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In This Issue

Research

- [The first 10 years \(2006-15\) of epizootic hemorrhagic disease virus serotype 6 in the USA](#)
- [Effect of group size and health status on behavior and feed intake of multiparous dairy cows in early lactation](#)
- [Comparison of online, hands-on, and a combined approach for teaching cauterizing and disbudding techniques to dairy producers](#)
- [Viable *Mycobacterium avium* ssp. *paratuberculosis* isolated from calf milk replacer](#)

Calendar

- [Food Armor® Phase I & II Training](#)
- [Ohio Dairy Veterinarians Meeting](#)

Research

Ruder, M. G., Johnson, D., Ostlund, E., Allison, A. B., Kienzle, C., Phillips, J. E., ...Stallknecht, D. E. (2017). **The first 10 years (2006-15) of epizootic hemorrhagic disease virus serotype 6 in the USA.** *Journal of Wildlife Diseases*, 53(4), 901-905. doi: 10.7589/2016-12-284

BACKGROUND: Historically, only two serotypes of epizootic hemorrhagic disease virus (EHDV) have been known to be endemic in the US (EHDV-1 and EHDV-2); however, in 2006, an exotic serotype (EHDV-6) was detected. EHDV-6 and numerous exotic bluetongue virus serotypes have been isolated from wild and domestic ruminants in the US since 1999. Collectively, the detection of these exotic orbiviruses in the US is of concern for wildlife and livestock health. It is unknown which, if any, of these exotic viruses have become established.

PURPOSE: To report EHDV-6 detections over a 10-year period (2006–15) made through passive surveillance efforts by the Southeastern Cooperative Wildlife Disease Study (SCWDS) and the National Veterinary Services Laboratories (NVSL).

RESULTS: From 2006 to 2015, EHDV-6 was detected each year from a total of 117 ruminants, including 111 white-tailed deer, 4 domestic cattle, 1 mule deer, and 1 elk. Detections of EHDV-6 were widely distributed throughout the central and eastern US and included viruses from 18 different states. The EHDV serotype most commonly isolated by SCWDS was EHDV-2 (n=647), followed by EHDV-6 (n=84) and EHDV-1 (n=38) over the 10-year study period. During most years, EHDV-6 was detected in low numbers, ranging from one to nine detections annually, typically representing a small portion of overall EHDV detections (EHDV-1, -2, and -6). However, during a large-scale outbreak in 2012, EHDV-6 was detected in 77 ruminants from 14 states as far apart as South Dakota and Florida. Furthermore, among all EHD viruses isolated by SCWDS during the 2012 EHD outbreak, EHDV-6 represented 28% of virus isolates.

CONCLUSIONS: EHDV-6 has been detected in ruminants every year since 2006. The authors concluded that findings highlight gaps in our knowledge of EHDV transmission. The only confirmed vector of EHDV in the US, *Culicoides sonorensis*, is not commonly reported throughout much of the upper Midwestern and Eastern US, where EHDV-6 has been commonly detected. Further, EHDV-6 replicates poorly in colonized *C. sonorensis*,

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Contact:

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

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

and the potential for transmission of EHDV-6 by other *Culicoides* spp. has not been investigated.

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Jensen, M. B., & Proudfoot, K. L. (2017). **Effect of group size and health status on behavior and feed intake of multiparous dairy cows in early lactation.** *Journal of Dairy Science*. Advance online publication. doi: 10.3168/jds.2017-13035

BACKGROUND: A cow's ability to compete for access to feed and space may be impaired due to production disease, and housing in a small group with minimal competition may be beneficial for cow welfare. Some evidence has shown that housing postparturient cows in separate pens and smaller groups may reduce the level of competition and improve the social environment for healthy cows. Research is still needed to determine the effect of moving healthy and ill cows into a novel pen of various group sizes after calving.

PURPOSE: The aim was to investigate the effect of group size and health status on the social, feeding, and lying behavior of postpartum cows during the first 3 days after introduction to a group.

RESULTS: No interactions between health status and group size were discovered. During the 1 day after introduction, N6 (6 head in a pen) cows displaced other cows from feed less frequently than N24 (24 head in a pen) cows (1.22 vs. 5.76 times/24 h), were less likely to access feed after a displacement (replacement; 0.29 vs. 1.67 times/24 h), and were less frequently being butted by another cow (0.42 vs. 1.69 times/24 h). Second-parity cows received more head butting than later-parity cows. Data obtained from feed bins showed that the number of replacements peaked on day 2 after introduction to the group pen. During the first 3 days they observed no effect of group size on DMI, but sick cows ate less than cows that were not sick (15.2 vs. 16.6 kg of DM/d). However, cows in N6 visited the feeder less often (42.4 vs. 55.6 times/d). Over the 3 days after introduction, DMI and feeding time increased, whereas feeding rate decreased. Lying time and the number of lying bouts increased from 1 to 2 days. The number of steps decreased over days, but the number of steps was higher among N24 than N6 cows on day 1 and day 2.

CONCLUSIONS: The authors concluded that their results suggest that cows experience less competition when moved to a smaller group after calving regardless of health status. Thus, minimizing competition by housing dairy cows in a small group for the first days after calving may improve cow welfare under commercial conditions.

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Winder, C. B., LeBlanc, S. J., Haley, D. B., Lissemore, K. D., Godkin, M. A., & Duffield, T. F. (2017). **Comparison of online, hands-on, and a combined approach for teaching cautery disbudding technique to dairy producers.** *Journal of Dairy Science*. Advance online publication. doi: 10.3168/jds.2017-13217

BACKGROUND: Appropriate pain control for cautery disbudding involves the use of a local anesthetic, commonly given as a cornual nerve block (CNB) and a nonsteroidal anti-inflammatory drug. Whereas local anesthetic is inexpensive, application of a CNB does require technical training on location of landmarks and injection technique to be successful. Lack of knowledge of how to perform this technique may partially explain why some producers do not adopt this form of pain control.

PURPOSE: The primary objective was to determine if an online training module was as effective as hands-on training for teaching dairy producers to successfully perform a CNB and disbud a dairy calf under 12 weeks of age with a small diameter thermal disbudding iron (Portasol). A secondary objective was to determine if a combined approach of online and hands-on learning was more effective than hands-on training alone.

RESULTS: Use of an online learning module resulted in a similar ability to provide an effective CNB when compared with a group receiving hands-on training, albeit with less confidence. A combined approach increased confidence.

CONCLUSIONS: The authors concluded that online training can be a useful tool for motivated producers who lack access to hands-on training. Online learning alone may not be suitable for those lacking confidence to attempt a new technique without assistance, but may be valuable as an additional tool with hands-on training, to teach additional employees on a given farm, or as a way to foster discussion on pain control for disbudding.

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Grant, I. R., Foddai, A. C. G., Tarrant, J. C., Kunkel, B., Hartmann, F. A., McGuirk, S., ...Collins, M. T. (2017). **Viable *Mycobacterium avium* ssp. paratuberculosis isolated from calf milk replacer.** *Journal of Dairy Science*. Advance online publication. doi: 10.3168/jds.2017-13154

BACKGROUND: An optimized method for detecting *Mycobacterium avium* ssp. *paratuberculosis* (MAP) in powdered dairy products has yet to be published, so during this study multiple methods, including several published and unpublished cultural and qPCR approaches, were employed in the 2 calf milk replacer testing laboratories to maximize chances of detecting low numbers of viable MAP, if present, in the milk replacer samples.

PURPOSE: The objectives were: (1) to test commercial calf milk replacer products sourced from within the US using standard culture methods, 2 PMS-based methods (PMS-phage assay and PMS plus liquid culture) and IS900 quantitative PCR (qPCR) to detect the presence of viable MAP and MAP DNA, respectively, and (2) to assess the overall hygienic quality of the milk replacer samples by performing conventional microbiological analyses, to determine if the presence of any hygiene indicator microorganism might correlate with detection of viable MAP.

RESULTS: Twenty-six (31.3%) of the 83 calf milk replacer samples showed evidence of the presence of MAP. Seventeen (20.5%) tested positive for viable MAP by the PMS-phage assay, with plaque counts ranging from 6 to 1,212 pfu/50 mL of reconstituted CMR (average 248.5 pfu/50 mL). Twelve (14.5%) CMR samples tested positive for viable MAP by PMS-culture; isolates from all 12 of these samples were subsequently confirmed by whole-genome sequencing to be different cattle strains of MAP. Seven (8.4%) milk replacer samples tested positive for MAP DNA by IS900 qPCR. Four CMR samples tested positive by both PMS-based tests and 5 milk replacer samples tested positive by IS900 qPCR plus one or other of the PMS-based tests, but only one milk replacer sample tested positive by all 3 MAP detection tests applied. All conventional microbiology results were within current standards for whole milk powders. A significant association existed between higher total bacterial counts and presence of viable MAP indicated by either of the PMS-based assays.

CONCLUSIONS: This represents the first published report of the isolation of viable MAP from calf milk replacer. Although, it is unknown if the quantity is sufficient to cause infection of calf. The authors concluded that the prospect that MAP has survived the manufacture of dried milk and whey-based products, which are destined for consumption by food animals could have far-reaching potential consequences; further testing of milk replacer collected directly at manufacturing sites using the PMS and liquid culture approach is warranted to verify findings. The broader food safety implications of detecting viable MAP in this type of dried dairy product are not insignificant given that powdered infant formulae is consumed by young babies with immature immune systems.

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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/>

Food Armor® Phase I & II Training

- November 15-16, 2017
- Michigan State University Veterinary Diagnostic Laboratory; Lansing, Michigan
- Topics: "VCPR, Drug list, Protocols, SOPs, Records, & Veterinary Oversight"
- 16 hours total CE for both phases

No cost, but registration is required (deadline Nov 8th, limited to 25 participants).

Ohio Dairy Veterinarians Meeting

- January 3-5, 2018
- Marriott Columbus University Area
- Topic: "Transition Cow Management"
- 11 hours of CE

Registration deadline is Dec 14th.

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Roger Rennekamp, Associate Dean and Director, Ohio State University Extension

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