

# VETERINARY MEDICINE EXTENSION

*Winter 2010*

WASHINGTON STATE UNIVERSITY EXTENSION & WSU COLLEGE OF VETERINARY MEDICINE

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## From the Editor –

### New USDA Funding Priorities

In November, Dr. Beachy, the new Director of the National Institute of Food and Agriculture (NIFA) laid out USDA- Secretary Vilsak's top five priorities: 1) Climate Change, 2) Bioenergy, 3) Food Safety, 4) Nutrition, and 5) International Food Security. For NIFA, which will manage the competitive grants program for USDA, Dr. Beachy stated that he wanted to expand the agency's competitive programs, better focus use of "formula funds", and help build a new generation of scientists engaged in agriculture. Some principals to guide NIFA will be to: 1) stress quality of science and get most value for dollars invested, 2) focus on the five priority areas and 3) emphasize "large scale" impacts and encourage integration of research, education and extension. AFRI is NIFA's competitive grant program and was established under the 2008 Farm Bill. AFRI will support work in plant health, production and plant products; animal health, production and animal products; food safety, nutrition, and health; renewable energy, natural

resources, and environment; agriculture systems and technology; and agriculture economics and rural communities. Programs focused on these areas must use a disciplinary-based approach to build a foundation of knowledge critical for solving current and future problems. Within these priority areas, AFRI will support interdisciplinary, multi-functional projects in five "societal challenge" areas to achieve significant and measurable outcomes and achieving goals. The five goals include: 1) Keep American agriculture competitive while ending world hunger, 2) Improve nutrition and end child obesity, 3) Radically improve food safety for all Americans, 4) Secure America's energy future through renewable biofuels, and 5) Mitigate and adapt agriculture to variations in climate. *It is unclear how exactly animal health research will be able to meet these priority areas for future funding. We'll just have to see.*



**References:** FASS Science Policy Blog: New NIFA Director Addresses AFRI Coalition, November 5, 2009.

<http://blog.fass.org/SciencePolicy/?p=43>

<http://www.nifa.usda.gov/>

## Featured Faculty

Dr. Ram

Kasimanickam, BVSc,  
DVSc

I joined the *WSU Ag Animal Health Team* as a Bovine Reproduction Specialist in June 2009. Prior to this I spent 6

years in practice as a Mixed Animal Veterinarian in India, and completed residency/doctoral program in Theriogenology (Clinical Animal Reproduction) at the Ontario Veterinary College, Canada in 2002. The graduate training helped me gain understanding of the cattle industry in North America. In 2003 I became a Board-Certified Theriogenologist. Before moving to Pullman I worked as a Food Animal Theriogenologist for 6 years at Virginia Tech. The appointment that I hold here at WSU is split between research (60%) and teaching / outreach (40%). My main research interests include improving bull and cow fertility with a population-based approach, as well as embryonic and placental development. I have published several peer reviewed scientific articles, and presented research results in many professional meetings. I currently serve as a member in the editorial board of *Theriogenology* journal. I look forward to working with producers in the State of Washington on reproduction issues.

## Recent Research Findings – WSU College of Veterinary Medicine

- (1) White TL, Moore DA. Reasons for whole carcass condemnations of cattle in the United States and implications for producer education and veterinary intervention. *J Am Vet Med Assoc.* 2009; 235:937-41.

In this study, we summarized reasons for carcass condemnation of animals sent to harvest for beef in the United States, 2003 through 2007. The data came from the USDA Food Safety Inspection Service and included the total number of animals harvested by

class of animal (bulls, steers & heifers, cows, and calves). The reason we wanted to look at this information is because condemnations for any reason represent losses to the packer, the feeder, and the beef industry as a whole, and many of those losses are passed on to the producer through low cattle prices. Prevention practices implemented upstream of the packing plant could potentially reduce some of these losses. About half a percent of all the 163 million head of cattle were condemned either at-slaughter (antemortem) or after-slaughter (postmortem) inspection. Fed cattle (heifers and steers) made up 82 percent of cattle harvested but represented a minority of cattle condemned. From 2003–2007, 0.072 percent of fed cattle (96,880 of 134,260,523 head) were condemned at slaughter compared to 2.5 percent (34 times as many) cull cows condemned at slaughter (667,530 of 26,694,317) – more than two for every hundred head of cull cows.



The major reasons cull cows were condemned at antemortem inspection included: (1) deads (62.6 percent of 135,266 AM condemnations), (2) non-ambulatory or moribund or very weak (31.5 percent), and (3) epithelioma – mostly cancer eye (1.7 percent). The five most common reasons for condemnation of 536,257 cows condemned at postmortem inspection included malignant lymphoma – from Bovine Leukemia Virus (22.3 percent), pneumonia (10.8 percent) and septicemia – evidence of whole-body infection (10.4 percent), epithelioma (9.15 percent), and peritonitis – inflammation/infection of the abdominal cavity (7.85 percent).

*Why so many cows?* Possible reasons why some beef and dairy producers send potentially unfit cull animals

for beef might include: (1) Lack of awareness of a problem with their cull animals, (2) Lack of incentives, disincentives, or the presence of competing priorities with sending cull animals, (3) Lack of reasonable alternatives for removing animals from the herd, (4) Lack of early recognition of disease or disability, and (5) Lack of protocols for evaluation of animals to be culled or euthanized. **But despite the broader challenges that the industry faces with incentives and alternatives for cull cows, there are some things we can do.**

**Prevention of antemortem condemnations --** Several critical control points exist for to ensure that cows at risk for condemnation are not marketed for slaughter. These include areas of care, handling, and transport of cows at risk for becoming non-ambulatory cattle. Causes of non-ambulatory cattle include injuries, metabolic imbalances and infectious and toxic diseases. Risk factors for injury include slipping, lameness, rough handling and other animal contacts such as fighting or mounting. The focus should be on cattle management after assessment of the reasons for culling and suitability of each cow to enter the food supply. Management areas, including breeding programs, herd health, cow comfort, sanitation and calving management should also be addressed.



(Small epithelioma at arrow – cancer eye.)

[http://www.dpi.nsw.gov.au/\\_data/assets/image/0006/160278/cancer-eye-2.jpg](http://www.dpi.nsw.gov.au/_data/assets/image/0006/160278/cancer-eye-2.jpg)

**Prevention of postmortem condemnation --** Several diseases exist that render a carcass unfit for human consumption, some of which may be preventable or detected earlier than at slaughter. The four most common reasons for condemnation (making up greater than 56 percent of cow carcass condemnations) include malignant lymphoma,

pneumonia, septicemia/toxemia, and epithelioma. Malignant lymphoma is most commonly associated with an infection with bovine leukosis virus (BLV). About 84 percent of U.S. dairy operations are positive for BLV and about 39% of beef herds tested positive in national studies. Example BLV control programs in the United States already exist that can provide guidance to practitioners and producers.

Reduction in condemnations due to pneumonia and septicemia would require an on-farm diagnostic protocol, early disease detection, and assessment of treatment protocol efficacy, such as that provided for beef calves, which involves defining what treatment success and failure look like so that they can be monitored and measured. This would require good animal health record-keeping (For examples, see <http://www.bqa.wsu.edu/states/wa/modules.htm>).

Cattle with cancer eye are condemned if the eye has been destroyed, if there is extensive infection, if the animal is in poor condition, or if there is evidence of spread to other parts of the body, including structures around the eye. Cattle with small, localized lesions may pass inspection after condemnation of affected parts. Cancer eye condemnation can also be reduced by an early detection and treatment program, by selecting breeding stock with dark pigmentation or color around the eyes, checking eyes whenever cattle are gathered for other routine procedures, treating or rechecking cattle with early lesions every two to six months and sorting cattle with lesions for veterinary evaluation and treatment. For dairy cattle, evaluation of cattle eyes at times of lock-up for vet-checks is easily accomplished. Veterinary treatments include surgery, cryosurgery (freezing), hyperthermia (heating), or combinations of these. **Reducing cattle condemnations requires assessment of reasons for condemnation and management such as injury-prevention and early disease detection and treatment.**

(2) Punyapornwithaya V, Fox LK, Gay GM, Hancock DD, Alldredge JR. **The effect of centrifugation and resuspension on the recovery of Mycoplasma species from milk.** *J Dairy Sci.* 2009;92(9):4444–7.

Low sensitivity of a single bulk tank milk culture is a major limitation for detection of mycoplasma organisms.



The authors hypothesized that sedimentation of *Mycoplasma* spp. in a milk sample by centrifugation followed by resuspension in a small volume of fluid before agar plating would increase the ability to detect *Mycoplasma* spp. compared with direct conventional culture. The experiment was conducted to determine recovery of *Mycoplasma* spp. from milk as affected by 1) treatment (centrifugation vs. conventional method); 2) 2 species (*Mycoplasma bovis* and *Mycoplasma californicum* and 4 strains for each species); and 3) 4 different concentrations of *Mycoplasma* spp. (1,000, 100, 10, and 1 cfu/mL). A 5-mL portion of mycoplasma suspension from each strain was inoculated into 45 mL of fresh bulk tank milk to achieve concentrations of 1,000, 100, 10, and 1 cfu/mL. Treatment samples were vigorously mixed and centrifuged at 5,000 x g for 30 min. Control samples were vigorously mixed. All samples were plated on modified Hayflick agar. Plates were incubated at 37 degrees C and 5% CO<sub>2</sub> for 5 d. Mean (+/-SE) log(10) mycoplasma counts (cfu/mL) in the treatment groups (1.91 +/- 0.15) were higher than those in the control groups (1.70 +/- 0.16). Recovery of at least 1 mycoplasma colony on agar culture was 100% in both treatment and control groups at high, medium, and low concentrations. At the lowest concentration, recovery of at least 1 mycoplasma colony on agar culture in treatment and control groups was 75% (n = 12/16) and 18.75% (n = 3/16), respectively. Centrifugation of milk followed by suspension in a smaller volume of saline before conventional culture increased the ability to detect mycoplasma microorganisms in the milk sample.

compared with controls. Recovery by centrifugation appeared best at the lowest concentration where detection of a positive sample was 4 times more likely than when conventional methods were used.

## The Top 11 Reasons Vaccines Fail

VME Director – Dr. Dale Moore

Veterinarians and Ag Animal Extension educators receive numerous inquiries from livestock owners about what to vaccinate their cattle against. Although the diseases being vaccinated against are important, the biggest reasons for disease breaks often have little to do with the vaccine itself, but more to do with how that vaccine is handled and given, when they are given, and to whom. What you vaccinate for and when will depend on what the major problems are in your region and what your herd management plans are for calving, breeding, cattle processing and weaning. Your herd veterinarian can help you set up a schedule for giving the different kinds of vaccines for the different age groups, and help prevent you from spending money on vaccines you don't need.



<http://www.flickr.com/photos/21634839@N03/2459938300/>

Once you have the vaccines in hand and are ready to use them, what could possibly go wrong?

1. *"Lefty brought the vaccine to the chute but left it on the dashboard of his pick-up for a couple hours."* Vaccines are sensitive to heat and freezing and have special requirements for storage before using. Follow the label recommendations for refrigeration. Keep the vials of vaccine in a cooler until just before you use them.

2. ***"I thought we cleaned that syringe gun!"*** A dirty vaccination syringe OR one that still has disinfectant in it can contaminate or inactivate your vaccine. Never use disinfectants. Instead, use very hot tap water to clean your syringe gun. Take the gun apart as you are cleaning it and allow the parts to air dry and then lubricate the plunger. Store clean syringes in plastic bags and mark them for the kind of use they get - vaccines, etc.



3. ***"What do you mean it's supposed to go in the muscle?"*** Read the label for WHERE the vaccine is to be administered. Some vaccines are labeled to be given under the skin in the neck regions, but some need to be given in the muscle. Read the label to be sure. Also - make sure whoever is vaccinating gets it in the right spot - putting it in the hair doesn't mount much of an immune response.

4. ***"Dusty—are you giving TWO cc's?"*** Read the label to make sure you know what the proper dose of vaccine is supposed to be given to get the proper immunity.

5. ***"We'll just leave the needle in the bottle until we have more calves to vaccinate..."*** Use all the vaccine up or discard if you are not going to use it all. If you leave a needle in the bottle, you can contaminate the vaccine. Once it has been mixed, it needs to be used up.

6. ***"Booster?"*** Many vaccines require a booster in 2 to 3 weeks in order to get the right level of immunity, particularly if it the first time the calf or cow is vaccinated. Read the label to make sure when you need to booster.

7. ***"We can vaccinate them just as they're off-loading the trailer."*** Stressed calves do not

react with a full immune response to the vaccine. In order for the calf to respond to vaccination, we must allow time to recover from the stress (like being trailered). Wait until the next day.

8. ***"We stored it in the refrigerator, doc!"*** University of Arkansas researchers found that "More than 76% of the refrigerators tested (ranch, vet clinics, retail) were unacceptable for storing animal-health products." The recommended temperature for storing animal-health products requiring refrigeration is 35° F. to 45° F. Check your refrigerator to make sure it's at the right temperature.
9. ***"We're having a problem with respiratory disease - can I vaccinate now?"*** The vaccine must be given before exposure to the virus challenge and with enough time to allow the immune response to develop to a protective level, usually about 10-14 days following vaccination. But, if you have cattle that have not yet been exposed and think you have time for them to develop an immune response, vaccinating may help, but don't be surprised if exposure had already happened and some get sick. The labels say that you need to vaccinate healthy animals.
10. ***"I know these cows are thin, but we have to get them vaccinated."*** Animals on diets low in energy and/or protein may not respond with a good immune response. Also, a number of trace nutrients and vitamin deficiencies (copper, selenium, zinc, and vitamin E) can cause the cattle's immune system to be unable to respond to vaccines properly.
11. ***"If I vaccinate my calves really young, I'll get a jump on disease!"*** Calves that received colostrum from the cow will have some antibodies in its system. These "maternal" antibodies gradually decline but when they are still in the calf, can interfere with the calf responding well to the vaccine. This interference disappears some time during the first four months of life and is the reason boosters are recommended if vaccinations are given to young calves.

Vaccines are an **AID** to your other good management practices, like preventing disease transmission

through biosecurity and providing good nutrition. And remember -- If you are going to market these animals in the very near future, make sure you read the label for the withdrawal time for meat. Every vaccine has a period of withholding the animal from slaughter. In fact, make sure you read the label for every vaccine or product you use so that you get the most for your money spent.

## WSDA Corner

State Veterinarian – Leonard E. Eldridge, DVM

**Risk of TB** – In late 2009, we received notification from USDA that a TB-exposed dairy heifer entered Washington in 2006. The heifer originated from a herd in Texas that had recently tested positive at a dispersal sale. A brand inspection and a Texas ear tag identified the heifer when she left Texas. The heifer traveled from Texas to Colorado, then onto a sales yard in California. From the sales yard in California, she was sold to a buyer in Washington, who then sold her to a Washington backgrounder. The heifer lost her Texas ID tag sometime between leaving California and entering Washington and the trail has gone cold with only the brand to look for.

Dr. Hillman, Texas State Veterinarian, informed me that the strain of TB in Texas is very contagious and that we must find this heifer to ensure that she has not brought TB into our state. This emphasizes the need to have a better way to track animals that may be bringing in diseases. One issue I see is the lost official identification tag and the second issue I see is that we are looking for a specific brand on one cow that may have changed ownership by a self-inspection form and my office has no record of the change of ownership or where the cow is today. The heifer may have already gone to harvest, in which case we all are in a quandary. If we cannot find this cow and prove she does not have TB, we may be testing several dairies and because of a possible self-inspection form, we could possibly be testing the wrong dairies. I want to emphasize that exposed means we do not know her disposition, only that she originated from a recently-identified TB infected herd. We are presently searching our records to identify herds where she may be and will ask livestock owners to cooperate with the

Livestock Brand Inspection Program in looking for the brand. The Holstein cow is carrying a (TE combined) on the right rib. *As of this writing, WSDA believes she has left the state and do not know her TB status.*

**USDA Brucellosis & TB Programs** -- At the 2009 US Animal Health Association meeting, USDA officials announced that they do not have funding and resources to continue with brucellosis and TB programs as they have been doing in the past. USDA has provided concept papers for both programs that will allow the limited resources to be focused on areas of identified infection and eliminate the state status reduction, allowing cattle to move in states where there is no risk even though in other parts of the state there is infection. The concept papers can be viewed on-line at:

Brucellosis link:

[http://www.aphis.usda.gov/newsroom/content/2009/10/printable/brucellosis\\_concept\\_paper.pdf](http://www.aphis.usda.gov/newsroom/content/2009/10/printable/brucellosis_concept_paper.pdf)

Tuberculosis link:

[http://www.aphis.usda.gov/newsroom/content/2009/10/printable/tb\\_concept\\_paper.pdf](http://www.aphis.usda.gov/newsroom/content/2009/10/printable/tb_concept_paper.pdf)

## Beef Quality Assurance Program Highlights

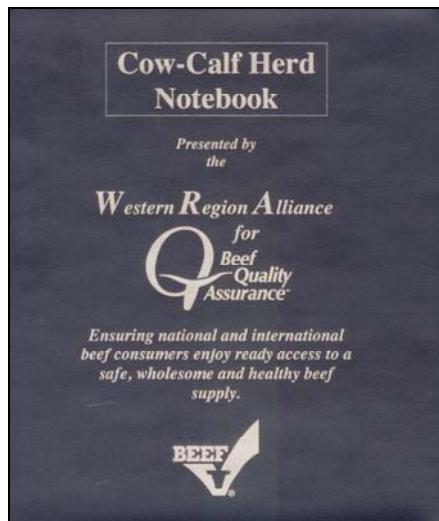
We're getting close to the end of the Series on Beef Quality Assurance. The last sections include: Record-keeping, Animal Health Products and Practices, and Biosecurity. **For detailed information on Beef Quality Assurance Guidelines, download the manual at:** <http://www.bqa.wsu.edu/states/wa/documents/WesternRegionBQANotebookMAY2008.pdf>

## Record Keeping

Keeping records is part of a beef quality assurance plan. Being Beef Quality Assurance-Certified means that you are producing cattle in a way the market wants or demands. For additional market advantage for your cattle, whether now or in the future, documenting your processes, your cattle, and your management practices will truly assure the buyer and consumer that you have done what you said you

would. And – record keeping is just a good business practice. In an industry where the return on assets typically hovers around the 3% to 5% level, it seems critical that making management adjustments without records is risky. On the other hand, keeping records on performance of the cowherd does take time.

The key to developing a good record keeping system is to identify the information you need to collect that will result in knowledge you will use when making management decisions. Collection of irrelevant data can prevent meaningful evaluation and may not be time or cost-effective. But, if you don't collect enough information you may not be able to identify costly problem areas. For example, documentation showing staff training, inventory control, product use, animal identification, withdrawal times and disposal (of livestock, animal health products etc.) is the only way to avoid liability from a residue contamination.



### **According to the National BQA Guidelines Animal Treatment Records Will be Maintained With the Following Recorded:**

- ✓ Individual animal or group identification.
- ✓ Date treated.
- ✓ Product administrated and manufacture's lot/serial number.
- ✓ Dosage used.
- ✓ Route and location of administration and who administered the product.
- ✓ Earliest date animal will have cleared withdrawal period.

### **Records Should Include Specific Information to Track: Procedures**

- Shipping & receiving cattle

- Processing
- Calving
- Breeding
- Health treatment/vaccinations
- Feed Inventory

### **Processing**

- Weaning
- Vaccinating/treatment
- Dehorning
- Spaying heifers
- Implants
- De-worming
- Identification

### **Calving**

- Birth date/weight
- Supplement given
- Tag &/or tattoo
- Calf starter/booster/vaccines

### **Breeding**

- Natural service records
- When bull is turned out/pulled
- With what cows (individual or groups)
- A.I. breeding records
- Personnel in charge
- Time & date of synchronization
- Method & type of synchronization
- Heat checking
- Dam & sire mating

### **Identification Methods**

- Visual (panel) tags
- Tattoos
- EID
- Hot iron or freeze brands

### **Herd Health Records**

- Treatment of animals
- Bull health records
- Annual vet checks
- Disease screening
- Trichomonosis testing
- Breeding soundness exams

### **Feed Inventory**

- Date shipped/received
- Type & amount, Analysis
- When, where & which animals

For printable pages of different kinds of records, see:  
<http://www.bqa.wsu.edu/states/wa/modules.htm>

# Continuing Education

## Veterinarians

### Veterinarian Online CE for Official Trich Testing

To take the course and receive certification, go to:  
<http://vetextension.wsu.edu/programs/bovine/trich/index.htm>

### Veterinarian Online CE for TB Testing Certification

To take the course and receive certification, go to:  
<http://vetextension.wsu.edu/programs/bovine/tb/index.htm>

## Producers

### Country Living Expo and Cattlemen's Winter School

**January 30, 2010.** Located at Stanwood High School, and hosted by Skagit & Snohomish County Extension.  
<http://skagit.wsu.edu/CountryLivingExpo/>

### Washington Swine Information Day

**February 5, 2010.** Located in Moses Lake, WA. For more information contact Sarah Smith at the WSU Grant-Adams Extension at (509) 754-2011 ext. 413

### Shearing School

**April 5-10, 2010.** Located in Moses Lake, WA. For more information contact Sarah Smith at the WSU Grant-Adams Extension at (509) 754-2011 ext. 413

## 4-H Leaders

### NEW! Quality Assurance Volunteer Leaders Online

#### Program

<http://vetextension.wsu.edu/programs/4-H/index.htm>



**Send newsletter comments to the Editor:**

*ag animal health*

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