Feeding dairy cattle whole-plant silage from corn plants treated with fungicide

A new invited review in *Applied Animal Science* examines the quality of whole-plant corn silage and dairy cattle performance after fungicide application on corn plants.

Philadelphia, PA, February 3, 2020—Whole-plant corn silage is the most common forage fed to dairy cattle in the United States. Some fungi and other parasites can attack and colonize within corn plants, using up plant nutrients and releasing mycotoxins, which are toxic to some species of livestock. “The interaction of fungi and corn plants reduces yields, decreasing the efficiency of food production, and the nutritive quality and value of this material when fed to ruminants,” said Dr. F. C. Cardoso, author of the review. Plants attempt to resist fungal infestation by reinforcing their cell walls with lignin. This prevents fungi from entering the plant cells and accessing the sugars. Fungicide is often used to aid in protecting corn plants, potentially increasing silage quality and, ultimately, profitability in the dairy industry.

This review studied fungicide application and its effects on the nutrient profile, fermentation, and ruminal degradability of corn plants made into whole-plant corn silage. In addition to decreasing corn yield losses from fungal infestation, using fungicide seems to reduce whole-plant corn silage fiber concentrations and increase lactic acid and sugar concentrations, depending on the timing of the application in the development of the corn. The increased sugar improves fermentation processes during ensiling. Although preventative fungicide application is still being studied, the benefits of application increase as the prevalence of fungal disease increases. “Routine scouting for disease in the cornfield is crucial for determining when fungicide application will be most profitable,” said Cardoso.

The review follows the corn to the dairy farm and investigates the effects when corn plants are fed to dairy cows in the form of whole-plant corn silage. Many researchers have reported improved feed efficiency among cows fed silage made from plants treated with foliar fungicide. These cows were able to convert feed to milk more efficiently and so were more profitable.

The article reviewed the published literature on all aspects of the relationship between fungi and corn plants used as forage for dairy cows. *Applied Animal Science* Editor-in-Chief David K. Beede said, “This invited review examines how fungicide application affects silage fermentation, fiber content, nutritive value and quality, and affects yield of milk components and feed conversion efficiency of dairy cows.”

The article appears in the February issue of *Applied Animal Science*.
NOTES FOR EDITORS


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 Dr. F. C. Cardoso at cardoso2@illinois.edu.

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 also will 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 offers clients 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