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

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State Veterinarian Notes

Please check out our Annual Report to see what the Animal Health Division has been up to during the last year (Fiscal Year ending June 30, 2016). The report details our work with brucellosis, traceability, public health, emerging diseases, alternative livestock and other issues. It also provides insight on field activities and shares historical data on animals imported into Montana. Numerous staff contributed to the Annual Report, however, without the many hours committed by Cinda Young-Eichenfels, the document would not have been possible. The report is available on our web site www.liv.mt.gov.

Animal Health Division is addressing some new challenges as we roll into 2017. It's too early to speak in any detail about the upcoming legislative session, but we're glad to see that General Fund for the Designated Surveillance Area (DSA) has been included in the Governor's budget. The DSA program benefits all Montana cattle and domestic bison producers.

We've been actively monitoring the investigation of cattle tuberculosis in Alberta and Saskatchewan which has included the quarantine of 50 premises, and we provide a status update in the following column. After avoiding any brucellosis affected livestock herds in **2015**, a livestock herd was confirmed to be positive this fall. This is the eighth positive herd since the creation of the DSA, and the third herd where bulls were the only positive animals. Genotyping analysis of the brucella isolates continues to enrich our understanding of the epidemiology of the disease. More on this investigation on page 3. ¤

mz

WHAT'S NEW:

1. Tuberculosis investigation in Canada (above, right).
2. Brucellosis affected herd in Beaverhead County (p3).
3. New World Screwworm in Florida (p2).

Canadian TB

The Canadian Food Inspection Agency (CFIA) has quarantined 50 premises and 26,000 animals as part of an epidemiologic investigation after bovine tuberculosis (TB) was detected in a Canadian cow at a United States (US) slaughter facility.

If transported in a sealed truck directly to slaughter, Canadian cattle can come into the U.S. without being examined at the border. The rationale for this is twofold: 1) animals going directly to slaughter have negligible risk of exposing other cattle, and 2) cattle get inspected at slaughter (both pre slaughter, and inspection of carcass after kill) which is how the positive animal got detected.

As of late December, six confirmed cases of bovine TB, including the index animal, have been found in Canada. CFIA announced plans to depopulate 10,000 animals on 18 premises, and this decision led to significant concern among Montana's ranchers and veterinarians.

The large number of cattle slated for slaughter is due to Canada's requirement that exposed animals be depopulated. In the U.S., herds with affected animals can 'test-out' and eventually have the quarantine lifted. Canada, on the other hand, requires that these herds must be depopulated which is similar to the approach used for brucellosis affected herds in the U.S. as recently as 2010. So, while the large number of animals going to slaughter is certainly related to the breadth of investigation, the Canadian mandated depopulation is a significant factor.

Nine other TB positive cattle were found at slaughter in the U.S. in the last year – and only one of the 10 was from Canada. DOL has long standing requirements that cattle coming from Canada need to be tested for TB prior to import; a negative TB test within 60 days of import on most classes of cattle.

Canada regularly updates their web site (https://goo.gl/eL4Bv7) as the investigation unfolds, so that remains a good reference. ¤ mz

CALENDAR OF EVENTS:

Board of Livestock:
Jan 26

Deputy Veterinarian Training:
Jan 27

MVMA Meeting:
Jan 27, Bozeman

New World Screwworm in Florida

FIGURE : A Key deer that succumbed to screwworm in the Florida outbreak.

Photo source: CNN

FIGURE 2: The screwworm fly has orange eyes and a metallic dark blue to blue-green or grey body. It also has three dark stripes running down its back, with the middle stripe shorter than the outer two.

Photo source: http://southeastagnet.com/

FIGURE 3: The screwworm larva

Photo source: http://southeastagnet.com/

This fall officials with USDA-APHIS confirmed an outbreak of new world screwworm in Key deer on Big Pine Key in Florida. This is the first new world screwworm outbreak since 1982. Since then there have been only a few isolated cases (2007 and 2010) on domestic animals that had traveled abroad with their owners but were recognized and treated before the parasite could spread. This outbreak has caused a large increase in mortality among the endangered Key deer. There have also been reports of infestation in domestics pets. To control the outbreak, USDA has been releasing sterilized flies incapable of reproducing, as well as treating deer with doramectin (in oral baits and at deer feeding stations). Animals leaving the affected area are subject to inspection.

New world screw worm (*Cochliomyia hominivorax*) is a blow fly parasite that thrives in humid, tropical climates, and feeds on living flesh. Infestation can occur in any warm blooded species, including humans. Female flies lay eggs at the edges of wounds, and screwworm larvae burrow into tissue which enlarges the wound; secondary infection is common. Morbidity is variable, and mortality ranges from 20-80% depending on host characteristics and larval burden.

New world screwworm was eradicated from the US in 1966 by the USDA using the release of sterile flies. After eliminating new world screwworm from the US, the USDA expanded the eradication program to Mexico (declared free in 1991) and the rest of Central America. Today new world screwworms have been eradicated as far south as Panama (2006). However, the flies are still present in South America and several Caribbean nations.

New world screwworm pupae cannot survive freezing, so it is unlikely that a sustained outbreak could occur here in Montana. However, this disease is an important differential for pets that have traveled abroad with their owners and return with wounds of any type. Maggots collected for submission should be obtained from deep inside wounds (superficial maggots are likely to be different species) and placed in 70% alcohol. Official diagnosis of infestation can only be made by laboratory examination of the larvae. ¤

By Emily Kaleczyc

BVD Testing Considerations

Bovine viral diarrhea (BVD) is an important respiratory, reproductive and intestinal disease affecting cattle populations. The causative agent is a pestivirus (BVDV1 and BVDV2) that can be transmitted in utero or by direct contact resulting in persistent or transient infections. In utero fetal infections before 120 days of gestation can cause fetal resorption, mummification, abortion, congenital anomalies or persistent infection if the calf survives. Persistently infected animals don't immunologically distinguish between 'self' and the BVD virus and, therefore, shed high numbers of virus in all secretions. The resulting environmental contamination creates an abundant source of virus that readily infects cohorts, thus herds are commonly tested to identify and remove any persistently infected animals.

There are two common tests available to identify persistent BVDV infection; antigen capture ELISA test and real time PCR. Both tests are sensitive and specific but each has cost advantages. For testing of one to ten ear notches, ELISA testing is generally recommended. When testing large numbers of animals, testing costs can be decreased with PCR testing because as many as 24 samples can be pooled.

(ELISA -$5.25/test; PCR-$31.50/individual test; PCR pooled-$52.50).

Regardless of the test performed, each ear notch should be put in a separate bag/container and labeled with the animal identification. Pooling needs to be performed by laboratory staff because cross contamination can occur if samples are pooled in the field and submitted collectively. In addition to the potential for false positives, pooling, if done outside the laboratory setting, will create difficulty in identifying the positive animal unless each sample is individually identified within the pool. If the pool tests positive, individual samples are tested by antigen ELISA. Both the ELISA and the PCR will identify transient BVD infections thus, isolating and retesting any positive animals 21-30 days after the original test is recommended to identify animals that are persistently infected.

Fee schedule: https://goo.gl/F3GT81. ¤

By Rachel VanKempen-Fryling; Peggy Bunger; Bill Layton

Brucellosis: Affected Herd Update

In early November, DOL was informed of 2 bulls with non-negative serologic brucellosis tests in a livestock herd in the Beaverhead County's Designated Surveillance Area (DSA). The animals were euthanized and *B. abortus* was isolated from the tissue samples which confirmed the infection.

WHY TEST BULLS: It is commonly accepted that bulls pose very little risk, however, research is lacking that proves the complete inability of bulls to transmit the bacteria. For this reason, bulls remain a 'program animal' in USDA's brucellosis regulations.

We also test bulls because they are valuable sentinels. Positive bulls indicate exposure and the presence of the disease. The same risk factors, such as the presence of infected elk nearby, exist for females. Finally and potentially most important, regardless of risk, the export of a positive bull out of our DSA or State would negatively impact trade and confidence in Montana's DSA.

A brucellosis epidemiologic investigation requires multiple brucellosis tests of the affected herd to prove that additional animals had not seroconverted and that no in-herd transmission occurred. Testing of adjacent or neighboring herds is also necessary to confirm that the disease was not transmitted to (or from) that domestic herd and that the same wildlife that exposed the affected herd did not expose the adjacent. The adjacent herds in this investigation have completed their initial herd test and were negative.

GENOTYPING THE BRUCELLA ISOLATE: The genotypes of the brucella isolates from the affected animals were compared to other known isolates. The closest match was to an isolate from an elk abortion in the area in 2012; Figure 1 shows that the isolate from that 2012 elk is virtually identical to the isolate from Bull 1 from the affected herd. Bull 2, while not identical has only one nucleotide difference. The single nucleotide polymorphisms (SNPs) used in this technique are highly stable and changes are rare. When changes occur, they rarely (if ever) revert back.

When the results of this analysis are considered jointly with other epidemiologic findings, the source of infection is extremely likely to originate from brucellosis infected elk in the area. Please see the newsletter issues from June 2014, September 2014, and March 2015 for a description of the genotyping process and interpretation of results.

CONFIDENTIALITY: There has been a fair amount of interest regarding the species of the brucellosis affected livestock herd. Montana has very robust 'sunshine laws' and requests for state agencies to make information available to the public is part of the Montana Constitution. The 'Right to Know' in Section 9 is balanced by the 'Right of Privacy' in Section 10 which excludes certain types of information from public disclosure.

Additionally, DOL is bound by Montana Code Annotated (MCA) 81-2-115 which requires that livestock diagnostic information 'that identify the owner' is not disclosed unless required for the protection of animal or public health. Alternatively, the owner may waive their right to confidentiality.

MCA 81-2-115 was passed by the 2011 legislature in response to the DOL being legally bound to disclose the owners and locations of herds affected with brucellosis. In one memorable incident, a member of the Associated Press paid a visit to the rancher's home and printed his name in the state newspapers. This type of disclosure creates a very real disincentive for producers to cooperate in disease programs and, therefore, compromises the effectiveness of the state of Montana in maintaining a healthy livestock herd. Further, producers that may be the unknowing recipients of diseased animals deserve some degree of confidentiality to not destroy their ability to participate in the marketplace once the risk is addressed. ¤

By Eric Liska and mz

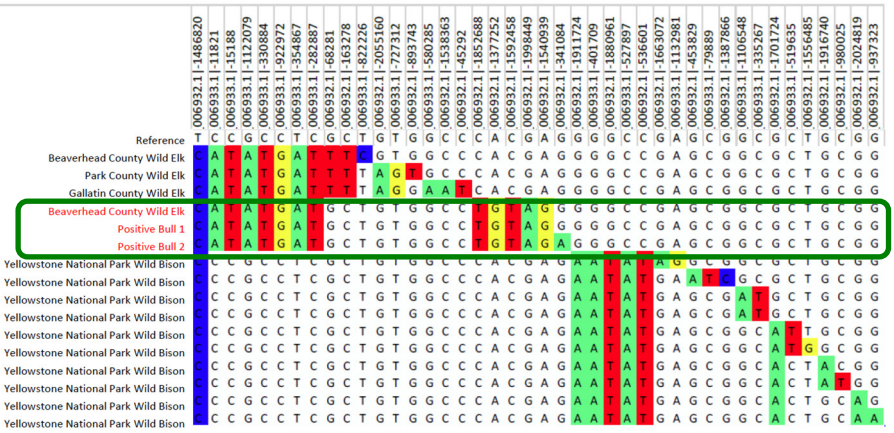

FIGURE 4: SNPs of Montana *B. abortus* isolates showing genetic match between the isolates from the positive bulls and the isolate from an elk abortion recovered in 2012.

The top header row has been cropped for formatting. The full color graphic can be viewed on the electronic version of the newsletter on www.liv.mt.gov.

Source: National Veterinary Services Laboratory

USDA Updates

To keep you abreast with recent happenings or changes in the USDA-APHIS-VS-MT Field Office, we'll take advantage of this article to "spread the word"!

EMPLOYEE SPOTLIGHT: We are pleased and very fortunate to have Dr. Janet Alverson Hughes "back in Montana" as the Montana Area Epidemiologist. Dr. Hughes returned to the Montana Field Office July 2016, where she began her career in Veterinary Services as a field VMO, and later as the Montana Area Epidemiologist. Prior to her return to Montana, Dr. Hughes held other positions in VS, including the BSE Program Manager, Assistant Director for the National Surveillance Unit, and most recently the team lead for the Risk Assessment team at USDA's Center for Epidemiology and Animal Health (CEAH) since 2012.

Prior to joining VS, Dr. Hughes worked for the USDA Agricultural Research Service for 6 years as a Research Scientist examining modes of infectious disease transmission for sheep scrapie and chronic wasting disease in deer and elk. Before joining Federal service she spent 6 years in private veterinary practice in Washington, Hawaii, New Mexico and Montana.

Dr. Hughes is originally from Missoula, Montana. She has earned a BS in Zoology, a DVM degree and a PhD in Microbiology. In her free time she enjoys hiking, horseback riding, playing guitar and spending time with her husband Brian, her horses and pets.

CONTACTING VS-MONTANA PERNSONNEL: It has been brought to our attention that our automated phone system has not been consistently reliable, especially from some landlines in Montana, including transferring calls to our Import/Export staff.

To address this issue, in addition to the (406) 449-2220 line, the following are phone numbers that can be used for making a direct connection.

VS-MT Field Office – 208 N. Montana Avenue, Suite 101; Helena, MT 59601. Email: VSVPSMT@aphis.usda.gov

Office (all lines): (406) 437-9450
(406) 449-5439 (fax)

Dr. Thomas Linfield (Assistant Director): (406) 437-9451

Dr. Janet Hughes (Epidemiologist): (406) 437-9455

Yvette Leidorf (Animal ID Coordinator, and ordering Scrapie tags, and USDA tags issued to DVMs): (406) 437-9457

Kristen Jaumotte (Vet. Accreditation): (406) 437-9458

VS-MT Veterinary Medical Officers (field):

Dr. Glen Bailey (Anaconda, MT): (406) 439-2900

Dr. Rod Meier (Great Falls, MT): (406) 799-3655

Dr. Brent Thompson (Billings, MT): (406) 208-2965

Import / Export (National Import Export Services):

Animal Imports/Exports:
(International health certificate endorsement, import and export regulations and questions)
(208) 373-1620, or
(785) 228-6565

Animal Imports — MT Ports of Entry:

Dr. James Becker (Port of Sweetgrass, MT): (406) 335-2142

Dr. Ken Lee (Port of Raymond, MT): (406) 487-5955, or (406) 478-0045

FOLLOW UP FROM SEPTEMBER 2016 ISSUE: Thank you for the positive response to the various issues identified in "Documentation Do's & Don'ts" article. We have seen a significant improvement in the completeness, accuracy, and legibility of Forms and Certificates received in our office! We truly appreciate your efforts. ¤

By Tom Linfield, Assistant Director, USDA-APHIS-VS

United States Animal Health Association

According to its mission, "the United States Animal Health Association (USAHA) develops and promotes sound animal health solutions for public good," At its annual meeting last October, commodity organizations, state and federal animal health officials discussed policy and animal health regulations. Drs. Liska, Szymanski and I attended numerous committees and provide some of the highlights below.

TRICHOMONIASIS: The Trichomoniasis Subcommittee is a subcommittee of the Infectious Diseases of Cattle Committee and was formed to address trich control programs. The group reviewed a recent trichomoniasis laboratory performance panel that several labs (including Montana Veterinary Diagnostic Laboratory) participated in. Results showed that most participating labs performed well; the most frequently missed samples were those with very small numbers of trich organisms.

FARMED CERVIDAE: This is a subcommittee of the Committee on Captive Wildlife and Alternative Livestock aimed at addressing specific animal health issues of the cervidae industry and providing both scientific and technical expertise to USAHA to assist with decisions and policy making.

- A new ante-mortem test for CWD, the RT-QuIC of rectal, tonsillar, or retropharyngeal lymph nodes, has shown early promise as being sufficiently sensitive and specific to be used in surveillance programs. It is believed to be more sensitive than tests used currently and has performed well in early onset animals that are not yet obex positive.
- Discussion on role of genetic susceptibility in CWD transmission; calf with mother with CWD has a factor of 1.4X more likely to be CWD positive; calf with two or more relatives with CWD is 2X more likely to be CWD positive.

SHEEP AND GOAT: The purpose of the Committee on Sheep and Goats is to serve as a forum for the exchange of information on new technology and solutions as well as discuss problems and concerns that may have a negative impact on the industry.

- Evaluation of an IDEXX ELISA test for evaluation of animals for *Brucella ovis* showed poor agreement with current NVSL ELISA, but was more consistent on clinical animals. Further evaluation is necessary before the test can be validated for commercial use.

RABIES AND PUBLIC HEALTH: The purpose of the Committee on Public Heath and Rabies is to enhance public health and environmental quality for all animals, including humans and serves as a liaison with USAHA to livestock producers and handlers, private and public veterinarians and their organizations and agencies.

- As elimination of raccoon rabies from the US becomes a feasible target, the next frontier of rabies control is elimination of the skunk variant of rabies virus. Oral rabies vaccination protocols that have been so effective in raccoons and other species present some unique challenges in skunks that include: mouth is too small for raccoon size baits, good eyesight that makes them more discriminating of common bait presentations, competition for baits with more aggressive species, and a higher bait density needed to reach enough skunks to confer protective population immunity.

ANIMAL WELFARE: This committee considers welfare issues. Past meetings focused on soring of horses, poultry housing, and visual signs of pain in animals.

This year's session focused on Bureau of Land Management (BLM) wild/feral horses and burro program. BLM expends $49M per year on the program with the horse population under management growing by 15-20% per year and doubling every 4 years. Population as of March 2017 was 67,000. Adoption of wild horses has decreased as the price of other horses has dropped due to lack of slaughter market and economical downturn.

Litigation and congressional actions have limited other options for population management (euthanasia, slaughter, sterilization).

TUBERCULOSIS: This committee primarily focuses on the national tuberculosis eradication program.

- Texas: Identified two dairy complexes (two dairies each) with an inventory of 20K animals infected with TB since 2014.

(Continued on page 6)

United States Animal Health Association *(cont'd)*

(Continued from page 5)

Depopulation of the second dairy complex has been delayed because of lack of agreement between USDA and the owner about the value of the certified organic animals.

- California: Regained TB free status. An exhaustive TB testing effort had identified several 'unrelated' strains affecting dairy animals. Concerns exist over human source of TB from Hispanic employees.
- Michigan: The state is investigating 66th herd with TB. Michigan detected 4 herds in last fiscal year which may result in the state being downgraded from TB free.
- Indiana: Since 2008, Indiana found 3 beef and one cervid herd infected with TB. Positive herds are associated with path of Whitewater River in the state, and there is concern over wildlife reservoir. So far, only one wildlife animal (white tail deer) has been found to be positive.

Brucellosis: USDA currently collects brucellosis samples at 11 slaughter plants in the US. The number of samples collected strives to achieve a 95% chance of detecting a positive case assuming an infection rate of 1 in 100,00 animals. The USDA is still reviewing public comments on the combined brucellosis/TB proposed rule; significant work needs to be done to adjust this rule based on public comment, and publication is necessary to avoid nullifying the interim TB rule. ¤

By Tahnee Shymanski, Eric Liska and mz

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