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<http://vetextension.wsu.edu/newsletters/>

From the Editor - It’s Fair Time! At least, the fairs are coming soon. Yours truly is headed to the 4 H Swine Field Day at the Asotin County Fairgrounds this Saturday (March 26th) with veterinary students Megan Chiak, Lance Kidder, Jared Oldham, Caitlin Quesenberry, and Thomas Wurtz to talk to the youth about pig health. These students are volunteering their time to WSU Extension and it is greatly appreciated! The Asotin County fair is the first fair in Washington State - April 21-24, 2016. See the notes on Biosecurity at Fairs for getting prepared! *DA Moore*

The ag animal health newsletter is devoted to the transfer of current, relevant information to food animal owners and veterinarians in the Pacific Northwest.

Congratulations are in Order!

Anna Odash -- Anna Odash (Class of 2017) was awarded funding from the Sam Guss Memorial Fund from the American Association of Small Ruminant Practitioners for an externship at the US Sheep Experiment Station in 2017. The American Association of Small Ruminant Practitioners (AASRP) recognizes the importance of providing support to veterinary students. AASRP awards grants each year to help student members of AASRP to undertake extern opportunities. If you see Anna in the hallways, say Congratulations!

Thomas Wurtz -- Congratulations to Thomas Wurtz (Class fo 2018) for receiving the 2016 American Association of Swine Veterinarians /Merck Animal Health Veterinary Student Scholarships!



Anna Odash



Thomas Wurtz

Mixing milk replacers for winter feeding of dairy calves

by Dale A. Moore, Extension Veterinarian

Our calf-health focused research team has been making some strides in understanding calf feeding programs and things that might affect calf health. Because of questions from producers and veterinarians, we looked into milk replacer mixing and what happens when adding more powder to the mix. Our article was published by the *Progressive Dairyman* and can be viewed at: <http://vetextension.wsu.edu/wp-content/uploads/sites/8/2016/02/MooreProgDairyJan2016.pdf>

All Things Bull – Beef Herd Health

by Dale A. Moore, Extension Veterinarian

April and May are the times to get the herd ready for the breeding season for spring calving beef herds. The first item of business is to line up the bulls and/or the AI service. Choose the bulls with the genetics and Expected Progeny Differences you need in your herd. If purchasing bulls, consider a pre-purchase exam with testing. But even for the home bulls, consider the same physical examination with some testing. What should we be looking for in those exams?



Whether you are purchasing new bulls or are using ones you have, identifying those that are and are not going to work for you is insurance against some calf crop problems in the future. A physical exam should provide an indication of the overall health of the bull. The important considerations are: (1) Can he walk? Does he have good feet and legs? (2) Can he see? Is there any evidence of pink eye scars? Carcinomas? Anything that might impair his vision? (3) Has he had pneumonia? Is he sick now? (4) Is he in normal body condition -- not too thin or too fat? (5) Can he eat? Good teeth? (6) Are his reproductive organs normal? On the outside and the inside? No penile lesions? No lumps and bumps? (7) Is he BVD PI negative on the ear-notch test? (8) Is he Trich negative? (9) What is his scrotal

circumference? Does he appear to have the capacity? (10) Is his semen test normal? (11) Does he want to do the job? Does he have the libido to breed the cows?

Just doing a good physical exam can help to find bulls with problems. Adding the complete breeding soundness exam with Trich testing and also making sure he is not shedding BVD virus will be further insurance for a better calf crop. Happy Spring!

WSDA Corner

by Dr. Joe Baker, State Veterinarian



New Trichomoniasis Rules

New Trich rules are in effect that affect Washington accredited veterinarians conducting Trich testing and the definition of a “virgin” bull.

WAC 16-54:

- 16-54-010 A virgin bull is now defined as “a sexually intact male bovine less than eighteen months of age, as determined by dentition inspection by an accredited veterinarian or verified by breed registration documents, that is confirmed by a statement and the signature of the owner or the owner’s designee as having had no breeding contact with female cattle”.
- 16-54-086(7) Virgin bulls are exempted from the requirement for a trich test prior to entry.
- WAC 16-54-086(2) Laboratory pooled qPCR samples collected from up to five bulls will be accepted as long as certain conditions are met.

WAC 16-54-086:

- WAC 16-86-114 Relates to untested bulls at a market that are sold for purposes other than slaughter. Such bulls must now be sampled at the market and can be released to the buyer once sampled. The buyer taking the sampled bull to their premises is to separate the bull and not allow it to have sexual contact with female cattle until the test is reported as negative by the testing laboratory. Other options for such bulls not sold for slaughter (castration or consignment to restricted holding facility) are still in effect.
- WAC 16-86-116(5)(b) The veterinarian may submit samples in any transport medium approved under the testing laboratory’s protocol.
- WAC 16-86-116(6) Requires veterinarian sampling a bull for trich testing to apply a current-year Washington trichomoniasis tag and a USDA-approved official identification tag. If a bull already has official identification applied at time of sampling, the individual identification number on that device is recorded. Both tag numbers should be recorded on the laboratory submission form so that testing and results can be verified by either number. Additional official individual identification must not be applied.

ID Emphasis - Now two (2) types of identification recorded on the laboratory submission form:

1. A current year WA trich tag and
2. USDA approved official ID tag (if an official ID tag is applied, record that number).

To help facilitate, and encourage the use of electronic ear tags, we will be supplying veterinarians for a limited time, at no additional charge a USDA AIN “840” RFID tag with each trich tag ordered. Any regulatory testing / vaccinations can be associated to this tag to include brucellosis vaccination. Tags are applied in the left ear. For more information on eartags visit our webpage at: <http://agr.wa.gov/FoodAnimal/AnimalID/tags.aspx>.

For more information on tags call Gerald Franks at (360) 902-7566 or David Hecimovich at (360) 725-5493.

Reasons for Drug Residues – An Update

by D.A. Moore, Extension Veterinarian

According to my search at FDA for warning letters on drug residue violations, the West has not seen one warning letter during 2014-2015. I found 11 letters from other districts and some of the reasons included: (1) desfuroylceftiofur (marker residue for ceftiofur) (administered Excede without following the dosage and withdrawal period as stated in the veterinarian’s prescription labeling), (2) florfenicol (administered the drug Nuflor to a Holstein feeder steer without following the withdrawal period as stated in the approved labeling), (3) neomycin, sulfadimethoxine, and flunixin on one farm (off-label use not under supervision of veterinarian for a feeder steer and heifer), (4) bob veal with neomycin and oxytetracycline, (5) tilmicosin in a beef cow (use of the drug without order of a veterinarian), (6) florfenicol in a steer (did not maintain treatment records), beef cow with sulfamethazine (did not use Sustain III as directed by its approved labeling), (7) florfenicol in a beef cow (lack a system to ensure that animals you buy and then sell for slaughter as food have not been medicated or, if they have been medicated, to allow them to be withheld from slaughter for an appropriate period of time), (8) bull with oxytetracycline, florfenicol, ciprofloxacin, and flunixin residues (failed to maintain treatment records, segregate treated animals, maintain control of your drug inventory supply and dispose of expired drugs), and (9) a steer with florfenicol (failed to maintain treatment records).

What are some other potential reasons for residues? A paper in the *Journal of the American Veterinary Medical Association* in 2015 (Kissell et al., 2015) highlighted an experiment on cows with and without mastitis. The investigators gave flunixin IV and some antibiotics and showed that the elimination time for the flunixin was greater for the mastitic cows. For milk, 8 of the 10 mastitis cows had flunixin in the milk higher than the tolerance levels after the normal milk withdrawal time. It persisted in the milk of 3 of those cows up to 60 hours after administration. This means that diseased animals may metabolize drugs differently. A more recent paper (Gorden et al., 2016) looked at the plasma levels of ceftiofur in cows with and without severe clinical mastitis. Diseased cows given multiple doses had a longer plasma clearance rate than healthy cows. Although these differences in healthy and disease cattle are indeed possible, and something we need to consider, most of the reasons for drug residues in meat in the last two years were management-related.

Still the best bets for reducing the risks of drug residues in market animals are:

- (1) Follow label directions for disease indications, dose, location of administration, duration of treatment, and withdrawal times.
- (2) Beware of marketing calves that may have received medicated milk replacer.
- (3) Keep treatment records so you know when it is safe to market the animals.

References

1. US FDA. Inspections, Compliance, Enforcement, and Criminal Investigations. Available at: <http://www.fda.gov/ICECI/EnforcementActions/WarningLetters/default.htm>
2. Kissell LW, et al. Comparison of pharmacokinetics and milk elimination of flunixin in healthy cows and cows with mastitis. JAVMA. 2015;246:118-125.
3. Gorden PJ, et al. Altered plasma pharmacokinetics of ceftiofur hydrochloride in cows affected with severe clinical mastitis. J Dairy Sci. 2016;99(1):505-514.

What's New at WADDL?

See our own Dr. Tom Besser in the Seattle Times! WADDL is highlighted for its role and the researchers' roles in disease surveillance. Go to: <http://www.seattletimes.com/nwshowcase/washington-state-university/tracking-pathogens-solving-deadly-mysteries/>

WSU Ag Animal Health Research Abstracts

1) Moore DA, Sisco WM, Kurtz S, Siler JD, Pereira RV, Warnick LD, Davis MA. Improving Dairy Organizational Communication from the Veterinarian's Perspective: Results of a Continuing Veterinary Medical Education Pilot Program. J Vet Med Educ. 2016;11:1-8. [Epub ahead of print]

The increasing size and complexity of US dairy farms could make it more difficult for a veterinary practitioner to effectively communicate protocol recommendations for prevention or treatment on the farm. A continuing education workshop was set up based on the results of research on dairy organizational communication on dairy farms, which resulted in a tool to assess dairy communication structure and flow. The workshop specifically focused on communication structure and whom to talk to when implementing health care changes in calf rearing. In addition, modern methods of veterinary-client communication knowledge and skills were provided. Primary outcomes of the workshops were to obtain feedback from participants about research findings and the communication model, to improve awareness about the complexity of communication structures on dairy farms, and to change participants' knowledge and skills associated with on-farm communication by providing communication theory and skills and an approach to evaluate and improve dairy organizational communication. Of the 37 participants completing the pre-program assessment, most recognized a need for themselves or their practice to

improve communication with clients and farm employees. After the program, most participants were confident in their new communication skills and would consider using them. They highlighted specific new ideas they could apply in practice, such as conducting a "communication audit." The results from the assessment of this communication workshop, focused on dairy veterinarians, highlighted the need for communication training in this sector of the profession and practitioners' desire to engage in this type of training.

2) Liu J, Zhao Z, Orfe L, Call DR. Soil-borne reservoirs of antibiotic-resistant bacteria are established following therapeutic treatment of dairy calves. Environ. Microbiol. 2016;18(2):557-564.

We determined if antibiotics residues that are excreted from treated animals can contribute to persistence of resistant bacteria in agricultural environments. Administration of ceftiofur, a third-generation cephalosporin, resulted in a ~ 3 log increase in ceftiofur-resistant *Escherichia coli* found in the faeces and pen soils by day 10 ($P = 0.005$). This resistant population quickly subsided in faeces, but was sustained in the pen soil (~ 4.5 log bacteria g^{-1}) throughout the trial (1 month). Florfenicol treatment resulted in a similar pattern although the loss of florfenicol-resistant *E. coli* was slower for faeces and remained stable at ~ 6 log bacteria g^{-1} in the soil. Calves were treated in pens where eGFP-labelled *E. coli* were present in the bedding (~ 2 log g^{-1}) resulting in amplification of the eGFP *E. coli* population ~ 2.1 log more than eGFP *E. coli* populations in pens with untreated calves (day 4; $P < 0.005$). Excreted residues accounted for > 10 -fold greater contribution to the bedding reservoir compared with shedding of resistant bacteria in faeces. **Treatment with therapeutic doses of ceftiofur or florfenicol resulted in 2-3 log g^{-1} more bacteria than the estimated ID50 (2.83 CFU g^{-1}), consistent with a soil-borne reservoir emerging after antibiotic treatment that can contribute to the long-term persistence of antibiotic resistance in animal agriculture.**

3) Nelson DD, Duprau JL, Wolff PL, Evermann. Persistent Bovine Viral Diarrhea Virus Infection in Domestic and Wild Small Ruminants and Camelids Including the Mountain Goat (*Oreamnos americanus*). Front. Microbiol. 2016;7;6.

Bovine viral diarrhoea virus (BVDV) is a pestivirus best known for causing a variety of disease syndromes in cattle, including gastrointestinal disease, reproductive insufficiency, immunosuppression, mucosal disease, and hemorrhagic syndrome. The virus can be spread by transiently infected individuals and by persistently infected animals that may be asymptomatic while shedding large amounts of virus throughout their lifetime. BVDV has been reported in over 40 domestic and free-ranging species, and persistent infection has been described in eight of those species: white-tailed deer, mule deer, eland, mousedeer, mountain goats, alpacas, sheep, and domestic swine. This paper reviews the various aspects of BVDV transmission, disease syndromes, diagnosis, control, and prevention, as well as examines BVDV infection in domestic and wild small ruminants and camelids including mountain goats (*Oreamnos americanus*).

4) Fox LK. Removal of hair from the mammary gland: Recovery of bacteria from teat skin and milk. J Dairy Sci. 2016;99(2):1461-1464.

It has been assumed that the presence of udder hair can interfere with safe milking practices and reduce the wholesomeness of milk relative to bacterial content. This study

determined the effect of removal by singeing udder hair on the microflora of teat skin (total bacteria, coliform, and esculin-positive and esculin-negative streptococci) and milk (total bacteria, coliform, psychrotrophic, and thermotolerant counts) as opposed to not singeing udder hair, using different pre-and postmilking disinfection (predip, postdip, or both) combinations. The 4 different pre-and postmilking disinfection combinations were predip and postdip, postdip only, predip only, and no predip and no postdip. Differences in bacterial numbers recovered from teat skin and milk in singed and not singed glands were not significantly affected by treatment. Findings of this trial do not support the concept that udder hair removal results in improved milk quality as measured by bacterial content.

Biosecurity at Fairs

by Dale A. Moore, Extension Veterinarian



Key Points

- Have a plan!
- Screening animals should be done BEFORE they enter the barns.
- Make sure your fair veterinarian has a copy of the State guidelines for screening.
- Got your supplies and signage?

What are the steps you need to take to get your fair or livestock exhibition ready for any emergency? Whether it's 4-H or FFA or open livestock shows, having a plan to prevent disease transmission from animal to animal and from animal to people and people to animal is vital. The **Extension Disaster Education Network** will host Dr. Dale Moore (WSU) and Scott Cotton (U of Wyoming) as webinar speakers on the topic of biosecurity at fairs and livestock exhibits on **April 12, 2016**, 1 PM Eastern/Noon Central/11 AM Mountain/10 AM Pacific. Scott Cotton will highlight preparation activities and basic biosecurity for fairs and livestock exhibitions. Dale Moore will focus on preventing disease from entering the livestock areas through effective use of the fair veterinarian.

In early April, visit the EDEN website at: <https://learn.extension.org/events/2443>

After April 12, the webinar will be placed in the archives.

For 4-H and fair information at the VetMed Extension website, go to:

<http://vetextension.wsu.edu/4-h-fair/>

Continuing Education in Our Region

Veterinarians

WSU College of Veterinary Medicine Spring Conference will be April 22-23, 2016, in Pullman, WA. Eight hours of CE credit – FIVE tracks: Small animal, Equine, Food Animal, Pet Poultry and veterinary technician. For more information go to: <http://cvme.vetmed.wsu.edu>

Academy of Dairy Veterinary Consultants Spring Meeting will be April 8 and 9, 2016, Phoenix, AZ. For more information, go to: <http://academyofdairyveterinaryconsultants.org/>

Producers

Youth Swine Field Day -- March 26, 2016, at Asotin County Fairgrounds, Asotin, WA. For information, contact Janet Schmidt, Extension Whitman County at: schmidtj@wsu.edu

Cattlemen's Boot Camp – April 15 and 16, 2016, at Benton County Fairgrounds, Kennewick, WA. For Registration information, go to: <https://www.angusonline.org/event/bootcampmain.aspx>

Visit our website for information on current research projects and outreach materials for veterinarians and producers! <http://vetextension.wsu.edu/>

Send newsletter comments to the Editor: *ag animal health*
Veterinary Medicine Extension - Washington State University
P.O. Box 646610
Pullman, WA 99164-6610
(509) 335-8221 VetExtension@vetmed.wsu.edu

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