



OHIO VETERINARY NEWSLETTER

February 19, 2016

Veterinary Extension

Vol 42, No 2

In This Issue

Research

- [Nonambulatory cows: Duration of recumbency and quality of nursing care affect outcome of flotation therapy](#)
- [The effect of bovine somatotropin on the cost of producing milk: Estimates using propensity scores](#)
- [Management practices on organic and conventional dairy herds in Minnesota](#)

Calendar

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

Research

Stojkov, J., Weary, D. M., & von Keyserlingk, M. A. (2016). **Nonambulatory cows: Duration of recumbency and quality of nursing care affect outcome of flotation therapy.** *Journal of Dairy Science*. Advanced online publication. doi: 10.3168/jds.2015-10448

BACKGROUND: Nonambulatory cows are unable or unwilling to stand and remain down (recumbent) for more than 12 hours. Regardless of cause, an extended period of recumbency initiates secondary damage to the muscles and nerve tissue, causing a condition described as secondary recumbency. With little research in this area, there is currently no scientific basis for recommendations for when nonambulatory cows should be euthanized versus treated. Flotation therapy in which a cow is floated in warm water reduces secondary pressure damage to muscles and nerves and positions the cow in a standing position for when the water is eventually drained. No known previous studies have assessed the stress associated with flotation treatment or determined the conditions under which cows are most likely to recover following this treatment.

PURPOSE: The objectives of the current study were (1) to assess the physiological responses to stress using heart rate variability (HRV) measures taken before, during, and after the flotation treatment, and (2) to evaluate the effects of recumbency duration and nursing care provided to the nonambulatory cow on the outcome of the flotation treatment. The authors hypothesized that flotation would induce a stress response in cows, and that cows that had spent little time recumbent and received good nursing care during recumbency would have a greater chance for recovery.

RESULTS: Stress related to the flotation therapy appeared greatest during the filling and draining phases of the treatment, when cows likely have to exert increased effort to transition to a standing position. One-half of the 34 downer cows deemed eligible for this study (e.g., were alert and able to maintain sternal recumbency) recovered following flotation therapy. The likelihood of recovery was higher when treatment was begun soon after cows became recumbent; chances of recovery were much higher if treatment was begun within 24 hours, and recovery was unlikely if treatment began after more than 48 hours. Recovery was also more likely if cows received good nursing care while recumbent, including the use of a segregated sick pen with provision of adequate bedding, access to feed and water, and regular repositioning.

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Location

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CONCLUSIONS: The authors concluded that cows subjected to flotation therapy were more likely to recover if they were treated at early stage of recumbency and if good nursing care was provided while recumbent.

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Tauer, L. W. (2016). **The effect of bovine somatotropin on the cost of producing milk: Estimates using propensity scores.** *Journal of Dairy Science*. Advanced online publication. doi: 10.3168/jds.2015-9942

BACKGROUND: The compound recombinant bST has been commercially available to US dairy producers since 1994. The use of bST in lactating cows has been controversial, with opponents questioning the effect on cow health and milk composition, whereas proponents have argued it allows producing milk with fewer resources and reduces the greenhouse gas impact associated with milk production.

PURPOSE: The purpose was to determine what has been the effect of bST on the cost of producing milk? To provide an answer, 20 years of data on a large number of New York dairy farms was used to estimate the cost effect per 100 kg of milk produced with the use of bST compared with no use of bST using propensity score matching (PSM).

RESULTS: Over the 20 years that this technology has been used by some of the dairy farms participating in the New York Farm Business Summary, annual decreases in the cost of producing milk ranged from \$0.24 (statistically zero) to as high as \$3.42 per 100 kg of milk produced, using PSM to estimate the treatment effect. Combining all years into one PSM model resulted in a cost reduction of \$2.67 per 100 kg of milk produced. Nearest neighbor matching resulted in a similar cost reduction estimate of \$2.78 per 100 kg of milk produced.

CONCLUSIONS: The authors conclude that it is clear that bST is a cost-reducing technology. Validity of these results, however, is conditional on biases from unobservables being not significant.

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Sorge, U. S., Moon, R., Wolff, L. J., Michels, L., Schroth, S., Kelton, D. F., & Heins, B. (2016). **Management practices on organic and conventional dairy herds in Minnesota.** *Journal of Dairy Science*. Advanced online publication. doi: 10.3168/jds.2015-10193

BACKGROUND: Little is known about general management practices or health parameters on organic dairies in the US. Some of the existing studies were conducted before the pasture rule was introduced in 2010. The pasture rule requires that all certified organic livestock must be fed organic feed, and all ruminants over 6 months of age are required to receive at least 30% of their annual DMI from pasture for at least 120 days during the grazing season. There is limited information available comparing organic practices to conventional production systems.

PURPOSE: The objective was to describe and compare husbandry practices on organic and conventional farms in Minnesota.

RESULTS: The distribution of cattle breeds and ages differed across farm types. Organic farms had more crossbred cows and a greater number of older cows than conventional farms, who had mainly Holstein cattle. Organic farms did not dock tails, were more likely to use breeding bulls, and were less likely to conduct pregnancy diagnoses in cattle. All conventional farmers fed corn, corn silage, and hay, but no forage or feed supplement was fed by all organic farms with the exception of pasture. Kelp was supplemented on most organic farms but on none of the conventional farms.

CONCLUSIONS: The authors concluded that although they observed differences across farm types regarding breeds and age distributions, uses of pasture, forages, and feed additives, reproductive management, and tail docking, observations in other management

areas showed large similarities across herd types. The present results indicate that management choices are diverse and farm specific and are not solely dependent on the organic or nonorganic status of herds.

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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/>

One Health Conference

March 17-18, 2016

Veterinary Medical Center Auditorium, Columbus, Ohio

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

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

Module 7 – Economics of Dairy Business

March 10-11, 2016

Shisler Conference Center, OARDC, Wooster, Ohio

Spots are always available for specific module plan.

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