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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*.

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NOTES FOR EDITORS

“Invited Review: Applying fungicide on corn plants to improve the composition of whole-plant silage in diets for dairy cattle,” by F. C. Cardoso (DOI: <https://doi.org/10.15232/aas.2019-01905>), *Applied Animal Science*, Volume 36, Issue 1 (February 2020), 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@assoqh.org to obtain copies. To schedule an interview with the authors, please contact Dr. F. C. Cardoso at cardoso2@illinois.edu.

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