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In This Issue

News

"Peer Review" System for Food Animal Protocols and Practices

In dairy herds, protocols and Standard Operating Procedures (SOPs) are essential management tools for guiding decisions and criteria used for the diagnosis and treatment of specific health conditions (e.g., metritis, castration, mastitis) as well as to standardize management practices (e.g., milking routine, colostrum administration to calves). For instance, a written protocol provides information on "what to do" (e.g., treatment for a specific disease) and the SOPs within the protocol describes, systematically, "how to do it" (operational steps and resources needed to perform a given protocol).

Protocols are customized and farm-specific, and practicing veterinarians are often asked to develop and write protocols for individual farms, particularly health protocols. Furthermore, many retailers are requesting that their suppliers (e.g., dairy and beef farms), either via in-house or through third party audits, document health and management practices for the food animals under their care. With the scrutiny of antimicrobial use and welfare practices in food animals always under the watchful eye of consumers, retailers, legislators, and activists; it is crucial that we use the best herd-health management practices that comply with federal/state regulations while also considering the health and well-being of the animal. Therefore, the review of health protocols is a key component of the auditing process and veterinarians are expected to develop best care practices and ovoid drug residues entering the food chain.

Veterinary Extension has developed a prototype "double blind peer review system" that would provide a mechanism for dairy veterinarians to submit their protocols electronically for review. In science, a peer-review process serves as the "quality control" for published manuscripts. We have worked with other dairy veterinarians and their clients over the past couple of years and they have expressed strong support for an approach to review protocols. This peer-review process would be entirely confidential and anonymous. The process would work as follows:

1) A veterinarian would submit one or more protocols via a website to Veterinary Extension.
2) The editor within Veterinary Extension would remove any identifying information and send it to two or three separate confidential reviewers selected based on the expertise needed.

tissues of cows following low-dose exposure to electron beam irradiation

Calendar

- ODHMCP
- Poultry Medicine Workshops

Click here to view archives

Location

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3) The reviewers, via the same website, would provide suggestions and comments to improve the protocol (e.g., content, regulatory compliance, up-to-date science & technology, clarity).

4) The editor would then send the information (comments and suggestions) back to the original veterinarian without the names of the reviewers.

Initially, the reviewers will likely consist of experts (e.g., academia, industry) from around the country. However, the goal will be to eventually include those who are regularly submitting protocols to serve as blind reviewers for others. The long-term goal of this initiative would be to provide innovative tools and new resources to enhance management and services of practicing veterinarians to improve food safety and security at the herd level; and thus, consumer trust. While this review system would be designed for dairy protocols, it could easily be expanded in the future to include other commodities as well.

We would greatly appreciate your input and thoughts on the value and usefulness of this initiative. Please visit the following survey link to provide your feedback:

https://osu.az1.qualtrics.com/SE/?SID=SV_7TWHnWOQeQtZqO9

Q&A Session

QUESTION #1: Why should we not house chickens and turkeys together?

ANSWER: The general rule for good biosecurity practices is that poultry flocks should be single species and single age. Some poultry species are more sensitive to certain diseases than others. This allows for the transmission of a disease from less sensitive carrier species to more sensitive species, often with dire consequences.

For example, Black Head, a protozoan disease (*Histomonas meleagridis*) that affects intestinal tract and liver of chicken and turkeys, leading to diarrhea and high mortality. Chicken's carry the round worm (*Heterakis gallinae*) that act as a carrier for the Histomonads. However, chickens are less sensitive to the disease and can represent a source of the disease to more susceptible turkeys. Other diseases that could be shared between chickens and turkeys include, but not limited to: Newcastle Disease, Avian Influenza, Mycoplasma, and Fowl Cholera. Furthermore, if ducks, pheasants, or other species are added to the mixed population, that list of sharable diseases is going to grow significantly. Whenever possible avoid growing poultry in mixed species and multiage flocks. This is much better for the health and welfare of you poultry flock.

QUESTION #2: A large conventional dairy herd (milking approximately 2,000 cows; DC305 is used to keep records) would like to screen all fresh cows for metritis 3 times per week (6, 8, and 10 DIM; each fresh cow would have 3 health screening opportunities). All cows are milked three times per day at approximately 8-hour intervals (6:00 am, 2:00 pm, and 10:00 pm) and headlocks are available in the fresh pen (1-25 DIM). The fresh pen is the first to enter the parlor at each milking time. The TMR is delivered twice per day at 6:00 am and 6:00 pm (feed push up every 2 hours). Due to labor scheduling conflicts and to minimize a drop in DM intake in postpartum cows (e.g., compromise lying time), the owner would like to perform the health screening protocol only during the week days (from Monday to Friday).

Specific request: Please develop the protocol (from screening to treatment) for metritis and place it into the calendar week. For this case situation, you can be flexible and schedule cows for metritis screening as "±1 DIM".

- Using the calendar week (5 days), what day(s) of the week would you be screening cows for metritis?

- Which cows and how many would you be screening each day assuming there is an average of 6 calvings per day?
- How many workers are needed to implement the health protocol assuming 1 hour is available for each day?
- How would you print the list of fresh cows by DIM from DC305?

ANSWER: The answers are provided at the following link:

https://vet.osu.edu/extension/dairy-resources/protocols

Research

Ferraz, P. A., Burnley, C., Karanja, J., Viera-Neto, A., Santos, J. E. P., Chebel, R. C., & Galvão, K. N. (2016). **Factors affecting the success of a large embryo transfer program in Holstein cattle in a commercial herd in the southeast region of the United States**. *Theriogenology*. Advance online publication. doi: 10.1016/j.theriogenology.2016.05.032

BACKGROUND: In the last 40 years, there have been improvements in synchrony and hormonal protocols for ovarian superstimulation and synchronization of the estrous cycle and ovulation; however, the mean number of embryos produced via superstimulation or pregnancy per embryo transfer (P/ET) has not appreciably changed. Having a better understanding of the factors that affect embryo production and P/ET could help improve the success of ET programs.

PURPOSE: The objective was to evaluate environmental and cow donor factors affecting in vivo embryo production, cow donor, cow recipient, and embryo factors affecting pregnancy per embryo transfer in Holstein cattle in the southeast region of the USA.

RESULTS: Embryo fertilization and percentage of viable embryos was reduced in multiparous compared with primiparous and nulliparous. Furthermore, P/ET was greater for nulliparous than primiparous and greater for primiparous than multiparous, greater for fresh embryos than others, greater for stage 7 than others, greater for quality 1 than 2 and greater for quality 2 than 3, and greater for ET on estrous cycle day 7 and 8 than 6. In nulliparous, P/ET was decreased for average temperature-humidity index ≥ 80 and in parous cows P/ET was decreased for average temperature-humidity index ≥ 72. In parous cows, P/ET was lesser for cows that had calving problems and metritis. Milk production and DIM did not affect embryo production or P/ET.

CONCLUSIONS: The authors concluded that embryo production was affected by donor parity, and P/ET was affected by embryo type, embryo stage, embryo quality, recipient estrous cycle day at ET, temperature-humidity index, calving problems, and metritis.

ACCESS THE ARTICLE…

Esquivel-Hernandeza, Y., Ahumada-Cotaa, R. E., Attene-Ramosb, M., Alvaradoc, C. Z., Castañeda-Serranod, P., & Navaa, G. M. (2016). **Making things clear: Science-based reasons that chickens are not fed growth hormones**. *Trends in Food Science & Technology, 51*, 106-110. doi:10.1016/j.tifs.2016.01.013

BACKGROUND: The myth that chickens are fed growth hormones to produce more meat rapidly has spread globally. Numerous universities and institutes around the world have described that feeding hormones to chickens is fictional; however, a detailed scientific description explaining why hormones are not used in poultry production has not been published.

PURPOSE: In the present manuscript, the physiological, economic and legal reasons of why growth hormones are not used specifically in poultry production are analyzed. They also provide the physiological factors behind the rapid growth rate in commercial chickens.

RESULTS: Physiological reasons: Chickens reach market at a very young age (~6-9 weeks) when growth hormones have no physiological effects on the birds since they are marketed prior to reaching sexual maturity. Economic rationale: If growth hormone implants were used in poultry, this would equate to the cost of the hormone being more than ten-fold the estimated total cost of vaccines, electricity, and heating required per chicken ($0.13-0.23 USD/bird). Basically, the cost of a growth hormone-implant is >50% of the total cost of poultry meat production. Legal reasons: In the EU and USA regulations prohibit the use of hormones in Poultry, and the EU banned the use of hormones for growth promotion in all farm animals. Meat producer federations worldwide have banned the use of hormones in poultry.

CONCLUSIONS: The authors concluded that the use of growth hormones in poultry meat production is unrealistic because these compounds simply do not produce growth promotion effects in young chickens, they are too expensive to be used for poultry producers, and their use is illegal in many countries. More important, the poultry industry relies on a successful partnership with science and technology to develop and refine strategies to improve the health, welfare, and performance of chickens, thus there is no need for growth hormone usage. Therefore, it is important that health providers, policy makers, food science professionals, food producers and veterinarians disseminate this critical information to educate consumers and eliminate false “concerns” about the most economical meat available globally.

ACCESS THE ARTICLE…

Campler, M., Pairis-Garcia, M., Stalder, K. J., & Johnson, A. K. (2016). **Rubber mat placement in a farrowing and lactation facility: Tips and techniques**. *Journal of Swine Health and Production 24*(3), 142-146.

BACKGROUND: Although lameness is a sow welfare concern and has economic impacts for the industry, few practical on-farm solutions have been developed. Previous studies have shown both benefits and negative effects of using rubber mats. No study has yet identified the optimal rubber mat or provided any consensus on guidelines for successful use and management of rubber mats in a sow facility.

PURPOSE: The objective of this production tool was to provide additional information, guidelines, and techniques for selecting, installing, and maintaining rubber mats in unidirectional farrowing stalls for multiparous sows.

RESULTS: The rubber-mat thickness of choice should be at least 1.9 cm to withstand the daily postural adjustments and manipulations of the sow. All four legs of the sow should have access to the mat simultaneously. Perforated mats reduce manure build-up, and the 1.4 cm perforation size worked sufficiently in allowing accumulated manure to pass through. Maintaining consistent placement requires that all four corners be fastened.

CONCLUSIONS: The authors concluded that perforated rubber mats may provide an easy and inexpensive way to improved sow comfort in farrowing stalls. Mat size, cleanliness, cost, durability, and management are important factors to consider. Rubber mats need to be placed properly under the sow and fastened securely to ensure maximum sow benefit.

ACCESS THE ARTICLE…

Bode, J. F., & Thoen, C. O. (2016). **Short communication: Survival of *Mycobacterium avium* ssp. *paratuberculosis* in tissues of cows following low-dose exposure to electron beam irradiation**. *Journal of Dairy Science*. Advanced online publication. doi: 10.3168/jds.2016-11216

BACKGROUND: Irradiation of food products has previously been shown to be a safe method of improving food safety and preventing foodborne disease in people. The authors noted that *Mycobacterium avium* ssp. *Paratuberculosis* (MAP) has been suggested to have a link with Crohn's disease; however, epidemiologic evidence fails to support MAP as the cause of Crohn's disease in humans.

PURPOSE: The purpose was to determine the effects of low-dose electron beam irradiation on the survival of MAP in tissue samples collected at necropsy from clinically affected cows. Thus, determine if low level irradiation of meat is an efficacious method for killing MAP to prevent exposure to humans in the food supply chain.

RESULTS: MAP was isolated from tissues of each of 13 nonirradiated controls, tissues irradiated at 0.75 kGy, or both. Also, MAP was isolated from the ileocecal valve, mesenteric lymph node, or ileum (or a combination of these) of each of 13 cows irradiated at 2.5 kGy. The MAP was isolated from ileum and ileocecal valve of one cow and from the ileum of another cow irradiated at 4.0 kGy, but was not isolated from the ileum, ileocecal valve, or mesenteric lymph node of the other 11 cows.

CONCLUSIONS: The reason why MAP in tissues from some cattle naturally exposed to MAP survived irradiation is not clear.

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/**

Ohio Dairy Health and Management Certificate Program

Module 8 – Organic Animal Health Workshop

- Aug 25-26, 2016
- Hilton Garden Inn; Columbus, Ohio

Spots are always available for specific module plan.

Poultry Medicine Workshops

Practitioners will develop knowledge & skills to receive poultry clients

- Oct 4, 2016; Cleveland, Ohio
- Oct 5, 2016; Columbus, Ohio
- Oct 6, 2016; Cincinnati, Ohio

Details and registration information will be forthcoming…

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.

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