

Forest L. Francis, PhD

forest.francis@tamuk.edu | 940-229-0476

Assistant Professor
Department of Animal Science and Veterinary Technology
Dick and Mary Kleberg College of Agriculture and Natural Resources
Texas A&M University – Kingsville
Kingsville, TX 78363

EDUCATION

Doctor of Philosophy in Animal Science, South Dakota State University December 2023
Advisor: Zachary Smith
Dissertation: Feeding strategies to improve gastrointestinal health and growth performance of confinement fed ruminants

Master of Science in Animal Science, West Texas A&M University December 2019
Advisor: Ty Lawrence
Thesis: Live and carcass production traits for progeny of an F1 USDA Prime – Yield grade 1 carcass clone sire in comparison with progeny of popular reference sires

Bachelor of Science in Agriculture Services and Development, Tarleton State University May 2017
Emphasis in Agri-Industries and Agencies
Minor in Animal Science
Cum Laude

EMPLOYMENT

Assistant Professor, Texas A&M University – Kingsville Fall 2024 – Present
Department of Animal Science and Veterinary Technology

Post Doctoral Researcher, South Dakota State University Spring 2024 – Fall 2024
Department of Animal Science – Ruminant Nutrition Center

Graduate Research and Teaching Assistant, South Dakota State University Spring 2021 – Fall 2023
Department of Animal Science – Ruminant Nutrition Center

Beef Analytics Intern, GK Jim Group & Feedlot Health Management Services, Okotoks, AB, CA 2020

Graduate Research and Teaching Assistant, Texas A&M University Spring 2020 – Fall 2020
Department of Animal Science – Meat Science

Graduate Research and Teaching Assistant, West Texas A&M University Fall 2017 – Fall 2019
Department of Animal Science – Meat Science

Plant Operations Intern, Tyson Foods Inc., Columbus Junction, IA 2017

Bacon Plant Intern, Pederson's Natural Farms, Hamilton, TX 2017

Student Worker, Tarleton State University Meat Laboratory 2016

COURSES TAUGHT

ANSC 2307: Principles of Feeds and Feeding Fall 2025
Texas A&M University – Kingsville

UNIV 1201: Learning in Global Context (2 Sections) Fall 2025
Texas A&M University – Kingsville

ANSC 2307: Principles of Feeds and Feeding Spring 2025
Texas A&M University – Kingsville

AGRI 3372: Contemporary Issues (2 Sections) Spring 2025
Texas A&M University – Kingsville

ANSC 791: Statistical Research Methods for Applied Nutrition
South Dakota State University

Spring 2024

ANSC 307: Meats Lab
Texas A&M University

Spring & Fall 2020

ANSC 1319: Principles of Animal Science Lab
West Texas A&M University

Fall 2017

EXTENSION EXPERIENCE

South Dakota State University Extension

2021 – 2023

- *North American Jr. Red Angus Event Beef Educational Seminar*
- *Beef 20/20 Short Course*
- *Feedlot Short Course*
- *Beef Day*

Texas A&M Agrilife Extension

2020

- *Texas A&M University Camp Brisket*
- *McDonald's Beef 101*
- *Creative Sausage Short Course*

West Texas A&M University Extension Events

2017 – 2019

- *USDA Cattle and Carcass Correlation Short Course*
- *US Meat Export Federation Beef and Pork 101*
- *Texas Beef Council Beef Farm to Fork*
- *Texas Cattle Feeders Association Alternative Protein Seminar*
- *Lallemand Animal Nutrition Beef 101*

PUBLICATIONS

Peer-Reviewed Journal Articles

1. **Francis, F.L.**, T.J. Spore, B. Troyer, M.E. Corrigan, D.E. Amrine, D.G. Renter, M. May, C. Booker, T. Bryant, J. Szasz, A. Word, K. Karr, B. Holland, O.A. Turgeon, M. Theurer, T. Fox, Z.K. Smith. 2025. A pooled analysis of seven large pen feedlot studies: Influence of *Megasphaera elsdenii* NCIMB 41125 on late-term mortality and growth performance of feedlot steers and heifers following terminal processing. *J. Anim. Sci.* Accepted Manuscript.
2. Ross, C.R., A.C.B. Menezes, **F.L. Francis**, Z.K. Smith, W.C. Rusche. 2024. Substitution of modified distillers grains with soybean meal with or without soyhulls had negligible effects on growth performance, efficiency, and carcass traits in yearling beef steers. *Appl. Anim. Sci.* 40:6: 760-769. doi: 10.15232/aas.2024-02575
3. Smith, Z.K., B.B. Grimes Francis, J.J. Delver, **F.L. Francis**, E.R. DeHaan, T.L.M. Ribeiro, W.C. Rusche. 2024. Evaluation of extruded and expelled soybean meal as a partial replacement for dried distillers grains plus solubles in diets for finishing beef steers. *Applied Animal Science*. 40:6: 751-759. doi: 10.15232/aas.2024-02581
4. Kelly, A., W. Rusche, **F. Francis**, M. Gonda, C. Wright, Z. Smith. 2024. Dietary management strategies to mitigate decreased feed intake associated with terminal implant administration in finishing beef steers. *A. J. Anim. Vet. Sci.* 19:4. doi: 10.3844/ajavsp.2024.360.370
5. Wesley, K.R., S.L. Pillmore, T.J. Kirkpatrick, K.B. Cooper, **F.L. Francis**, T.C. Tennant, W.T. Nichols, L.J. Walter, J.P. Hutcheson, T.E. Lawrence. 2024. Fabrication yields and allometric growth coefficients of carcass components of serially slaughtered implanted or non-implanted beef steers. *Applied Animal Science*. 40:5: 647-660. doi: 10.15232/aas.2024-02580
6. Ribeiro, T.L.M., B.B. Grimes Francis, C.R. Ross, J.J. Delver, **F.L. Francis**, J.S. Heldt, E.H. Wall, W.C. Rusche, Z.K. Smith. 2024. Evaluation of a phytogetic blend with monensin on post-weaning growth performance, health, and sera metabolite responses during the initial 56 d feedlot receiving period in steer calves. *Acta Agriculturae Scandinavica*. Section A – Animal Science: 1-9. doi: 10.1080/09064702.2024.2402696
7. Ross, C.R., Z.K. Smith, **F.L. Francis**, A.C.B. Menezes, W.C. Rusche. 2024. Increased dietary rumen degradable protein from soybean meal improved growth performance but increased liver abscess severity in finishing beef steers. *Appl. Anim. Sci.* 40:5: 627-638. doi: 10.15232/aas.2024-02584
8. **Francis, F.L.**, B.B. Grimes, D.E. Hawkins, D.G. Lust, T.J. McEvers, T.C. Tennant, G.O. Veneklasen, J.M. Abraham, J.F. Gleghorn, T.E. Lawrence. 2024. Live and carcass production traits for progeny of an F1 USDA Prime – Yield Grade 1 carcass clone sire compared to progeny of popular beef terminal sires. *Trans. Anim. Sci.* 8. doi: 10.1093/tas/txae126

9. **Francis, F.L.**, W.C. Rusche, D. LaFleur, J.E. Hergenreder, and Z.K. Smith. 2024. Dose effects of encapsulated butyric acid and zinc on beef feedlot steer growth performance, dietary net energy utilization, rumen morphometrics, small intestine histology, and carcass characteristics. *J. Anim. Sci.* 102. doi: 10.1093/jas/skac240
10. **Francis, F.L.**, W.C. Rusche, Z.K. Smith. 2024. Evaluation of orally administered *Megasphaera elsdenii* in steer calves abruptly transitioned from a receiving diet with 4% dietary starch to a growing diet with 38% dietary starch. *Trans. Anim. Sci.* 8. doi: 10.1093/tas/txae113
11. Ribeiro, T.L.M., B.B. Grimes Francis, E.R. DeHaan, C.R. Ross, J.J. Delver, **F.L. Francis**, J.S. Heldt, E.H. Wall, W.C. Rusche, Z.K. Smith. 2024. Influence of long-term supplementation of a formulated botanical blend on growth performance and carcass traits in feedlot steers. *Anim. Biosci.* doi: 10.5713/ab.24.0125
12. **Francis, F.L.**, T.L. Maia Ribeiro, D. LaFleur, J.E. Hergenreder, and Z.K. Smith. 2024. Encapsulated butyric acid and zinc as a feed additive for lambs abruptly transitioned to a grain-based diet. *Biology.* 13(6):457. doi: 10.3390/biology13060457
13. Grimes Francis, B.B., **F.L. Francis**, E.R. Gubbels, T.C. Norman, T.M. Ribeiro, S.R. Hanson, C.R. Ross, D.M. Paulus Compart, W.C. Rusche, and Z.K. Smith. 2024. Supplementation of calcium magnesium carbonate, tylosin phosphate, or both on growth performance, carcass traits, liver outcomes, and rumination activity of yearling beef steers fed a finishing diet. *Applied Animal Science.* 40(3):297-306. doi: 10.15232/aas.2023-02479
14. Pillmore, S.L., T.J. Kirkpatrick, K.R. Wesley, K.B. Cooper, **F.L. Francis**, T.C. Tennant, W.T. Nichols, J.P. Hutcheson, and T.E. Lawrence. 2024. Activity and rumination of implanted Charolais × Angus feedlot steers versus non-implanted counterparts consuming 3 levels of roughage throughout a 361-day feeding duration. *Applied Animal Science.* 40(2):227-235. doi: 10.15232/aas.2023-02517
15. Pillmore, S.L., K.R. Wesley, T.J. Kirkpatrick, K.B. Cooper, **F.L. Francis**, T.C. Tennant, W.T. Nichols, L.-A. Walter, J.P. Hutcheson, and T.E. Lawrence. 2024. Carcass and non-carcass component yields of trenbolone acetate + estradiol-17β implanted steers vs. non-implanted steers across serial harvest endpoints. *Applied Animal Science.* 40(2):176-190. doi: 10.15232/aas.2023-02492
16. Norman, T.C., E.R. DeHaan, **F.L. Francis**, W.C. Rusche, and Z.K. Smith. 2024. Effect of lighter and heavier initial weight on growth performance and carcass traits of single-source beef steers. *Animals.* 14(4):567. doi: 10.3390/ani14040567
17. Ribeiro, T.L.M., **F.L. Francis**, E.R. Gubbels, J.E. Griffin, W.C. Rusche, and Z.K. Smith. 2024. Supplemental organic trace minerals and a yeast culture product in newly weaned steers: Effects of use and delivery method on growth performance and hepatic trace mineral content. *Transl. Anim. Sci.* 7(1). doi: 10.1093/tas/txad119
18. Kirkpatrick, T. J., K. R. Wesley, S. L. Pillmore, K. B. Cooper, **F. L. Francis**, T. C. Tennant, W. T. Nichols, J. P. Hutcheson, L.-A. Walter, and T. E. Lawrence. 2023. Effects of days on feed and growth implant administration on live growth performance, live and carcass biometric measures, and carcass grading outcomes. *Applied Animal Science.* 39(5):330-348. doi: 10.15232/aas.2023-02395
19. Ribeiro, T. L. M., **F. L. Francis**, J. S. Heldt, W. C. Rusche, and Z. K. Smith. 2023. Evaluation of a ruminally protected blend of pantothenic acid, pyridoxine, folic acid, biotin, and vitamin B12 on finishing steer growth performance, efficiency of dietary net energy utilization, carcass trait responses, and liver abscess prevalence and severity. *Translational Animal Science.* 7(1) doi: 10.1093/tas/txad084
20. **Francis, F.L.**, E.R. Gubbels, T.G. Hamilton, J.A. Walker, W.C. Rusche, and Z.K. Smith. 2023. Evaluation of the effects of corn silage maturity and kernel processing on steer growth performance and carcass traits. *J. Anim. Sci.* 101. doi: 10.1093/jas/skac321
21. **Francis, F.L.**, M.F. Wilken, and Z.K. Smith. 2022. Replacement of dietary corn with corn bran plus condensed distillers solubles effects on feedlot growth performance and carcass trait responses of beef steers. *Transl. Anim. Sci.* 6:4 doi: 10.1093/tas/txac128

Extension Publications

22. **Francis, F.L.**, E.R. Gubbels, T.G. Hamilton, W.C. Rusche, D. LaFleur, J.E. Hergenreder, Z.K. Smith. 2022. Dose effects of encapsulated butyric acid and zinc on beef feedlot steer growth performance, carcass characteristics, and dietary net energy utilization. SDSU Beef Day 2022. p. 17-28

Abstracts

23. Delver, J.J., L.R. Thompson, W.C. Rusche, B.B. Francis, **F.L. Francis**, R.J. Leeson, T.L. Maia Ribeiro, G.H. Olinger, Z.K. Smith. 2025. 155 The effect of limit feeding and delaying implanting until d-63 of the finishing period on growth performance and carcass characteristics of backgrounded beef steers weighing 478 kg initially. *J. Anim. Sci.* 103(Supplement_1): 227-228. doi: 10.1093/jas/skaf102.248
24. Leeson, R.J., **F.L. Francis**, J.J. Delver, B.B. Francis, G.H. Olinger, T.L. Maia Ribeiro, Z.K. Smith, W.C. Rusche. 2025. 48 Evaluation of high-moisture corn as a roughage source in finishing diets fed to beef steers. *J. Anim. Sci.* 103(Supplement_1): 202-203. doi: 10.1093/jas/skaf102.221
25. Delver, J.J., Z.K. Smith, T.L. Maia Ribeiro, G.H. Olinger, R.J. Leeson, **F.L. Francis**, B.B. Francis, W.C. Rusche. 2025. 154 Evaluation of restricted maximum intake on growth performance and carcass traits of finishing lambs fed a concentrate-based diet. *J. Anim. Sci.* 103(Supplement_1): 226-227. doi: 10.1093/jas/skaf102.247
26. Francis, B.B., **F.L. Francis**, J.J. Delver, T.L. Maia, Ribeiro, R.J. Leeson, G.H. Olinger, W.C. Rusche, Z.K. Smith. 2025. 46 Effect of receiving period roughage inclusion and particle size on rumination activity in lightweight (193 kg initially) Angus × Holstein steers. *J. Anim. Sci.* 103(Supplement_1): 204-205. doi: 10.1093/jas/skaf102.223

27. Francis, B.B., **F.L. Francis**, W.C. Rusche, J.J. Delver, T.L. Maia Ribeiro, R.J. Leeson, G.H. Olinger, Z.K. Smith. 2025. 49 Increased feeding duration of a forage-based diet to Angus × Holstein steers previously fed a grain-based starter alters feedlot receiving-period growth performance and biological responses. *J. Anim. Sci.* 103(Supplement_1): 203-204. doi: 10.1093/jas/skaf102.222
28. Delver, J.J., W.C. Rusche, L.R. Thompson, **F.L. Francis**, B.B. Grimes Francis, R.J. Leeson, T.L. Maia Ribeiro, G.H. Olinger, C.R. Ross, Z.K. Smith. 2024. 256 Evaluating the effect limit feeding yearling beef steers for 56 or 86 d of a 140-d finishing period on growth performance and carcass trait responses. *J. Anim. Sci.* 102(Supplement_3):361-362. doi: 10.1093/jas/skae234.412
29. Schoelerman, Z., W.C. Rusche, Z.K. Smith, **F.L. Francis**. 2024. 94 Effects of orally administered *Megasphaera elsdenii* during finishing diet realimentation on feedlot steer fecal consistency, clinical depression, and rumination. *Journal of Animal Science*. 102(Supplement_2):247-248. doi: 10.1093/jas/skae102.281
30. Maia Ribeiro, T.L., B. Grimes Francis, Z.K. Smith, **F.L. Francis**, C. Ross, J. Heldt, W.C. Rusche, E.H. Wall. 2024. 58 Evaluation of a phytogenic blend on growth performance, health, carcass traits, and efficiency of dietary net energy utilization in finishing beef steers. *Journal of Animal Science*. 102(Supplement_2):205-206. doi: 10.1093/jas/skae102.232
31. Ross, C., E.R. DeHaan, **F.L. Francis**, B. Grimes Francis, T. Ribeiro, Z.K. Smith, W.C. Rusche. 2024. 103 Effects of partial or total replacement of dried distiller's grain with soybean meal on growth performance, carcass characteristics, serum urea nitrogen, and net energy utilization in finishing beef steers. *Journal of Animal Science*. 102(Supplement_2):29-30. doi: 10.1093/jas/skae102.036
32. Maia Ribeiro, T.L., Z.K. Smith, E.H. Wall, **F.L. Francis**, B. Grimes Francis, C. Ross, W.C. Rusche, J. Heldt. 2024. 234 Evaluation of a phytogenic blend on post-weaning growth performance, health, and serum metabolite responses during the initial 56 d feedlot receiving period in newly weaned steers. *Journal of Animal Science*. 102(Supplement_2):213-214. doi: 10.1093/jas/skae102.242
33. Grimes Francis, B., J. Delver, **F.L. Francis**, E.R. DeHaan, T. Ribeiro, C. Ross, W.C. Rusche, Z.K. Smith. 2024. 161 Effect of replacement of dried distiller's grains plus solubles with increasing extruded and expelled soybean meal on feedlot performance and carcass characteristics in finishing steers. *Journal of Animal Science*. 102(Supplement_2):209-210. doi: 10.1093/jas/skae102.237
34. Leeson, R.L., E.R. DeHaan, J. Delver, **F.L. Francis**, B. Grimes Francis, T. Ribeiro, Z.K. Smith, W.C. Rusche. 2024. 60 Effects of phase feeding rolled hybrid rye on feedlot performance in backgrounded beef steers. *Journal of Animal Science*. 102(Supplement_2):202-203 doi: 10.1093/jas/skae102.227
35. Grimes, B., **F. L. Francis**, E. R. Gubbels, T. Norman, T. M. Ribeiro, S. Hanson, C. Ross, D. P. Compart, W. C. Rusche, and Z. K. Smith. 2023. 371 Effect of Calcium Magnesium Carbonate And/Or Tylosin Phosphate Supplementation on Behavior, Rumination Activity, Feedlot Growth Performance and Carcass Characteristics in Yearling Beef Steers. *Journal of Animal Science*. 101(Supplement_3):298-299. doi: 10.1093/jas/skad281.356
36. Norman, T., T. M. Ribeiro, **F. L. Francis**, E. R. Gubbels, S. Hanson, B. Grimes, W. C. Rusche, and Z. K. Smith. 2023. 262 Evaluation of a Single Growing-Finishing Diet for Single Source, pre-Conditioned Beef Steers of Lighter (273 kg) and Heavier (356 kg) Initial Body Weight (BW). *Journal of Animal Science*. 101(Supplement_2):222-223. doi: 10.1093/jas/skad341.250
37. Grimes, B., **F. L. Francis**, E. R. Gubbels, W. C. Rusche, and Z. K. Smith. 2023. 162 Kernel Processing Corn Silage Included at 65% of the Diet (DM Basis) and fed to Growing Beef Steers Increases Dry Matter Intake, Decreases Apparent Total Tract Digestibility of Neutral Detergent Fiber, and Does not Enhance Starch Digestibility. *Journal of Animal Science*. 101(Supplement_2):213-214. doi: 10.1093/jas/skad341.237
38. Gubbels, E. R., **F. L. Francis**, W. C. Rusche, and Z. K. Smith. 2023. 265 Manger Space Restriction Does not Negatively Impact Growth Efficiency of Feedlot Heifers Program fed a Concentrate-Based Diet to Gain 1.36 kg Daily. *Journal of Animal Science*. 101(Supplement_2):219-220. doi: 10.1093/jas/skad341.246
39. **Francis, F. L.**, E. R. Gubbels, S. Hanson, T. Norman, T. L. M. Ribeiro, W. C. Rusche, and Z. K. Smith. 2023. 310 Evaluation of Orally Administered *Megasphaera Elsdenii* in Preconditioned Calves Abruptly Transitioned from a Receiving Diet with 4% Dietary Starch to a Growing Diet with 37% Dietary Starch. *Journal of Animal Science*. 101(Supplement_2):226-227. doi: 10.1093/jas/skad341.254
40. **Francis, F. L.**, E. R. Gubbels, S. Hanson, T. Norman, T. L. M. Ribeiro, W. C. Rusche, and Z. K. Smith. 2023. 312 Evaluation of Dietary Roughage Manipulation During the Feeding of Ractopamine Hydrochloride as a Method to Improve Ruminant Health and Control Liver Abscess Severity in Feedlot Steers. *Journal of Animal Science*. 101(Supplement_2):227-228. doi: 10.1093/jas/skad341.255
41. Grimes, B., **F. L. Francis**, E. R. Gubbels, W. C. Rusche, Z. K. Smith, and D. Paulus. 2023. 307 Effect of Calcium Magnesium Carbonate and/or Tylosin Phosphate Supplementation on Receiving Period Growth Performance in Yearling Beef Steers. *Journal of Animal Science*. 101(Supplement_2):229-229. doi: 10.1093/jas/skad341.257
42. Maday, H., B. Grimes, **F. L. Francis**, E. R. Gubbels, T. Norman, S. Hanson, T. M. Ribeiro, Z. K. Smith, C. Ross, and D. Paulus. 2023. PSI-6 Effect of Calcium Magnesium Carbonate And/Or Tylosin Phosphate Supplementation on Behavior and Rumination Activity in Yearling Beef Steers Fed a Finishing Diet. *Journal of Animal Science*. 101(Supplement_2):337-338. doi: 10.1093/jas/skad341.383
43. Ribeiro, T.L.M., E.R. Gubbels, **F.L. Francis**, J.S. Heldt, S. Hanson, T. Norman, W.C. Rusche, Z.K. Smith. 2023. PSV-13 Evaluation of Hydratit

- Pre-Slaughter on Finishing Beef Steer: Dressing Percentage, Hot Carcass Weight, and Cold Carcass Weight. *Journal of Animal Science*. 101(Supplement_2):338. doi: 10.1093/jas/skad341.384
44. Anema, R. F., E. Fowler, **F. L. Francis**, Z. K. Smith, and B. St-Pierre. 2023. PSV-9 Characterization of the Rumen Bacterial Communities of Lambs That Transitioned from Forage to a Concentrate-Based Diet. *Journal of Animal Science*. 101(Supplement_2):339-340. doi: 10.1093/jas/skad341.386
 45. Gubbels, E. R., **F. L. Francis**, W. C. Rusche, and Z. K. Smith. 2022. 331 Effects of on-Arrival Application of a Modified-Live Respiratory and Clostridia Vaccination on Health, Growth Performance, and Antibody Titers of Newly Weaned Calves. *Journal of Animal Science*. 100(Supplement_3):159-160. doi: 10.1093/jas/skac247.296
 46. **Francis, F. L.**, T. M. Ribeiro, E. R. Gubbels, D. LaFleur, J. Hergenreder, and Z. K. Smith. 2022. 373 Growth Performance, Efficiency of Dietary net Energy Utilization, and Carcass Traits of Lambs Supplemented Encapsulated Butyric Acid and Zinc Abruptly Transitioned to a Finishing Diet. *Journal of Animal Science*. 100(Supplement_3):180-181. doi: 10.1093/jas/skac247.332
 47. Ribeiro, T. M., Z. K. Smith, W. C. Rusche, **F. L. Francis**, and E. R. Gubbels. 2022. PSVIII-B-17 Supplemental Organic Trace Minerals and a Yeast Culture Product in Newly Weaned Steer Calves: Effects of Use and Delivery Method on Growth Performance, Efficiency, and Hepatic Trace Minerals. *Journal of Animal Science*. 100(Supplement_3):308-309. doi: 10.1093/jas/skac247.562
 48. **Francis, F. L.**, E. Gubbels, T. G. Hamilton, W. C. Rusche, D. LaFleur, J. Hergenreder, and Z. K. Smith. 2022. 225 Effect of Increasing Doses of Encapsulated Butyric Acid and Zinc on Beef Feedlot Steer Growth Performance, Dietary Net Energy Utilization, and Carcass Characteristics. *Journal of Animal Science*. 100(Supplement_2):107-108. doi: 10.1093/jas/skac064.181
 49. Kirkpatrick, T.J., M. D. Garrison, K.R. Wesley, S.L. Pillmore, K.B. Cooper, **F.L. Francis**, T. Tennant, W. Nichols, J. Hutcheson, T. Lawrence. PSI-23 The effect of days on feed and trenbolone acetate + estradiol-17 β implantation on biometric measurements of Charolais $\times$ Angus steers across serial harvest endpoints. *Journal of Animal Science*. Volume 98. Issue Supplement_4. November 2020. Pages 264–265. doi: 10.1093/jas/skaa278.477
 50. Pillmore, S.L., T.J. Kirkpatrick, K.R. Wesley, K.B. Cooper, **F.L. Francis**, T. Tennant, W. Nichols, J. Hutcheson, T. Lawrence. PSI-2 Activity and rumination of implanted British $\times$ Continental steers vs. non-hormone treated counterparts consuming various levels of roughage throughout a 361-d growth window. *Journal of Animal Science*. Volume 98. Issue Supplement_4. November 2020. Pages 272–273. doi: 10.1093/jas/skaa278.491
 51. Perkins, T.L., F. Riberio, T.J. Kirkpatrick, K.R. Wesley, S.L. Pillmore, K.B. Cooper, **F.L. Francis**, M.D. Garrison, T. Tennant, W. Nichols, J. Hutcheson, T. Lawrence. PSVII-19 Serial ultrasound measures of implanted and non-implanted feedlot steers to determine carcass endpoints. *Journal of Animal Science*. Volume 98. Issue Supplement_4. November 2020. Pages 292–293. doi: 10.1093/jas/skaa278.52
 52. Grimes B.B., T.J. Kirkpatrick, T. Tennant, T. Lawrence, K.B. Cooper, **F.L. Francis**, S.L. Pillmore, K.R. Wesley, T.L. Perkins, F. Riberio, M.D. Garrison, W. Nichols, J. Hutcheson. PSIX-27 Evaluation of real-time ultrasound to predict pre-harvest market endpoints in serial slaughtered British $\times$ Continental steers administered an E2+TBA implant treatment vs non-implanted controls. *Journal of Animal Science*. Volume 98. Issue Supplement_4. November 2020. Pages 331–332. doi: 10.1093/jas/skaa278.589
 53. Mayer, L.M., T.J. Kirkpatrick, S.L. Pillmore, K.R. Wesley, K.B. Cooper, **F.L. Francis**, T. Tennant, W. Nichols, J. Hutcheson, T. Lawrence. PSIX-31 The effect of days on feed and trenbolone acetate + estradiol-17 β implants on the dimensional measurements of serially harvested steer carcasses. *Journal of Animal Science*. Volume 98. Issue Supplement_4. November 2020. Pages 333–334. doi: 10.1093/jas/skaa278.593
 54. **Francis, F.L.**, D. Hawkins, G. Veneklasen, D. Lust, and T. Lawrence. 2019. PSIV-19 Live and carcass production traits for progeny of an F1 USDA Prime – yield grade 1 carcass clone sire in comparison with progeny of popular reference sires. *Journal of Animal Science*. 97(Supplement_3):228-228. doi: 10.1093/jas/skz258.464
 55. **Francis, F.**, R. Herrick, J. Richeson, and T. Lawrence. 2018. PSV-17 Association of post mortem lung health to blood serum chemistry and carcass characteristics in Holstein steers. *Journal of Animal Science*. 96(suppl_3):48-48. doi: 10.1093/jas/sky404.107
 56. Jones, T., **F. Francis**, R. Herrick, T. McEvers, and T. Lawrence. 2018. PSV-2 Comparison of carcass characteristics between cull Holstein and Jersey cows. *Journal of Animal Science*. 96(suppl_3):48-49. doi: 10.1093/jas/sky404.109

Conference Proceedings

57. **Francis, F.L.**, E.R. Gubbels, S.R. Hanson, T.C. Norman, T.L. Maia Ribeiro, W.C. Rusche, Z.K. Smith. 2023. Evaluation of dietary roughage manipulation during the inclusion of ractopamine hydrochloride as a method to improve ruminal health and control liver abscess severity in feedlot steers. In: Proceedings of the 2023 Plains Nutrition Council Spring Conference. San Antonio, TX. p.100
58. **Francis, F.L.**, B.B. Grimes, T.L. Maia Ribeiro, E.R. Gubbels, D. LaFleur, J.E. Hergenreder, and Z.K. Smith. 2022. Effects of supplemental encapsulated butyric acid and zinc on rumen morphometrics and small intestine histology of finishing lambs abruptly transitioned to a grain-based diet. In: Proceedings of the 10th Symposium on Gut Health in Production of Food Animals. St. Louis, MO. p. 23-24
59. **Francis, F.L.**, E.R. Gubbels, T.G. Hamilton, W.C. Rusche, D. LaFleur, J.E. Hergenreder, Z.K. Smith. 2022. Dose effects of encapsulated butyric acid and zinc on beef feedlot steer growth performance, dietary net energy utilization, and carcass attributes. In: Proceedings of the 2022 Plains Nutrition Council Spring Conference. San Antonio, TX. p. 173

60. **Francis, F.L.,** M.F. Wilken, Z.K. Smith. 2021. Influence of corn substitution with corn bran plus condensed distillers solubles on growth performance, carcass traits, and efficiency of net energy utilization in finishing steers. In: Proceedings of the 2021 Plains Nutrition Council Spring Conference. San Antonio, TX. p. 103

PRESENTATIONS

Invited Talks

1. Management strategies and feed additives for receiving calves. 2024. Dakota Farm Show – SDSU Extension Seminar Series. Vermillion, SD

Oral Presentations

2. Evaluation of dietary roughage manipulation during the feeding of ractopamine hydrochloride as a method to improve ruminal health and control liver abscess severity in feedlot steers. 2023. Ruminant Nutrition IV Oral Session. Midwest Section ASAS Meeting. Madison, WI
3. Evaluation of orally administered *Megasphaera elsdenii* in preconditioned calves abruptly transitioned from a receiving diet with 4% dietary starch to a growing diet with 37% dietary starch. 2023. Ruminant Nutrition IV Oral Session. Midwest Section ASAS Meeting. Madison, WI
4. Growth performance, efficiency of dietary net energy utilization, and carcass traits of lambs supplemented encapsulated butyric acid and zinc abruptly transitioned to a finishing diet. 2022. Small Ruminant Oral Session. ASAS-CSAS Annual Meeting and Trade Show. Oklahoma City, OK
5. Effect of increasing doses of encapsulated butyric acid and zinc on beef feedlot steer growth performance, dietary net energy utilization, and carcass characteristics. 2022. Ruminant Nutrition IV Oral Session. Midwest Section ASAS Meeting. Omaha, NE

Poster Presentations

6. Evaluation of dietary roughage manipulation during the feeding of ractopamine hydrochloride as a method to improve ruminal health and control liver abscess severity in feedlot steers. 2023. Graduate Poster Competition. Plains Nutrition Council. San Antonio, TX
7. Effects of supplemental encapsulated butyric acid and zinc on rumen morphometrics and small intestine histology of finishing lambs abruptly transitioned to a grain-based diet. 2022. Poster Session. 10th Symposium on Gut Health in Production of Food Animals. St. Louis, MO
8. Effect of increasing doses of encapsulated butyric acid and zinc on beef feedlot steer growth performance, dietary net energy utilization, and carcass characteristics. 2022. Graduate Poster Competition. Minnesota Nutrition Conference. Mankato, MN
9. Effect of increasing doses of encapsulated butyric acid and zinc on beef feedlot steer growth performance, dietary net energy utilization, and carcass characteristics. 2022. Gamma Sigma Delta Honor Society of Agriculture Annual Poster Competition. Brookings, SD
10. Effect of increasing doses of encapsulated butyric acid and zinc on beef feedlot steer growth performance, dietary net energy utilization, and carcass characteristics. 2022. Graduate Poster Competition. Plains Nutrition Council. San Antonio, TX
11. Influence of corn substitution with corn bran plus condensed distillers solubles on growth performance, carcass traits, and efficiency of net energy utilization in finishing steers. 2021. Graduate Poster Competition. Minnesota Nutrition Conference. Mankato, MN
12. Influence of corn substitution with corn bran plus condensed distillers solubles on growth performance, carcass traits, and efficiency of net energy utilization in finishing steers. 2021. Graduate Poster Competition. Plains Nutrition Council. San Antonio, TX
13. Live and carcass production traits for progeny of an F1 USDA Prime – yield grade 1 carcass clone sire in comparison with progeny of popular reference sires. 2019. MS Poster Competition. ASAS-CSAS Annual Meeting and Trade Show. Austin, TX
14. Association of post mortem lung health to blood serum chemistry and carcass characteristics in Holstein steers. 2018. MS Poster Competition. ASAS-CSAS Annual Meeting and Trade Show. Vancouver, BC, CA

HONORS AND AWARDS

Certified Angus Beef Graduate Colvin Scholarship	2022
<i>Top graduate student. Awarded scholarship and invited to attend and speak at annual conference.</i>	
Barry H. and Jane K. Dunn Graduate Scholarship in Animal Science	2022
Minnesota Nutrition Conference Graduate Poster Competition	
<i>3rd place in competition. Awarded \$100 prize money.</i>	
International Livestock Congress Travel Fellowship	2021
	2020

1 of 20 domestic and international graduate students invited to Houston Livestock Show for industry seminars and updates.

Texas Cattle Feeders Association Graduate Scholarship	2019
DFV – AAMP IFFA Product Quality Competition <i>Cup of Honor Recipient Team</i>	2019
Reciprocal Meat Conference Product Development Competition <i>Champion Team – Developed shelf stable bison snack bar</i>	2016
Alpha Zeta Agriculture Honor Fraternity	2015
Delta Epsilon Iota Academic Honor Society	2014

UNIVERSITY EXTRACURRICULAR ACTIVITIES

South Dakota State University Animal Science Research Report Committee <i>Committee Member</i>	2024
South Dakota State University Animal Science Graduate Student Association <i>Member</i>	2022
West Texas A&M University Meat Judging Team <i>Assistant Coach</i>	2017 – 2018
Tarleton State University Meat Judging Team <i>Assistant Coach</i>	2017
<i>Member</i>	2016
TSU Meat Science Quiz Bowl Team <i>Member</i>	2016

INDUSTRY EVENTS AND MEETINGS

1. Purina Feedlot Series Short Course	2022-2024
2. Midwest Consulting Nutritionist Forum	2021-2023
3. Plains Nutrition Council Spring Conference	2019-2024
4. University of Nebraska – Lincoln Husker Nutrition Conference	2023
5. I-29 Moo University Dairy Beef Short Course	2022-2023
6. Certified Angus Beef Youth Beef Leaders Seminar	2022
7. Merck Animal Health Fall Nutritionist Meeting	2022
8. Certified Angus Annual Conference	2022
9. South Dakota State University Interstate Cattle Feeders Day	2022
10. Zoetis Beef Seminar at SDSU	2022
11. Plains Nutrition Council Feedyard Nutritionist Bootcamp	2020
12. USDA Cattle and Carcass Correlation Short Course	2020
13. Texas and Southwestern Cattle Raisers Association Young Leadership Series	2018
14. American Meat Science Association/Tyson Foods Inc. Beyond Fresh Meats Short Courses	2017-2018

AFFILIATIONS AND PROFESSIONAL SERVICE

Affiliations

1. American Society of Animal Science – *Southern Section*
2. Plains Nutrition Council
3. Texas and Southwestern Cattle Raisers Association

Peer Reviewer

4. Applied Animal Science
5. Ruminants
6. Animals
7. Journal of Animal Science
8. Translational Animal Science

