KEARA O'REILLY

Lincoln, Nebraska • (979) 250-7211 • koreilly2@unl.edu

EDUCATION

Doctor of Philosophy degree in Animal Science
Certificate in Applied Statistics
Texas A&M University, College Station, Texas, USA
August 2019 - December 2023
Dissertation: Characterizing biological processes influencing inter-animal variation in efficiency of nutrient utilization in beef and dairy cattle; Advisor: Dr. Gordon Carstens

Master of Agricultural Science degree in Animal Science: Animal Nutrition (*cum laude*)
University of Pretoria, Pretoria, South Africa
January 2016 - April 2018
Thesis: Effect of condensed molasses soluble on intake, growth performance, digestibility, and certain rumen parameters of sheep; Advisor: Dr. Willem van Niekerk

Bachelor of Agricultural Science degree in Animal Science
University of Pretoria, Pretoria, South Africa
January 2011 - December 2015

ADDITIONAL CERTIFICATES AND COURSES

CIRTL: Associate Fellow of the Academy for Future Faculty
Center for Integration of Research, Teaching and Learning; Texas A&M University, Texas, USA
April 2023

SAS 9.4 Programming Fundamentals Certificate
SAS Global certification program; SAS, Cary, North Carolina
December 2022

CIRTL: An Introduction to Evidence-Based Undergraduate STEM Teaching Certificate
Center for Integration of Research, Teaching and Learning; Texas A&M University, Texas,
September 2021

PROFESSIONAL POSITIONS AND EXPERIENCE

Research Assistant Professor: Ruminant Nutrition
Department of Animal Science, University of Nebraska-Lincoln, Lincoln, Nebraska, USA
August 2024 – Present

- Teaching (40%)
  - Teaching Feeds and Feeding (ASCI 220; undergraduate) and Advanced Feeding and Feed Formulation (ASCI 422/822; undergraduate and graduate) courses
- Research (60%)
  - Focused on improving feed efficiency and sustainability of cattle production systems
  - Advise students in the Masters of Applied Science with a specialization in Beef Cattle Production program

Postdoctoral Research Associate
Department of Animal Science, Texas A&M University, College Station, Texas, USA
September 2023 – Present

- Coordinated projects (with university and producer owned cattle) and reviewed literature focused on grazing beef cattle; specifically relating to the prediction of dry matter intake on

pastures, and energetic efficiencies and grazing behavior of beef cattle
- Prepared grant proposals for USDA-NRCS, a private company and internal funding opportunities
- Focused on strategies to reduce greenhouse gas emissions
- Mentored and assisted graduate students with projects and data analysis
- Attended the C-Lock GreenFeed certification course

Graduate Teaching Assistant
Department of Animal Science, Texas A&M University, College Station, Texas, USA
August 2019 – September 2023
- Co-instructor for *Animal Feeds and Feeding (ANSC 318)* for spring and summer 2022. Presented multiple lectures, assisted students with course content, supervised teaching assistants and managed administrative tasks
- Lead teaching assistant for *Animal Feeds and Feeding* (ANSC 318) lab for 11 semesters, approximately 25 students per lab per semester
- Teaching assistant for a senior level *Sheep and Goat Production* (ANSC 414) lab for 2 semesters, approximately 16 students per lab per semester
- Teaching assistant for a *General Animal Science* (ANSC 107) *course* for 2 semesters. This is a 500-student online course designed for non-majors
- Assisted with a graduate level course (*Energetics of Metabolism and Growth*; ANSC 602) for spring 2022. Tasks included grading, managing course content, and assisting students with course content related questions
- Built course content with Learning Management Systems, such as Canvas and Packback
- Helped with the online transition of classes, including innovative methods for assessment
- Assisted new TAs with developing teaching strategies
- Assisted with analysis and interpretation of survey data to develop an understanding of how Inquiry Based Learning provides students opportunities for peer interactions in an online course

Graduate Research Assistant
Department of Animal Science, Texas A&M University, College Station, Texas, USA
August 2019 – September 2023
- Conducted a study to determine the relationship of genomic residual feed intake (RFI) with performance, feed efficiency, methane production, nutrient digestibility, rumen fermentation, rumen microbiota, blood parameters and feeding behavior in Holstein heifers
- Conducted 16s rRNA sequencing analysis to characterize rumen bacterial communities
- Analyzed gaseous exchange data in cattle using the Greenfeed system
- Developed an algorithm using electronic feeding behavior data to predict competitive feeding behavior in feedlot cattle
- Conducted analyses on datasets to electronically quantify feeding behavior in feedlot cattle
- Assisted in development of biosensors to detect diseases in beef and dairy cattle
- Assisted with *in vivo* and *in vitro* studies to investigate the effect of feed additives (e.g. virginiamycin and essentials oils) on digestibility, rumen fermentation parameters and *in vitro* gas production
- Helped to conduct a bovine respiratory disease challenge study (Wottlin et al., 2020)
- Conducted a literature review for a grant proposal on investigation of metabolic pathways associated with RFI
- Presented results at national and regional animal science meetings (see research outputs)
- Managed undergraduate student workers that assisted with research projects in our lab

Animal Science Research Trials
Department of Animal and Wildlife Sciences, University of Pretoria, Pretoria, South Africa
January 2015 - December 2018

- Organized, conducted, and assisted in field and laboratory work during multiple animal science research trials (*in vivo* and *in vitro*), with a focus on conducting feedlot growth trials and *in vivo* digestibility and metabolism studies
- Summarized, analyzed and presented data from these studies
- Member of the winning team of 3 graduate students, who competed in an academic quadrathlon at a national Animal Science meeting
- Class representative for the animal nutrition graduate class

Volunteer Experience
January 2009 - May 2019

- Volunteered on ranches to gain experience working with livestock. Assisted with daily operations such as feeding, and daily health care and processing procedures
- Volunteered with veterinarians to gain experience in surgeries and ranch consultations

PROFESSIONAL ASSOCIATIONS AND MEMBERSHIPS

- American Society of Animal Science (ASAS) member
  2020 - Present
- Animal Science Graduate Student Association (ASGSA) member, Texas A&M University
  2019 - 2024
- South African Society of Animal Science (SASAS) member
  2016 – 2019

AWARDS

- ASAS Young Scholar Award
  American Society of Animal Sciences (ASAS), July 2024
- Animal Science Graduate Student Association Research Symposium (2nd place)
  Texas A&M University, May 2023
- Department of Animal Science Dr. Ronnie L. Edwards Graduate Teaching Award
  Texas A&M University, April 2023
- Vice Chancellor's Award in Excellence for Graduate Student Teaching
  Texas A&M University, January 2023
- Jo & Walter Worthington '54 Outstanding Student Award
  Texas A&M University, May 2022
- 2021 Raymond Ideas Challenge Competition
  Texas A&M University, November 2021
- Dan F. Jones Memorial Fund Scholarship (2021)
  Texas A&M University, May 2021
- International Livestock Congress Travel Fellowship
  International Livestock Congress, March 2021
- Dan F. Jones Memorial Fund Scholarship (2020)
  Texas A&M University, June 2020
- Charles Robertson Graduate Scholarship
  Texas A&M University, August 2019

- Student Representative Council Academic Honorary Colors
  University of Pretoria, April 2018
- Animal Feed Manufacturers Association (AFMA) Student of the Year Award
  Animal Feed Manufacturers Association, October 2016
- JJ Veenstra Floating Trophy, for the best final year Animal Science Undergraduate Student
  University of Pretoria, May 2016
- South African Society for Animal Science (SASAS) Postgraduate Bursary
  South African Society for Animal Science, April 2016
- South African Society for Animal Science (SASAS) Merit Award
  South African Society for Animal Science, April 2016
- University of Pretoria Postgraduate Masters' Degree Research Bursary
  University of Pretoria, 2016-2017

RESEARCH OUTPUTS

Publications:

- **O'Reilly, K**., B. Foris, C.L. Daigle, and G.E. Carstens. 2024. Development of an algorithm to detect feed bunk replacement events in growing cattle from feeding event data acquired by an electronic feed intake measurement system. Appl. Anim. Behav. Sci. 106350. doi:10.1016/j.applanim.2024.106350.
- **O'Reilly, K**., G.E. Carstens, J.R. Johnson, N. Deeb, and P. Ross. 2023. Relationship of genomically enhanced residual feed intake with performance, feed efficiency, greenhouse gas emissions and nutrient digestibility in growing Holstein heifers. J. Anim. Sci. (Under review).
- **O'Reilly**, K., G.E. Carstens, S. Adams, S.C. Fernando, J.R. Johnson, and N. Deeb. 2023. Characterizing the rumen bacterial community in replacement Holstein heifers with divergent genomically enhanced residual feed intake. (Under collaborator review).
- *PhD dissertation:* **O'Reilly, K.**, 2023. Characterizing physiological processes influencing inter-animal variation in nutrient utilization of cattle. PhD Animal Science: Animal Nutrition dissertation, Texas A&M University, Texas, USA.
- *Master's thesis:* **O'Reilly, K.**, 2017. Effect of condensed molasses soluble on intake, growth performance, digestibility, and certain rumen parameters of sheep. MSc (Agric) Animal Science: Animal Nutrition thesis, University of Pretoria, Pretoria, South Africa.
- *Conference paper:* van Niekerk, W. A., and **K. O'Reilly.** 2016. Management and principles of drought nutrition in small stock. RUVASA (Ruminant Veterinary Association of South Africa) Annual Congress, Polokwane, South Africa, 10 to 12 March 2016.

Abstracts:

- **K. O'Reilly** and G.E. Carstens. 2024. Awardee Talk: Characterizing biological processes influencing the efficiency of nutrient utilization in growing cattle. J. Anim. Sci. 102.
- **O'Reilly, K**., G.E. Carstens, L.R. Wottlin, T.H. Welsh, J.M. Thomson, V. Copie, and G. O'Shea-Stone. 2024. ^{1}H Nuclear magnetic resonance-based metabolomics of serum from growing beef steers. J. Anim. Sci. 102.
- Adcock, Z., **K. O'Reilly**, G.E. Carstens, L.O. Tedeschi, W.E. Pinchak, and R.S. Walker. 2024. Effects of divergent residual feed intake on performance, feed efficiency, feeding behavior and gaseous exchange in replacement beef heifers following a combined viral bacterial respiratory disease challenge. J. Anim. Sci. 102.

- **O'Reilly**, K., G.E. Carstens, S. Adams, S.C. Fernando, J.R. Johnson, and N. Deeb. 2023. Characterizing the rumen bacterial community in replacement Holstein heifers with divergent genomically enhanced residual feed intake. J. Anim. Sci. 101 (Suppl. 3):286-287. doi:10.1093/jas/skad281.342.
- **O'Reilly, K**., G.E. Carstens, J.R. Johnson, N. Deeb and P. Ross. 2023. Evaluating the utility of genomically enhanced RFI as a selection criterion to improve feed efficiency in growing Holstein heifers. J. Dairy Sci. 106 (Suppl. 1).
- **O'Reilly, K**., G.E. Carstens, J.R. Johnson, N. Deeb, and P. Ross. 2023. Effects of genomic residual feed intake on performance, feed efficiency and greenhouse gas emissions in Holstein heifers. J. Anim. Sci. 101 (Suppl. 1):37-38. doi:10.1093/jas/skad068.043.
- Batista, L.F.D., M.E. Rivera, E.D.M. Mendes, **K. O'Reilly**, and L.O. Tedeschi. 2023. Effectiveness of liver abscess-controlling antibiotic on rumen kinetics of beef steers consuming a high-grain diet. J. Anim. Sci. 101 (Suppl. 3):270-271. doi:10.1093/jas/skad281.324.
- Irvin, M.E., N.F. Kidane, **K. O'Reilly**, G.E. Carstens, W. Foxworth, and S. Horner. 2023. Effects of breedtype and gender on performance, feeding behavior, and feed efficiency in growing goats. J. Anim. Sci. 101 (Suppl. 3):305-306. doi:10.1093/jas/skad281.365.
- Kidane, N.F., M.E Irvin, **K. O'Reilly**, G.E. Carstens, W. Foxworth, and M.B. Daley. 2023. Evaluation of feed intake, feed efficiency and days on trial in growing goats fed a total mixed diets using GrowSafe feeding technology. J. Anim. Sci. 101 (Suppl. 3):305. doi: 10.1093/jas/skad281.364.
- Paudyal, S. and **K. O'Reilly**. 2022. Letting Students Ask Questions: Inquiry Based Learning in an Asynchronous Online Course. NACTA (North American Colleges and teachers of Agriculture) Journal. 66 (Suppl. 1):17.
- Lozada, C.C., D. Riley, **K. O'Reilly**, G.E. Carstens, and C.L. Daigle. 2022. Evaluating the utility of individual cattle brush use behavior as a novel behavioral phenotype regarding productivity, temperament, and feeding behavior of *Bos indicus* steers and heifers housed in dry lots. J. Anim. Sci. 100 (Suppl. 1):18. doi:10.1093/jas/skac028.034.
- **O'Reilly, K.**, G.E. Carstens, L.R. Wottlin, C.L. Daigle, and J.R. Johnson. 2021. Effects of interactive activity at the feed bunk on performance, feed efficiency and feeding patterns in feedlot cattle. J. Anim. Sci. 99:167. doi:10.1093/jas/skab235.307.
- **O'Reilly, K.**, G.E. Carstens, B. Foris, and C.L. Daigle. 2021. Validation of an algorithm to assess feed bunk replacement events in beef cattle. J. Anim. Sci. 99 (Suppl. 3):302-303. doi:10.1093/jas/skab235.556.
- **O'Reilly, K.**, G.E. Carstens, L.R. Wottlin, C.L. Daigle, and J.R. Johnson. 2021. Effects of competitive feeding behavior on performance, feed efficiency and feeding patterns in feedlot cattle. Plains Nutrition Council Meeting. San Antonio, TX, 8-9 April 2021.
- **O'Reilly, K.**, J.R. Johnson, L.R. Wottlin, and G.E. Carstens. 2020. Use of electronic feed intake systems to assess feed bunk displacement events as an indicator of aggressive feeding behavior in beef cattle. J. Anim. Sci. 98 (Suppl. 4):1. doi:10.1093/jas/skaa278.001.
- **O'Reilly, K.**, W.A. van Niekerk, R.J. Coertze, and L.J. Erasmus. 2018. Effect of condensed molasses solubles on performance, digestibility, and rumen parameters in sheep. Poster for the 69th Annual Meeting of the European Federation of Animal Science (EAAP). Dubrovnik, Croatia, 27-31 August 2018.

Field days and producer presentations:

- G.E. Carstens and **K. O'Reilly**. 2024. Using Smart Technology with Replacement Heifers Grazing Cool Season Annuals. McGregor Research field day, McGregor, TX.
- G.E. Carstens and **K. O'Reilly**. 2023. Cattle feed efficiency and methane emissions - What do they have in common? McGregor Research field day, McGregor, TX.
- G.E. Carstens and **K. O'Reilly**. 2022. Texas A&M Research Update: EcoFeed for Profitable & Sustainable Farming. STgenetics Beef x Dairy Symposium, College Station, TX.