Prevalence (SN)***	66/86 = 76.7%
Type II Antibody Prevalence (SN)***	6/14 = 42.9%

*This includes a variety of specimen types (lung, intestine, feces, blood) submitted directly by clients or collected at postmortem by laboratory personnel. Two of these PCR-positive animals were subsequently identified as persistently infected with immunohistochemistry of an ear notch collected at postmortem.

**These client-submitted ear notches were tested for BVD-PI status with immunohistochemistry or with antigen capture ELISA (ACE), depending on the client's request.

***This is consistent with our expectations given widespread vaccination against BVDV. SN = serum neutralization.

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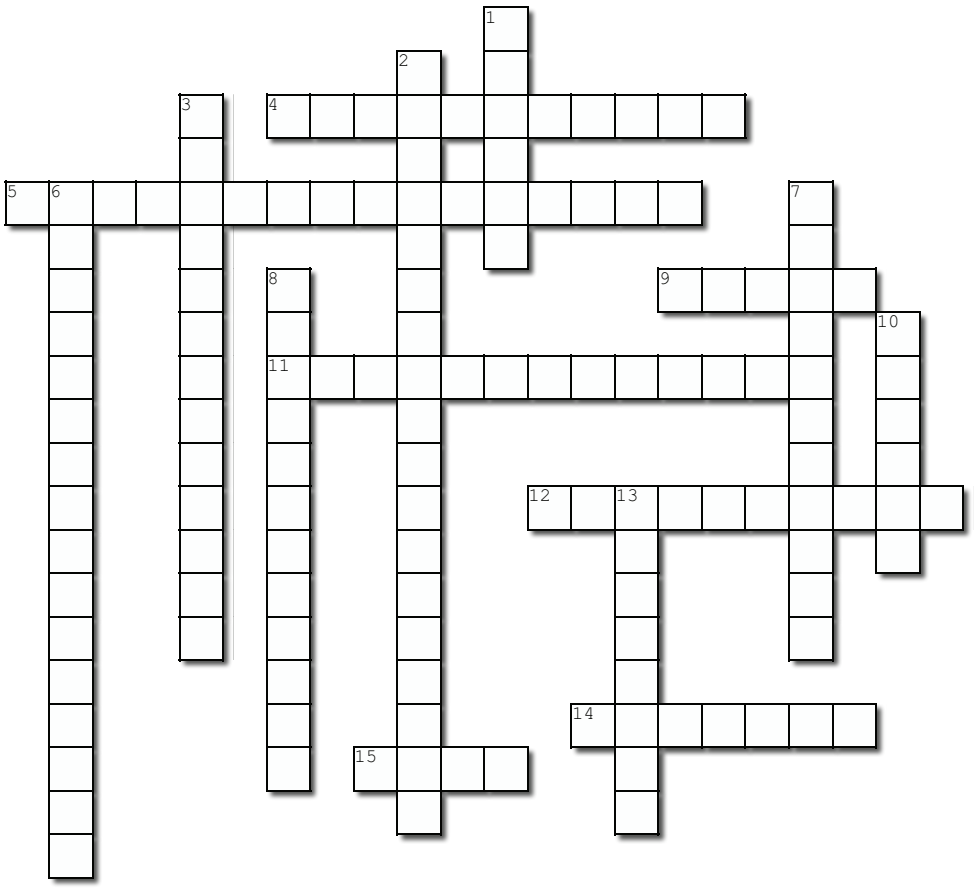
Holiday Diagnostic Crossword

Complete the crossword puzzle and fax your answers back to (573) 882-1411 by Jan. 10, 2020, along with your contact information. All correct submissions will be entered for a chance to win a $25 credit to their VMDL account!

Happy Holidays!

Complete the crossword puzzle below for a chance to win $25 off your next submission!



Across

4. Methylxanthine toxicant present in chocolate.
5. Subspecies for the causative agent of Johne's Disease.
9. Type of protein that causes neurodegenerative diseases like CWD, BSE, and Scrapie.
11. Family of enveloped RNA viruses, their name means 'crown' in latin.
12. Genus of bacteria that lack a cell wall.
14. Common name for Equine Infectious Anemia test.
15. This element can leach into your sample from the blood tube's rubber stopper.

Down

1. Color of the rubber stopper on an EDTA blood tube.
2. Fungal infection also known as 'Valley Fever.'
3. Word meaning 'specifically characteristic of a particular disease or condition.'
6. Alanine _____ (ALT)
7. Most common NON-anticoagulant rodenticide.
8. Name for the infective L3 stage of the heartworm.
10. What the 'E' in ELISA stands for.
13. Type of swab needed to recover fastidious bacteria like Taylorella equigenitalis.