

ag animal health VETERINARY MEDICINE EXTENSION

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WASHINGTON STATE UNIVERSITY EXTENSION & WSU COLLEGE OF VETERINARY MEDICINE

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YOU CAN VIEW PAST ISSUES OF *ag animal health*:
<http://extension.wsu.edu/vetextension/Pages/Newsletters.aspx>

From the Editor – June is National Dairy Month! Since 1939, our country has celebrated June as *National Dairy Month*. Does it have anything to do with ice cream and summer? Most of us recognize that milk and cheese and cream and butter and ice cream and yogurt bring great value to the state. But, have you thanked a cow recently? How about a dairy farmer? I would not be writing this newsletter four times a year if it were not for the cows, dairy farmers, and veterinarians I have met and worked with as a pre-vet, vet student, practitioner and finally as an extension veterinarian and educator. We have learned from each other, challenged each other (especially that bull once) and found humor in our day-to-day work. So, during *National Dairy Month* you should embrace all facets of the dairy industry.... But, on second thought, maybe it really is just about the ice cream.

What we (VetMedExtension & FDIU) have been up to:

Drs. Wenz and Giebel have wrapped up much of the *Good Health Records* project. See <http://extension.wsu.edu/gdhr/Pages/default.aspx> for more information. Recently, FDIU conducted field investigations on an emu farm with decreased production, a swine operation with excessive death losses, and a sheep flock with a mastitis problem. Dr. Moore's dairy locomotion scoring project is well underway (see <http://extension.wsu.edu/vetextension/Lameness/Pages/default.aspx> for more information). There are many more activities but these are some of the highlights. For more information on FDIU, contact Dr. Wenz jrwenz@vetmed.wsu.edu, or for more information about VME, contact VetExtension@vetmed.wsu.edu.



FSIS Residue Prevention Compliance Guide – What does it mean for producers?

By Dale A. Moore, DVM, PhD

In April, the USDA Food Safety Inspection Service (FSIS) published a compliance guide for residue prevention at slaughter establishments. In May, I discussed this with beef producers at the WSU Beef300 course and thought it would be worth sharing a summary in the newsletter.

For 45 years, the USDA:FSIS has been evaluating meat, poultry and eggs for chemical residues (including antibiotics). If samples test positive for residues, FSIS shares this information with the Food and Drug Administration (FDA). With implementation of Hazard Analysis Critical Control Point plans within packing plants, plants have to identify residue hazards and develop systems to prevent them. Those plants that continue to purchase livestock from repeat residue violators (more than one residue violation in 12 months) put themselves at risk for non-compliance actions.

The first suggestion to reduce residue risks is for plants to know where animals are coming from through better animal identification, so they can check the repeat violator list. The second suggestion is to require some type of certification from the sellers that the animals do not come from a repeat violator premise. The repeat violator can still sell animals but they have to ensure that they now have controls in place that prevent residues or the plant could explore live animal testing. At this point, the new Guide emphasizes that packing plants (particularly those slaughtering dairy cows and bob veal calves) apply the following measures:

1. Confirm producer violator history
2. Buy residue-free animals
3. Ensure that animals are adequately identified
4. Supply producer information to FSIS at ante-mortem (before slaughter) inspection
5. Notify producers of violative animals

Good animal identification, complete records and residue prevention practices on the farm will go a long way to keep the market open for dairy cattle and bob veal and prevent visits from the FDA. *If you are a dairy producer, check to see if your records are FDA-ready by visiting the WSU VetExtension site: <http://extension.wsu.edu/gdhr/tools/pages/FDAReady.aspx>, For training employees on residue prevention, see: <http://www.bqa.wsu.edu/DairyBeef/index.htm> & <http://extension.wsu.edu/vetextension/dairy/Pages/default.aspx> and click on the Pharmacology Course.*

For the full USDA report, go to:

http://www.fsis.usda.gov/PDF/Residue_Prevention_Compliance_Guide_042512.pdf



Lessons Learned: Korean FMD Experience 2010–11

notes from DA Moore

I attended the *4th International Symposium: Managing Animal Mortality, Products, By-Products, and Associated Health Risk* in May. There were many talks on what to do with normal livestock mortalities but a major focus was what to do when there are *abnormal* livestock mortalities, such as during a Foot and Mouth Disease (FMD) outbreak. One invited speaker was a researcher from South Korea who gave a very personal presentation about the last FMD outbreak in 2010-2011 and the lessons learned from that experience.

South Korea had experienced outbreaks of FMD on a relatively small scale (no more than 15 farms affected) several times in the previous decade. The government's approach was to depopulate all potentially exposed animals (within 500 m of a case) and vaccinate farm animals around those. But, the outbreak beginning in 2010 unfolded differently. Over 3,700 farms were infected in this outbreak of FMD Type O that spread throughout much of the country and lasted about 5 months, costing billions. Almost 3.5 million head of livestock were depopulated – including almost one-third of the nation's pig population. The farm animals were buried in 4,800 mass burial sites leading to many questions about potential water quality problems.

Why was this outbreak so much more devastating than previous ones? The frank answers were: Poor surveillance and low awareness of the disease among officials and farmers, misdiagnosis and a 1-week delay in disease control measures due to an inaccurate false negative test kit result, poor quarantine process, cold weather (making disinfection ineffective), and long routes for feed delivery and milk trucks. The widespread nature of the outbreak (transmission between farms) was attributed to three major reasons: **(1) 67% attributed to vehicle movement; (2) 10% to farmer movement; and (3) 11% to service provider movement – artificial insemination, semen sales, animal health sales, and veterinarians. The index farm was thought to have become infected by the farmer who traveled.**

As a result of this outbreak, the South Korean government made some very big changes. To improve awareness and surveillance, every farm must be registered and each farmer must go through an 80-hour training program on disease identification and control. To incentivize farmers to comply with disease prevention practices, they altered the compensation for animal loss from 100% of market value if found compliant to 20-80% of market value depending on how many disease prevention practice violations are found. In addition, all inter-farm vehicles must be registered and have GPS tracking. The government also created 5 new regional centers for quicker response.

The South Korean lessons should be our lessons too. For more information:

<http://www.cfsph.iastate.edu/DiseaseInfo/disease.php?name=foot-and-mouth-disease&lang=en>



Map of burial sites for livestock in S Korea.



Dairy cow with FMD.

WSU Recent Research Highlights



Impact of Body Condition Change Post-Breeding on Reproductive Performance of Beef Cows

By Dr. R. Kasimanickam

Most cow-calf producers are aware of the impact that body condition of the cow prior to breeding has on conception rate. But until last year, no one had evaluated how changes in body condition between breeding and pregnancy confirmation might affect pregnancy rates. The objective of our study was to evaluate the impact of change in body condition during the 2 months after breeding on AI pregnancy success in beef cows.

We enrolled Angus cross beef cows (N = 2571) from 11 locations and assigned them a body condition score (BCS, 1-emaciated to 9-obese) at the start of a synchronization (CO-Synch+CIDR) protocol. Sixty to 70 days later, at pregnancy diagnosis, we scored them again. Cows were also fitted with *Kamar* heat detection patches at CIDR removal and observed three times daily for estrus expression until inseminated (AI) at a fixed time. Cows' pregnancy status was determined by palpation or ultrasound diagnosis.

Statistically, we looked at the potential effects of change in BCS ('no change or gain' vs. 'loss'), cows expression of estrus at or prior to AI (activated, partially activated, or lost *Kamar*) or not (intact *Kamar*), age of the cow (2, 3 to 6 and >6 years), and days post calving at the start of synchronization (30 to 60, 61 to 80 and > 81 days). We also evaluated the effects of location AI sire.

Pregnancy rates differed by location and ranged from 51% to 67%. The average cow BCS change also differed by location and ranged from about -0.8 to +0.8 change in BCS. The results showed that AI pregnancy rate was significantly lower (50.1%) if the cows lost body condition compared to cows that had no change or gained body condition between breeding and pregnancy diagnosis (55.3%). Cows that showed heats at or prior to AI also had higher pregnancy rates (57.8% vs. 48.9%). From this research it would seem that making sure cows stay in good condition after breeding is just as important as getting them in good condition before breeding.

Research done by: R.Kasimanickam, P. Firth, M. Asay, Washington State University; J. Hall, University of Idaho; and W. Whittier, Virginia Tech. For information on Body Condition Scoring beef cows, go to: <http://www.bqa.wsu.edu/pdf/carehandling.pdf>

What's New at WADDL?

Caseous Lymphadenitis of Sheep and Goats By Drs. Hammac, Evermann, and Besser

Testing for Caseous Lymphadenitis (CL) is recommended as part of the small ruminant herd biosecurity screen offered through the Washington State University-Washington Animal Disease Diagnostic Laboratory (WSU-WADDL). This infection is a potential health threat to a sheep or goat herd. WSU-WADDL receives numerous inquiries about CL, how to test for it, and how to take steps to control the infection in herds and flocks. We have taken some of the most frequently asked questions and presented them along with some short answers.



1. What are the major means of spread of caseous lymphadenitis (CL)? *Corynebacterium pseudotuberculosis*, the bacterium that causes the disease CL, is spread from animal to animal primarily through contact with material from subcutaneous abscesses (pus) or fomites (inanimate objects) contaminated with abscess material. The organism can survive several months in the soil and environment, remaining a source of infection. Though much less common than visible subcutaneous abscesses, abscesses may also form in the lungs and abdominal organs as a result of spread of the organism within the animal via blood or lymph. When abscesses are present in the lungs, the organism may be transmitted through respiratory secretions (nasal discharge or coughing). In rare cases, *C. pseudotuberculosis* may be present in the milk. Although CL is not sexually transmitted, it is recommended to avoid natural breeding of animals with abscesses.

2. What tests are available for CL? There are two testing methods for CL offered at WSU-WADDL: bacterial culture to detect the bacterial organism in abscess material, and serology to detect *C. pseudotuberculosis*-specific antibodies in sheep and goat blood samples. For animals with visible subcutaneous abscesses, it is best to submit abscess material for culture since this is the most direct and definitive method to diagnose CL in an individual animal. It is recommended that all abscesses be cultured regardless of serology test results.

The serological test is the best method of "herd-level diagnosis" (screening herds). WSU-WADDL runs the Synergistic Hemolysin Inhibition (SHI) test, which measures the antibody response to an exotoxin produced by the organism. No CL serological test is sufficiently reliable to confidently detect infection in individual sheep or goats, therefore the serology results for an individual animal test should be interpreted with caution. The SHI test specificity and sensitivity for individual animals may not be high in some herds, however, the prevalence of positive tests within a herd usually reflects the herd prevalence of infection reasonably well.

3. What samples do I submit? We recommend working with your veterinarian to obtain appropriate samples. For bacterial culture, collect abscess material in a sterile container (red top tube, for example) or with a bacterial culture swab. If an abscess is lanced, be sure not to contaminate the environment. For serology, blood should be collected into a five or ten ml. "red-top" clot tube or serum separator tube. Leave the blood at room temperature for at least 1 hour to allow clot formation. We do not recommend separating the serum from the clot prior to shipment.

4. What if the goat/sheep has an abscess? Until proven negative by culture, all abscesses should be treated as if they were CL. Bacterial culture is the most reliable test for determining the CL status of an animal with abscesses. It is possible for infected animals with active abscesses to test negative on serology due to a delay in antibody production. Many environmental bacteria can cause abscesses via traumatic wounds, but unlike CL these are sporadic and not readily transmitted from animal to animal. Animals with CL abscesses should be quarantined until the abscess has completely healed or be culled. If an abscess is lanced, it should be over a hard surface that can be disinfected (concrete) or thrown away (tarp). If an abscess ruptures in a pasture, the organic material (soil, grass) is contaminated, and the pasture should be rested for at least one month.

5. How long does it take to get CL results? Serology: CL serum (SHI) tests are generally run once a week. Samples must arrive by Tuesday afternoon for results to be reported on Friday. If samples arrive Wednesday-Friday, they will be held until the next week's run. Culture: Bacterial cultures for CL are set up on the day received in the lab, and results are typically available within a week.

6. What does a positive or negative blood test mean? The serology test is best used as a screen to find out if a herd or flock has been infected, rather than to diagnose an individual animal with CL. An individual animal positive CL serology test does not necessarily mean an animal is infected with *C. pseudotuberculosis* or has CL. Furthermore, the test cannot distinguish between natural exposure and vaccination, therefore vaccinated herds may test positive. Nonetheless, herds with a high proportion of animals with positive SHI tests are very likely to contain *C. pseudotuberculosis* infected animals,

whereas herds with few or no SHI positive animals may represent little risk of CL introduction. Animals within a positive herd are at risk for developing abscesses, and the herd should be monitored for visible subcutaneous abscesses. Titers in an individual animal do not correlate well with risk of abscess development. A negative serologic result on an individual animal does not definitively rule out infection by *C. pseudotuberculosis*. The confidence in a negative result is enhanced if most or all herd mates also test negative.

7. How often should I test my animals by serology? When acquiring new animals, testing the herd of origin (10 or more animals) is the preferred approach to determining the status of the new additions. If testing the herd of origin is impossible, new additions should be quarantined and tested twice (30 days apart) before introduction into the negative herd. Testing only the new additions provides less confidence in negative tests than does testing the herd of origin. The frequency for testing an established herd or flock should be based on previous test results, eradication strategies, and the risk of exposure to other herds or flocks.

8. Is there a vaccine available? There is a vaccine available for use in sheep. Currently, there is no licensed vaccine labeled for use in goats. Both the safety and efficacy of CL vaccines have been unacceptable in goat trials. If a herd or flock is vaccinated, then serologic screening is no longer a useful method for detecting natural infection. Vaccinated herds may test positive on the blood test.

9. How can I manage CL positive animals on my farm? Because CL is a chronic infection, efforts should be directed toward preventing spread to uninfected animals. The first step is to identify infected animals within a herd or flock, which can be done through a combination of palpation for external abscesses, with confirmation by bacterial culture (see #3), and serological screening. Animals with CL abscesses should be quarantined until the abscesses have completely healed or be culled. Serological screening can assist in determining the prevalence of CL within a herd. Frequency of screening should be based on the prevalence within the herd (from previous herd tests) and the risk of outside exposure (level of biosecurity for new animals entering the herd, and animals attending outside events). Animals with signs of respiratory or wasting disease in a known CL positive herd or flock should also be quarantined, as these may be signs of abscesses in the lungs or abdominal organs. Any animals dying of respiratory or wasting disease should be necropsied by a veterinarian, and any abscesses cultured, to identify the cause of death. Flock owners should purchase and disinfect their own shearing equipment to prevent introduction of CL from outside farms, and be sure to disinfect feed bunks and stanchions, which may become contaminated by abscess material. Keep new additions in a separate pen until either the herd of origin tests negative, or the animals test negative on two tests 30 days apart.

10. Is it okay to drink raw milk containing *C. pseudotuberculosis*? Human infections with this bacterium are rare, but when found are often associated with occupational exposure to sheep and goats. Drinking raw milk is a potential source of human infection. There are other more serious zoonotic pathogens (infectious agents transmitted from animals to humans) that are regularly transmitted to humans through raw milk. Consult your veterinarian regarding the public health hazards of consuming raw milk.

11. Can horses acquire the infection from small ruminants? No. *Pigeon Fever* in horses is caused by a different strain of *C. pseudotuberculosis*. There is no evidence that the strain infecting horses can be spread to goats or sheep, or that the one infecting goats and sheep can be spread to horses.

12. Biosecurity Screen? We recommend the screen below for establishing the status of a herd, new animals entering the herd and animals producing milk for human consumption. This screen includes caprine arthritis and encephalitis (CAE), Johne's disease, caseous lymphadenitis and brucellosis. For sheep, ovine progressive pneumonia (OPP) replaces the CAE test. Additionally, Q-Fever testing is recommended, and may be required in your area, for animals producing raw milk for human consumption. Please keep in mind that it is not possible to test for every pathogen potentially

transmitted to humans through raw milk, and that negative tests do not guarantee raw milk is safe or pathogen-free.

For more information about testing and the Diagnostic lab: http://www.vetmed.wsu.edu/depts_waddl/

What if reproduction records were like health records on dairies? By John R. Wenz and Sarah K. Giebel

That is the question we posed to a group of dairy owners, their key personnel and veterinarians at a recent meeting in Sunnyside, WA. It was the preface to a presentation of summary health data representing 22 farms from the region that participated in our “Good Health Records” Demonstration Project. **Our answer to this rhetorical question:**

Conception rate and pregnancy rate would **not** be calculated by your dairy management software and therefore not be easily accessible. Instead there would be a table providing monthly counts of the number of breedings and the number of cows diagnosed pregnant in a month. Dump those numbers into a spreadsheet, if you must, to calculate some type of proportion, but you may not be using the same calculation as others in the industry.

- Evaluate counts of breedings per month, if it is too low, you aren’t breeding enough cows.
- Evaluate the number of cows with a recorded pregnancy diagnosis in a month. If it starts trending lower you know you aren’t getting enough cows pregnant.



When this happens you know it is usually an issue with the technician who is doing the breedings. So you dump all the breeding records from each cow into a spreadsheet. Each one has a handy short comment in which you have recorded whatever you think is important. Thirty percent of those comments are blank, but *most* of them have the initials of who did that breeding. Of course sometimes initials of the breeder comes first but half the time someone else put in some comment about the tone of the uterus when the cow was bred using ‘+’ for toned and ‘-’ for no tone and ‘++’ for lots of tone followed by the initials. Hmm, scanning down the list, it looks like ‘JW’ bred more of the cows which coincides with when the number pregnant started going down. But, it’s hard to say, so you just have the semen company come out and do the 3rd AI training school this year for all the breeders.

‘**Percent cows in the dry pen**’ is your only ‘overall’ measure of how well repro is going. If it starts getting too low you talk with the breeders and ask them how well they think that new semen is settling cows. They say it seems like more cows have been called pregnant on early checks lately, so you decide to buy more and keep using it. However, to be sure you tell the breeders to start recording what sire was used on the breeding comment, which they do most of the time.

- A couple months later you spend an hour trying to sift through the breeding comments in a spreadsheet and realize you have a problem. You don’t know the **outcome of the breeding!** Sure, you can look at each cow’s record and see that a breeding was followed by a pregnant or open diagnosis, but you can’t do that for the hundreds of cows that were bred the past couple months! So, you dump the pregnant, open and breeding records into a spreadsheet and sort them by cow and then by date... After hours more work you have conception rates by sire and technician by month, except you were missing about 30% of the data needed for sire and tech, but its close, isn’t it?

In the end you ask yourself, why can't the computer just calculate a conception rate and pregnancy rate for me? That would be so much faster and easier; I could make more informed reproduction management decisions. We and many others have been asking that same question about health records on dairies. Think about how much more informed dairy health management decisions could be if you could quickly and easily determine disease incidence, clinical episode retreatment rate, recurrence rate and cow removal rate for different diseases.

Join the "Good Health Records" revolution, go to www.goodhealthrecords.com and find out the simple steps you can take to improve dairy health records so they can be used for 3 critical functions on the dairy:

1. Individual cow management decisions
2. Compliance with regulatory treatment record requirements
3. Herd-level, outcomes-driven health management decisions



WSDA Corner

By Dr. Leonard Eldridge, State Veterinarian

Trichomoniasis -- I wanted to provide an update on Trichomonas fetus (trich) in cattle in Okanogan County. Over the last two years WSDA, Washington State University Extension, Washington Animal Disease Diagnostic Laboratory, and local veterinarians have provided the facts and education surrounding the devastating consequences of trich. Information has also been provided on how to eliminate the disease to the cattle community.

After meeting with representatives of the cattle industry and community in Okanogan County a few weeks ago, we looked at the large number of open cows as a result of infection and all determined that there needs to be a structured program that all cattle owners could follow in an effort to eliminate trich. WSDA veterinarians and investigators are working with all members of the cattle community in Okanogan County to ensure testing is occurring with all exposed bulls. Further recommended preventative measures should include eliminating all late and open cows, keeping a young bull battery, and making sure all cows turned out on public lands have a live calf at side, or have a medical reason for not having a calf at side that is not related to possible trich infection. All heifers turned out on public lands must be under 24 months of age and only have first year exposure to a virgin or test negative bull.

My office has the authority to prevent exposure to disease and with the knowledge that infected bulls will never clear and always be carriers of infection, the best way is to test all exposed bulls and remove the positive ones. WSDA can only recommend the type of cows that are turned out on public lands however, this is important because, although most cows will clear over time, their removal will prevent a source of infection from the small number of carrier cows that remain infected. I think this issue has pointed out gaps in our regulations and we need to look at strengthening our laws and rules to protect all cattle owners from disease exposure in the future; yet not be so rigorous that they restrict commerce and freedom to conduct business. I look forward to working with the cattle industry on just how and where we go forward on any proposed changes.

Update on Exposed Bovine Tuberculosis Traceback -- One of Animal Service's most recent investigation and traceback activity was the result of cattle exposed to bovine tuberculosis entering our state three years ago. Knowing where diseased and at-risk animals are, where they've been, and when, is very important to ensure a rapid response when any animal disease event occurs. An efficient and accurate Animal Disease Traceability (ADT) system helps reduce the number of animals

involved in an investigation, reduces the time needed to respond, and decreases the cost to producers and the government. I am pleased to report that our testing and traceability efforts found no disease; which provided USDA with the information necessary for them to close the investigation and guarantee other states that Washington's cattle are free of disease. Investigators used the information that we are entering in our unified divisional information system and relied on a time-consuming paper based search for information from the Livestock Inspection Program. Washington is responsible for tracing all exposed animals within the state. This responsibility reveals many different issues that we must comply with to preserve free movement of our livestock. The traceability efforts preserve the confidence of other states that our livestock present no risk to their resident animals when our livestock moves to their state.

Washington State Sales Yards -- Recently, an additional issue was presented to me by the U.S. Department of Agriculture (USDA) and by other states: requirements for movement of our cattle from one livestock sale yard to another livestock sale yard, both within the state and to markets in other states. The Code of Federal Regulations (CFR) was cited and we must comply. I want to make all cattlemen aware of the information below issued by USDA and the exceptions that apply. *All cattle leaving a livestock sale yard must meet all animal health requirements of the state of destination and be accompanied by a Certificate of Veterinary Inspection/Saleyard Release prior to leaving the livestock sale yard; this includes cattle moving from a Washington sale yard to another Washington sale yard, with a couple of exceptions: (1) cattle leaving a sale yard going directly to a USDA inspected slaughter facility; (2) cattle leaving a sale yard going directly to a category two restricted holding facility or another states restricted feedlot. All cattle must be officially identified prior to leaving a sales yard.*

Continuing Education

Veterinarians

E coli O157:H7: Preharvest Controls of STECs in Cattle Conference October 4, 2012, Greenbelt Marriott, Greenbelt, Maryland <http://extension.wsu.edu/vetextension/ecoliconference/Pages/default.aspx>

Producers

Northwest Junior Sheep Exposition

July 20 & 21, 2012, Moses Lake, WA [Download Event Program](#)

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ag animal health

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