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News

3rd Dairy Cattle Welfare Symposium

SCOTTSDALE, Arizona – Early Bird Registration is still open for the 3rd Dairy Cattle Welfare Symposium, scheduled for May 31 and June 1, 2018 at the Hilton Scottsdale Resort & Villas in Scottsdale, Arizona. The Dairy Cattle Welfare Council (DCWC), a growing organization established in 2016, is hosting the event.

This symposium brings together dairy farmers, veterinarians, consultants, universities, and the dairy community to discuss best recommended practices with focus on animal well-being, management, husbandry, animal-people interaction, health, and productivity.

The first keynote speaker will be Dr. Carl Safina discussing “animal emotions, feelings and social interaction needs”. Other speakers will include Mandi McLeod, Janet Helms, David Kelton, Jack Rodenburg, Conrad Spangler, Charlotte Winder, Geoffrey Dahl, Robert Hagevoort, Cassandra Tucker, and Nina Von Keyserlingk. The program will also include short oral presentations on dairy welfare-related research by students from universities across the country.

New this year is the inclusion of a Spanish-Speaking session targeted towards farm managers and key employees. This session will be held during the afternoon of the first day, May 31st. The goal for this Spanish-speaking session is to teach the basics of animal welfare, why it is important on the dairy, and how to train other employees. Participants can register to attend only this session for \$75 a person or \$200 for four people from the same farm.

Cost of registration for the full program is \$200 until April 30th and \$250 afterwards. Student registration is \$75 and is limited to 30 spots. Total number of participants will be between 150-250 people. The two-day program will offer 13 hours of continuing education credits for veterinarians as well as credit from ARPAS and The FARM Program.

The full conference schedule, other details and online registration are available on the symposium’s website at <https://dcwcouncil.org/symposium>

Sponsors of the event include Platinum sponsors: Zoetis and Merck Animal Health; Silver Sponsors: Aurora Organic Dairy and Boehringer Ingelheim; along with: American Humane, Diamond V, Elanco, FACTA, The FARM Program, IceRobotics, Lely,

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Location

[Veterinary Extension Unit](#)

housed within the

[Department of Veterinary Preventive Medicine](#)

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For more information, please visit the website at www.dwcouncil.org or contact DCWCouncil@gmail.com

Parasitology Diagnostic Services Available to OSU Extension Educators/Specialists

The Ohio State College of Veterinary Medicine, Veterinary Diagnostic Parasitology Laboratory, is now offering services for OSU-affiliates under the eRequest system. Under the “Buy Something” box you select, Internal Order and under the “Internal Vendor” box select “VMC Veterinary Parasitology.” We can help with research trials, relating to parasitology diagnostics or monitoring, from standard parasite fecal analysis and quantitative fecal egg counts to specialized *Haemonchus contortus* lectin staining. Grazing and parasitology season is right around the corner. For more information, please e-mail the laboratory at vmc.parasitologylab@osu.edu or call 614-292-8328.

Research

Rajala-Schultz, P. J., Gott, P. N., Proudfoot, K. L., & Schuenemann, G. M. (2018). **Effect of milk cessation method at dry-off on behavioral activity of dairy cows.** *Journal of Dairy Science*. Advance online publication. doi: 10.3168/jds.2017-13588

BACKGROUND: Most dairies in the US and many other countries dry cows off abruptly (e.g., stop milking cows on a set day), which has been shown to affect cow comfort. Gradually reducing milk production is another approach to dry cows off, routinely used in some countries and herds. No known research investigating the effect of different drying-off methods on dairy cow behavior have been conducted in US confinement systems or have specifically focused on the effect of high milk production at dry-off on lying behavior and activity of cows.

PURPOSE: The objectives were to evaluate the effects of (1) abrupt and gradual milk cessation and (2) milk yield on dairy cow lying behavior and activity around dry-off.

RESULTS: Gradual cessation of milking significantly reduced milk yield by the day of dry-off. After dry-off, gradual cows tended to have longer lying bouts than abrupt cows, but no other differences in cow activity between the 2 treatments were observed. Regardless of the dry-off method, the average length of a lying bout decreased by 4 min and total daily lying time decreased by 19 min after dry-off for each 5-kg increase in milk yield before dry-off. Lying behavior of primiparous cows was more affected by the level of milk yield at dry-off than that of older cows. A reduction in lying times with increasing milk yield may indicate discomfort due to the accumulating milk in the udder.

CONCLUSIONS: The authors concluded that these results add to the growing evidence that using a gradual method for milk cessation at the end of lactation is beneficial for dairy cows, as it lowers milk production before the final milking and allows for better cow comfort at dry-off.

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Desjardins-Morrisette, M., van Niekerk, J. K., Haines, D., Sugino, T., Oba, M., & Steele, M. A. (2018). **The effect of tube versus bottle feeding colostrum on immunoglobulin G absorption, abomasal emptying, and**

plasma hormone concentrations in newborn calves. *Journal of Dairy Science.* Advance online publication. doi: 10.3168/jds.2017-13904

BACKGROUND: Feeding colostrum with an esophageal tube is a more time-efficient feeding method, whereas feeding with a nipple bottle is a more natural feeding method. Previous studies have not measured the abomasal emptying rate when fed with a tube, or abomasal emptying rate to determine if feeding method affects timing of nutrients reaching the small intestine. The benefits associated with GLP-1 and GLP-2 following colostrum feeding have yet to be studied in newborn calves, and because their secretion is stimulated by nutrients reaching the lower gut, feeding method could affect concentrations of these hormones.

PURPOSE: The objectives were to determine if feeding colostrum with an esophageal tube would affect abomasal emptying rates, serum IgG, and plasma concentrations of glucose, insulin, GLP-1, and GLP-2.

RESULTS: Feeding method did not affect abomasal emptying, and as a result no treatment effect was present on serum IgG concentrations. Maximum concentration of serum IgG was 24.4 ± 0.40 mg/mL (\pm standard error), which was reached at 14.6 ± 1.88 h after the colostrum meal for both groups. Apparent efficiency of absorption at maximum concentration of IgG was 52.9%, indicating high efficiency of passive transfer of IgG for both treatments. Tube feeding increased glucose and insulin area under the curve before the first milk meal, most likely due to the decreased time to consume the colostrum meal. In addition, tube-fed calves consumed 0.5 ± 0.13 L more milk in their first milk meal than bottle-fed calves. No treatment effect on plasma concentrations of GLP-1 or GLP-2 was present, but both hormones increased after colostrum feeding.

CONCLUSIONS: The authors concluded that these results demonstrate that feeding colostrum with either an esophageal tube or nipple bottle are acceptable methods to ensure successful passive transfer of immunity when calves are fed 3 L of high-quality colostrum.

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Wilson, T. R., LeBlanc, S. J., DeVries, T. J., & Haley, D. B. (2018). **Effect of stall design on dairy calf transition to voluntary feeding on an automatic milk feeder after introduction to group housing.** *Journal of Dairy Science.* Advance online publication. doi: 10.3168/jds.2017-14011

BACKGROUND: There is an adaptation period for calves learning to use automatic milk feeders (AMF) that may result in decreased milk consumption. The decreased milk intake as well as the stress of joining a new social group, could potentially put calves at risk for health issues. It is possible that some physical features of AMF may also have an influence on calf adaption to them. Physical differences exist between the design of the automated feeders that are commercially available. No known research has investigated whether physical design affects calves learning to use the feeder.

PURPOSE: The objective was to compare the influence of 2 different AMF stall wall designs on how quickly calves learned to use the feeder.

RESULTS: For certain outcomes the effects of stall design interacted with difficulty of training (willingness to enter feeder and drink); for the 38% of calves that were scored as moderately difficult to train on a scale of easy, moderate, or difficult, treatment (stall design) differences were detected. These calves took 2 \times longer to lick or bite toward the nipple, 2 \times longer to first voluntarily feeding, and consumed less milk over 72 h following training when trained on the steel bar stall design.

CONCLUSIONS: The results suggest that the design of the stall (solid versus steel bar) at an AMF has minimal effect on dairy calves learning to use these systems. Only for those calves that were moderately easy to train was an effect of stall design observed. Among those calves, a solid side stall design decreased the amount of time it takes after training for calves to first explore the stall, first lick or bite at the nipple, and first voluntarily

drink from the feeder. Calves moderately difficult to train also consumed more milk compared with those trained with steel bar stall sides.

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Fordyce, A. L., Timms, L. L., Stalder, K. J., & Tyler, H. D. (2018). **Short communication: The effect of novel antiseptic compounds on umbilical cord healing and incidence of infection in dairy calves.**

Journal of Dairy Science. Advance online publication. doi: 10.3168/jds.2017-13181

BACKGROUND: The 2 most common antiseptic compounds used in the dairy industry for preventing umbilical infections are 7% iodine or 4% chlorhexidine. The sale, shipping, and storage of 7% iodine solutions has become more challenging in recent years due to increased federal regulations, which has created the need to explore antiseptic alternatives. Chlorhexidine is expensive, and some producers will mix alcohol with chlorhexidine to decrease the cost.

PURPOSE: The purpose was to address the need in the industry to provide producers with an alternative to iodine and chlorhexidine. To accomplish this objective, the effect of 4 umbilical dips on the healing rate, incidence of infection, and age at umbilical cord detachment using newborn Holstein heifer calves (n = 73) was compared.

RESULTS: The dry form nisin with talcum powder dip (which mimics dry cord care in humans) is a good alternative to 7% iodine, but is not currently commercially available to the US livestock industry. It has become more difficult to obtain and store 7% iodine solutions in large quantities. Although 2% iodine solutions are not regulated and continue to be commercially available, 7% iodine solutions are 3 times more concentrated and more effective in keeping the umbilical area disinfected in contaminated environments compared with 2% iodine and should be preferred. Chlorhexidine products that do not contain alcohol are a good alternative to iodine; however, the relatively high cost can be a significant economic issue for dairy producers.

CONCLUSIONS: In conclusion, dips evaluated in this trial performed similarly for most measured parameters; however, calves receiving iodine and Liquid Nisin treatments experienced an increased incidence of umbilical infection compared with calves receiving dry nisin/talc and chlorhexidine treatments under the conditions of this trial.

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Jacobs, C., Orsel, K., Mason, S., & Barkema, W. (2018). **Comparison of effects of routine topical treatments in the milking parlor on digital dermatitis lesions.** *Journal of Dairy Science*. Advance online publication. doi: 10.3168/jds.2017-13984

BACKGROUND: The use of tetracycline and oxytetracycline for treating digital dermatitis (DD) lesions in North America is currently off label, has been associated with antibiotic residues in milk, and contributes to growing concerns regarding antimicrobial resistance. Nonantibiotic topical applications are available commercially and marketed for control of DD; however, few have been clinically tested for effectiveness.

PURPOSE: The objective was to evaluate an 8-week routine treatment program of HoofSol and HealMax for their ability to (1) transition active DD lesions to nonactive lesions ("clinical cure") and (2) prevent recurrence of active DD lesions compared with positive (tetracycline solution) and negative (saline) controls.

RESULTS: Tetracycline, HealMax, and HoofSol had a higher probability of clinical cure for active lesions compared with saline 1 wk after the first treatment (wk 1), with 69, 52, and 79% clinical cure of active lesions, respectively, compared with 34% with saline. At wk 7, the probability of clinical cure for active lesions was 10, 33, 31, and 45% of lesions treated weekly with saline, tetracycline, HealMax, and HoofSol, respectively (no difference among treatments). The substantial clinical cure with saline highlighted the

potential importance of cleaning feet. In wk 1, treatment with saline, tetracycline, HealMax, and HoofSol resulted in a probability of recurrence of active DD lesions of 9, 11, 11, and 8%, respectively, with no product being superior to saline. After 7 wk, the probability of recurrence of active lesions was 5, 7, 6, and 6% for saline, tetracycline, HealMax, and HoofSol respectively, with no difference among groups in wk 7.

CONCLUSIONS: Weekly routine treatment with tetracycline, Heal-Max, or Hoofsol was no more effective than saline in clinically curing active lesions to nonactive stages in this 8-week study. Hosing feet in the milking parlor on a weekly basis may improve foot hygiene, improve contact time of the footbath being used, and assist in controlling DD. Furthermore, no product was superior to saline in preventing recurrence of active lesions from nonactive DD stages. The authors concluded that these results provide an opportunity to decrease off-label antibiotic use on farm and highlighted the importance of cleaning DD-affected feet (e.g., washing feet with a hose in the milking parlor).

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Fischer-Tenhagen, C., Theby, V., Krömker, V., & Heuwieser, W. (2018). **Detecting *Staphylococcus aureus* in milk from dairy cows using sniffer dogs.** *Journal of Dairy Science*. Advance online publication. doi: 10.3168/jds.2017-14100

BACKGROUND: Guidelines for prudent use of antimicrobials advocate an exact, preferably microbiological, diagnosis before treatment. The most used test for bacteriological diagnosis of milk samples is culture of the sample on blood agar plates, which takes usually 24 to 48 h. Historically, odor was used as a diagnostic tool until the modern technological revolution. More recently, methods such as gas chromatography, mass spectrometry, and electronic nose devices have re-established the value of odors as a potential diagnostic tool. Various infectious agents can be identified by the presence of specific volatile organic compounds. These technological approaches, however, are cost intensive and require special equipment and expertise.

PURPOSE: The objective was to train dogs to identify *Staphylococcus aureus* in milk samples from cows with clinical mastitis and to discriminate this pathogen from other relevant mastitis-causing pathogens in dairy cows. Specifically, to demonstrate that (1) dogs can discriminate the odor of *Staph. aureus* cultivated on blood agar from those of *Escherichia coli*, *Streptococcus uberis*, *Streptococcus dysgalactiae*, *Pseudomonas aeruginosa*, and *Candida albicans*; (2) dogs can identify *Staph. aureus*, *Strep. uberis*, and *Enterococcus* inoculated in milk, and (3) dogs can identify *Staph. aureus* in milk samples from cow with clinical mastitis.

RESULTS: The ability to learn the specific odor of *Staphylococcus aureus* in milk depended on the concentration of the pathogens in the training samples. Sensitivity and specificity for identifying *Staphylococcus aureus* were 91.3 and 97.9%, respectively, for pathogens grown on agar plates; 83.8 and 98.0% for pathogens inoculated in raw milk; and 59.0 and 93.2% for milk samples from mastitic cows.

CONCLUSIONS: The authors demonstrated that *Staph. aureus* emits a specific odor in the headspace of blood agar plates, inoculated milk samples, and milk samples of cows with clinical mastitis. The training and use of sniffer dogs for scent detection in a laboratory is, however, critical for hygiene or as an operating diagnostic tool. Therefore, developing technical solutions such as electronic nose devices as real-time diagnostic methods for mastitis pathogens is considered worthwhile.

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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/>

3rd Annual Dairy Cattle Welfare Symposium

Intersection of Best Practices and Sustainability

- May 31 - June 1, 2018
- Hilton Scottsdale Resort & Villas; Scottsdale, Arizona

Registration details available at <https://dcwcouncil.org/symposium>.

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

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