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Research

Ortiz, X. A., Smith, J. F., Rojano, F., Choi, C. Y., Bruer, J., Steele, T.,... Collier, R. J. (2014). **Evaluation of conductive cooling of lactating dairy cows under controlled environmental conditions.** *Journal of Dairy Science*. Advance online publication. doi: 10.3168/jds.2014-8583

BACKGROUND: A combination of genetics with good management techniques has steadily increased milk production per cow as well as the amount of metabolic heat produced by a dairy cow. Traditional cooling systems used to reduce heat stress in dairy operations require high energy, water usage, or both.

PURPOSE: The objective was to evaluate the effects of 2 types of bedding and their interaction with a bed heat-exchanger cooling system (cooling system + sand; cooling system + dry manure; and control [no water flowing through the heat exchanger in either bedding material]) operating during 3 different types of climates (thermo-neutral zone; hot and dry; and hot and humid).

RESULTS: Sand bedding remained cooler than dried manure bedding in all environments and at all levels of cooling (water on or off). Bed temperatures were lower and heat flux higher during the bed treatment with sand and water on. They also detected a reduction in core body temperatures, respiration rates, rectal temperatures, and skin temperatures of those cows during the sand and water on treatment. Feed intake and milk yield numerically increased during the bed treatment with sand and water on for all climates. No major changes were observed in the lying time of cows or the composition of the milk produced.

CONCLUSIONS: The authors concluded that use of heat exchangers is a viable adjunct to systems that employ fans, misters, and evaporative cooling methods to mitigate effects of heat stress on dairy cows. Sand was superior to dried manure as a bedding material in combination with heat exchangers.

[ACCESS THE ARTICLE...](#)

Fogsgaard, K. K., Bennedsgaard, T. W., & Herskin, M. S. (2014). **Behavioral changes in freestall-housed dairy cows with naturally occurring clinical mastitis.** *Journal of Dairy Science*. Advance online

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publication. doi: 10.3168/jds.2014-8347

BACKGROUND: Almost all reports on bovine sickness behavior during mastitis have studied experimentally induced mastitis, cows housed in tie stalls, and often relatively few animals. These studies have not used naturally occurring cases and considered the effects of intercow competition, housing, and milking systems present in modern dairy production. Knowledge about the consequences of naturally occurring mastitis in freestall-housed dairy cows, milked in automatic milking systems, is lacking.

PURPOSE: The objective was to examine clinical signs of udder infection, feeding behavior, activity behavior, and behavior during milking in freestall-housed dairy cows in the days during and after diagnosis, and antibiotic treatment for naturally occurring mastitis by comparison with behavior of healthy control individuals kept in the same environment.

RESULTS: Sickness behavior was evident in the mastitic dairy cows and local clinical signs in the udder as well as behavioral changes persisted beyond the 3 days of antibiotic treatment. In the days before diagnosis and treatment, feed intake was reduced compared with the control animals. Although reduced by the antibiotic treatment, this difference persisted until at least 10 days after diagnosis. Sick cows spent less time lying in the initial days after treatment, reversing to the level of the control cows within the 10 day posttreatment period. In the 48 hours before antibiotic treatment, the mastitic cows showed increased restlessness during milking, as seen by a higher frequency of tripping and kicking. Mastitic cows continued to show increased kicking during milking even after the antibiotic treatment period.

CONCLUSIONS: The authors concluded that sickness behavior was evident in dairy cows with naturally occurring mastitis of rather low severity. In addition to changes in feeding and activity level, the present findings suggest that mastitis, even without systemic clinical signs, is an aversive experience, because the cows were more restless during milking and had a lowered lying time contrary to what is normally seen in sick animals. Unexpectedly, local clinical udder signs as well as behavioral changes persisted throughout the 10-day observation period, constituting 1 week after antibiotic treatment. These results call for further investigation into management and recovery of mastitic dairy cows to ensure animal welfare during the period after clinical mastitis as well as to optimize recovery.

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Abade, C. C., Fregonesi, J. A, von Keyserlingk, M. A., & Weary, D. M. (2014) **Dairy cow preference and usage of an alternative freestall design.** *Journal of Dairy Science.* Advance online publication. doi: 10.3168/jds.2014-8527

BACKGROUND: Conventional freestalls are designed to help maintain stall cleanliness with narrow stall partitions, a brisket board, and restrictive neck rail positioning which have unintended consequences of cows standing fully or partially outside the stall and reduced lying time. Current stall designs thus seem to leave producers with 2 imperfect options: restrictively configured stalls that help maintain a relatively clean stall surface and lower stall maintenance costs, or less-restrictive configurations that may improve cow comfort and reduce the risk of lameness. Little research has compared freestalls with alternative stalls that still guide the cow's lying position but do so with less reliance on design features that are known to interfere with stall use.

PURPOSE: The objective was to compare a conventional freestall with an alternative design that did not include a neck rail or side partitions. Individual lying spaces were instead created using wooden boards that protruded above the stall surface.

RESULTS: In the no-choice phase, cows spent more time standing with 4 hooves in the alternative versus conventional freestall (0.60 ± 0.06 vs. 0.05 ± 0.06 h/d), but stall designs had no effect on time spent lying down (13.2 ± 0.4 vs. 12.9 ± 0.4 h/d). In the choice phase, cows spent more time lying down in the conventional freestall (9.4 ± 0.8 vs. 4.1 ± 0.8 h/d) and more time standing with all 4 hooves in the alternative stall (0.24 ± 0.03 vs.

0.02 ± 0.03 h/d).

CONCLUSIONS: In summary, dairy cows preferred to lie down in the traditionally configured freestall versus the more open alternative design tested in the current experiment, but cows preferred the alternative design for standing fully in the stall. These results illustrate that different features of the stall are important for different activities (e.g., a soft, smooth surface for lying, and the lack of dividers and neck-rail for standing), and suggest that a wider range of options needs to be considered in the development of stall designs that function well from both perspectives.

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Stull, J. W., & Stevenson, K. B. (2014) **Zoonotic disease risks for immunocompromised and other high-risk clients and staff: Promoting safe pet ownership and contact.** *Veterinary Clinics: Small Animal Practice*. Advance online publication. doi: 10.1016/j.cvsm.2014.11.007

BACKGROUND: Veterinarians may be asked for advice from human health care providers in forming recommendations for a patient's pet or may be in a position to educate an owner or staff member on disease risk. For these reasons, veterinary staff have an obligation to inform themselves on this topic so that they can contribute their expertise. In addition, in some circumstances there are potential legal ramifications should clients or staff become ill from pet contact.

KEY POINTS:

- Pets are important members of many households, including those with people at increased risk for pet-associated infectious disease (i.e., <5 or >65 years of age, pregnant, or immunocompromised).
- Additional attention to pet selection, contact, and husbandry, and to personal hygiene can reduce the likelihood of pet-associated disease, and is especially important for households with high-risk individuals.
- Veterinary staff are well positioned to educate clients on methods to reduce pet-associated disease.
- To be most effective, veterinary staff must be aware of high-risk clients (or their household members) so they can provide targeted education and recommendations.
- Veterinarians and physicians must work together to effectively reduce pet-associated infections.

This article will be published in the forthcoming March, 2015 issue of *Veterinary Clinics: Small Animal Practice* which focuses on "Infection Control". Dr. Jason Stull, Assistant Professor within VPM, is a co-editor for this edition.

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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 4 – Advanced Dairy Cattle Nutrition
March 19-21, 2015

OEFFA Conference 2015

February 13, 2015 – Pre-Conference

Join veterinarians Dr. Päivi Rajala-Schultz and Dr. Luciana da Costa from the Department of Veterinary Preventive Medicine and Organic Valley Cooperative staff veterinarian Dr. Guy Jodarski to learn the basic requirements for good udder health, strategies for managing clinical mastitis, and more.

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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