

OHIO STATE UNIVERSITY EXTENSION



OHIO VETERINARY NEWSLETTER

November 7, 2014

Veterinary Extension

Vol 40, No 13

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[Department of Veterinary Preventive Medicine](#)

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Research

Mintline, E. M., Varga, A., Banuelos, J., Walker, K. A., Hoar, B., Drake, D., ...Tucker, C. B. (2014). **Healing of surgical castration wounds: a description and an evaluation of flunixin.** *Journal of Animal Science*. Advance online publication. doi:10.2527/jas.2014-7885

BACKGROUND: Providing analgesics, including non-steroidal anti-inflammatory drugs (NSAIDs), reduce post-operative pain responses. Flunixin meglumine is the only NSAID approved for use in cattle in the US and mitigates pain responses in the hours after castration. Non-steroidal anti-inflammatory drugs have either no effect or slow healing in soft tissue wounds in humans and rodents, but these effects have not been examined in cattle.

PURPOSE: The objectives were to describe healing, inflammation, lying behavior, and serum concentration of substance P (a neuropeptide associated with nociception) after surgical castration in beef suckling calves and to evaluate a single injection of flunixin (1.1 mg/kg IV, a NSAID) on these measures.

RESULTS: Forty-eight Angus-Hereford cross male calves were either given flunixin or saline immediately prior to castration. No differences were observed between the treatment and control group for inflammation and healing, scrotal surface temperature, serum concentration of substance P, weight gain, or lying behavior.

CONCLUSIONS: The authors concluded that castration caused inflammation in the days that followed, and the wounds required a minimum of 4 weeks to heal. Provision of a short-acting NSAID at the time of the procedure had no effect on these outcomes, indicating that any pain associated with the observed inflammation and wounds would likely require other forms of remediation.

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Thompson-Crispi, K., Atalla, H., Miglior, F., & Mallard, B. A. (2014). **Bovine mastitis: frontiers in immunogenetics.** *Frontiers in Immunology*, 5(493). doi: 10.3389/fimmu.2014.00493

BACKGROUND: Despite the implementation of management practices and genetic selection approaches, bovine mastitis control continues to be inadequate; however, some novel genetic strategies have recently been demonstrated to reduce mastitis incidence by

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taking advantage of a cow's natural ability to make appropriate immune responses against invading pathogens. Dairy cattle with enhanced and balanced immune responses have a lower occurrence of disease, including mastitis, and they can be identified and selected for using the high immune response (HIR) technology.

PURPOSE: A review was conducted to highlight the genetic regulation of the bovine immune system and its vital contributions to disease resistance, in particular mastitis. Current genetic selection approaches used in the dairy industry to reduce the incidence of disease were reviewed, including the HIR technology; the Immunity+™ sire line, as well as genomics to improve disease resistance or immune response.

CONCLUSIONS: The authors concluded that the ideal solutions to improve resistance to mastitis are likely to be those that focus on a large number of genes, by using information from genome-wide association studies (GWAS), or selection based on breeding values of immune responses, which take into account complex genetic interactions between the innate and adaptive host defense mechanisms without the necessity of knowing all about each individual gene. Using selection indices also offers the advantage of being able to easily adjust the weights given to the various traits within the index as the selection proceeds. These two approaches may be best suited to help alleviate mastitis, at least until more is understood about genetic and epigenetic regulation of host defense mechanisms.

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Hawkins, S. A., Simmons, H. A., Gough, K. C., & Maddison, B. C. (2014). **Persistence of ovine scrapie infectivity in a farm environment following cleaning and decontamination.** *Veterinary Record*. Advance online publication. doi: 10.1136/vr.102743

BACKGROUND: For scrapie and CWD, infectious prions are shed via multiple routes (i.e., feces, saliva, urine, skin, parturient material) during both preclinical and clinical stages of the disease. Environmental reservoirs of infectivity can survive for many years on a range of surfaces within the farm.

PURPOSE: The purpose was to evaluate the effectiveness of recommended scrapie farm decontamination regimens by a sheep bioassay using buildings naturally contaminated with scrapie.

RESULTS: Pens were untreated (pen A), power washed (pen B), power washed followed by treatment with 20,000 ppm free chlorine for one hour (pen C) or power washed, hypochlorite treated and then all surfaces either replaced, re-galvanized or painted (pen D). A bioassay was then carried out by introducing scrapie susceptible lambs into the decontaminated pens and monitoring them by RAMALT testing every three months from six months of age. Observations in pen D indicated a lower infectious dose; however, regardless of pen treatment regiment, there was still enough prion agent within each of the pens for the infection of sheep.

CONCLUSIONS: The authors concluded that the presence of these environmentally associated prions in farm buildings make the control of scrapie (and likely CWD) a considerable challenge, especially in animal species such as goats where there is lack of genetic resistance to scrapie and, therefore, no scope to re-stock farms with animals that are resistant to scrapie.

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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 3 – Basic Dairy Cattle Nutrition
December 4-6, 2014

Module 4 – Advanced Dairy Cattle Nutrition
March, 2015 (TBD)

Modules 3 and 4 of this cohort will be focused on nutrition. Space is still available under the specific-module option.

The *Ohio Veterinary Newsletter* began in October of 1974 as a way for Veterinary Extension to relay relevant information to practicing veterinarians in Ohio. The aim is to communicate pertinent news from the Veterinary Extension Unit; unbiased, research-based information with practical relevance for veterinary practitioners working in food animal, equine, and shelter medicine; and a calendar of upcoming opportunities. Please feel free to provide your feedback and let us know what information is most helpful to you and your practice.

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