



Stock Quotes: Animal Health Newsletter

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September 2022

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

Volume 15 Issue 3

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WHAT'S NEW

- Veterinarian Staff, p. 2
- *Brucella canis* guidance, p. 3-4

State Veterinarian Notes

HIGHLY PATHOGENIC AVIAN INFLUENZA: As we head into fall, we are focusing on the resurgence of Highly Pathogenic Avian Influenza (HPAI). Unfortunately, HPAI never truly disappeared during the summer as cases continued to be diagnosed in eastern states such as Pennsylvania as well as Southwest California. Starting about the middle of August, HPAI cases significantly picked up with over 60 new cases diagnosed nationally during the month of September. This contrasts with the 15 cases seen in all of July.

Contact with wildlife continues to be a risk factor in most of Montana's HPAI cases, and therefore, Department of Livestock (DOL) is still advising that poultry should remain indoors when possible. Operators of organic poultry programs are typically required to provide outdoor access, however, DOL has advocated for a variance to this requirement while the risk of HPAI remains high.

2023 LEGISLATURE: Preparation for the legislative session has begun with the submittal of bill drafts to make needed changes to Montana Code (law). DOL is proposing to update the indemnity statute as current law provides either \$50 or \$100 indemnity for grade or purebred animals, respectively when animals need to be destroyed due to a regulatory disease. The draft establishes a fund not to exceed \$100,000 that would be available to cover costs of animal injury during testing or destruction, and would offer producers fair market value.

DOL hopes to outlaw garbage feeding to swine which is a documented risk of incursion of foot-and-mouth disease (FMD) and other threats. If prohibition of garbage feeding becomes law, it will not affect swine owners feeding household table scraps to their own animals. Lastly, DOL is looking to update regulations in meat inspection, primarily eliminating the need for inspection during slaughter of alternative livestock (captive deer/elk). If some of these items sound familiar, that's because several bill requests are holdovers from the last session when DOL questioned the timing and elected not to continue with the effort.

BRUCELLA CANIS: *B. canis* continues to pose a diagnostic challenge. Some recent develop-

ments that may be of interest: 1) DOL has revised the recommendations for *B. canis* testing to focus on whether the dogs have specific risk factors. Previous guidance targeted dogs for testing primarily based on geography. 2) DOL created decision trees on whether *B. canis* testing is indicated and guidance for follow-up on dogs that are not easily categorized (see insert in this newsletter). 3) DOL is collating case numbers to better understand incidence. Part of this effort is to create case definitions for a suspect, probable and confirmed case. DOL will be providing some of this information in upcoming communications. See page 3-4 of this newsletter for more information.

VETERINARY DIAGNOSTIC LABORATORY: Montana Veterinary Diagnostic Laboratory (MVDL) will be making changes to its testing fee schedule in October 2022. These fee changes are a result of cost, market analysis, or a 3% across the board inflationary increase in the cost of supplies. The fees for two tests, Equine Infectious Anemia (EIA) and brucellosis remain unchanged. Several new test offerings will also be added to the fee schedule.

DOL is increasingly confident that the new lab will be on the Montana State University (MSU) Bozeman campus and be co-located with the Department of Agriculture Analytical Laboratory and the MSU Extension Wool Laboratory. The MSU Board of Regents recently affirmed their support by voting to approve a 20 year no-cost lease on property adjacent to the current Marsh Laboratory. DOL will be watching the next legislative session with much interest as the project needs additional funding to address inflationary construction costs.

VETERINARIAN HIRES: DOL is pleased to have both veterinary vacancies filled! Dr. Merry Michalski resides in Helena, and has extensive experience as a small animal practitioner. She has jumped into *B. canis* control (see article on page 3-4) and has already been a key part of our HPAI response. Dr. Brad De Groot joins DOL after spending several years with the Wyoming Livestock Board, and has previously practiced near Dillon. Dr. De Groot is hitting the ground running. See veterinarian bios on page 2. ☺

By Marty Zaluski, DVM

Merry Michalski, DVM



Figure 1. Merry Michalski, DVM Source: AHB Staff

Animal Health Bureau (AHB) welcomes Dr. Merry Michalski to the Department in the role of Emergency Preparedness Veterinarian. Dr. Merry Michalski joined AHB in August to work with emergency preparedness, *Brucella canis* (*B. canis*), Rabies, the National Poultry Improvement Plan (NPIP) program, and more.

Dr. Michalski grew up in a military family and traveled extensively as a child. She considers Colorado where she is from, but Montana as home. She attended Regis University in Denver, Colorado and received a Bachelor's of Science in biology. Merry initially intended to pursue a career in human medicine, however found veterinary medicine a much more fulfilling choice. She earned her (Doctor of Veterinary Medicine) DVM from Colorado State University in 2013 and spent her first eight years in small animal private practice where she excelled in surgery and emergency medicine. Merry is excited to combine her interests in human and animal health to contribute to disease control and study of zoonotic diseases with the Department of Livestock (DOL).

Merry and her husband, Allen, have called Helena home for eight years. Allen is from Anaconda, Montana and works as a dentist in Helena. Outside of work you will find them hiking, mountain biking, trail running, backcountry splitboarding, hunting, and playing with their dog. When Merry and Allen are not on the trails, they are either out golfing, testing out new recipes at their home-brewery, or watching college football.

Please help us in welcoming Dr. Michalski to the AHB! ☘

By Merry Michalski, DVM

Brad De Groot, DVM



Figure 2. Brad Dr Groot, DVM Source: AHB Staff

Please welcome Dr. Brad De Groot to the Animal Health Bureau (AHB). Dr. De Groot and his family first came to Montana from Nebraska in 2008. At that time, Brad established an independent livestock practice based in Dillon with the help of Beaverhead County native Dr. Bill Hawkins.

Most recently, Dr. De Groot served as the Assistant State Veterinarian in Wyoming under the direction first of Dr. Jim Logan, and then under the direction of Dr. Hallie Hasel. In that position, Dr. De Groot had primary responsibility for the Trichomoniasis and Johne's disease control programs, as well as Wyoming Brucellosis Designated Surveillance Area (DSA) compensation. Brad also participated in brucellosis risk assessment training for veterinarians serving clients who operate in the DSA and oversaw combined United States Department of Agriculture (USDA) and Wyoming Livestock Board disease incident responses such as Vesicular Stomatitis (VS).

Dr. De Groot will divide his time between his home base in Dillon, the AHB office in Helena, and field infectious disease control activity around the State of Montana. Dr. De Groot is particularly eager to work with veterinarians and producers operating in the Montana DSA to limit the impact of brucellosis in Greater Yellowstone Area (GYA) wildlife on cattle industry commerce.

Dr. De Groot and his wife Krista have two daughters Ingrid and Britta who have flown the nest living in Washington, D.C. and Boulder, Colorado, respectively. Brad and Krista enjoy carpentry and hiking trails around Dillon when they are not busy at work. ☘

By Brad De Groot, DVM

Brucella canis (B. canis)

Brucella canis (B. canis) is a bacterial agent that has been diagnosed in dogs with increasing frequency in Montana. Over the past two years, Department of Livestock (DOL) has introduced a surveillance requirement for high-risk populations in response to an increased number of reported *B. canis* cases. Increased focus on *B. canis* has resulted in an increase in the rate of testing and DOL is seeing a higher percentage of *B. canis* positive tests in the 2022 data (see Figure 3 on page 4 of this newsletter) In dogs, *B. canis* is a lifelong infection with multiple health and welfare effects. Importantly, the disease is also a potential zoonosis. In this newsletter, we will discuss the animal and human health implications of *B. canis* as well as the currently available diagnostic testing options.

Animal Health

B. canis bacterium is mainly transmitted by mucous membrane contact with vaginal discharge or birthing fluids from an infected female. Semen, urine, feces, and nasal/ocular secretions can also be transmission risks and puppies can become infected from their mother during pregnancy. The infection can cause abortion and infertility, as well as lethargy, lymph node enlargement and lameness/back pain due to discospondylitis. Like other *Brucella* species, this bacterium can sequester in areas such as the prostate in male dogs, making it difficult for antibiotics to penetrate and eliminate the organism, and therefore, recrudescence is likely when administration of antibiotics is discontinued.

DOL recommends that *B. canis* positive animals be euthanized. Based upon available information, more than half of infected dogs are euthanized at the decision of the owner. Sterilization (if intact) and quarantine, with or without antibiotic treatment and routine testing are offered as an alternative management option for owners who choose not to euthanize their animal. Owners of infected dogs should implement mitigation measures to reduce exposure of the organism to other dogs or people. Infected dogs should not be taken to public use areas including parks, beaches, pet stores or jogging paths and the dog's contacts should be limited to as few people as possible. Individuals should prevent infected dogs from licking or "mouthing" them and always practice good hygiene when interacting with the dog and its environment. This includes wearing gloves when cleaning up areas that are potentially contaminated by dog feces or urine and washing hands thoroughly when done. Properly dispose of dog waste, and launder potentially contaminated clothing or dog blankets regularly. Contaminated wet areas can be dried and disinfected with a 1% bleach solution.

Human Health

B. canis infection in humans is poorly understood. Persons at-risk for infection include dog breeders, veterinarians, veterinary technicians, in some instances laboratory workers, and any other individuals in contact with potentially infected dogs. Activities associated with the greatest risk of infection

are whelping and any activity that brings a person in contact with birthing fluids, abortion products, or vaginal discharges from an infected dog. Several reports also highlight pet ownership in general as a likely risk factor leading to infection in otherwise healthy people. Transmission to humans usually occurs by ingestion of the organism or via contamination of mucus membranes and abraded skin. *B. canis* infections in the literature have been described after close contact with infected dogs, especially animals that recently aborted or gave birth, and after exposure to the organism in a laboratory setting. No information about human-to-human transmission of *B. canis* exists; however, other *Brucella* species are not transmitted between people by casual contact and transmission by other routes of infection is unusual.

The incubation period for *B. canis* is unknown, however for other *Brucella* species symptoms usually occur within two weeks but can be up to three months after exposure. Human *B. canis* infections, like other *Brucella* genus infections, typically have non-specific flu-like symptoms including a fever which is often intermittent, fatigue, headache, weakness, malaise, chills, sweats, weight loss, hepatomegaly, splenomegaly, and lymphadenopathy. Serious complications of an infection have been reported including septic arthritis, aortic valve vegetations, osteomyelitis, epidural abscess, pleural effusions, oral lesions, lower extremity aneurysms, and culture negative endocarditis.

Diagnosis is complicated because of non-specific clinical signs and a low index of suspicion by physicians. Culture is the only test available for diagnosing *B. canis* in humans; however, confirmation is difficult because of low level intermittent bacteremia. Additionally, the antibody tests will not detect antibodies against *B. canis* specifically. Because of these testing difficulties, human disease is likely significantly underdiagnosed and under-reported. Prevention of human infections includes proper personal protective equipment and good hand hygiene when handling a potentially infected dog or working in a *B. canis* infected kennel. Other prevention measures include annual *B. canis* testing for all breeding dogs, testing all dogs introduced for breeding, and only and purchasing dogs only from reputable kennels. For infected pet dogs, measures exist that owners can take to reduce the risk of infection for humans and other dogs. However, no measure short of euthanasia should be considered effective.

Canine Diagnostics

Diagnostic testing options for *B. canis* have historically been extremely limited. The primary method for screening dogs for suspected *B. canis* infection continues to be serology. With the recent manufacturer-driven discontinuation of the reagents needed to perform the Rapid Slide Agglutination (RSAT), options for timely, accurate, and economic testing have become even more limited for practitioners. Montana Veterinary Diagnostic Laboratory (MVDL) has replaced the

(Continued on page 4)

B. canis, continued

(Continued from page 3)

RSAT with an enzyme-linked immunoassay (ELISA) test that has improved diagnostic sensitivity and specificity. This ELISA yields a semi-quantitative result that can be used to monitor the serological response of an animal over time. It is typically performed on Tuesdays and Fridays for \$9.00 per sample, making this a reasonably quick and economic diagnostic option. Although the ELISA has excellent sensitivity and specificity, positive results must be interpreted within the clinical context of the individual case and subsequent testing is often recommended. A convalescent serum sample taken 30-60 days after the initial ELISA-positive sample can help to determine whether the antibodies present may be due to active infection, previous exposure, or cross-reaction with antibodies to another organism. Convalescent serum samples, paired with patient history and epidemiologic data, will help guide final classification and management of animals.

Other secondary screening tests may be appropriate depending on the clinical context. MVDL has recently begun offering an Indirect Fluorescent Antibody (IFA) test for the detection of specific *B. canis* antibodies. Although this test has a lower sensitivity than the ELISA, the specificity is excellent. The IFA gives a semi-quantitative titer since interpretation depends on the presence of antibodies at serial dilutions of patient serum. This test may be used as a “confirmatory” serology test in sequence with the ELISA to increase confidence in diagnostic test results. The IFA is performed on an as-needed/as-received basis and costs \$25.00 per sample. Referral or direct client submission to an external or out of state laboratory for other, less widely offered serology tests is also possible.

In certain cases, confirmatory antigen testing is valuable. Options for antigen tests continue to be limited to culture or polymerase chain reaction (PCR) of blood, reproductive fluids or tissues, semen, and urine. Although serial blood culture is the gold standard for confirmatory *B. canis* testing, and detection of live agent provides definitive diagnosis, a negative culture may not definitively rule out infection in a serologically positive animal. Brucellae can become sequestered in tissue, may only be detected in blood during periods of intermittent bacteremia, and samples may contain very small quantities of this slow-growing organism; thus, false negative results are possible. The use of PCR has improved sensitivity for confirmatory testing, as PCR can detect genetic material from brucellae even when present in extremely small quantities. Limitations of PCR are like culture, and not all available assays are validated depending on the lab performing them, so negative results should be interpreted with caution.

Please refer to the *B. canis* decision flow chart insert in this newsletter for further information on test results. ☒

By Merry Michalski, DVM

Number of B-Canis Tests Run at MVDL by Calendar Year				
Year	Negative	Positive	% Positive (Shelters/Rescue Groups)	% Test Run (Shelters/Rescue Groups)
2022	731	*210	55	61
2021	677	83	54	61
2020	119	3	N/A	N/A
2019	90	5	N/A	N/A
2018	114	15	N/A	N/A

* Number of positive tests may include multiple tests per animal and tests on animals classified as negative based upon follow up testing, history, and other epidemiologic data.

Figure 3. Number of *B. canis* tests at MVDL. Source: AHB Staff

B. canis Key Points

- *B. canis* is considered a lifelong infection of dogs, with multiple health and welfare effects. Department of Livestock (DOL) recommends that *B. canis* positive animals be euthanized.
- Despite antibiotic therapy, disease recrudescence may be observed in dogs when administration of medication is discontinued.
- Montana Veterinary Diagnostic Laboratory (MVDL) has developed the capability to perform an in-house *B. canis* ELISA test with improved sensitivity and specificity. Please refer to the *B. canis* decision flow chart insert in this newsletter for further information on test results.
- Confirmatory testing is limited to culture or PCR though the bacteria may only be detected using these methods during periods of intermittent bacteremia, so false negative test results are possible.
- Diagnosis of *B. canis* in people is complicated because of non-specific clinical signs and a low index of suspicion by physicians.
- Prevention of human infections includes proper personal protective equipment and good hand hygiene.
- DOL will provide additional information and discussion at the One Health in the 406 forum later this year.

Figure 4. *B. canis* Key Points. Source: AHB Staff

Brucellosis Vaccination Certificates

In 2019 the Department of Livestock (DOL) took over the data entry of brucellosis vaccination certificates from the United States Department of Agriculture (USDA). With this transition, DOL is able to conduct compliance reviews of vaccination certificates. Calfhood vaccination and the associated official identification of animals is a large contributor to our ability to successfully trace cattle in cases such as brucellosis or tuberculosis traces, so accuracy is important. Below is a list of the common non-compliance issues that are documented by DOL.

Incomplete Address

- The address listed on a vaccination certificate should be the address of the premises where the animals were vaccinated. This address should always be a full physical address, including the identifying street number location. PO Boxes are NOT complaint addresses. The physical address is important so DOL can trace animals as closely back to the farm of origin as possible.
- If there is no physical address for the location available, DOL will accept the premises GEO code. For information on how to find a premises latitude and longitude please contact Sara Starkey in the Helena Office at 406-444-1587.

Inaccurate Tag List, Tag Duplicates, and Tag Discrepancies

- Animal Health Bureau (AHB) staff enter all vaccination certificates into the United States Animal Health Emergency Reporting Diagnostic System (USAHERDS) database. Because official identification (ID) for cattle is required to be unique, USAHERDS does not allow duplicate tags to be entered. If a tag is listed on a vaccination certificate and has already been entered that tag cannot be entered into a second time. This is the most common tagging error and very difficult to reconcile. When this issue is not resolved, official ID remains incomplete in the database and traceability is lost.
- Electronic options that may alleviate tag discrepancy issues are available. Please contact Brooke Hoopes (406-444-9525) if interested in learning more.

No Official Identification

- Official ID is required to be associated and listed on all vaccination records. Official identification is a 15 digit 840-series Radio Frequency Identification (RFID) tag or an orange or silver USDA issued NUES tag.
- 900 series RFID tags are NOT an approved form of official

identification. Process verified programs (PVPs) such as age and source programs, may distribute 900 series RFID tags to producers. Please keep in mind that if an animal already has a 900 series tag in an ear, it must also receive an official identification tag at the time of vaccination

Signature Issues

- The brucellosis vaccination certificate is an official form veterinarians are required to fill out completely, including signing the paper form and filing out the signature box with a signature and the issuing veterinarian's accreditation number. Figure 4 shows the signature and veterinary accreditation code boxes located on paper vaccination certificates.
- Without identifying information, DOL has no way of identifying who completed the vaccination.
- Incomplete certificates will be mailed back to the clinic for correction and resubmission.

DOL Follow-up

As the number of regulatory records being checked for compliance has risen, the protocol for follow up on non-compliance issues has changed. For non-compliant documentation, including health certificates, the following steps are taken to resolve the issue.

- 1) Compliance staff complete an initial review. When a compliance issue is identified, the compliance technician will reach out to the issuing veterinarian and clinic with an explanation of the issue and information needed to correct the error.
- 2) If the issue is not rectified within 30 days, the Import Office Manager will contact the veterinarian via email to rectify the situation.
- 3) When the compliance issue is not resolved after two rounds of follow-up the non-compliance is recorded, and further action, including disciplinary action may be initiated.
- 4) At the end of the calendar year veterinarians will receive a letter summarizing their non-compliance issues and their rate of rectifying those issues.

DOL is required to report the total number of vaccination certificates entered into the database to the USDA office each quarter. To keep this USDA report as up to date as possible DOL requests that you send all vaccination records within 30 days off issuance.

✕

By Brooke Ruffier Hoopes, Import Office Manager


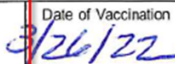
I CERTIFY THAT: (1) I have vaccinated with an approved vaccine; officially tattooed and eartagged, or otherwise officially, individually identified all animals listed hereon as prescribed by the Brucellosis UM and R, and recorded all information as prescribed by State regulations; and (2) when payment is claimed at the program's expense in accordance with the agreement number below, no payment has been or will be received from any other source.		
Signature 	Date of Vaccination 	Agree. Code _____

Figure 5 illustrates the signature fields on the vaccination certificate that needs to be filled out on each certificate. Source: AHB Staff

Feral Swine

Since the 2015 legislative session, Department of Livestock (DOL) has been the primary agency responsible for keeping Montana free of feral swine. This effort has focused on the development of a single point of contact for reports of possible feral swine sightings, the development of a response plan, and public outreach and education about Montana's regulations and the need to report potential sightings.

Public outreach has involved a partnership with the Montana Invasive Species Council, the development of the Squeal on Pigs Campaign, and the use of the 24-hour Animal Health Bureau line at 406-444-2976.

To date, Montana remains free of feral swine, partly due to the awareness of the public. A recent report of a partially decomposed carcass in Northwest Montana resulted in substantial follow up, including local canvassing, genetic testing of the carcass, and two public meetings. Current available information about the carcass suggest the animal was likely a domestic animal that was dumped but results of genetic testing are pending.

Education and outreach about feral swine includes four key aspects:

1. Why DOL does not want feral swine in Mon-

tana— The damage caused by feral swine is substantial and impact more than Montana's livestock and agriculture industries.

2. Montana's regulations have strong prohibitions to prevent the introduction of feral swine.

3. DOL does not allow the hunting of feral swine by Montana residents because:

- ◆ All reports of potential feral swine sightings so far have been owned animals.
- ◆ Hunting pressure can scatter animals over a much larger area.
- ◆ Hunting has proven to be an ineffective method of eradication.
- ◆ Once a hunting constituency builds, there will be competing interests in regards to feral swine.

4. Where and why feral swine sighting should be reported (406-444-2976):

For more information on feral swine, or if you are interested in an outreach meeting in your area, please contact DOL at 406- 444-2976. ☐

By Tahnee Szymanski, DVM

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Montana Department of Livestock