Stock Quotes: Animal Health Newsletter

http://liv.mt.gov/Animal-Health/Newsletters

Quarterly Newsletter from the Animal Health Bureau of the Montana Department of Livestock

March 2018

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INSIDE THIS ISSUE

State Veterinarian Notes

I want to take an opportunity to invite you to attend The Western States Livestock Health Association (WSLHA) meeting in June, in Big Sky Montana. The WSLHA, of which Dr. Tahnee Szymanski is the current president, is a membership organization of the state animal health officials and interested industry of the 19 Western states. As a group, we strive for common sense regulations that protect animal health while minimizing the impact on commerce. During the June 11-13 meeting, we expect to discuss the National Tuberculosis Program in light of recent cases in South Dakota, Indiana, Michigan and a continually infected organic dairy herd in Texas. Brucellosis will be a significant topic subsequent to a finding of a brucellosis positive elk outside of the designated surveillance area for brucellosis (DSA) in Beaverhead County (see page 3), and brucellosis program reviews in Idaho and Wyoming by the United States Department of Agriculture.

We also look forward to a summer meeting of the Montana Veterinary Medical Association (MVMA) where we will be debuting a Public Practice Track. Presentations on rabies, brucellosis, tuberculosis, chronic wasting disease, and public health topics will be part of eight presentations during a four-hour block running concurrently with the large and small animal tracks. We are excited about this new addition to the CE offerings by the MVMA, and appreciate the partnership.

The Montana Veterinary Diagnostic Laboratory (MVDL) is continuing efforts to improve the service we provide to Montana veterinarians. We are working on MVDL staffing during state holidays (excluding Fourth of July, Thanksgiving Day, Christmas Day and New Year's Day) to receive and process samples as well as provide consulting services. MVDL is investigating flat (or discount) rate shipping to help keep your diagnostic costs competitive.

Most recently, the MVDL was added to the MSU dorm mail route which has two important benefits. First, packages will be arriving between 8:30 and 10:00 am each morning without having to be picked up by MVDL staff. Second, your clinic staff can address packages with one address regardless of the carrier used (previously, FedEx and UPS packages had to be addressed to the physical address while USPS packages were routed to the PO Box and picked up by MVDL). Please note the new street address and use it for all mail and packages going forward: 1911 W. Lincoln St., Bozeman, MT, 59718.

Please be on the lookout for a survey from DOL and MVMA on MVDL services. Also, find our MVDL booth at the MVMA summer meeting! We want to better learn what we can do to keep and earn your business.

The last bit of exciting MVDL news is that we are making some progress on a new laboratory building. In accordance with House Bill 661 (legislative study of state labs), the Department of Administration is in the final steps of selecting an engineering firm that will conduct an assessment of the expected cost and feasibility of constructing a new laboratory and possibility of combining several existing diagnostic facilities under one roof. The intent is to have this phase completed prior to the 2019 legislative session to inform deliberations on funding.

I'll close with a request for you to look at the last page of this newsletter regarding an upcoming emergency response exercise that will be taking place in May. We will be testing a notification system to rapidly alert you of a **simulated** outbreak of foot and mouth disease. ¤

By Martin Zaluski

WHAT'S NEW:

1. Johnes Disease (page 2)
2. 2018 Elk Surveillance Capture (page 3)
3. BSE Reward (page 5)

CALENDAR OF EVENTS:

Board of Livestock Meeting:
April 3, 2018

Western States Livestock Health Association:
June 11-13, 2018

Montana Stockgrowers Association Meeting:
June 14, 2018

Deputy Veterinarian Training:
June 20, 2018

Montana Veterinary Medical Association Meeting:
June 25-26, 2018

Johnes Disease

The DOL is continuing an effort to improve knowledge and management of Johne's disease in Montana cattle herds. We have recently finalized two outreach documents. The first document covers general disease information and the second is directed at management of affected herds and therefore includes an emphasis on testing. These documents can be found on the DOL website at: http://liv.mt.gov/Animal-Health/Diseases/Johnes-Disease.

A trend that the DOL has noticed in recent Johne's disease reports to our office is the diagnosis of Johne's in young, recently purchased animals. Based upon disease epidemiology, these animals were infected with Johne's prior to purchase. Historically, the DOL has worked with the reporting veterinarian and the herd where the Johne's diagnosis occurred on education and management recommendations. To address the described trend and to increase the effectiveness of our outreach efforts, we will now send a letter to source herds notifying them of the diagnosis and the likelihood that their herd is infected. The previously mentioned outreach materials will be included with the letter.

FIGURE 1: Draft Johne's Certification Levels

DOL has also developed an outline of a state specific program that includes five levels of participation. Herds may advance from an entry-level score for implementing basic biosecurity practices and a herd management plan and progress to the highest level after multiple years of negative herd testing to provide a high assurance of negative herd status. Herds without management practices in place or herds with no testing history would be assigned an "Unmanaged risk" designation.

This program would provide the framework for individuals to manage Johne's disease in their herd. Even at base level participation, the development of a herd specific management plan would increase the local knowledge of disease management; a significant first step in curtailing the spread of Johne's by decreasing inter-herd transmission and by decreasing the between herd movement of higher risk animals. The development of Johne's herd management plans is a process that the Animal Health Bureau of the DOL would seek deputy veterinarian participation.

The proposed framework would allow producers the option to perform strategic testing of high risk animals to obtain a managed risk assurance rating or for herds that are interested in a more aggressive approach, annual whole herd testing working towards a high assurance rating.

For example:

A herd classified at the evaluated risk level would have the following components in place:

- Herd management plan established
- Testing completed on all high-risk cattle
- Clinical and test positive cases removed or separated

Whereas, a herd at the assurance level would have:

- Herd management plan established
- Testing completed on all cattle >2 years of age
- Clinical and test positive cases removed
- Two years since any clinical or test positive cases on premises

The challenges to implementation of this program are a lack of funding to offset testing costs, a need for standardized education to veterinarians who will participate in the program, and availability of DOL staff for administrative oversight to monitor testing, review herd plans, and contact deputy veterinarians and producers as needed. Herd testing will need to be reported on an annual basis and the movement of test positive animals will need to be documented. DOL is always interested in your feedback on the need for this program as well as the overall structure of the program.

We appreciate all of the feedback and input that we have received on this topic and again look to you all to continue this conversation. Please contact Dr. Szymanski at (406) 444-5214 or tszymanski@mt.gov with questions or comments. ¤

By Tahnee Szymanski

2018 Elk Surveillance Capture

In 2011 Fish, Wildlife and Parks (FWP) began a multi-year targeted elk brucellosis surveillance project. The Department of Livestock (DOL) has supported the project with federal cooperative agreement funds. Locations for elk capture are prioritized by likelihood of brucellosis exposed elk and potential for exposure to livestock in the winter and spring.

The specific goals of the multi-year study and surveillance project is to evaluate:
1) the prevalence and spatial extent of brucellosis exposure in southwest Montana elk populations, 2) the extent of elk movement and interchange between infected and adjacent elk herds, and 3) the risk of seropositive elk shedding and potentially transmitting *Brucella abortus*.

The Designated Surveillance Area (DSA) boundary was adjusted in 2011, 2012, and 2014 following elk surveillance captures to include livestock potentially at risk of exposure to positive wildlife. Subsequently, brucellosis affected herds have been found within the new boundaries.

Each year, elk captures include new animals for surveillance as well as recaptures of elk in the surveillance project. The multi-year project will end in the early winter of 2020 with the final capture and removal of the positive elk initially captured in 2015.

This year's elk surveillance capture was completed in the Tendoy Mountains southwest of Dillon where 100 elk were captured, tested, and 30 animals collared to monitor movement. One serologically positive animal was discovered in a group of 60 captured in the southern Tendoys. No positive elk were found in the group of 40 captured in the northern region. Despite negative test results, forty elk is not a large enough sample size to have confidence that elk in the northern area are free of the disease.

DOL continues to evaluate this information to determine next steps. The producers and landowners who have supported these captures play a key role in protecting the industry.

Follow-up: Texas Human RB51 exposure in Texas

In the December issue of *StockQuotes*, we included an article about human exposure to vaccine strain RB51. The Centers for Disease Control and Prevention (CDC) reported up to 800 households potentially exposed after consuming unpasteurized milk from a licensed raw milk dairy in Texas. In this dairy herd, two animals were shedding vaccine strain RB51 in their milk. The two cows were in their second lactation and had not received RB51 since their initial calfhood vaccination between 7-8 months of age.

The Texas Animal Health Commission (TAHC) and the United States Department of Agriculture (USDA) continue to investigate this herd to identify an underlying cause of the shedding of the vaccine strain in the milk. Both animals were infected with Bovine Leukemia Virus (BLV) which the TAHC and the USDA believe contributed to the colonization of the bacteria in the mammary glands of these two cows.

FIGURE 2: Targeted Elk Brucellosis Surveillance Project by The Department of Fish, Wildlife and Parks.
Photo: Montana Public Radio and Yellowstone Public Radio, 2018.

http://mtpr.org/post/one-elk-tests-positive-brucellosis-southwest-dillon
healthPrograms/brucellosis/

Cows shedding RB51 are not detectible through serologic testing; therefore, the Texas Department of State Health Services is using a Polymerase Chain Reaction (PCR) test on the bulk milk from this dairy. The PCR detects *Brucella* DNA in the milk which will detect strain RB51 if present. The TAHC also tests the milk from this dairy twice a year utilizing the Brucellosis Ring Test (BRT) which is the same test used by other states. The BRT detects *Brucella* antibodies of field strain infected cattle and does not detect the bacteria; therefore, the PCR is the most useful to find another shedding cow in this herd if it occurs. The human infection in Texas as well as the RB51 human infection that occurred in New Jersey (also reported in the December issue of StockQuotes) could have been prevented with pasteurization.

Human infections with RB51 bring into question the practice of brucellosis vaccination in areas where cattle are not at risk of exposure to *Brucella abortus*. In the U.S., veterinarians and laboratory workers are most commonly infected with RB51. Layperson exposure to strain RB51 can occur not only through consumption of raw milk or milk products, but also through exposure to birthing/abortion tissues and fluids expelled by an animal that was vaccinated while pregnant. These cases remind us that that the vaccine itself poses a human health concern. ¤ By Eric Liska

Brucella Canis

When we discuss brucellosis in this newsletter, we are typically concerned about *Brucella abortus* in cattle, bison, and elk. However, over the past year, the Department of Livestock (DOL) has received multiple reports of *Brucella canis* infections in dogs. Like *B. abortus*, *B. canis* is zoonotic, so it is important to consider infection as a differential diagnosis in dogs with unknown or high-risk histories and compatible clinical signs.

Typically, the risk of brucellosis is considered greatest in kennels and dog breeding operations. Recently, however, cases of brucellosis have been traced back to dogs that were rescued from feral and stray populations on American Indian reservations or adopted from shelters. South Dakota has conducted some research on the prevalence of *B. canis* in dogs on two reservations and has found infection rates ranging from 9.2-19.3%. Before adopting a dog with an unknown history, potential owners should consider having it tested for brucellosis.

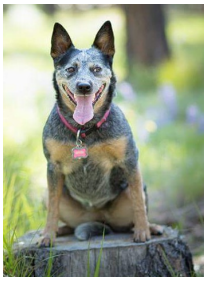

FIGURE 3: Blue Heeler. Staff Photo

Like in other species, brucellosis in dogs is primarily a reproductive disease. Male and female dogs are equally susceptible to infection, and the most common site of bacterial colonization is the reproductive tract. Bacteria are shed in semen and vaginal secretions as well as in fetal and placental tissue and fluids following abortions or stillbirths. Bacteria can also be shed in urine, saliva, nasal or ocular secretions, and feces. Infections occur through venereal contact during mating or orally when dogs ingest infected materials.

The most common reproductive signs of infection with *B. canis* are abortion and stillbirth, increased vaginal discharge following abortions, epididymitis, orchitis, and prostatitis. More generalized signs can include lymphadenitis, lethargy, discospondylitis in thoracic and lumbar vertebrae, and uveitis. Other dogs may never display clinical signs of infection. Some dogs may recover without treatment, but other dogs will remain infected and shed bacteria sporadically for years.

B. canis is considered an untreatable condition in dogs. Dogs can be spayed or neutered to decrease the risk of bacterial shedding, but even long-term treatment with antibiotics is not considered curative. Owners with *B. canis* positive dogs need to be aware of the continuous risk of infection to people and other dogs. Euthanasia may be considered due to the challenges and risks associated with long-term maintenance.

In addition to rescue dogs, any dogs that have been in contact with an infected dog should be tested for *B. canis*. There are many options available to test for *B. canis,* and the most common ones are listed in the table below. *B. canis* can be a diagnostic challenge, so consultation with a pathologist may be useful. ¤ By Emily Kaleczyc

Comparison of Diagnostic Procedures for *B. Canis*

Test	Sample	Earliest Detection (weeks post-infection)	Advantages	Disadvantages
Antibody Detection Methods				
*Rapid Slide Agglutination Test (RSAT)	Serum	1-4 weeks	Quick, high sensitivity, few false negatives. Good screening test.	False positives possible, must confirm by other tests
*Mercaptoethanol (ME) Rapid Slide Agglutination Test (ME-RSAT)	Serum	3-4 weeks	Quick, high sensitivity, few false negatives. Increased specificity over RSAT	False positives possible, must confirm by other tests
Tube Agglutination Test (TAT)	Serum	2-6 weeks	Semiquantitative titer. Good screening test.	False positives possible, must confirm by other tests
ME-TAT	Serum	2-8 weeks	Semiquantitative titer. Increased specificity over TAT	Longer testing time (2-day test)
Agar-Gel Immunodiffusion (AGID) Cell Wall (somatic) antigen	Serum	5-12 weeks	Positive earlier than CPAg. Very sensitive test.	Procedure and interpretation complex, non-specific reactions, poor availability.
Internal Cytoplasmic Protein Antigen (CPAg)	Serum	Unknown	Highly specific confirmatory test utilizing highly purified cytoplasmic protein devoid of contamination with LPS.	Maternal antibodies prevent seroconversion in puppies, so not useful until 6 months post weaning. Complex procedure.
Indirect Fluorescent Antibody	Serum	Unknown	Available and convenient for diagnostic labs. Good screening test.	May be less sensitive than ME-TAT as screening test. False positives possible.
ELISA	Serum	30 days	Good results with mutant (M-) *B. canis* for cell wall extracts or B abortus for CPAg	Antigen purity and preparation critical.
Organism/Antigen Detection Methods				
Blood or tissue culture	Whole blood/ FULL blue top tube, or vaginal swab	Bacteremia detectable 2-4 weeks post infection	Low cost. Can identify actual organism for antimicrobial sensitivity testing and/or DNA profiling	Fastidious organism. False negative results possible. Requires sterile technique of blood collection. Contaminant overgrowth can lead to false negative results. Intermittent bacteremia may require serial blood cultures. Poor screening test.
PCR	Whole blood/ full blue top tube, or vaginal swab.	1.5 CFU/ ml detected	5x more sensitive than culture	False negative results possible. Requires sterile technique of blood collection. Poor screening test.

*** Tests run at MVDL**

BSE Reward – Requesting Your Assistance

The National USDA-APHIS-Veterinary Services (APHIS) Bovine Spongiform Encephalopathy (BSE) surveillance program was reviewed in 2017 as part of the ongoing effort to find efficiencies and execute important updates to our National Disease Programs. During this review, an area of opportunity was identified to achieve an updated BSE surveillance approach that more accurately represented the geographic distribution of adult cattle populations in the respective States. Based on the 2017 review, new, more representative sample collection numbers by state were generated – based on the most current state herd inventories (2016 USDA National Agricultural Statistics Service).

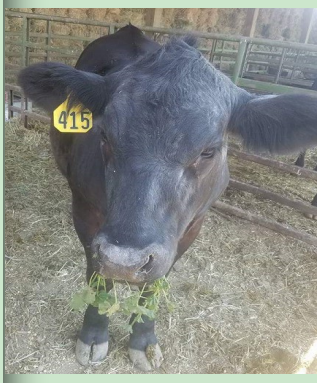

FIGURE 4: Black Angus Steer. Staff Photo

As you may recall, the World Organization for Animal Health (OIE) assigns each country a risk status for BSE based on the country's history with the disease; the implementation and enforcement of their feed bans; and their BSE surveillance. In May 2013, the U.S. status for BSE was upgraded to negligible risk, the highest status available. This was a significant achievement that had been many years in the making for the U.S. beef producers and businesses, and federal and state partners who had worked together to maintain strong safeguards against BSE and conduct the necessary surveillance to achieve this important BSE status upgrade.

This "updated" sampling plan proposes to:
1) change the distribution of the 25,000 BSE samples collected annually based on the existing distribution of beef and dairy cattle populations by State; while: 2) continuing to target defined BSE high risk subpopulations of cattle. The proposed plan would require Montana to submit 323 samples during the current Federal Fiscal Year (FFY) 2018; 637 samples during FFY2019, and 950 during FFY2020. *(Wyoming 148 in FY18, 296 in FY19, and 444 in FY20).*

To achieve these BSE sampling goals in Montana - **we need your help**! The good news—the USDA will compensate you **$100** and we will compensate the producer/owner **$100** for every valid sample collected and submitted! USDA-APHIS-VS-Montana will need to approve sample submissions in advance, to ensure the samples meet the BSE surveillance parameters; verify the appropriate submission form is completed; and the samples are submitted to the appropriate and approved NAHLN laboratory. The following are a few FAQs on this updated BSE surveillance approach in Montana:

Why is USDA requesting samples?
USDA is attempting to expand the surveillance for BSE, bovine spongiform encephalopathy, across the entire cattle herd (dairy and beef) of the United States. To address this emphasis we are asking our accredited veterinarians and producers to assist in acquiring and submitting specimens for surveillance testing purposes.

What tissue is collected?
The obex portion of the brain stem is the tissue tested by the laboratory. **Fresh** (not frozen or formalin fixed) tissue is necessary. Specimens originating from neurological cases should be prioritized as rabies suspects and tissue from such animals may be subsequently screened for BSE. In these particular cases, the entire head may be submitted to the laboratory and laboratory personnel will collect the pertinent tissue specimens for BSE testing.

How is the tissue submitted to the laboratory?
USDA-APHIS-VS will supply shipping containers (BSE Kits) that contain everything needed for proper shipment of the sample (obex) to the laboratory. Fresh obex samples are required for the testing protocol used in laboratories. Contact the Montana USDA-APHIS-VS office in Helena (406-437-9450) to request BSE kits or if you have questions regarding this BSE surveillance program in Montana.

How does the producer and veterinarian receive payment for collection and submission of specimens?
USDA will reimburse the accredited veterinarian $100 for collection and submission of testable and traceable specimens. The producer is also eligible to receive $100. Testable means submission of an intact obex allowing visualization of the dorsal motor nucleus. Traceable means the animal had official identification and the submitting paperwork was completed properly. Payments are made electronically to the veterinarians and producers bank account. Contact the Montana USDA-APHIS-VS office in Helena (406-437-9450) for more information.

Where can I learn more about BSE?
For more information regarding BSE, please visit the following site:
https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information/cattle-disease-information/sa_bse/ct_about_bse

¤ Thomas Linfield

Emergency Preparedness

In May the Department of Livestock (DOL) will be participating in an emergency preparedness exercise designed to simulate a foot and mouth (FMD) disease outbreak. We will be participating with five other states and multiple federal agencies in this event which is being organized through the USDA National Training and Exercise Program. The exercise is a great opportunity to test many aspects of our emergency preparedness including:

- Coordination between the DOL, other state agencies, and the USDA to ensure adequate staff and resources for disease response;
- Use of the incident command system (ICS) to organize response efforts;
- Use of electronic systems for tracking animal health data during a disease outbreak, including issuing movement permits;
- Communication between Montana, USDA, and other states during an outbreak; and
- Communication with our state partner agencies and accredited veterinarians.

We intend to test our communication with accredited veterinarians using Notifind, a program the state maintains for mass distribution of automated phone messages. If we have a working phone number for you in our database, you will receive an automated test message from us during the exercise. The message will give you the opportunity to send back a standardized reply to let us know that you received the message. If you are concerned we may not have a working phone number for you on file please let us know.

An FMD outbreak would have significant impacts on all aspects of the livestock and agriculture economy in Montana. Following a disease detection in Montana, initial actions may include stopping all movement of animals and animal products, quarantine of the affected premises and all premises within a designated control zone, depopulation of infected premises, and potentially vaccination of at-risk cattle. The impacts from an FMD outbreak would last months or even years. DOL relies on veterinarians in the field to report animals with any suspicious clinical signs. As accredited veterinarians you are the first line of detection for any foreign animal disease outbreak. ¤ By Emily Kaleczyc

Animal Health Contact Information:

Marty Zaluski, DVM
State Veterinarian, Administrator
(406) 444-2043
mzaluski@mt.gov

Tahnee Szymanski, DVM
Assistant State Veterinarian
(406) 444-5214
tszymanski@mt.gov

Eric Liska, DVM
Brucellosis Program Veterinarian
(406) 444-3374
eliska@mt.gov

Emily Kaleczyc
Alternative Livestock
(406) 444-9622
ekaleczyc@mt.gov

Import Permit Office
(406) 444-2976

We're on the Web:
www.liv.mt.gov

Montana Department of Livestock
Animal Health Division
P.O. Box 202001
Helena, MT, 59620-2001
Return Service Requested
Phone: 406-444-2043
Import line: 406-444-2976
Fax: 406-444-1929