

MU VMDL Newsletter

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A MESSAGE FROM VMDL DIRECTOR SHUPING ZHANG

Welcome to the MU Veterinary Medical Diagnostic Laboratory Spring 2019 Newsletter! I hope everyone is enjoying the warmer weather. The VMDL faculty, staff, and residents are working hard to serve our clients during this busy season.

With our next full American Association of Veterinary Laboratory Diagnosticians accreditation review quickly approaching in 2021, we need your support for a new VMDL facility. This new facility project is crucial to ensuring that current standards of biosecurity are met and the producers, veterinary practitioners and regulators in Missouri receive the best possible service. Please help us maintain our state's infrastructure to safeguard animal health, public health and Missouri's economy.

We have several new tests available through clinical pathology this year (fecal egg counts and NEFA), and our faculty are currently working on several new PCR assays for large animals.

As a National Animal Health Laboratory Network Level I Laboratory, we participated in several recent



drills to prepare for surge testing in the event of an African Swine Fever outbreak. Our laboratory will also participate in next month's tabletop exercise alongside state and federal regulatory officials.

Please remember that your feedback is important to us. The VMDL is here to serve all of you and the state of Missouri. Thank you for your support!

Best regards,

*Shuping Zhang, Director,
Veterinary Medical
Diagnostic Laboratory
Professor, Veterinary Pathobiology*

Animal Health Alert: Nitrate Poisoning Killing Hundreds of Beef Cattle in Missouri

The Toxicology Section at the VMDL has diagnosed more than 200 deaths due to nitrate poisoning in the past few months. Extreme weather over the past few years is to blame for the poor forage quality and subsequent livestock deaths due to nitrate poisoning.

Consider using quick test kits to screen suspect hay for nitrates. If the quick test kit indicates that there may be a problem, quantitative testing is available at the VMDL for \$28.50 per forage sample. Alternatively, ocular fluid from animals found dead can also be tested at the VMDL for \$42 per sample.

Please contact our veterinary toxicologist, Tim Evans, DVM, MS, PhD, DABVT, DACT (Toxicology) at 573-884-9241 with any questions.

 **Veterinary Medical
Diagnostic Laboratory**
Veterinary Health Center
University of Missouri

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Spring Calving Season is Here

With spring calving season upon us, please keep in mind that the VMDL offers several pathology panels to help you work up cases of abortion, stillbirth, and neonatal scours (diarrhea).

Cases of bovine abortion can be frustrating for producers, veterinarians and diagnosticians alike, since reaching a definitive diagnosis is so challenging. However, ruling out infectious causes that have the potential to affect the whole herd is an important step. Our abortion panel (for up to three fetuses) includes the following testing:

- Gross and microscopic examination
- Bacterial culture
- PCR assays for BVD, IBR, *Neospora caninum*, and pathogenic *Leptospira* sp.
- Selected serological testing of fetal fluid

The abortion panel does not include testing for potential toxins and trace mineral levels; however, this testing is available for an additional charge. If you wish to pursue toxicological work up following the standard abortion testing, contact the lab within two weeks of submission.

The VMDL offers two different diarrhea panels depending on the sample type available for submission. Hopefully, no death loss will have occurred, but if diarrhea is spreading among the young stock, freshly collected fecal samples from up to three animals can be sent on ice for laboratory work up. In the event of deaths, a carcass

Early-growth Grass Can Lack Minerals That Livestock Need

Be alert for signs of deadly grass tetany

We all look forward to green pastures after a long winter, but be aware that ingestion of lush, early-growth, cool season grasses can pose a threat to livestock.

Grass tetany (also called grass staggers) is a metabolic condition caused by magnesium deficiency. Cows in early lactation, especially older cows, are most susceptible. Early in the growing season, grass forages are high in moisture, which dilutes the mineral content.

Consider testing pasture soil and be on the lookout for early signs of grass tetany such as decreased milk pro-



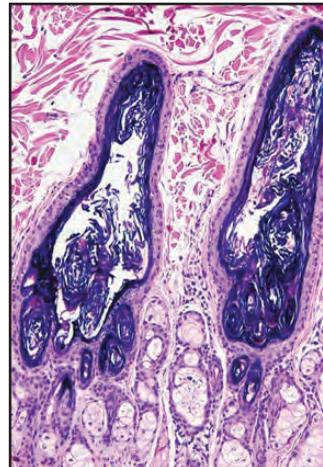
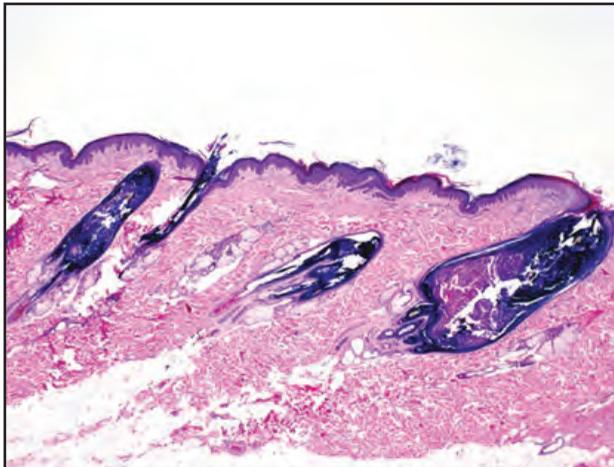
duction can be hauled in, or tissues collected (chilled and in formalin) and sent for laboratory examination. Except for histopathology, the ancillary testing for infectious causes of diarrhea in calves is identical and includes the following:

- Bacterial culture for *E. coli* and *Salmonella* spp.
- Cryptosporidial smear
- Fecal floatation
- PCR for BVD, bovine coronavirus, and rotavirus

Similar work up is available for the other food animal species. If you have any questions about these panels, please call us.

duction and nervous behavior (staring, unusual alertness). Unfortunately, these early signs are commonly missed, and the animals are found dead. More severe clinical signs such as staggering, twitching, convulsions and collapse may precede death.

If grass tetany is suspected in a dead cow, our Toxicology Section can test magnesium levels in ocular fluid. Please include a thorough dietary history when presenting a dead cow for necropsy, as this can help the pathologist assess the likelihood of a nutritional problem. In addition, the laboratory now offers 11 mineral ICP analysis for use on tissue such as liver and kidney.



Process for Sending Out Bacterial Isolates

Are you interested in having an autogenous bacterin manufactured? Would you like genotyping or serotyping done on a *Clostridium perfringens*, *Streptococcus suis*, *Actinobacillus pleuropneumoniae* or *E. coli* from one of your animals or your clients' animals? We can assist you with that.

If you would like an isolate sent out for any additional testing or vaccine manufacture, let us know within two weeks of receiving our final report. We save all isolates for at least that long, but we cannot guarantee recovery of isolates older than two weeks. If you're not sure you want it sent, give us a call anyway; we can re-isolate and freeze an isolate while you determine your needs. We can send your isolate to any accredited laboratory you specify. We can also assist you in finding a laboratory for tests that we do not offer in-house. If you have questions, call the VMDL and ask for the Bacteriology Lab.

Update on CWD Testing

In partnership with the Missouri Department of Conservation, the VMDL has tested more than 21,000 samples from free-ranging cervids in the state of Missouri for chronic wasting disease since the start of the 2018-2019 hunting season. For more information about chronic wasting disease in Missouri, visit: <https://mdc.mo.gov/>.

Could it be Seasonal Flank Alopecia?

Airedale, Boxer, English bulldog and Schnauzer are most commonly affected breeds

Remember seasonal flank alopecia (or recurrent flank alopecia) this spring when formulating your differential diagnosis lists for canine patients with hair loss.

Seasonal flank alopecia is not well understood, but is thought to be related to photoperiod effects on melatonin and prolactin levels.

Non-pruritic, bilaterally symmetrical alopecia on the flanks is typical, but the nasal planum and periocular areas may also be affected in some cases. Hair loss is usually accompanied by hyperpigmentation of the skin. Breeds most commonly affected include the English bulldog, Boxer, Airedale and Schnauzer.

Signalment and clinical signs alone are suggestive of seasonal flank alopecia, but other causes of hair loss, such as hypothyroidism and hyperadrenocorticism, should



be ruled out. Skin biopsy evaluation can be a useful for diagnosis, as seasonal flank alopecia has a characteristic appearance microscopically. Follicular atrophy and malformation are commonly seen, with the dysplastic follicles resembling "witch's feet."

Fortunately, the condition is only cosmetic and does not affect the dog's quality of life. Hair typically regrows when the season changes, however predicting recurrence or resolution in the individual animal can be difficult as outcomes are highly variable.

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Test Autoclave Function

Most practices use autoclave tape or indicator strips to check their autoclave function. These are useful everyday indicators. However, these indicators only verify that your autoclave is reaching the proper temperature. Heat alone takes a much longer time to sterilize an object than the autoclave combination of heat, moisture and pressure. If heat alone is used to sterilize something, it may take several hours of heat exposure depending on the temperature.

So how can you tell if your autoclave is properly sterilizing your packs if heat tape is not the whole story? The best way is by using a test organism. *Geobacillus stearothermophilus* is a non-pathogenic spore-forming anaerobic organism that is highly resistant to heat and pressure, and this organism is the recommended test organism for autoclaves.

Starting April 1, you can request a spore strip from us, which we will mail to you at no charge. The spore strip is a bit of filter paper coated with *G. stearothermophilus* spores, which are stable at room temperature and do not require any special handling. Include the spore strip (still in its paper cover) in one of your packs when you autoclave the pack, then mail the strip back to us. Just request a "spore test" on your accession sheet and we will culture the test strip for you under appropriate anaerobic conditions.

If nothing grows, your autoclave is functioning properly. If we get growth of a Gram-positive rod then



your autoclave is not working properly and needs immediate service. Autoclaves should be spore-tested every 100 to 200 hours of full-pressure use. For most clinics this is about twice a year. The cost for the spore strip culture will be \$24. If the strip gets wet or damaged prior to autoclaving it could yield a false positive result and should not be used.

Egg Counts Available

The Clinical Pathology Section is proud to offer customers Modified Stoll and McMaster Fecal Egg Counts. Implement responsible and strategic parasite management on the farm using these diagnostic techniques. Simply send approximately one tablespoon of feces on ice via expedited courier to take advantage of this new service.

The Modified Stoll Technique is recommended for horses, cows, and camelids and is available for \$18.50 per sample. The McMaster Technique is recommended to monitor the parasite load of small ruminants, but can be used as well

for horses, cows, and camelids. It is offered at \$16.50 per sample.

NEFA Testing Offered

The Clinical Pathology Section is now offering non-esterified fatty acid (NEFA) testing for cattle. This test can be used to evaluate dairy cattle herds for excess (and likely detrimental) negative energy balance. Dairy cow NEFA concentrations from two to 14 days prepartum of >0.3 mEq/L and three to 14 days postpartum concentrations of >0.6 mEq/L have been associated with greater morbidity and poorer performance. For assessing herd status, identification of >15 percent of at risk individuals with NEFA concentration above the individual cow thresholds has been associated with greater herd peripartum morbidity and poorer performance. Pooling samples to assess herd status is not recommended.

- Sample requirements: Serum collected from red top tubes or plasma from EDTA tubes can be used for this test. Plasma from green top (lithium heparin) tubes is NOT acceptable. Separate serum or plasma, refrigerate, and ship with ice packs overnight. If a delay between sample collection and shipment is anticipated, the serum or plasma should be frozen.
- Cost is \$12. Submissions including eight or more samples will obtain reduced pricing.