RUMINANT NUTRITION SYMPOSIUM: Improving the efficiency of nutrient utilization to optimize livestock performance¹

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The 2017 Ruminant Nutrition Symposium was held during the Joint American Society of Animal Science and Canadian Society of Animal Science Annual Meeting on July 9, 2017, in New Baltimore, MD. Improving the current efficiency of food production is imperative to meet the continuous rise in food demand of the growing human population. Hence, the goal of this symposium was to update the current understanding of nutrient utilization in livestock. To achieve this goal, all invited speakers were selected from the current pool of grant awardees from the Agriculture and Food Research Initiative – Foundational Animal Nutrition, Growth and Lactation Program from the United States Department of Agriculture – National Institute of Food and Agriculture.

Dr. Derek Brake, Assistant Professor from the Department of Animal Sciences at South Dakota State University, started the symposium by discussing the current knowledge on starch digestion in the small intestine of cattle. Dr. Brake demonstrated that small intestinal digestion of starch is very poor in cattle, and that the majority of energy released from starch digestion is stored as omental fat, a depot offering little benefit to beef production. Dr. Brake also demonstrated that a greater flow of high-quality protein (i.e., casein) or the AA glutamic acid could increase small intestinal starch digestion in cattle, which may lead to an

increased efficiency of energy use from corn and allow improvements in nutrient utilization and efficiency of gain among cattle fed starch-based diets.

The last presentation was led by Dr. Kristi Cammack, Associate Professor from the Department of Animal Sciences and Director at the South Dakota State West River Ag Center. Her presentation addressed the role of rumen microbes on the conversion of low-quality feed to high-quality end-products. More specifically, Dr. Cammack discussed how the interaction among the rumen microbes and the host impacts the expression of phenotypic traits by the host animal. Her presentation also highlighted how the elucidation of maternal, genetic, and environmental factors that impact rumen microbiome function could generate novel strategies to manipulate the rumen microbial composition and enhance the long-term health and performance of host animals.

In summary, the 2017 Ruminant Nutrition symposium provided novel research approaches in rumen microbiome function and small intestine of corn-based starch in cattle that might ultimately improve nutrient utilization, health, and performance of livestock.

LITERATURE CITED

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