



# Stock Quotes: Animal Health Newsletter

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

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## INSIDE THIS ISSUE

State Veterinarian Notes	1
Annual DSA Compliance Assessment	2
ICS Emergency Preparedness Trainings	3
African Swine Fever Update	4
Bovine Tuberculosis Update	5
Equine Rabies	6

## WHAT'S NEW

- African Swine Fever, in the Dominican Republic p. 4
- Equine Rabies, p. 6

## State Veterinarian Notes

It's been an active three months, and while there are numerous noteworthy items, the list below covers those of greatest interest.

**TUBERCULOSIS (TB):** We have been intensively TB testing after receiving notification that two bovines slaughtered in different states were confirmed to be infected with TB. Animal identification collected from the animals at slaughter, combined with a genetic match of the lesioned tissue with tissue on the ear tag, definitively confirmed the Montana source herds.

One of the first steps when investigating a "trace" is to conduct a whole herd test of all susceptible animals down to two months of age. Source herd testing is a critical first step to determine the extent of herd infection which informs further actions. If additional animals are found infected in the source herd, the herd will be classified as affected, and full investigations begin, including tracing of purchased and sold animals and testing adjacent herds. As this newsletter is being written, Department of Livestock (DOL) is finishing up initial source herd testing. More information can be found on page five.

**RABBIT HEMORRHAGIC DISEASE (RHD) VACCINE:** A United States (US) sourced vaccine for RHD is now available! Under an emergency use authorization, the vaccine company Medgene in South Dakota has been granted permission to market the vaccine in the US. This development is important because in the face of outbreaks of this highly fatal disease in 12 states, the only option was to import vaccine from the European Union (EU). Shipments from the EU are time consuming, and expensive.

The vaccine is a recombinant subunit (killed) vaccine that requires two doses 21 days apart for full immunity. It has shown to be 100% effective during development.

Under the emergency use authorization, our office will be able to approve distribution of the vaccine into Montana as needed. Because Montana has previously diagnosed RHD in Yellowstone County, I believe that vaccine distribution in the state is warranted, and will support licensed veterinarians being able to offer the product to their clients. However, final determi-

nation will depend on the terms of the emergency use authorization, and any other restrictions placed by the Center for Veterinary Biologics (CVB). Additional information is available on the manufacturer's website: [www.medgenelabs.com/rhdv2](http://www.medgenelabs.com/rhdv2).

**AFRICAN SWINE FEVER (ASF):** DOL is highly concerned about the outbreak of ASF in the Dominican Republic, and now Haiti. These findings make an introduction into the US more likely. The United States Department of Agriculture (USDA) has set up a disease protection zone in Puerto Rico and the US Virgin Islands to incentivize additional surveillance and to protect the trade status of the US should ASF be found in those territories.

ASF is incredibly contagious, but more environmentally stable than Foot and Mouth Disease (FMD), and therefore, concerns over disease transmission through fomites and food products are even greater.

**RED TAPE REVIEW:** The governor has asked state agencies to conduct an analysis and review of existing regulations. DOL has developed a set of criteria to evaluate regulations for updating that allow us to prioritize regulations for updating.

DOL will be looking at Montana Code (MCA), administrative rules, and policies with a critical eye. As you are aware, Animal Health Bureau (AHB) has made significant effort to maintain current regulations. For example, brucellosis regulations, semen and swine import requirements, as well as documentation required for importation have all been updated. However, DOL would still like to take a look at the pseudorabies chapter which regulates a disease that we haven't found in commercial swine for many years, county quarantines following rabies diagnosis in a terrestrial animal, and others. Additionally, DOL would like to revisit the requirement for CAN hot iron branding of Canadian origin cattle following changes in federal regulations, as well as trichomoniasis testing requirements from four counties designated as higher risk several years ago. I welcome your suggestions for particular attention. ☘

By Marty Zaluski, DVM

# Annual DSA Compliance Assessment

Department of Livestock (DOL) recently completed the FY20 Designated Surveillance Area (DSA) compliance assessment. This assessment is conducted annually and includes a detailed review of brand inspections and grazing permits for animals in the DSA. The DSA compliance evaluation also examines testing of DSA cattle sold at Montana livestock markets. The compliance assessment helps identify deficiencies in Montana’s brucellosis program while also validating its effectiveness. Overall, compliance with DSA requirements in FY20 was high at 98.1%. The remaining article will discuss findings from the FY20 DSA compliance assessment.

### Change of Ownership and County Movements:

There were nearly 3,000 inspections and permits issued for movement or sale out of or within the four DSA counties: Beaverhead, Gallatin, Madison, and Park. Because portions of these counties lay outside of the DSA boundaries, each inspection/permit was examined to determine 1) if the animals originated in the DSA boundary, 2) if a test was required, and 3) if required testing was completed. Of the 3,000 inspections/permits, 1,227 (representing 38,767 animals) were within the DSA.

Focusing on the 1,227 DSA inspections/permits:

- A total of 23 movements (1.9%; 747 animals) were out of compliance with testing requirements. Four of these 23 movements (representing 504 animals) were minimal violations due to issues with timing of testing and signed management agreements.
- All but eight movements (representing 197 animals) have been brought into compliance through follow-up actions by DOL field staff and office staff. Follow up actions for the remaining eight movements are ongoing and expected to be completed during fall 2021 processing.

### Livestock Market Sales:

Brucellosis testing at livestock markets occurs when test eligible animals bearing a brand that is flagged for DSA utilization arrive at the market for sale. In FY20 there were 10,106 market tests; however, records show that 14,841 cows and bulls were sold through the markets with a flagged brand. This discrepancy can largely be attributed to animals with a brand that is no longer utilized in the DSA, animals that were tested prior to leaving the DSA, or due to humane or human safety reasons.

Changes in documentation and a more detailed examination of market sales and tests will address the previously mentioned discrepancies. Beginning in FY22, livestock market testing and sales of animals bearing a flagged brand are being evaluated at least monthly. This increased frequency allows for quicker examination of sellers and animals tested, resulting in quicker updates to the brand flag database. Enhancements to database functionality will eventually streamline the DSA compliance process.

Future DSA assessments will continue to focus on matching individual movements or sales to corresponding tests. This will be accomplished primarily through improvements in documentation such as:

- Increasing use of electronic brucellosis test submissions.
- Detailed source and destination information on field brand inspections.
- Correlating producer, test, movement, and brand data between databases.

✉

By Leslie Doely

	Total Movements		DSA Movements		Out of Compliance*	
	Inspections	Cattle	Inspections	Cattle	Inspections	Cattle
<b>Gallatin County</b>	692	9,521	485	5,469	5	113
<b>Park County</b>	496	23,183	286	3,469	1	1
<b>Madison County</b>	635	20,142	186	2,750	2	7
<b>Beaverhead County</b>	928	55,916	177	7,304	8	23
<b>Grazing permits</b>	175	37,344	93	19,775	7	583
<b>Total</b>	2,926	146,106	1,227	38,767	23	747

Figure 1: Brand inspections and grazing permits in the four DSA counties for cows, bulls, and heifers.

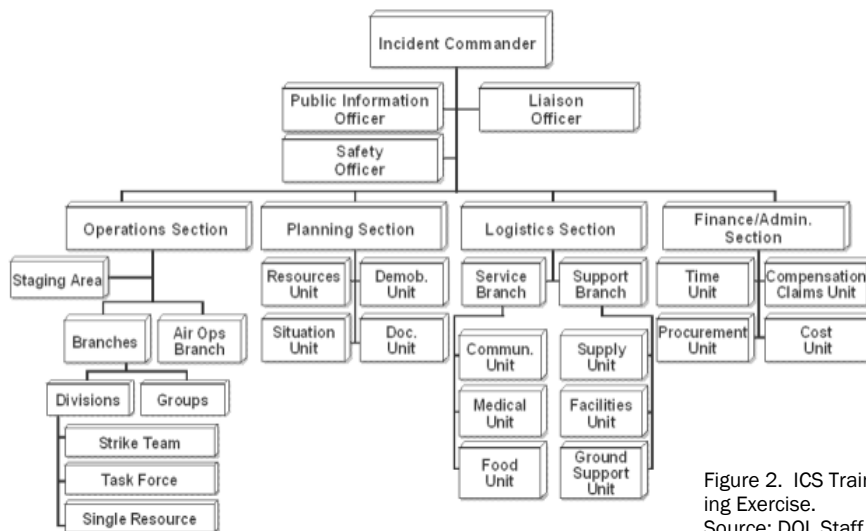
\*Out of compliance includes movements that have been corrected or brought into compliance since they were discovered as well as movements that have not yet been brought into compliance.

Figure 1. DSA Compliance by Movement Type. Source: DOL Staff.

# ICS Emergency Preparedness Trainings

This past August the Animal Health Bureau (AHB) held a three day Incident Command System (ICS) exercise to advance Department of Livestock (DOL) preparedness for a foreign animal disease (FAD) introduction. The ICS activity included a simulated foot and mouth disease (FMD) detection in Custer County involving cattle. Thirty five individuals from the DOL, United States Department of Agriculture (USDA), and Disaster Emergency Services (DES) participated in the exercise.

The ICS is a national model for incident response that was first developed in the 1970s using a Navy model to manage hierarchy when fighting wildfires. As shown in Figure 2 below, the ICS structure allows identification of the primary functions necessary to respond to an incident and provides organization to the group of individuals involved. During the August 2021 training, DOL designated staff members into specific roles within the ICS structure and then simulated a response to an FAD detection, using ICS.



- Introduced a public information officer to communication requirements involved within the initial days of an FAD response. These communications include press releases, interview talking points, and others. Draft communication documents were generated for use at a later date.
- Continued to discuss a plan to address who, when, and how to communicate with external stakeholders. Three tiers of communication have been identified: internal communication, industry communication, and public communication. Industry stakeholders, including livestock producers may have an opportunity to be involved in meetings with DOL staff during a response and may also be presented with more detailed information about the outbreak than the general public.
- Discussion about the stop movement order was also advanced. In particular, arguments to have animals in transit at the time of the stop movement order continue to their destination vs. return to the premises of origin were made. Considerations included biosecurity, humane handling and transport, resource needs, and state and international (Canadian) borders.

While there were many successes, the exercise also generated several follow up items, which represent the ongoing nature of emergency preparedness work. These follow up items include:

- Produce a list of mental health resources for producers and responders.
- Work with adjacent states/provinces to better understand anticipated animal movement restrictions following an FAD detection.
- Determine a plan to effectively manage the influx of calls to the DOL. The plan should include answers to frequently asked questions (FAQ), that any AHB staff member could address.

Figure 2. ICS Training Exercise.  
Source: DOL Staff.

AHB was able to address preparedness gaps that were identified during the 2018 Agriculture Response Management and Resources (ARMAR) functional exercise. These included:

- AHB introduced Brands Enforcement Officers and DES staff to the initial response timeline including diagnosis, notifications of a positive test, national stop movement, quarantine, indemnity, and depopulation. Many Brands Enforcement Officers and DES Staff were not familiar with these response activities prior to the ICS exercise.
- AHB updated the ICS structure itself to include specific positions focused on biosecurity and enforcement of animal movements; functions specific to a FAD response.

- Identify a list of carbon resources for composting following depopulation.
- Identify a list of supplies that can be acquired prior to a detection, including personal protective equipment, lab testing supplies, decontamination products, etc.
- Determine a plan to deploy private veterinarians during a disease outbreak.

In December 2021, DOL will hold a second ICS exercise to further advance the outbreak scenario and discuss response topics including surveillance and vaccination. An Agriville tabletop farm display will be incorporated into the upcoming course to allow participants to work with a 3D model of a quarantined premises. ✕

By Anna Forseth, DVM

# African Swine Fever Update

African Swine Fever (ASF) is a devastating swine disease circulating in parts of Europe, Asia, Russia and has most recently been detected in the Western Hemisphere in the Dominican Republic (Figure 3) and Haiti. ASF originally came from Africa to Europe in 2007 and then has spread to other countries by movement of domestic swine, wild boars, and feral pigs. The epidemiological story of spread is very consistent in each of the countries with the practice of unregulated feeding of contaminated garbage or swill, poor or nonexistent biosecurity and movement by humans of infected swine or swine products by humans.

ASF can devastate a swine herd within days. Animals show various clinical signs depending on the strain but consistently present with high mortality/morbidity, fever, trembling, huddling in piles, hemorrhagic lesions on the skin and internal organs, bloody discharge from orifices, and late-stage paddling. These clinical signs are not pathognomonic to ASF and can also be found with domestic septicemias, Porcine Reproductive and Respiratory Syndrome (PRRS), Salmonellosis, erysipelas, etc.

The United States (US) economy and swine markets have a lot at stake to prevent this disease from moving into the country. Currently there are 77.5 million pigs in the US, 62,000 pig farmers and 550,000 swine industry jobs that contribute to creating a 20 billion dollar industry. Although, most pigs are raised in the Midwest and North Carolina there are commercial pigs raised in every US state including Montana. According to 2019 census data, Montana swine producers have a total inventory of 192,000 pigs which also adds to Montana's farm economy and aids food production for the US.

Currently there is no commercial ASF vaccine available for distribution. Stopping movement, biocontainment and depopulation are the tools used to eradicate the disease in affected countries. Although, the ASF situation poses a serious risk, the US is doing a lot to protect swine herds and markets by preventing the disease from entering the US and preparing to respond if there is an incursion.

Examples of prevention efforts include:

1. Import restrictions on live swine and swine products from countries that are infected with ASF.
2. International garbage from ships and planes is removed under seal and transported to secure facilities for disposal.
3. Establishment of a Foreign Animal Disease (FAD) Protection Zone in Puerto Rico and US Virgin Islands.
4. Increased presence of Customs and Border Protection in the US and in the FAD Protection Zone, which includes checking cargo and passengers for contamination (Beagle Brigades), outreach/education of risk,

random inspections, and surveillance.

5. Internal prevention actions include the enforcement of the Swine Health Protection Act in the US, which regulates feeding of swine to allow only cooked garbage (at high temperatures over time) which eliminates the pathogen.
6. Ethnic markets within the US that could potentially sell foreign swine products are inspected regularly and assessed for risk.



Figure 3. Map of Dominican Republic and proximity to US  
Source: NC Extension.

Efforts to better prepare for a response include:

1. ASF response plans have been developed and updated by United States Department of Agriculture Animal and Plant Health Inspection Service (USDA APHIS) in April 2020.
2. Development of state specific ASF response plans and general FAD response plans with exercises conducted by several states.
3. Aggressive biosecurity plans developed and outreach to pig farmers regarding recognition of ASF clinical signs.
4. ASF vaccine research has developed several strains of safe and effective live attenuated vaccines that are experimental now but are patented and licensed and moving aggressively towards approval for commercial production.
5. Approved diagnostic samples now include blood swabs, dried blood cards, and spleen swabs, in addition to pooled whole blood, spleen, and tonsil. Lymph nodes have also been approved as a sample type. Oral fluids are not currently approved because of false negatives, however continued research may improve test performance.
6. Targeted surveillance and testing for ASF of any sample submitted to National Animal Health Laboratory Network (NAHLN) labs that fit history and criteria for ASF.

USDA APHIS is confident that its many existing preventive measures and mitigations, along with the additional measures underway, will protect our livestock industry from ASF and ensure the continued export of pork. ☒

By Scott Beutelschies , DVM

# Bovine Tuberculosis Update

Department of Livestock (DOL) is working on two epidemiological investigations associated with detections of bovine tuberculosis (TB) in animals at slaughter. Postmortem inspection of carcasses at slaughter plants is the primary method for TB surveillance in the United States (US). These postmortem evaluations are conducted at all state and federally inspected slaughter facilities. Additional opportunities for detection include testing of animals associated with a TB trace, pre-movement testing, and testing for TB accredited free herd status.

Both epidemiological investigations involved the detection of TB in animals that originated from Montana herds. The source herds for the animals were confirmed through identification tags collected at slaughter, brucellosis vaccination and test records, and sale records from the two Montana livestock auctions. Additionally, the National Veterinary Services Laboratory (NVSL) matched the genetic make-up of the lesion tissue to tissue associated with collected identification to ensure the lesion is attributed to the correct animal. The first TB positive animal, slaughtered in Minnesota on August 5 2021, traces back to a herd in Blaine County. The second animal, slaughtered in Idaho on September 1 2021, traces to a herd in Madison County.

The TB source herds have been placed under quarantine and are required to complete a whole herd test on all animals two months of age and older. The caudal fold test (CFT) is used for the herd test and all animals that respond to the test are classified as reactors and must be removed from the herd. Figure 4 shows a positive TB result using the CFT. Unlike routine TB surveillance, the completion of a comparative cervical test (CCT) is not permitted to rule out TB. If the first whole herd test is negative, a second herd test is required for all animals two months of age and older 60 days following the first herd test. The second test is completed using the standard CFT/CCT protocol. Herds may be released from quarantine after the completion of two negative whole herd tests.

If additional animals are found within either source herd, the herds will be classified as TB affected herds, a full epidemiological investigation will ensue, and the options for herd management become extremely limited. The epidemiological investigation will focus on herds that run adjacent, herds that have received cattle from the affected herd, herds that have shipped cattle into the affected herd, and local wildlife surveillance. Typically, the past five years of animal movements are considered.

For herd disposition, according to the United States Department of Agriculture (USDA) TB Uniform Methods and Rules, depopulation of the entire herd should be the first consideration.

If a herd is not depopulated the herd must remain under quarantine and undergo a test and removal process. Consideration for test and removal vs. federal indemnity and depopulation include the apparent prevalence of infection in the herd, the risk of disease transmission while undergoing test and removal, the effectiveness of other management practices to mitigate disease spread, and the cost effectiveness of depopulation.

Testing requirements for test and removal consist of:

Removal testing: At least two consecutive herd tests in which all responders to the primary diagnostic CFT test are examined postmortem with no evidence of TB and statistical modeling of last test indicates >95% confidence of freedom

Verification and quarantine release testing: test all animals six months of age or older with CFT, with application of secondary test to clear suspects, and >95% confidence of freedom. To occur at least 180 days after last removal test.

All animals moved from the premises prior to quarantine release must be shipped directly to slaughter and be accompanied by a permit issued by a State or Federal representative.

Assurance testing: testing of all animals 12 months of age or older using CFT, with application of secondary test to clear suspects. To begin one year after quarantine release with three to five total assurance tests, with the final test five to eight years after quarantine release.

Test and removal for beef herds is a difficult option because the duration of quarantine often spans multiple calving seasons and sale of or finishing of each year's calf crop is limited to defined slaughter channels. The associated financial burden is often prohibitive for beef herds to consider test and removal. Whereas in dairy herds, where milk sales can continue, this is a more feasible option for disease management.

Look for additional updates in the coming weeks and months as DOL moves the two Montana source herds through a difficult and labor intensive process. ☒

By Tahnee Szymanski, DVM



Figure 3. CFT Responder. Source: DOL Staff.

# Equine Rabies

On Wednesday September 8 2021, Animal Health Bureau (AHB) was notified that a horse from Ravalli County had tested positive for rabies, using the direct fluorescent antibody (dFA) test. A press release was issued regarding the diagnosis as well as a county quarantine. The sample subsequently tested negative at the Centers for Disease Control (CDC), causing some confusion.

In recent months, the CDC has asked for samples that test positive to be submitted to their laboratory for further evaluation, to better understand the geographic distribution of rabies virus variants (skunk variant vs. bat variant, etc.). To conduct variant evaluation, a follow up dFA test is conducted. The dFA test uses a fluorescently labeled anti-rabies antibody to bind to rabies antigen in brain tissue. If rabies antigen is present, a fluorescent apple green area can be seen using a fluorescence microscope. The dFA as well as a polymerase chain reaction (PCR) test run on the samples at CDC were determined to be negative. Due to incongruent test results of those conducted at the CDC and the Montana Veterinary Diagnostic

Laboratory (MVDL), this case has been classified inconclusive.

After receiving the report from CDC, a second dFA test was conducted at MVDL to corroborate the initial dFA test results. Test results at MVDL were positive a second time. For this reason, the 60 day Ravalli County quarantine will remain in effect and the owners of the affected horse have been asked to vaccinate remaining horses and monitor animals for signs consistent with infection for six months.

Diagnosis of terrestrial (non bat) rabies is not common in Montana. Only two other horses have been diagnosed with rabies in the past 12 years, one in Yellowstone County in 2010, and one in Big Horn County in 2012. To prevent confusion associated with future cases involving domestic, terrestrial species, the AHB will wait to notify the public through a press release, until diagnostic confirmation is received by CDC. ☞

By Anna Forseth, DVM

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