



Stock Quotes: Animal Health Newsletter

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

December 2021

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

Volume 14 Issue 4

INSIDE THIS ISSUE

State Veterinarian Notes	1
Modeling the Blaine County Tuberculosis Herd	2
TB Surveillance in Wildlife	3
Import Quarantines	3
Brucellosis Test Interpretation and Testing Updates	4
When to Identify Cattle?	5
Exemptions to Listing ID on CVIs	5
Disease Spotlight: Caprine Arthritis and Encephalitis	6

WHAT'S NEW

- TB Surveillance in Wildlife, p. 3
- Disease Spotlight: Caprine Arthritis and Encephalitis p. 6

State Veterinarian Notes

VETERINARY DIAGNOSTIC LABORATORY BUILDING AND TESTING: Securing funding for the Veterinary Diagnostic Laboratory (VDL) was a monumental feat this past year and will give Department of Livestock (DOL) an opportunity to update a 60-year-old facility. Advocates including the Montana Veterinary Medical Association (MVMA), Montana Stockgrowers Association, individual veterinarians, ranchers, the Board of Livestock, and most importantly Montana legislators have been instrumental in this success. It's nearly certain the location for the new facility will be in Bozeman a few hundred yards from the existing facility. The laboratory complex project also includes the Department of Agriculture Analytical Laboratory which will be moving out of McCall Hall on the Montana State University (MSU) campus.

Based on discussions late this fall, it seems increasingly likely that we will be joined by a third partner, the MSU University Wool Lab. The MSU Wool Lab provides fiber analysis and evaluation to boost income for Montana sheep producers. Currently, the wool lab is in a facility on the north end of campus.

In spite of an aging laboratory, I am continually impressed with the quality and quantity of work VDL staff are able to accomplish in facilities that are just barely acceptable. In the last two years, VDL has added over a dozen new tests, including chronic wasting disease (CWD) testing for wildlife. Being able to test hunter harvest samples in Montana has allowed us to provide results back to hunters more rapidly than in previous years when samples had to be sent out of state. CWD sample submissions have increased approximately 12% in 2021 from 2020 numbers to over 8,000 submissions.

TUBERCULOSIS INVESTIGATION: Montana has not diagnosed bovine tuberculosis (TB) in so long that we're uncertain when the state had seen the most recent previous case. Based on a 1959 disease report by Dr. J.W. Safford (Montana State Veterinarian from 1956-1973), and the date of Montana's Federal TB Accredited TB Free status in 1977, we are fairly certain Montana last found the disease in the late 1960s.

In 2021, however, we received notification of two separate direct traces of Montana origin cattle found at slaughter with TB lesions. Herd tests found no TB in the Madison County trace herd (much like our TB investigation of a slaughter trace to a Treasure County herd in 2019), however, we found several infected animals in a Blaine County herd. This affected herd is now undergoing depopulation with federal indemnity at owner's request.

The dual investigations involved multiple areas of the department and I need to acknowledge a monumental effort of over 2,000 hours of work that was accomplished in the last three months. Specifically, thank you to all who participated from Animal Health Bureau, Meat Inspection Bureau, Brands Enforcement Division, Montana Veterinary Diagnostic Laboratory (MVDL), and United States Department of Agriculture (USDA).

Please see the TB articles in the rest of this issue for additional details.

HEALTH CERTIFICATES ALL ELECTRONIC IN 2022: In a change that has been several years in the making (we first started talking about transitioning to electronic certificates of veterinary inspection (CVI) in 2016), all Montana origin health certificates must be in an approved electronic format starting this January. As you might recall, we delayed full implementation in 2021 following a request from the MVMA to allow additional time for veterinarians to become familiar with electronic CVI options.

I'll close with three quick points on this transition. 1. In rare circumstances when technology simply fails, we will accept paper health certificates. 2. There are a couple products that allow electronic health certificates to be issued in areas with no internet service, and additional options are expected to enter the market in 2022. If you don't have a printer in your vehicle, then the animal transporter can take a picture of the digital certificate displayed on your computer in case they get stopped prior to electronic transmittal, and 3. Please contact our office with any questions on issuing electronic health certificates. ☞

By Marty Zaluski, DVM

Modeling the Blaine County Tuberculosis Herd (For Diehard Epidemiology Fans)

The Blaine County tuberculosis (TB) affected herd has begun the depopulation process with United States Department of Agriculture (USDA) indemnity. Depopulation (vs. testing out) was chosen at the request of the producer after consideration of the time and volume of testing required to complete the test-and-removal process. While the disposition of the Blaine County herd has been decided, in Volume 14 Issue 3 edition of this newsletter, Department of Livestock (DOL) outlined a template for test-and-removal. This article will take a closer look at the test-and-removal process and how the amount of time that herds are subject to quarantine is determined.

Test-and-removal spans three testing phases: 1) removal, 2) verification, and 3) assurance. The latter two are relatively prescriptive and finite in length. Verification testing is a single test at least six months after the conclusion of the last removal test and allows for quarantine release. Assurance testing is conducted either annually or biennially for five to eight years beyond quarantine release.

Removal testing phase is done while the herd is under quarantine and can be highly variable in duration, so it is the major consideration in determining if testing out (vs. depopulation) is practical. Historically, commerce for multiple calving seasons was not possible during the test-and-removal phase, therefore, was too burdensome for beef herds. However, in recent years, options for moving calves from affected herds to feeding and slaughter channels have expanded, so testing-out may now be a consideration in some beef production systems.

Once a herd has been found to be TB affected, epidemiological information is used by USDA Center for Epidemiology and Animal Health (CEAH) to determine the number of removal tests needed to ensure a 0.95 probability of no infection in a herd. This probability number is determined using the TB Test-and-removal Model which estimates the number of whole herd tests required to reach an acceptable level of risk.

The test-and-remove simulation is run repeatedly with varying inputs which include initial herd prevalence, spread (number of new infections per year for each affected animal), test performance, probability of herd turn over, and herd inventory data. Model output is then used to identify the median outcome of all parameter combinations and the 95th percentile across all parameter considerations.

For the Blaine County herd (Figure 1), the most likely (median) number of tests needed to have 0.95 probability of no infection is three removal tests. However, to reach 0.95 probability the herd is free of infected animals in 95% of the simulations it takes seven removal tests. The x-axis of Figure 1 correlates the number of tests to months with tests conducted every 60 days. For three removal tests, DOL could expect the herd to remain under quarantine for a minimum of 12 months (six months for the removal testing phase and six months until the herd is eligible to complete a verification test). To complete the removal testing phase, the final two tests must result in no additional detections of disease. If testing continues to find infected animals, additional herd tests must be completed, increasing the amount of time a herd is subject to quarantine.

The test-and-removal model also estimates how many animals are likely to be removed through caudal fold testing (CFT) and the economic component of the model estimates federal costs associated with depopulation of the entire herd versus the number of animals removed under test-and-removal. However, input from state animal health officials and the wishes of the herd owner are also considered in the final decision.

⊠

By Tahnee Szymanski, DVM

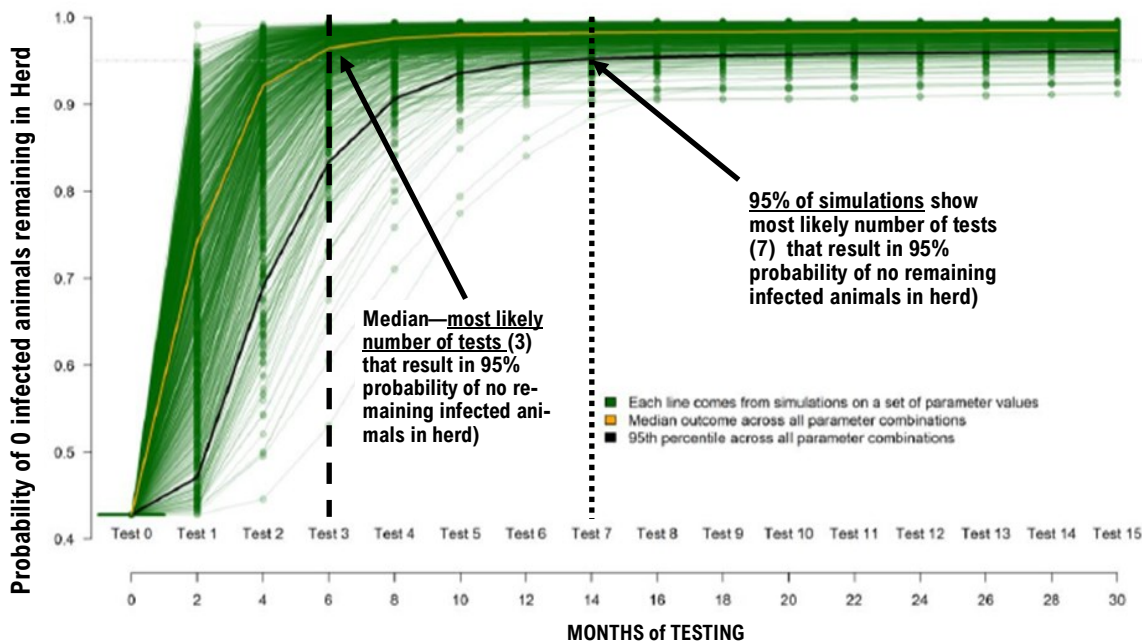


Figure 1. Probability that no infected animals are left in the herd (with a range) by test round (and time). Source: USDA.

TB Surveillance in Wildlife

Bovine Tuberculosis (TB) is primarily a disease of cattle, but can also affect many other mammalian species, including humans. TB can spillover from livestock to wildlife which can then serve as a reservoir, potentially transmitting TB to other wildlife and cattle. The disease is primarily spread via respiratory secretions but can also be transmitted fecal orally or by ingestion of contaminated food. Shared feeding is believed to be the primary pathway between wildlife and cattle, due to the contamination of feed with infectious saliva, urine, and feces.

Wildlife can be impacted by TB through decreased landowner tolerance for infected wild cervid populations on the landscape, and the major expense and aggressive nature of managing the disease once established in wildlife species. Surveillance for TB is critical to detect the disease in cattle before it has a chance to spillover to wildlife, and to detect wildlife cases early to minimize the risk of a wildlife reservoir becoming established. There are only a handful of examples worldwide where TB, once established in wildlife has been successfully eradicated.

Montana Fish, Wildlife and Parks (FWP) is conducting wildlife surveillance for TB in response to the detection in cattle in Blaine County. Surveillance entails collecting samples from a broad range of mammal species under guidance of the Department of Livestock (DOL) TB surveillance plan. FWP is working in partnership with DOL, Department of Agriculture, United States Department of Agriculture Animal and Plant Health Inspection Service Wildlife Services (USDA APHIS WS) and respective landowners.

Lymph nodes were collected from 24 hunter harvested deer in a roughly 1,400 square mile area around the affected premises. Sampling of deer began near the end of the general season resulting in low opportunity for hunter notification and sample collection. Samples from hunter harvested deer will be collected again during the 2022 hunting season. Sampling will be conducted at FWP offices and check stations where samples are also collected for chronic wasting disease.

Coyotes are also an important species for surveillance as presence of TB in coyotes indicates they are consuming infected prey. Wildlife Services removed 75 coyotes from an area approximately one home-range from the site of TB detection on December 15 and 16, 2021. Detection of TB in this area will imply the disease has moved beyond the immediate area of interest.

Other focal species for surveillance include raccoons, rabbits, skunks, red fox, porcupines, and ground squirrels. Over 250 traps were set on December 13, 2021, in the immediate areas of TB detection. Capture success has been low to date with fewer than 15 raccoons, rabbits, porcupine, and coyotes. While no formal minimum sample has been calculated, FWP hopes to sample a combined total of at least 100 of these species.

Lab testing is underway for all TB samples collected to date. Look for additional information in future updates. ❧

By Lauri Hanuska-Brown, Montana FWP

Import Quarantines

On occasion, Department of Livestock (DOL) veterinarians grant quarantine exemptions to import requirements allowing animals to enter Montana without complying with all animal health requirements. These exemptions may be given to accommodate poor handling facilities, availability of transportation, or special handling requested by Montana producers. Recently, Compliance with meeting the conditions of quarantine release have been variable.

We routinely become aware of quarantined animals having been commingled with other groups, incorrect IDs being applied, and verification work not being completed in a timely basis. To clearly communicate the quarantine process, starting in 2022, we're asking Montana veterinarians to sign an agreement to ensure that they understand their obligations and conditions on the animals for quarantine release. We're hoping this revised process will better preserve traceability and protect the state from importation of animal diseases.

The quarantine terms include:

- The cattle specified on a quarantine have been imported without meeting Montana import requirements. Please contact DOL for scheduling conflicts, etc.
- Cattle are to be held separate from other animals.
- Cattle are to be kept at the destined location for the duration of the quarantine and are not to be relocated.
- All cattle imported under quarantine for identification (ID) will receive official United States Department of Agriculture (USDA) recognized ID. Approved forms of official individual ID include: 1) USDA silver NUES tags, 2) USDA orange brucellosis vaccination tags, or 3) 840 series RFID tags (900 series tags are NOT official ID.)
- Completion of work must be done within 30 days.

Records intended to release the quarantine should be specific to the designated animals. It is the duty of the Montana veterinarian to send the proper paperwork to the designated quarantine contact in the Animal Health Bureau (AHB) Office. Results from the laboratory are not always sent to AHB, and should be forwarded by the veterinarian directly.

If the Montana veterinarian is unable to fulfill the requirements of the quarantine due to actions of the importer (i.e., commingling animals or other reasons) the veterinarian should notify DOL immediately.

Please note that we're extending the window to complete quarantine release work to 30 days because we recognize that the prior 10 day window was often difficult to meet.

The import quarantine agreement is meant to better communicate the requirements for quarantine release, maintain consistency for imported animals, and more effectively mitigate the risk of disease from imported animals. As with any regulatory issue, please don't hesitate to contact our office with questions or concerns. ❧

By Kaylee Hiel, Compliance Specialist and Tahnee Szymanski, DVM

Brucellosis Test Interpretation and Testing Updates

INTERPRETING BRUCELLOSIS TEST RESULTS: The primary brucellosis screening test in Montana and Wyoming changed to the Fluorescent Polarization Assay (FPA) in 2019. United States Department of Agriculture (USDA) has created an algorithm for test result interpretation for animals in the Greater Yellowstone Area (GYA) only.

When interpreting brucellosis test results on a case report from Montana Veterinary Diagnostic Laboratory (MVDL) you will find that the top of the report contains the “regulatory classification” for any animals with a non-negative screening test; or, if all screening tests were negative, the case report will simply have a testing summary indicating no non-negative results. Only animals with a regulatory classification of ‘Suspect’ will result in further action from Department of Livestock (DOL).

Since July 1, 2021, MVDL has performed approximately 73,000 FPA screening tests on cattle and domestic bison from herds not known to be affected; 40 animals (0.05%) have been suspect on the screening test (FPA plate of 40 or higher). Of these 40 screening suspects, 28 were classified negative by confirmatory tests. Only 12 animals had a regulatory classification of suspect that required DOL follow-up.

The chart below shows the algorithm to interpret confirmatory BAPA and FPA tube tests when the FPA plate (screening test) has a value of 40 or higher, (Figure 2).

EPIDEMIOLOGICAL (EPI) ACTIVITY: Two animals from a herd in Madison County recently tested positive on FPA plate, FPA tube, BAPA and Compliment Fixation (CF). These animals have been indemnified and tissues were submitted to National Veterinary Services Laboratory (NVSL) for culture. The entire herd is quarantined pending culture results.

DOL is preparing for the possibility of a positive herd in Madison County by identifying adjacent herds ahead of culture results. When an affected herd is discovered, DOL identifies herds with fence-line contact or commingling for up to five years prior to the discovery of brucellosis. Fortunately, the two suspect animals have a recent negative test (January 2021) that reduces the scope of the investigation; only herds exposed since the last negative test will be required to test if the suspect animals culture positive for brucellosis.

The current investigation highlights some important considerations for DSA veterinarians and producers. First, regular whole herd tests can both limit spread within a herd as well as reduce impact and scope of an epidemiological investigation. In the Madison County case, both suspect animals have a negative test within the last year. Second, the herd veterinarian utilizes electronic laboratory submissions, allowing previous negative tests for individual animals to be retrieved immediately using official identification (ID).

ELECTRONIC TEST SUBMISSIONS: MVDL and DOL are unable to enter hand written individual ID from laboratory submission forms. Hand-written submission forms can usually be searched manually, however electronic laboratory submissions expedite the identification of individual animal tests. Individual animal test information is important for epidemiological investigations and can reduce the number of animals and producers impacted by an affected herd.

Questions regarding electronic laboratory submission, epidemiological investigations, and protocols for non-negative tests can be directed to Dr. Eric Liska. ☒

By Leslie Doely, DSA Compliance Specialist

Confirmatory FPA (Tube)	Confirmatory BAPA	Regulatory Classification	Actions/Quarantine
Less than 40	Negative	Negative	DOL veterinarians follow-up with producer and/or veterinarian to determine if any additional actions are necessary.
40 or higher	Negative	Suspect	CF confirmatory test may be performed. Individual animal placed under quarantine. Suspect animal is retested to confirm ID, then rebled after 30 days.
40 or higher	Positive	Suspect	CF confirmatory test performed. Suspect animal is retested to confirm ID. Additional actions dependent upon epi investigation and additional test results. Entire herd placed under quarantine.

Figure 2. Confirmatory test protocols when screening FPA plate is greater than or equal to 40 mP. Source: DOL Staff.

When to Identify Cattle?

Animal Health Bureau (AHB) staff review all export Certificates of Veterinary Inspection (CVIs) for compliance with federal traceability regulations. A common non-compliance issue on export certificates is the proper identification (ID) of cattle. There are a few situations when cattle can move interstate without official ID. Exemptions apply to sexually intact beef breed cattle, not intended for rodeo or exhibition purposes.

In the Code of Federal Regulations (9CFR) 86.4 official identification requirements are as follows: "All cattle and bison must be officially identified prior to interstate movement, using an official identification device or method... Unless":

- i. The cattle and bison are moved interstate and directly to an approved tagging site and are officially identified before commingling with cattle and bison from other premises or identified by the use of backtags or other methods that will ensure that the identity of the animal is accurately maintained until tagging so that the official ear tag can be correlated to the person responsible for shipping the animal to the approved tagging site.
- ii. Cattle or bison may also be moved interstate without official identification if they are moved directly to a recognized slaughtering establishment or directly to no more than one approved livestock facility and then directly to a recognized slaughter establishment where they are harvested within three days of arrival.

The most common ID exemption is for movement to an approved tagging site. When sending animals to an approved tagging site, the following statement should be included: "The animals in this shipment do not have official identification and are going to an approved tagging site." Please note, the tagging site exemption is only for animals that do not have any form of official ID. If animals already have official ID, such as animals that originate from Montana's Designated Surveillance Area, the official ID must be listed on the health certificate. Existing ID in cattle is not read at tagging sites, nor correlated to the shipment origin, so if the ID is not listed on the CVI, traceability data is lost.

In rare instances, specific destinations may have additional exemptions granted by the state of destination. These exemptions should be clearly documented on the CVI. For questions, please call the import office at 406-444-2976. ☒

By Brooke Ruffier Hoopes, Import Manager

Exemptions to Listing ID on CVIs

Official identification (ID) for cattle and bison must be listed on the Certificate of Veterinary Inspection (CVI). If the ID are not listed one of the following statements must be listed:

FOR ANIMALS THAT DO NOT HAVE OFFICIAL ID A STATEMENT MUST BE ON THE CVI:

1. "These steers are not for exhibition purposes," if animals are beef breed (not dairy) steers not intended for rodeo or exhibition purposes.
2. "All animals in this shipment do not have ID and are going to an approved tagging station," if animals DO NOT have ID and are traveling to an approved tagging site. If any of the animals in the shipment have ID and others do not, ID must be listed for animals with existing identification and the statement should be modified "Animals that are not listed do not have ID and are moving to an approved tagging station."
3. "Animals in this shipment do not have ID and are moving to a recognized slaughter establishment," if animals DO NOT have ID and are moving directly to a recognized slaughtering establishment.

FOR ANIMALS THAT HAVE ID AND ID IS NOT RECORDED, A STATEMENT MUST BE ON THE CVI:

4. "All animals in this shipment have required official ID," if animals are sexually intact beef breed animals under the age of 18 months and all have official identification.
5. "Animals in this shipment have official ID and are going to a recognized slaughter establishment," if animals have ID AND are moving from one of Montana's 13 approved markets to a recognized slaughter establishment. A list of recognized slaughtering establishments can be found on the United States Department of Agriculture Animal and Plant Health Inspection Service (USDA APHIS) website.
6. "These animals are traveling on seasonal grazer agreement number __," if beef animals that are traveling on a seasonal grazer agreement. All sexually intact animals traveling on a seasonal grazer agreement are required to have ID but it is not required to be listed.

Animal Health Bureau (AHB) will contact veterinarians with non-compliant CVIs to offer assistance. Continued violations will be addressed through corrective action in partnership with United States Department of Agriculture Veterinary Services (USDA VS). Please contact Animal Health Bureau (AHB) with questions at 406-444-2976. ☒

By Brooke Ruffier Hoopes, Import Manager

Disease Spotlight: Caprine Arthritis and Encephalitis

Page 6

Caprine Arthritis and Encephalitis (CAE) is a viral disease of goats, primarily causing arthritis or encephalitis (less common), but may also cause pneumonia, mastitis and wasting. CAE is a 30-day reportable disease to Department of Livestock (DOL).

The CAE virus is primarily spread from dam to offspring through milk and colostrum. Though much less common, the virus can also spread through blood and feces. Infected adult animals are most likely to display signs of arthritis including lameness, stiffness, abnormal posture, reluctance to walk or swollen knees. Kids are more likely to display encephalitis, which is usually fatal. Importantly, infected animals may also present with mild or no clinical signs.

CAE spread within a herd is best prevented by screening newly purchased animals for the virus or maintaining a closed herd. Animals testing positive are considered to be infected for life and should be culled. Kids born to infected does should also be removed from them immediately after birth and fed heat treated colostrum/pasteurized milk, or replacer.

The Montana Veterinary Diagnostic Laboratory

(MVDL) offers a competitive enzyme linked immunosorbent assay (cELISA) for CAE, which requires 1ml of serum or clotted blood in a red or tiger top tube. The cELISA is offered with a 100% sensitivity and a 99.6% specificity.

In recent weeks, Animal Health Bureau (AHB) has followed up with Montana veterinarians on positive cELISA test results. A reasonable assumption being made by veterinarians is that a positive test result in an asymptomatic animal is a false positive. However, given the sensitivity and specificity of this assay, veterinarians should work with a high suspicion that test positive animals are true positive and guide producers to appropriate management.

A false positive result is most likely to occur in kids who are tested when they are less than six months of age and may have maternal antibody. Veterinarians and producers who have interest in (re-)testing should wait until kids are older than six months of age.

Montana veterinarians with questions about CAE are encouraged to contact Drs. Anna Forseth or Erika Schwarz ☘

By Anna Forseth, DVM and Erika Schwarz, DVM

Animal Health Contact Information:

Marty Zaluski, DVM
State Veterinarian, Administrator
(406) 444-0782
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

Anna Forseth, DVM
Program Veterinarian
(406) 444-2939
anna.forseth@mt.gov

Brooke Ruffier
Alternative Livestock
(406) 444-9525
bruffier@mt.gov

Import Permit Office
(406) 444-2976

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



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

Montana Department
of Livestock