

Jacquelyn Marie Prestegaard

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EDUCATION

Virginia Polytechnic Institute and State University

Doctor of Philosophy in Dairy Nutrition, Expected Graduation: May 2021

Dissertation Title: TBD

Advisor: Dr. Mark Hanigan

University of Missouri

Master of Science in Ruminant Nutrition, July 2017

Thesis Title: “*Effects of rumen-protected lysine on beef cattle efficiency and growth performance.*”

Thesis Committee: Dr. Monty Kerley (advisor), Dr. Allison Meyer, Dr. Harley Naumann

University of Illinois at Urbana-Champaign

Bachelor of Science in Animal Sciences, May 2016

Technology and Management Concentration, Minor in Leadership Studies

RESEARCH EXPERIENCE

Doctoral Research Assistant

Department of Dairy Science, Virginia Tech, August 2017-Present

- Investigated bioavailabilities of prototypical rumen-protected amino acid products in situ in three non-lactating dairy cows. Products were incubated in dacron bags within the rumen for 8h, removed, then dosed directly into the abomasum via cannula tubing. Cows were fitted with jugular catheters and blood samples were taken at various time points throughout the trial to measure plasma amino acid response to rumen-protected amino acids.
- Placed jugular and milk vein catheters, and assisted with mammary and muscle biopsies in lactating Holstein cows for a trial investigating uptake of amino acids from mammary and muscle tissue within the animal.
- Developing an extension and educational effort to teach numerous stakeholders the importance of amino acid nutrition in cattle. Projects include a survey of dairy nutritionists nationwide regarding their ration formulation programs, creating an extension website focused on amino acid nutrition information, and developing educational graphics and tools to be used in college-level classrooms.

Masters Research Assistant

Department of Animal Sciences, University of Missouri, 2015-Present

- Conducted continuous culture experiments to investigate differences in microbial efficiency, fermentation products and lysine degradability of rumen-protected soybean meal and an encapsulated lysine product.
- Balanced diets for 120 crossbred steers according to amino acid requirement to effective energy ratio. Developed treatments which met or exceeded lysine requirements using rumen protected

soybean meal alone and three increasing levels of encapsulated rumen-protected lysine to determine respective effects on growth and feed efficiency.

- Administered three increasing levels of encapsulated rumen-protected lysine to ruminally and duodenally cannulated crossbred steers to determine respective in vivo lysine digestibilities and blood plasma lysine concentrations. Measured passage rate and digestibility using internal markers (Cobalt EDTA and Titanium dioxide).

Undergraduate Research Assistant

Department of Animal Sciences, University of Illinois at Urbana-Champaign, 2011-2015

Piglet Cognition and Nutrition Lab, 2013-2015

- Assisted graduate students with a variety of research trials focusing on the impact of perinatal nutrition on neurodevelopment.
- Daily care of piglets from 48 h until 6 to 12 weeks of age. Weighed, fed, performed health and behavior checks.
- Assisted with T-maze trials, dissections and Magnetic Resonance Imaging (MRI) for up to 48 piglets per trial.

Dairy Research Unit, 2011-2013

- Monitored and recorded daily behavior of dairy heifers marked with three different types of tail paint used for estrous detection.
- Fed, weighed, measured body size characteristics and collected jugular blood samples of newborn calves up to 7 weeks of age.
- Weighed orts and assessed particle size distribution of dairy rations using a Penn State Particle Separator.

INDUSTRY EXPERIENCE

American Society of Animal Science (ASAS), June 2014–August 2015

Science Communications Intern; Champaign, IL

- Reviewed current issues of the Journal of Animal Science and wrote interpretive summaries about recently published animal science research for Taking Stock, ASAS' biweekly newsletter.
- Published interpretive summaries to EurekAlert, an online news source where reporters around the world republish articles to their respective media sources (average of 4,800 views per summary).
- Interviewed research, extension and industry professionals for over 30 press releases and awards.
- Worked at the 2014 and 2015 Joint Annual Meetings. Reported on both ASAS and ADSA symposia and worked with ASAS-ADSA-CSAS membership services throughout the conferences.
- Accompanied and directed the four Academic Quadrathlon finalist teams. Compiled a video for the ASAS Awards Banquet to highlight the events and the team's achievements.

DeKalb County Farm Bureau, May 2013–August 2013

Agricultural Literacy and Communications Intern; Sycamore, IL

- Presented a 30 minute speech about the beef industry, breeds, and anatomy to 28 DeKalb County grade school teachers.
- Interviewed and videoed area farmers about their respective operations. Edited video footage into

short YouTube videos for the DeKalb County Farm Bureau website.

- Took photographs and wrote articles about events that were published in the *Point of View*, DeKalb County Farm Bureau's monthly newspaper.

TEACHING EXPERIENCE

Student in Communicating Science, GRAD 5104

Virginia Tech, Fall 2017

- Presented a talk during Virginia Tech's "Nutshell Games," a competition during which graduate students are challenged to present their research to a lay audience in less than 90 seconds. The talk was titled, "Improving Moo-trition for Dairy Sustainability."
- Gave 5-minute talks to 7th graders at Eastern Middle School in Pembroke, VA. Focused on the dairy cow's digestive anatomy and gave a visual demonstration about how different feeds are broken down in the rumen.

Graduate Teaching Assistant

AS 4332: Ruminant Nutrition, University of Missouri, Spring 2016 & Spring 2017

- Helped lead two lab sections (20 students each) teaching basic NRC calculations, formulating diets for cattle at various production stages, feed characteristics and more.
- Taught students how to formulate diets on two different University of Missouri ration balancing programs.
- Created and graded homeworks, study guides, exams and finals.

AS 3212: Principles of Animal Nutrition, University of Missouri, Fall 2015

- Created homework, quiz and exam questions, answered questions during and outside of lecture, and graded classwork for 150 students in a basic animal nutrition course.

PUBLICATIONS

ABSTRACTS

Daley, V.L., L.E. Armentano, P.J. Kononoff, **J.M. Prestegaard**, M.D. Hanigan. 2018. Predicting fatty acid content from crude fat in feed: A meta-analytic approach. Presented at 2018 National ADSA Meeting.

Daley, V.L., L.E. Armentano, P.J. Kononoff, **J.M. Prestegaard**, M.D. Hanigan. 2018. Fatty acid digestion in dairy cows fed different fat sources: A meta-analytic approach. Presented at 2018 National ADSA Meeting.

Prestegaard, J.M., A. L. Landers, M. M. Masiero, B. R. McDonald, C. D. Martin, M. S. Kerley. 2017. Impacts of balancing feedlot diets for effective energy and predicted amino acid requirement on plasma lysine levels and finishing steer performance. Presented at 2017 National ASAS Meeting.

- Masiero, M. M., A. L. Landers, **J. M. Prestegaard**, B. R. McDonald, C. D. Martin, M. S. Kerley. 2017. Effects of roughage removal, rumen modifier inclusion and post ruminal amino acid supply on growth performance in beef steers. Presented at 2017 National ASAS Meeting.
- Prestegaard, J.M.**, A. L. Landers, M. M. Masiero, B. R. McDonald, C. D. Martin, M. S. Kerley. 2017. Balancing feedlot diets for effective energy and predicted amino acid requirement improves finishing steer performance and profitability. Presented at 2017 University of Missouri Department of Animal Sciences Graduate Forum.
- Prestegaard, J.M.**, M.S. Kerley. 2017. Effects of balancing feedlot diets for amino acid requirements and effective energy using rumen protected lysine on growing steer performance. Presented at 2017 Midwest ASAS Section Meeting.
- Prestegaard, J. M.**, A. L. Kenny, M. M. Masiero, and M. S. Kerley. 2016. Determining ruminal lysine degradability of a bypass soybean meal product and an encapsulated lysine source. Presented at 2016 ADSA-ASAS Joint Annual Meeting.
- Prestegaard, J. M.**, A. L. Kenny, M. M. Masiero, and M. S. Kerley. 2016. Determining ruminal lysine degradability of a bypass soybean meal product and an encapsulated lysine source. Presented at 2016 University of Missouri Department of Animal Sciences Graduate Forum.

INTERPRETIVE SUMMARIES

- Prestegaard, J. M.** 2015. Keeping beef in the center of the plate. <http://www.agweb.com/article/keeping-beef-in-the-center-of-the-plate-naa-news-release/>.
- Prestegaard, J. M.** 2015. Countering pet obesity by rethinking feeding habits. <https://www.sciencedaily.com/releases/2015/07/150730162452.htm>.
- Prestegaard J. M.** 2015. Going green: Microalgae as a feedstuff for grower steers. <http://takingstock.asas.org/?p=15872>.
- Prestegaard J. M.** 2015. Detecting disease in beef cattle using ear tag units. <http://www.beefcentral.com/production/stock-handling-and-animal-welfare/detecting-disease-in-beef-cattle-using-ear-tag-units/>.
- Prestegaard J. M.** 2014. Moving calves, managing stress. <http://takingstock.asas.org/?p=13773>.
- Prestegaard J. M.** 2014. Capture, treat and reuse: Considerations for feedlot water conservation. <http://takingstock.asas.org/?p=13237>.
- Prestegaard J. M.** 2014. Sulfur in beef cattle diets: A wealth of knowledge and future directions. <http://takingstock.asas.org/?p=13082>.

ACTIVITIES and HONORS

- 2018: Member, Virginia Tech Graduate Academy for Teaching Excellence
- 2018: Student, GRAD 5114: Contemporary Pedagogy
- 2017: Student, GRAD 5104: Preparing the Future Professoriate
- 2015-2017: Member, University of Missouri Animal Science Graduate Student Association
 - Historian, 2016
- 2013 & 2015: University of Illinois Department of Animal Sciences Experiential Learning Award, First Place
 - Project Title: [Livestock Literacy: Teaching Farming Animal Science Through Ag Communication](#)
- 2013-2015: Founding Member, University of Illinois Collegiate Farm Bureau
 - Secretary, 2014-2015
 - Agricultural Literacy Representative, 2013-2014
- 2013-2015: Member, Saddleseat Illini
 - Secretary, 2014-2015
- 2011-2015: Member, 4H House Cooperative Sorority
 - Historian, 2013-2014
 - Social Chair, 2012-2013
- 2011-2015: Member, University of Illinois Hoof n' Horn Club