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Monensin Supplementation Mitigates Enteric Methane Production
Researchers develop equations for modeling enteric methane production in wheat pasture–grazed cattle receiving energy and monensin supplements in a new study in *Applied Animal Science*

Philadelphia, PA, August 5, 2019 Enteric methane is a major contributor to the carbon footprint of the beef industry and has received considerable attention from researchers and the public. Methane is a natural by-product of ruminal fermentation and is a potent greenhouse gas. Enteric methane production by cattle is responsible for approximately 30% of global agricultural greenhouse gas emissions. Scientists at Oklahoma State University and the USDA recently studied the mitigating effects of energy and monensin supplementation on enteric methane production.

The researchers used 8 Angus steers and 8 heifers grazing wheat pasture. The cattle received one of five levels of a corn-based supplement that provided energy and monensin, which has been reported to reduce methane production. An automated head chamber system spot-checked methane production up to four times per animal per day with a minimum of four hours between measurements. The researchers collected additional metabolic and dietary data and used backward stepwise regression analysis to develop equations for modeling enteric methane production.

"Evaluating production systems from different regions provides insight into system efficiency and appropriate mitigation," lead author Ryan Reuter said. "Several publications have quantified regionally specific production systems using modeling or empirical methods, but such data concerning wheat pasture grazing is lacking. This is a significant gap because up to 7 million head of stocker cattle graze wheat each winter in Oklahoma and the southern U.S. Great Plains."

Applied Animal Science Editor-in-Chief David K. Beede said, "The researchers studied effects of an energy supplement containing monensin on enteric methane emissions and growth performance of stocker calves grazing winter wheat pasture. Greater forage intake increased methane emissions, but greater supplement intake reduced methane and increased growth. Results and model equations might be used to predict and optimize efficiency, economics, and environmental impacts in similar production systems."

"The equations we developed could be incorporated into models to help predict important production and environmental variables in wheat pasture grazing systems," Reuter added. "Such models would be useful

to ranchers seeking to maximize efficiency and profitability and also to researchers or policymakers who seek to optimize food production, environmental impact, and economics. Additional research should be conducted in this important forage system to improve the accuracy of methane estimates for future modeling efforts and evaluate alternative mitigation options."

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

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NOTES FOR EDITORS
"An energy and monensin supplement reduces methane emission intensity of stocker cattle grazing winter wheat," by L. R. Thompson, M. R. Beck, S. A. Gunter, G. D. Williams, S. E. Place, and R. R. Reuter (DOI: https://doi.org/10.15232/aas.2018-01841), *Applied Animal Science*, Volume 35, Issue 4 (August 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 Ryan Reuter at +1-405-744-8856 or ryan.reuter@okstate.edu.

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