

OHIO STATE UNIVERSITY EXTENSION



OHIO VETERINARY NEWSLETTER

March 11, 2016

Veterinary Extension

Vol 42, No 3

In This Issue

News

- [One Health Conference](#)

Q&A Session

- [Animal vaccines produced with the aid of human cells](#)

Research

- [Evaluation of bovine abortion cases and tissue suitability for identification of infectious agents in California diagnostic laboratory cases from 2007 to 2012](#)
- [Effect of feeding whole as compared to cell-free colostrum on calf immune status: Vaccination response](#)
- [Predicting colostrum quality from performance in the previous lactation and environmental changes](#)
- [Identifying factors contributing to slow growth in pigs](#)

News

One Health Conference

On March 17th and 18th Veterinary Extension will be hosting a One Health Conference. There will be over 20 speakers at this two-day conference to discuss surveillance, research, and outreach activities related to persistent, emerging, and re-emerging epidemiological issues of concern to public and animal health.

[For more details and registration information...](#)

Q&A Session

We've decided to include a new section in the newsletter that will address a single question of interest that has been presented to Veterinary Extension Specialists within the Veterinary Extension Unit.

QUESTION: There are some vaccines for humans that are produced with the aid of cells taken from an aborted human fetus. Here is some information about what I mean: <http://www.immunizationinfo.org/issues/vaccine-components/human-fetal-links-some-vaccines> Are there any livestock vaccines developed with the involvement of human abortion? I am pro-life, and I want to be sure that the food choices I make match my values. Also, are animals ever given human vaccines? For example, would a cow be given the same rabies vaccine that a human would take?

ANSWER: Currently, there are no livestock vaccines licensed for use in the U.S. which use tissue culture cells derived from aborted human fetuses. Foreign manufactured vaccines are not allowed to be imported without approval from the USDA. Vaccines developed for human use should not be used in livestock animals. For one thing, the cost is much greater for a human vaccine. All licensed livestock Rabies vaccines are manufactured using hamster kidney cells. A list of licensed livestock rabies vaccines may be found at <http://www.cdc.gov/mmwr/pdf/rr/rr6006.pdf>

Calendar

- [One Health Conference](#)
- [Food Armor® Phase I & II Training](#)
- [Dairy Cattle Welfare Symposium](#)
- [ODHMCP](#)

[Click here to view archives](#)

Location

Department of Veterinary Preventive Medicine

Interim Chair:
Dr. Thomas E. Wittum
A100S Sisson Hall
1920 Coffey Road
Columbus, Ohio 43210
wittum.1@osu.edu
614-292-1206

Subscribe

Contact:
Jeffrey D. Workman, PhD
Extension Program Coord.
workman.45@osu.edu
614-292-9453

<http://vet.osu.edu/extension>

Research

Clothier, K., & Anderson, M. (2016). **Evaluation of bovine abortion cases and tissue suitability for identification of infectious agents in California diagnostic laboratory cases from 2007 to 2012.**

Theriogenology, 85(5), 933-938. doi: 10.1016/j.theriogenology.2015.11.001

BACKGROUND: Establishing a definitive cause of bovine abortion is a challenging problem faced by veterinary practitioners and diagnosticians. Detection of an infectious or noninfectious source for abortion may facilitate interventions that mitigate future fetal loss in the herd. Costs can be as high as \$1,900 per abortion based on stage of pregnancy, cow performance, current prices, and producer decisions.

PURPOSE: The purposes were to identify the most common causes of bovine abortion in cases submitted to the Davis branch of the California Animal Health and Food Safety Laboratory System (CAHFS, Davis) from 2007 to 2013 and to determine if detection of infectious pathogens differed according to the fetal tissue evaluated.

RESULTS: Over 58% of abortions were attributed to an infectious cause and 46.9% had an infectious agent identified. The most common infectious conditions were Epizootic Bovine Abortion (EBA) (16.2% of all fetuses), other fetal bacterial infections (14.7% of all fetuses), and *Neospora caninum* (9.3% of all fetuses.) The bacterium associated with EBA (currently named *Pajaroellobacter abortibovis*) was most commonly identified by immunohistochemistry (IHC) in lymphoid organs (thymus and spleen); *N. caninum* IHC was most frequently positive in brain, kidney, and placenta. In cases of pathogenic and opportunistic bacterial infections, abomasal samples yielded a significantly greater proportion of definitive aerobic culture results than lung or liver tissues. Direct fluorescent antibody test results for Bovine Viral Diarrhea Virus testing were identical between lung and kidney tissues and nearly identical (96.0%) for Bovine Herpesvirus 1. Noninfectious abortive conditions included fetal stress (10.5%), dystocia (3.9%), congenital defects (3.3%), toxicological or mineral problems (1.8%), and death of the cow (1.1%). Just over 20% of the aborted fetuses had no gross or histopathological lesions to explain the abortion.

CONCLUSIONS: The authors concluded that this review highlights the need for submission of critical samples including abomasal contents, lymphoid tissues (thymus, spleen, and lymph nodes), and brain to maximize the diagnosticians' ability to identify causes of abortion.

[ACCESS THE ARTICLE...](#)

Langel, S. N., Wark, W. A., Garst, S. N., James, R. E., McGilliard, M. L., Petersson-Wolfe, C. S., & Kanevsky-Mullarky, I. (2016). **Effect of feeding whole as compared to cell-free colostrum on calf immune status: Vaccination response.** *Journal of Dairy Science*. Advanced online publication. doi: 10.3168/jds.2015-9892

BACKGROUND: Boosting immune development in calves may have long-term effects by enhancing vaccine immune response and efficacy, and colostrum is the sole source of maternal immunity received by neonates. Colostral antibody concentration is used to evaluate colostrum quality; however, colostrum also contains proteins and cells, which may affect immune development and future responses to vaccines. Previous research suggest that calves fed whole colostrum have a greater ability to activate immune cells, leading to enhanced responses to antigen exposure.

PURPOSE: The objective was to continue following dairy calves from a previous study and determine the effect of maternal colostrum cells fed at birth on subsequent immune responses to vaccinations.

RESULTS: Calves fed cell-free colostrum had fewer numbers of B cells in mo 2 after vaccination when compared with whole colostrum-fed calves. Calves fed cell-free

colostrum had decreased gene expression levels of IL-2 in mo 1 and numbers of CD4+CD62L+CD45RO- and CD4+CD62L+CD45RO+T cells in mo 0 and 1 after vaccination series B as compared with whole colostrum-fed calves.

CONCLUSIONS: The authors concluded that their findings indicate a greater response to vaccines up to 6 to 10 months after whole colostrum feeding when compared with cell-free colostrum.

[ACCESS THE ARTICLE...](#)

Cabral, R. G., Chapman, C. E., Aragona, K. M., Clark, E., Lunak, M., & Erickson, P. S. (2016). **Predicting colostrum quality from performance in the previous lactation and environmental changes.** *Journal of Dairy Science*. Advanced online publication. doi: 10.3168/jds.2015-9868

BACKGROUND: Currently, estimating IgG concentration in colostrum can be completed on farm by using either a colostrometer or refractometer. However, many producers do not have access to these tools or do not take the time to test their colostrum before feeding. Approximately 22% of the US dairy herd is enrolled in DHI; the goal of this study was to evaluate DHI data and environmental data to provide producers with a means of predicting colostrum quality on the date the cow calves.

PURPOSE: The objective was to evaluate the possible correlations between previous lactation, predicted transmitting abilities, and environmental conditions on the subsequent colostrum produced and develop a regression equation that could be incorporated into management software programs as an aid in predicting IgG concentration in colostrum.

RESULTS: The authors created a regression equation. This model was validated using 27 colostrum samples from 9 different farms not used in the model. The difference between means for actual and predicted colostrum quality (IgG, g/L) was 13.6 g/L. Previous lactation DHI data and weather data can be used to predict the IgG concentration of colostrum.

CONCLUSIONS: The authors concluded that colostrum quality can be predicted from previous lactation performance data. Producers will have the ability to estimate IgG content of the colostrum without having to handle the product. Testing colostrum quality using a refractometer or colostrometer is best; this equation will provide an alternative option for producers. Future research should focus on genetic markers that may affect colostrum quality.

[ACCESS THE ARTICLE...](#)

He, Y., Deen, J., Shurson, G. C., Wang, L., Chen, C., Keisler, D. H., & Li, Y. Z. (2016). **Identifying factors contributing to slow growth in pigs.** *Journal of Animal Science*. Advanced online publication. doi: 10.2527/jas.2015-0005

BACKGROUND: In an all-in/all-out production system, pigs that cannot reach desirable slaughter weights at a certain age are often referred to as slow-growing pigs. These pigs have a higher risk of death during each phase of production, and survivors are sold at much lower values. While slow growing pigs are commonly observed in swine production systems, contributing factors to slow growth are poorly understood. Very few studies have evaluated physiological characteristics of pigs that may contribute to slow growth.

PURPOSE: The purpose was to investigate hormones and metabolites of slow growing pigs, in attempt to understand the underlying mechanisms of slow growth. In addition, they evaluated risk factors to slow growth, such as body weight and feeder space allowance at early stages of life, in order to identify management strategies to improve growth performance and animal welfare of slow growing pigs.

RESULTS: Compared with fast growers, slow growers were lighter at birth, at weaning, and at nursery exit; had less backfat and smaller loin muscle area at marketing at 21

weeks of age. Slow growers had lower plasma concentrations of IGF-1 and insulin during the nursery period, and lower concentrations of leptin and insulin during the finishing period compared with average and fast growers. Serum concentrations of several essential, non-essential, and total free AA were less for slow growers during both the nursery and finishing period compared with average and fast growers. Gilts were more likely to become slow growers than barrows (odds ratio = 2.17, CI = 1.19 to 3.96; P = 0.01). Litter size and parity of the pigs' dam were not associated with slow growth.

CONCLUSIONS: The authors concluded that these results suggest that low concentrations of IGF-1, insulin, leptin, and AA may contribute to or be associated with slow growth in pigs.

[ACCESS THE ARTICLE...](#)

Calendar



A full calendar of all upcoming events and continuing education opportunities offered by the College of Veterinary Medicine is available on the website at <http://vet.osu.edu/>

[One Health Conference](#)

March 17-18, 2016

Veterinary Medical Center Auditorium, Columbus, Ohio

Targeted towards public health officials, Extension Professionals, and Veterinarians.

Responsible Antibiotic Use: Using Protocols to Recognize and Treat Sick Cows and Calves

April 21, 2016, English-speaking participants

April 22, 2016, Spanish-speaking participants

OSU-ATI Dairy Facility, Wooster, Ohio

Held in conjunction with Wayne County Extension.

[Food Armor® Phase I & II Training](#)

April 27-28, 2016

OVMA, Powell, Ohio

No cost, but registration is required (deadline April 1st, limited to 25 participants).

[Dairy Cattle Welfare Symposium](#)

Intersection of Best Practices and Sustainability

May 20-21, 2016

Ohio Union, Columbus, Ohio

Early-bird registration ends April 1st (limited to 265 attendees).

[Ohio Dairy Health and Management Certificate Program](#)

Spots are always available for specific module plan.

Information presented above and where trade names are used, they are supplied with the understanding that no discrimination is intended and no endorsement by Ohio State University Extension is implied.

Ohio State University Extension embraces human diversity and is committed to ensuring that all research and related educational programs are available to clientele on a nondiscriminatory basis without regard to race, color, religion, sex, age, national origin, sexual orientation, gender identity or expression, disability, or veteran status. This statement is in accordance with United States Civil Rights Laws and the USDA.

Roger Rennekamp, Ph.D., Director, Ohio State University Extension.

Access to full-text journal articles may require individual subscriptions.



THE OHIO STATE UNIVERSITY

**COLLEGE OF VETERINARY MEDICINE
COLLEGE OF FOOD, AGRICULTURAL
AND ENVIRONMENTAL SCIENCES**