



ELSEVIER



FOR IMMEDIATE RELEASE

Contact: Brittany Morstatter
ARPAS@assochq.org

Nutrition in First Week Critical to Dairy Calf Success

Researchers create an information base for implementation of proper nutritional management to maximize calf health and productivity in a new review in *Applied Animal Science*

Philadelphia, PA, September 30, 2019 Raising healthy and productive calves is crucial for the long-term success of the dairy industry. The preweaning and weaning periods are considered the most challenging times in dairy production and are associated with the highest morbidity and mortality rates among the herd. Digestive diseases and disorders remain the most common reported cause of morbidity and mortality during that period. Scientists at the University of Guelph and the University of Alberta recently studied the effects of common nutritional strategies during the first month of life.

Calves do not receive immunoglobulins from their dam in utero but through consumption of colostrum. Feeding a sufficient amount of colostrum during the first day of life is critical to reducing calf morbidity and mortality, and immunoglobulins are more easily absorbed immediately after birth. Feeding colostrum to calves also promotes a balanced gut microbial community, which helps prevent diarrhea during the first month of life. Most calves are switched directly from colostrum to whole milk or milk replacer, even though feeding transition milk (milk from milkings 2 through 6 after calving) likely has beneficial effects.

“Transition milk continues to be discarded on farms, mainly due to difficulties managing the feeding of it to calves and it being undesirable for human consumption,” lead author Mike Steele said. “It appears that the calf may be missing out on an opportunity for increased maturation and development of the gut when they are not fed transition milk; however, research regarding the specific compounds responsible for these beneficial effects is lacking.”

Applied Animal Science Editor-in-Chief David K. Beede said, “This invited review centers on key nutritional strategies to maximize gut health and function of young dairy calves. Colostrum and transition milk contain bioactive molecules that can positively impact gut microbiota and development. The untapped potential to use novel feeding strategies and microbial-based products as alternatives to antibiotics is explored.”

“Most calves develop digestive disorders at approximately 2 weeks of age; 23% of preweaning dairy calves are treated with antibiotics for diarrhea and 54% of cow-calf operations are administering antibiotics to prevent illness,” Steele added. “Unfortunately, antibiotic exposure has been linked to gut

microbial imbalance in preweaned calves and can lead to a high number of antimicrobial-resistant bacterial phenotypes. Although their modes of action have not been elucidated, numerous studies report the ability of microbial-based products to reduce diarrhea incidence in calves.”

The review also recommends later weaning with a proper step-down feeding protocol to improve growth and minimize distress at weaning.

The article appears in the October issue of *Applied Animal Science*.

#

NOTES FOR EDITORS

“Invited Review: Nutritional regulation of gut function in dairy calves: From colostrum to weaning,” by A. J. Fischer, C. Villot, J. K. van Niekerk, T. T. Yohe, D. L. Renaud, and M. A. Steele (DOI: <https://doi.org/10.15232/aas.2019-01887>), *Applied Animal Science*, Volume 35, Issue 5 (October 2019), published by FASS Inc. and Elsevier Inc.

Full text of the article is available to credentialed journalists upon request; contact Brittany Morstatter at +1-217-356-3182 ext. 143 or arpas@assochq.org to obtain copies. To schedule an interview with the authors, please contact Mike Steele at masteel@uoguelph.ca.

ABOUT APPLIED ANIMAL SCIENCE

Applied Animal Science (AAS) is a peer-reviewed scientific journal and the official publication of the American Registry of Professional Animal Scientists (ARPAS). In continuous publication since 1985, AAS is a leading outlet for animal science research. The journal welcomes novel manuscripts on applied technology, reviews on the use or application of research-based information on animal agriculture, commentaries on contemporary issues, short communications, and technical notes. Topics that will be considered for publication include (but are not limited to) feed science, farm animal management and production, dairy science, meat science, animal nutrition, reproduction, animal physiology and behavior, disease control and prevention, microbiology, agricultural economics, and environmental issues related to agriculture. Themed special issues may also be considered for publication.

www.appliedanimalscience.org

ABOUT THE AMERICAN REGISTRY OF PROFESSIONAL ANIMAL SCIENTISTS (ARPAS)

The American Registry of Professional Animal Scientists (ARPAS) is the organization that provides certification of animal scientists through examination, continuing education, and commitment to a code of ethics. Continual improvement of individual members is catalyzed through publications (including the AAS journal) and by providing information on educational opportunities. ARPAS is affiliated with five professional societies: American Dairy Science Association, American Meat Science Association, American Society of Animal Science, Equine Science Society, and Poultry Science Association.

www.arpas.org

ABOUT ELSEVIER

Elsevier (www.elsevier.com) is a world-leading provider of information solutions that enhance the performance of science, health, and technology professionals, empowering them to make better decisions, deliver better care, and sometimes make groundbreaking discoveries that advance the boundaries of knowledge and human progress. Elsevier provides web-based, digital solutions – among them ScienceDirect (www.sciencedirect.com), Scopus (www.scopus.com), Elsevier Research Intelligence (www.elsevier.com/research-intelligence), and ClinicalKey (www.clinicalkey.com) – and publishes over

2,500 journals, including *The Lancet* (www.thelancet.com) and *Cell* (www.cell.com), and more than 35,000 book titles, including a number of iconic reference works. Elsevier is part of RELX Group (www.relx.com), a world-leading provider of information and analytics for professional and business customers across industries. www.elsevier.com

ABOUT FASS INC.

Since 1998, FASS has provided shared management services to not-for-profit scientific organizations. With combined membership rosters of more than 10,000 professionals in animal agriculture and other sciences, FASS clients engage with us for services in accounting, membership management, convention and meeting planning, information technology, and scientific publication support. The FASS publications department provides journal management, peer-review support, copyediting, and composition for this journal; the staff includes five BELS-certified (www.bels.org) technical editors and experienced composition staff. www.fass.org