NEWS RELEASE
FOR IMMEDIATE RELEASE

Contacts:
Eileen Leahy
Elsevier
Tel: +1 732-238-3628
jdsmedia@elsevier.com

Ken Olson, PhD, PAS
American Dairy Science Association®
Tel: +1 630-237-4961
keolson@prodigy.net

Cooling cows efficiently with water spray: Behavioral, physiological, and production responses to sprinklers at the feed bunk

Using low-flow cooling systems can reduce water use without compromising animal welfare, say experts in the *Journal of Dairy Science*®

Philadelphia, PA, May 16, 2016 – Dairies use intermittent sprinkler systems to cool cows in warm weather, but little experimental work has been done to determine how much water is needed to achieve beneficial effects. A group of dairy scientists conducted a study at the University of California, Davis, to examine the effects of using low-flow sprinkler systems that cut water use for this purpose by nearly 75%. Their research is published in the current issue (June 2016) of the *Journal of Dairy Science*®.

“Dairies vary widely in the amount of water used to cool cows,” explained lead investigator Jennifer M. Chen, of the Department of Animal Science, University of California, Davis, but using more water results in diminishing returns and minimizing water use is a sustainability concern for US dairy production.

Chen and colleagues compared the effects of high and low water use on cattle behavioral, physiological, and production responses, and evaluated heat abatement in relation to water use. The authors determined that the low-flow sprinkler systems were just as effective as the high-flow systems in mitigating the effects of heat in California’s hot, dry climate, despite using only about one-quarter as much water.

- Cows had lower body temperatures when given access to sprinklers, but the low-flow and high-flow systems delivered similar benefits.
- Cows exhibited similar behavior when given access to both types of sprinklers. They showed similar patterns in time spent near the sprinkler-cooled feeding area, near the uncooled water trough area, and lying down, and experienced similar changes in feed consumption with temperature.

- Cows produced more milk when given access to sprinklers, but both types provided similar benefits.

“Future work should evaluate the degree of heat abatement that can be achieved with even less water. An alternative to reducing sprinkler flow rate may be to apply higher flow rates for a shorter duration,” added Chen. Reducing water usage by using higher flow rates for a shorter duration could also reduce spray drift, which reduces sprinkler cooling efficiency and is a concern at larger scales than the current study.

“Water use on dairies increases in the summer because cows drink more water and dairy farmers use water sprinklers to keep cows cool. This new research demonstrated that a ”low-flow” sprinkler system that uses nearly 75% less water cooled cows just as well as a traditional high-volume system. Low-flow sprinklers conserve valuable natural resources without sacrificing cow comfort on-farm,” said Matt Lucy, PhD, editor-in-chief, *Journal of Dairy Science*, and professor of animal science, University of Missouri, USA.

# # #

NOTES FOR EDITORS

“Cooling cows efficiently with water spray: Behavioral, physiological, and production responses to sprinklers at the feed bunk,” by Jennifer M. Chen, Karin E. Schütz, and Cassandra B. Tucker (DOI: http://dx.doi.org/10.3168/jds.2015-10714), *Journal of Dairy Science*, published online in advance of Volume 99, Issue 6 (June 2016) by Elsevier.

Full text of this article is available to credentialed journalists upon request. Contact Eileen Leahy at +1 732-238-3628 or jdsmedia@elsevier.com to obtain copies. Journalists wishing to set up interviews with the authors may contact the authors directly: Cassandra Tucker, professor, at +1 530-754-5750 or Jennifer Chen, postdoctoral scholar, at +1 530-752-3643, or contact Pat Bailey, senior publication information representative at UC Davis at +1 530-752-9843 or pjbailey@ucdavis.edu.

ABOUT *JOURNAL OF DAIRY SCIENCE*®

Journal of Dairy Science (JDS), official journal of the American Dairy Science Association, is co-published by Elsevier and FASS Inc. for the American Dairy Science Association. It is the leading general dairy research journal in the world. JDS readers represent education, industry, and government agencies in more than 70 countries with interests in biochemistry, breeding, economics, engineering, environment, food science, genetics, microbiology, nutrition, pathology, physiology, processing, public health, quality assurance, and sanitation. JDS has a 5-year Impact Factor of 3.071 according to the 2014 Journal Citation Reports®, published by Thomson Reuters. www.journalofdairyscience.org

ABOUT THE AMERICAN DAIRY SCIENCE ASSOCIATION (ADSA)

The American Dairy Science Association (ADSA) is an international organization of educators, scientists, and industry representatives who are committed to advancing the dairy industry and keenly aware of the vital role the dairy sciences play in fulfilling the economic, nutritive, and health requirements of the world's population. It provides leadership in scientific and technical support to sustain and grow the global dairy industry through generation, dissemination, and exchange of information and services. Together, ADSA members have discovered new methods and technologies August that have revolutionized the dairy industry. www.adsa.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 33,000 book titles, including a number of iconic reference works. Elsevier is part of RELX Group (www.relxgroup.com), a world-leading provider of information and analytics for professional and business customers across industries. www.elsevier.com