

***Curriculum Vitae - Ty B. Schmidt***

Associate Professor:

*Precision Livestock Technology*  
*Meat Science and Muscle Biology*

University of Nebraska - Lincoln

Animal Science Department

60% Teaching and 40% Research Appointment

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E- mail: [tschmidt4@unl.edu](mailto:tschmidt4@unl.edu)**Education**

Ph.D. (Muscle Biology and Meat Science) – University of Missouri May 2004

Dr. Eric Berg, Committee chair and academic advisor

Dissertation title: Evaluation of the effect of dietary lipoic acid supplementation on immune response, growth performance, carcass characteristics, and overall meat quality

M.S. (Meat Science) – West Texas A&amp;M May 2000

Dr. Ted Montgomery, Committee chair and academic advisor

Thesis title: Survey of carcass and offal characteristics of the fed cattle population in the Texas Panhandle.

B.S. (Animal Science) – West Texas A&amp;M University May 1998

**Employment**

2012 – present	Associate Professor	<i>University of Nebraska - Lincoln</i>
2007 – 2012	Assistant Professor	<i>Mississippi State University</i>
2006 – 2007	Post-Doctoral Research Associate Meat Animal Physiology	<i>University of Missouri</i>
2004 – 2005	Post-Doctoral Research Associate Ruminant Nutrition	<i>University of Missouri</i>
2001 – 2004	<i>Graduate Research/Teaching Assistant</i>	<i>University of Missouri</i>
1998 – 2000	<i>Cattlemen's Carcass Data Service Manager</i>	<i>West Texas A&amp;M</i>

**Publications Summary** (Detailed information below)

US Patents - <i>NUtrack</i>	3	Research Reports	10
Refereed Publications	84	Publications submitted	2
Since Appointment – 52		Publications in progress	4
Presentations & Abstracts	136	Final Reports	3
Book Chapters	1		

**US Patents and Patent Applications: *NUtrack* Livestock Monitoring System**

1. Psota, E. T., *T. B. Schmidt*, L. Pérez, and B. Mote. 2023. Materials and methods for long-term tracking of group-housed livestock. US Patent Number: 18,001,965. Publication Date: 2023/7/20
2. Psota, E. T., *T. B. Schmidt*, L. Pérez, and B. Mote. 2023. Animal detection based on detection and association of parts. *NUtrack Livestock Monitoring System*. US Patent Number: 11,393,088. Publication Date: 2023/3/23.
3. Psota, L. Pérez, M. Mittek, and *T. B. Schmidt*. 2020. System for tracking individual animals in a group-housed environment *NUtrack Livestock Monitoring System*. US Patent Number: 10,796,142. Publication Date: 2020/10/3.

Refereed Publications

1. Daily B-agonist - Rachel
2. Beer, H.N., T. C. Schrader, T. B. Schmidt, and D. T. Yates. **2023**. The Evolution of Zoos as Conservation Institutions: A Summary of the Transition from Menageries to Zoological Gardens and Parallel Improvement of Mammalian Welfare Management. *J. Zool. Bot. Gard.* 4(4), 648-664. doi.org/10.3390/jzbg4040046
3. Millburn, S., T. B. Schmidt, G. Rohrer and B. E. Mote. **2023**. Identifying Early-Life Behavior to Predict Mothering Ability in Swine Utilizing NUtrack System. *Animals* **2023**, 13(18), 2897; <https://doi.org/10.3390/ani13182897>
4. Obermier, D., M. Trenahle-Grannemann, T. B. Schmidt, , Rathje, T. and Mote, B. E. **2023**. Utilizing NUtrack to Access the Activity Levels in Pigs with Varying Degrees of Genetic Potential for Growth and Feed Intake. <https://doi.org/10.3390/ani13101581>
5. R. L. Gibbs, Swanson, R. M., Beard, J. K., Hicks, Z. M., Most, M. S., Beer, H. N., Grijalva, P. C., Clement, S. M. Marks-Nelson, E. S., *Schmidt, T. B.*, Petersen, J. L., and Yates, D. T. **2023**. Daily injection of the  $\beta$ 2 adrenergic agonist clenbuterol improved poor muscle growth and body composition in lambs following heat stress-induced intrauterine growth restriction. *Frontiers in Physiology*: 14:1252508. doi: 10.3389/fphys.2023.1252508
6. Bortoluzzi, E. M., M. J. Goering, S. J. Ochoa, A. J. Holliday, J. J. Mumm, C. E. Nelson, H. Wu, B. W. Mote, E. T. Psota, *T. B. Schmidt*, M. Jaber-Douraki, and L. E. Hulbert. **2023**. Evaluation of Precision Livestock Technology and Human Scoring of Nursery Pigs in a Controlled Immune Challenge Experiment. *Animals*, 13(2), 246. doi.org/10.3390/ani13020246
7. *Schmidt, T. B.*, J. M. Lancaster, E. Psota, B. E. Mote, L. E. Hulbert, A. Holliday, R. Woiwode, and L. C. Perez. 2022. Evaluation of a novel computer vision-based livestock monitoring system to identify and track specific behaviors of individual nursery pigs within a group-housed environment. *Translational Anim. Sci.* 6:3, 1 -10. doi.org/10.1093/tas/txac082
8. Reith, R. R., R. L. Sieck, P. C. Grijalva, R. M. Swanson, A. M. Fuller, D. E. Diaz, *T. B. Schmidt*, D. T. Yates, and J. L. Petersen. 2022. Transcriptome analyses indicate that heat stress-induced inflammation in white adipose tissue and oxidative stress in skeletal muscle is partially moderated by zilpaterol supplementation in beef cattle. *J. Anim. Sci.* 100:3: 1 – 12. doi.org/10.1093/jas/skac019
9. Posont, R. J., M. S. Most, C. N. Cadaret, E. S. Marks-Nelson, K. A. Beede, S. W. Limesand, *T. B. Schmidt*, J. L. Petersen, and D. T. Yates. 2022. Primary myoblasts from intrauterine growth-restricted fetal sheep exhibit intrinsic dysfunction of proliferation and differentiation that coincides with enrichment of inflammatory cytokine signaling pathways. *J. Anim. Sci.* 100, 1-15. doi.org/10.1093/jas/skac145
10. Sieck, R. L., L. K. Treffer, A. M. Fuller, M. P. Viana, O. Khalimonchuk, *T. B. Schmidt*, D. T. Yates, and J. L. Petersen. 2022. Beta-adrenergic agonists alter oxidative phosphorylation in primary myoblasts. *J. Anim. Sci.* 100, 1-7. doi.org/10.1093/jas/skac208
11. Gibbs, R. L., R. M. Swanson, J. K. Beard, T. B. Schmidt, J. L. Petersen, D. T. Yates. 2021. Deficits in skeletal muscle glucose metabolism and whole-body oxidative metabolism in the intrauterine growth-restricted juvenile lamb are improved by daily treatment with clenbuterol.
12. Barnes T. L., R. M. Burrack, *T. B. Schmidt*, J. L. Petersen, and D. T. Yates. 2021. Sustained heat stress elevated corneal and body surface temperatures and altered circulating leukocytes and metabolic indicators in wether lambs supplemented with ractopamine or zilpaterol. *J. Anim. Sci.* 99(9) 1-8.
13. Psota, E. T., *T. B. Schmidt*, and B. Mote. 2020. Long-Term Tracking of Group-Housed Livestock Using Keypoint Detection and MAP Estimation for Individual Animal Identification. 2020. *Sensors* 20(13), 3670. doi.org/10.3390/s20133670.
14. Burrack R. M., E. M. Duffy, D. T. Yates, *T. B. Schmidt*, and J. L. Petersen. 2020. Whole blood transcriptome analysis in feedlot cattle after 35 days of supplementation with a  $\beta$ 1-adrenergic agonist. *J. Applied Genetics*.

61(1) 117-121.

15. Barnes T. L., C. N. Cadaret, K. A. Beede, *T. B. Schmidt*, J. L. Petersen, and D. T. Yates. 2020. Hypertrophic muscle growth and metabolic efficiency were impaired by chronic heat stress, improved by zilpaterol supplementation, and not affected by ractopamine supplementation in feedlot lambs. *J. Anim. Sci.* 3;97(10) (4101-4113). doi:10.1093/jas/skz271
16. Swanson, R. M., R. G. Tait, B. M. Galles, E. M. Duffy, *T. B. Schmidt*, J. L. Petersen, and D. T. Yates. 2020. Heat stress-induced deficits in growth, metabolic efficiency, and cardiovascular function coincided with chronic systemic inflammation and hypercatecholaminemia in ractopamine supplemented feedlot lambs. *J. Anim. Sci.* 1;98(6), 1–15. doi:10.1093/jas/skaa168
17. Reith, R. R. R. L. Sieck, P. C. Grijalva, E. M. Duffy, R. M. Swanson, A. M. Fuller, K. A. Beede, J. K. Beard, D. E. Diaz, *T. B. Schmidt*, D. T. Yates, and J. L. Petersen. 2020. Heat stress and  $\beta$ -adrenergic agonists alter the adipose transcriptome and fatty acid mobilization in ruminant livestock. *Transl. Anim. Sci.* 2020.4:S141–S144. doi: 10.1093/tas/txaa122
18. Gibbs, R. L., C. N. Cadaret, R. M. Swanson, K. A. Beede, R. J. Posont, *T. B. Schmidt*, J. L. Petersen, and D. T. Yates. 2019. Body composition estimated by bioelectrical impedance analyses is diminished by prenatal stress in neonatal lambs and by heat stress in feedlot wethers. *Transl. Anim. Sci.* 2019.3:1691–1695. doi: 10.1093/tas/txz059
19. R. M. Burrack, E. M. Duffy, D. T. Yates, *T. B. Schmidt*, J. L. Petersen. 2019. Whole blood transcriptome analysis in feedlot cattle after 35 days of supplementation with a  $\beta$ 1-adrenergic agonist. *Journal of Applied Genetics*, 1 – 5.
20. Barnes, T.L. C. N. Cadaret, K. A. Beede, *T. B. Schmidt*, J. L. Petersen, and D. T. Yates. 2019. Hypertrophic muscle growth and metabolic efficiency were impaired by chronic heat stress, improved by zilpaterol supplementation, and not affected by ractopamine supplementation in feedlot lambs. *Journal of Animal Science*. 4101-4113.
21. Steele, C. C., C. A. Boykin, L. C. Eastwood, M. K. Harris, D.S. Hale, C.R. Kerth, D.B. Griffin, A.N. Arnold, K.B. Gehring, J.D. Hasty, K.E. Belk, D.R. Woerner, R.J. Delmore, J.N. Martin, D.L. VanOverbeke, G.G. Mafi, M.M. Pfeiffer, T.E. Lawrence, T.J. McEvers, *T. B. Schmidt*, R.J. Maddock, D.D. Johnson, C.C. Carr, J.M. Scheffler, T.D. Pringle, A.M. Stelzleni, J. Gottlieb, J.W. Savell. 2019. National Beef Quality Audit-2016: Frequency Distributions of Beef Ribeyes within USDA Quality Grades. *Meat and Muscle Biology*, (v2-2) 27-28.
22. L. C. Eastwood, MK Harris, CA Boykin, AN Arnold, KB Gehring, DS Hale, CR Kerth, DB Griffin, JW Savell, KE Belk, DR Woerner, JD Hasty, RJ Delmore, JN Martin, TE Lawrence, TJ McEvers, DL VanOverbeke, GG Mafi, MM Pfeiffer, *T. B. Schmidt*, RJ Maddock, DD Johnson, CC Carr, JM Scheffler, TD Pringle, AM Stelzleni. 2019. National Beef Quality Audit-2016: Comparisons between Fed Steers/Heifers and Market Cows/Bulls for By-Product Condemnations. *Meat and Muscle Biology*, (v2-2) 101-102.
23. Psota, E. T., M. Mittek, L. C. Pérez, *T. B. Schmidt*, B. Mote. 2019. Multi-part detection and association with a fully convolutional network. *Sensors* (v19, 4) 852-856.
24. Burrack. R. M., E. M. Duffy, D. T. Yates, *T. B. Schmidt*, and J. L. Petersen. 2019. Whole blood transcriptome analysis in feedlot cattle after 35 days of supplementation with a  $\beta$ 1-adrenergic agonist. *Journal of Applied Genetics* (2020) 61:117–121. doi.org/10.1007/s13353-019-00527-6
25. Calkins, C. R., J. J. O’Daniel, G. K. Naganathan, K.B. Hart, K.I. Domenech-Perez, *T. B. Schmidt*. 2019. Potential Errors in Determination of Longissimus Muscle Area in Carcasses from Heifers Fed with or Without Zilpaterol Hydrochloride. *Meat and Muscle Biology* 1 (3), 113-113
26. Yates, T. D., J. L. Petersen, *T. B. Schmidt*, C. N. Cadaret, T. L. Barnes, R. J. Posont, and K. A. Beede. 2018. ASAS-SSR Triennial Reproduction Symposium: Looking Back and Moving Forward—How Reproductive Physiology has Evolved: Fetal origins of impaired muscle growth and metabolic dysfunction: Lessons from the heat-stressed pregnant ewe. *Journal of Animal Science*. 2987-3002

27. Harris, M. K., L. C. Eastwood, C. A. Boykin, A. N. Arnold, K. B. Gehring, D. S. Hale, C. R. Kerth, D. B. Griffin, J. W. Savell, K. E. Belk, D. R. Woerner, J. D. Hasty, R. J. Delmore Jr, J. N. Martin, T. E. Lawrence, T. J. McEvers, D. L. VanOverbeke, G. G. Mafi, M. M. Pfeiffer, *T. B. Schmidt*, R. J. Maddock, D. D. Johnson, C. C. Carr, J. M. Scheffler, T. D. Pringle, A. M. Stelzleni. 2017. National Beef Quality Audit–2016: Transportation, mobility, live cattle, and carcass assessments of targeted producer-related characteristics that affect value of market cows and bulls, their carcasses, and associated by-products. *Translational Animal Science*. 1:4; 570-584.
28. Buntyn, J. O., N. C. Burdick Sanchez, J. A. Carroll, S. E. Sieren, G. E. Erickson, S. J. Jones, and *T. B. Schmidt*. 2017. Blood chemistry and select organ weight, histology, and cardiac morphology of beef heifers supplemented with Zilpaterol Hydrochloride and exposed to a dual corticotropin-releasing hormone and vasopressin stress challenge. *J. Anim. Science* 95:5327 - 5338.
29. Buntyn, J. O., D. Steffen, N. C. Burdick Sanchez, S. E. Sieren, S. J. Jones, G. E. Erickson, J. A. Carroll, *T. B. Schmidt*. 2017. Serum blood metabolite response and evaluation of select organ weight, histology, and cardiac morphology of beef heifers exposed to a dual corticotropin-releasing hormone and vasopressin challenge following supplementation of zilpaterol hydrochloride. *J. Anim. Sci.* 95:12:5327-5338.
30. Durso, L.M., D.N. Miller, T.R. Callaway, and *T. B. Schmidt*. 2017. Tracking bacteria through the entire gastrointestinal tract of a beef steer. *Agric. Environ. Lett.* 2:170016
31. Mittek, M., E. Psota, J. Carlson, L. Pérez, *T. B. Schmidt*, and B. Mote. 2017. Tracking Group-Housed Pigs using Multi-Ellipsoid Maximization. *IET Computer Vision*
32. Carroll, J. A., *T. B. Schmidt*, T. R. Callaway, J. Wilson, and J. R. Donaldson. 2017. Use of a Novel Oleaginous Microorganism as a Potential Source of Lipids for Weanling Pigs. *Translational Animal Science* 2017 1:201-207.
33. Boykin, C. A., L. C. Eastwood, M. K. Harris, D. S. Hale, C. R. Kerth, D. B. Griffin, A. N. Arnold, J. D. Hasty, K. E. Belk, D. R. Woerner, R. J. Delmore, J. N. Martin, D. L. VanOverbeke, G. G. Mafi, M. M. Pfeiffer, T. E. Lawrence, T. J. McEvers, *T. B. Schmidt*, R. J. Maddock, D. D. Johnson, C. C. Carr, J. M. Scheffler, T. D. Pringle, A. M. Stelzleni, J. Gottlieb and J. W. Savell. 2017. National Beef Quality Audit–2016: In-plant survey of carcass characteristics related to quality, quantity, and value of fed steers and heifers. *J. Anim. Sci.* 2017 0: 0: - doi:10.2527/jas.2017.1543.
34. Boykin, C. A., L. C. Eastwood, M. K. Harris, D. S. Hale, C. R. Kerth, D. B. Griffin, A. N. Arnold, J. D. Hasty, K. E. Belk, D. R. Woerner, R. J. Delmore, J. N. Martin, D. L. VanOverbeke, G. G. Mafi, M. M. Pfeiffer, T. E. Lawrence, T. J. McEvers, *T. B. Schmidt*, R. J. Maddock, D. D. Johnson, C. C. Carr, J. M. Scheffler, T. D. Pringle, A. M. Stelzleni, J. Gottlieb and J. W. Savell. 2017. National Beef Quality Audit–2016: Survey of carcass characteristics through instrument grading assessments. *J. Anim. Sci.* 2017 95:7:3003-3011
35. Eastwood, L. C., Boykin, C. A., M. K. Harris, D. S. Hale, C. R. Kerth, D. B. Griffin, A. N. Arnold, J. D. Hasty, K. E. Belk, D. R. Woerner, R. J. Delmore, J. N. Martin, D. L. VanOverbeke, G. G. Mafi, M. M. Pfeiffer, T. E. Lawrence, T. J. McEvers, *T. B. Schmidt*, R. J. Maddock, D. D. Johnson, C. C. Carr, J. M. Scheffler, T. D. Pringle, A. M. Stelzleni, J. Gottlieb and J. W. Savell. 2017. National Beef Quality Audit–2016: Transportation, mobility and harvest floor assessment of targeted characteristics that affect quality and value of cattle, carcasses, and by-products. *Transl. Anim. Sci.* 2017 1:2:229-238
36. Buntyn, J. O., N. C. Burdick, *T. B. Schmidt*, G. E. Erickson, S. E. Sieren, S. J. Jones, and J. A. Carroll. 2017. The metabolic, stress axis, and hematology response of zilpaterol hydrochloride supplemented beef heifers when exposed to a dual corticotropin-releasing hormone and vasopressin challenge. *J. Anim. Sci.* 94: 2798 – 2810.
37. Mittek, M., E. Psota, J. Carlson, L. Pérez, *T. B. Schmidt*, and B. Mote. 2016. Health Monitoring of Group-Housed Pigs using Depth-Enabled Multi-Object Tracking. *Visual observation and analysis of Vertebrate and Insect Behavior* 2016. 2016/12: 9 – 12.
38. Bailey, E. A., J. R. Jaeger, *T. B. Schmidt*, J. W. Waggoner, L. A. Pacheco, D. U. Thomson, and K C Olson. 2016. Effects of number of viral respiratory disease vaccinations during preconditioning on health, performance, and

- carcass merit of ranch-direct beef calves during receiving and finishing. *The Professional Animal Scientist*. 32: 271 – 278.
39. Burdick Sanchez, N. C., J. A. Carroll, P. R. Broadway, H. D. Hughes, S. L. Roberts, J. T. Richeson, and *T. B. Schmidt*, and R. C. Vann. 2016. Cattle temperament influences metabolism: metabolic response to glucose tolerance and insulin sensitivity test in beef steers. *Domest. Anim. Endocrin.* 56: 85 – 95.
  40. Buntyn, J. O., J. A. Carroll, T. Smith, S. M. Falkenberg, J. D. Rivera, and *T. B. Schmidt*. 2016. Use of a lipopolysaccharide (LPS) challenge to evaluate the innate immune response of Angus heifers with genotypic differences in GeneSTAR Markers for intramuscular fat deposition. *Livestock Sci.* 188: 103 - 110.
  41. Buntyn, J. O., *T. B. Schmidt*, D. J. Nisbet, and T. R. Callaway. 2015 (Invited Review). Role of Direct-Fed Microbials in Conventional. *Annual Review. Anim. Bioscience*, 4(16.1 – 16.21).
  42. Cribbs, J. T. B. C. Bernhard, T. R. Young, M. A. Jennings, N. C. Burdick Sanchez, J. A. Carroll, T. R. Callaway, *T. B. Schmidt*, B.J. Johnson, and R. J. Rathmann. 2015. Dehydrated citrus pulp alters feedlot performance of crossbred heifers during the receiving period and modulates serum metabolite concentrations before and after an endotoxin challenge. *J. Anim. Sci.*, 93: 5791 - 5800.
  43. Broadway, P. R., J. A. Carroll, J. Brooks, J. R. Donaldson, N. C. Burdick Sanchez, *T. B. Schmidt*, T. Brown, and T. R. Callaway. 2015. Salmonella prevalence of lymph nodes and synovial fluid of orally inoculated swine. *Agriculture, Food, and Analytical Bacteriology*. 5.1:6-14.
  44. Bailey, E. A., J. R. Jaeger, *T. B. Schmidt*, J. W. Waggoner, L. A. Pacheco, D. U. Thomson, and K. C. Olson. 2015. Effects of weaning period length on growth and health of preconditioned, spring-born beef calves originating from the Great Plains I: Conventional weaning ages. *The Professional Animal Scientist*. 30:20-29.
  45. Bailey, E. A., J. R. Jaeger, *T. B. Schmidt*, J. W. Waggoner, L. A. Pacheco, D. U. Thomson, and K. C. Olson. 2015. Effects of weaning period length on growth and health of preconditioned, spring-born beef calves originating from the Great Plains II: Early weaning. *The Professional Animal Scientist*. 31:30-39.
  46. Burdick Sanchez, N. C., J. A. Carroll, J. R. Donaldson, J. O. Buntyn, and *T. B. Schmidt*. 2015. Exogenous administration of lipids to steers alters aspects of the innate immune response to endotoxin challenge. *J. Innate Immuno.* 21:512-522.
  47. Falkenberg, S. M., J. A. Carroll, T. Elsasser, T. Best, D. Keisler, J. Sartin, J. O. Buntyn, and *T. B. Schmidt*. 2013. Evaluation of endocrine and immune disruption of infectious rhinotracheitis virus (IBRV) vaccinated steers challenged with IBRV. *J. Vet. Research*. 74:1522-1529.
  48. Schuster, G. L., J. R. Donaldson, J. O. Buntyn, H. A. Duoss, T. R. Callaway, J. A. Carroll, S. M. Falkenberg, and *T. B. Schmidt*. 2013. Use of bioluminescent *Escherichia coli* to determine retention during the life cycle of the house fly, *Musca domestica* (Diptera: Muscidae). *Foodborne Pathogens and Disease*. 10(5): 442 – 447.
  49. Duoss, H. A., J. R. Donaldson, T. R. Callaway, J. A. Carroll, P. R. Broadway, J. M. Martin, S. Shields-Menard, and *T. B. Schmidt*. 2013. Survival of *Escherichia coli* O157:H7 transformed with either pAK1-lux or pXEN-13 plasmid in invitro bovine ruminal and fecal microbial fermentations. *Foodborne Pathogens and Disease*. 10(1): 1 – 5.
  50. Duoss-Jennings, H. A., *T. B. Schmidt*, T. R. Callaway, J. A. Carroll, J. M. Martin, S. A. Shields-Menard, P. R. Broadway, and J. R. Donaldson. 2013. Effect of citrus by-product on survival of O157:H7 and non-O157 *Escherichia coli* serogroups within in vitro bovine ruminal fermentation. *International Journal of Microbiology*. 2013. Article ID 398320
  51. Broadway, P. R., T. R. Callaway, J. A. Carroll, J. R. Donaldson, R. J. Rathmann, B. J. Johnson, J. T. Cribbs, L. M. Durso, D. J. Nisbet, and *T. B. Schmidt*. 2013. Evaluation of the Ruminant Bacterial Diversity of Cattle Fed Diets Containing Citrus Pulp Pellets. *Agriculture, Food and Analytical Bacteriology Journal*. 2. 4. 297 – 308.

52. Falkenberg, S. M., J. A. Carroll, D. H. Keisler, J. L. Sartin, T. Elsasser, J. O. Buntyn, P. R. Broadway, and *T. B. Schmidt*. 2013. Evaluation of the endocrine response of cattle during the relocation process. *J. Livestock Sci.* 151:203 – 212.
53. Payne, A., *T. B. Schmidt*, B. Nanduri, K. Pendarvis, J. Pittman, J. A. Thorton, J. Grissett, and J. R. Donaldson. 2012. Proteomic analysis of the response of *Listeria monocytogenes* to bile salt under anaerobic conditions. *J. Medical Micro.* 62:25 – 35.
54. Free, A. L., H. A. Duoss, T. R. Callaway, J. A. Carroll, *T. B. Schmidt*, and J. R. Donaldson. 2012. Survival of O157:H7 and non-O157:H7 serotypes of *Escherichia coli* in bovine bile salts and rumen fluid. *J. Foodborne Pathogens and Disease* 9-11: 1010 – 1014.
55. Schilling, M. W., V. Radhakrishnan, Y. Vizzer-Thaxton, K. Christensen, P. Joseph, J. B. Williams, and *T. B. Schmidt*. 2012. The effects of low atmosphere stunning and deboning time on broiler breast meat quality. *Poultry Sci.* 91: 3214 – 3222.
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57. Pittman, J. R., *T. B. Schmidt*, A. Corzo, T. R. Callaway, J. A. Carroll, and J. R. Donaldson. 2012. Effect of Stressors on the Viability of *Listeria* During an in vitro Cold-Smoking Process. *Ag. Food and Analytical Bacteriology.* 2, 3: 195 – 208.
58. Leick, C. M., J. M. Behrends, *T. B. Schmidt*, and M. W. Schilling. 2012. Impact of price and thickness on consumer selection of ribeye, sirloin, and top loin steaks. *J. Meat Science.* 91, 1: 8 – 13.
59. Burdick, N.C., J. A. Carroll, J. W. Dailey, R. D. Randel, S. M. Falkenberg, and *T. B. Schmidt*. 2012. Development of a self-contained, indwelling vaginal temperature probe for use in cattle research. *J. Thermal Biology.* 37,4: 339 – 343.
60. Berg, E. P., C. A. Stahl, M. S. Shannon, D. L. McNamara, *T. B. Schmidt*, and B. R. Wiegand. 2011. The influence of dietary protein on market barrows and gilts supplemented creatine monohydrate in conjunction with a high glycemic carbohydrate. *J. Meat Sci.* 88, 3:429 – 433.
61. Leick, C. M., J. M. Behrends, *T. B. Schmidt*, and M. W. Schilling. 2011. Consumer selection of constant-weight ribeye, top loin, and sirloin steaks. *J. Meat Science.* 87, 1: 66 – 72.
62. *Schmidt, T. B.*, M. W. Schilling, V. Battula, V. Jackson, E. Bradley, R. K. Sekhon, and T. E. Lawrence. 2010. Use of cluster analysis and preference mapping to evaluate consumer acceptability of Choice and Select bovine *M. Longissimus Lumborum* steaks cooked to various end-point temperatures. *Meat Science.* 84 (2010) 46 – 53).
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1. *Schmidt, T. B.*, and K C Olson. 2007. The nutrition or the management of nutrition and its effects on carcass merit and sensory properties. In: A guide to beef cattle nutrition. *Veterinary Clinics of North America: Food Animal Practice*. Elsevier Press. *Vet Clin. Food Anim*. 23 (2007) 151-163. •

#### Abstracts:

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8. Macek, M. J., J. W. Iliff, J. W., T. B. Schmidt, L. A. Pacheco, K C Olson, J. R. Jaeger, and D. U. Thomson. 2011. Length of weaning period but not timing of vaccination affects feedlot finishing performance and carcass characteristics of fall-weaned, ranch direct calves. Beef Cattle Research – Kansas State (Cattlemen’s Day) 4 - 10, March 4, 2011
9. Macek, M.J, J. W. Iliff, T. B. Schmidt, L. A. Pacheco, K C Olson, J. R. Jaeger, and D. U. Thomson. 2010. Length of weaning period but not timing of vaccination affects feedlot receiving performance and health of fall-weaned, ranch-direct beef calves. Beef Cattle Research – Kansas State (Cattlemen’s Day). 1 - 21, March 6, 2010.
10. Bolte, J.W. K C Olson, T. B. Schmidt, B. J. White, G. A. Milliken, N. A. Sproul, L. A. Pacheco, M. D. Thomas, J. R. Jaeger, D. U. Thomson, and R. L. Larson. 2009. Length of the ranch-of-origin weaning period Does not affect post-receiving growth or carcass merit of ranch-direct, early-weaned beef calves. Beef Cattle Research – Kansas State (Cattlemen’s Day). 11 - 17, March 6, 2009.
11. Bolte, J.W., T. B. Schmidt, N. A. Sproul, L. A. Pacheco, M. D. Thomas, M.D, K C Olson, J. R. Jaeger, D. U. Thomson, B. J. White, and R. L. Larson. 2009. Length of the weaning period affects postweaning growth, health, and carcass merit of ranch-direct beef calves weaned during the fall. Beef Cattle Research – Kansas State

(Cattlemen's Day). 1 - 10, March 6, 2009.

Technical Reports:

1. *Schmidt, T. B.* 2015. Supplementation of *Saccharomyces cerevisiae* alters the immune response during the receiving period. Lallamend Animal Nutrition.
2. *Schmidt, T. B., and J. O. Buntyn.* 2015. Stress axis and hematology cell responses in zilpaterol hydrochloride supplemented heifers exposed to a dual corticotropin-releasing hormone and vasopressin challenge. Merck Animal Health.
3. *Schmidt, T. B. and J. O. Buntyn.* 2015. Effects of feeding OmniGen – AF on immune function, feedlot performance, and carcass merit. Prince Ag Animal Nutrition.
4. *Schmidt, T. B, K. E. Moulton, and S. Willard.* 2010. Plasmid transformation of *Escherichia coli* O157:H7 with pAK1-lux gene and XEN 14 transposon: Creation of two unique biophotonic strains of E. coli O157:H7 for pre and post-harvest food safety research. Ralph E. Powe Junior Faculty Enhancement Awards Final Report.
5. *Schmidt, T.B., M. P. Keene, and C. L. Lorenzen.* 2001. Can food service customer satisfaction with beef be improved through the cooking degree of doneness communication? Final Report: Missouri Beef Improvement Council.
6. *Roeber, D. L., J. W. Savell, J. B. Morgan, T. H. Montgomery, K. E. Belk, D. B. Griffin, J. C. Brooks, T. B. Schmidt, P. K. Bates, and D. R. McKenna.* 2001. What are the costs (losses per steer/heifer) for quality defects/nonconformities identified by the National Beef Quality Audit-2000 In: G. C. Smith (Ed.) Improving the quality, consistency, competitiveness, and market-share of beef: The final report of the third blueprint for total quality management in the fed beef (slaughtered steer/heifer) industry, National Beef Quality Audit – 2000. Colorado State University, Ft. Collins; Texas A&M University, College Station; Oklahoma State University, Stillwater; and West Texas A&M University, Canyon.

**Research Funding**Current Funded Research (\$1,472,796):

1. Utilization of NUtrack Livestock Monitoring System for understanding the etiology of tail biting outbreaks in growing-finishing pigs. Collaborative effort with the University of Minnesota. 2021 USDA – AFRI Project. Funded \$299,423.
2. Changes in activity and identification of subclinical symptoms vaccinated nursery pigs challenged with *Lawsonia intracellularis* Challenge utilizing the NUtrack Livestock Monitoring System. 2021. Zoetis Pharmaceutical. Funded: \$173,373.
3. Prediction of feed intake using activity data generated by the NUtrack Livestock Monitoring System. 2021. Nebraska Department of Economic Development Project. Funded: \$125,000
4. Development of a viable real-time pig counting system using the NUtrack Livestock Monitoring System. 2021. Department of Economic Development Project. Funded: \$125,000
5. Abatement of Inflammation to combat heat stress in finishing livestock. 2021. USDA – NIFA Project. Funded \$500,000.
6. Elucidating epigenomic, physiological and behavioral targets to improve well-being and performance outcomes of acute heat stress in beef cattle. 2021. Nebraska Agricultural Experiment Station – Multistate Hatch Enhanced Funding. \$250,00.

Funded: Total awards = \$3,758,496

1. Changes in activity and identification of subclinical symptoms vaccinated nursery pigs challenged with *Lawsonia Intracellular* Challenge utilizing the NUtrack Livestock Monitoring System. 2022. Zoetis Pharmaceutical. Funded: \$173,373.
2. Utilization of computer vision as a means to understanding etiology of tail biting outbreaks in growing-finishing pigs (NUtrack). Li, Y., L. J. Johnston. *T. B. Schmidt*, and B. E. Mote. 2021. USDA – AFRI. Welfare and Well-Being of Agricultural Animals (A12251). Awarded \$600,000 – Sub-Award \$299,842 to UNL.
3. DNA Genetics: Prediction of feed intake using activity data generated by the NUtrack system. 2022. PI's: B. E. Mote, E. Psota, and *T. B. Schmidt* Nebraska Department of Economic Development. Awarded: \$125,000.
4. WholeStone: Pig Counting using NUtrack. PI's: B. E. Mote and T. B. Schmidt. 2021. Nebraska Department of Economic Development. Awarded: \$125,000.
5. Elucidating epigenomic, physiological and behavioral targets to improve beef cattle's well-being and performance outcomes of acute heat stress (NUtrack). PI's: J. Petersen, *T. B. Schmidt*, D. E. Yates, and R. Woiwode. 2021. Nebraska Agricultural Experiment Station – Multistate Hatch Enhanced Funding. \$250,000.
6. Utilization of an Advanced Computer Vision Platform (NUtrack) to Identify Changes in the Physiological and Behavioral Changes Associated with Illness and Aggressive/Damaging Behavior during the Nursery and Finisher Phase. 2019. PI. *T. B. Schmidt* (Lead Investigator) and Lindsey Hulbert; Co-Investigators E. Psota, M. Jaber-Douraki, B. Mote, and L. Pérez. National Pork Board: Awarded \$301,793.
7. Prevention of Lameness in Sows: Early Detection and Mitigation NUtrack. 2019. PI's: B. Mote, E. Psota, *T. B. Schmidt*, and L. Pérez. National Pork Board: Awarded \$100,000.
8. Novel Technologies to Identify and Monitor Indicators of Pig Health, Welfare and Productivity (NUtrack). 2019. PI: G. A. Roher; Co-Investigators: T. Brown-Brandl, L. Rempel, B. Keel, B. Mote, E. Psota, T. B. Schmidt, L. Pérez, and Y. Shi. National Pork Board: Awarded \$428,217.
9. Abatement of inflammation as a means to combat heat stress in finishing livestock. 2019. PI's: Yates, D. E., J. Peterson, and T. B. Schmidt. USDA-NIFA. Awarded \$500,000.
10. Automated computer vision system (NUtrack) for tracking individual pig activity and locomotion in nursery/finisher group housing. 2018. PI's: B. Mote, L. Pérez, E. Psota, and T. B. Schmidt. National Pork Board: Awarded \$99,998.
11. Evaluation of the Kinect v2 motion-sensing camera to develop a rapid and effective tool for identifying compromised pigs. (NUtrack). PI's: T. B. Schmidt and E. Posota, Co-PI: T. Burkey, P. Miller, L. Perez. National Pork Board. Awarded \$15,600.
12. A physiological, molecular, and whole-animal evaluation of the impact of stress on animal well-being and performance. PI: J. Peterson, Co-PI's: D. Yates, and *T. B. Schmidt*. 2016 ARD Hatch Multistate Research Enhanced. Awarded \$500,000.
13. Developmental origins of impaired muscle growth in food animals. PI: D. Yates, Co-PI's: J. Peterson and T. B. Schmidt. 2016 ARD Hatch Multistate Research Enhanced. Awarded \$400,000.
14. Elucidating the impact of  $\alpha$  - adrenergic agonist supplementation on the muscle transcriptome and physiology of ruminant livestock. PI: J. Peterson, CoPI: D. Yates, and T. B. Schmidt. Funded by ARD, Layman Seed Grant. Awarded \$27,970.
15. 2016 National Beef Quality Audit, Survey of carcass characteristics and defects present in the US cattle populations. PI: Texas A&M. Collaborators: University of Nebraska – Lincoln (*T. B. Schmidt*), Oklahoma State University, West Texas A&M University, Colorado State University, North Dakota State University, University of Florida, University of Georgia. National Cattlemen's Beef Association: Sub – Awarded \$8,000.

16. Impact of Zilpaterol Hydrochloride supplementation on the metabolic, endocrine, and hypothalamus-pituitary-adrenal axis of finished cattle. PI: T. B. Schmidt. CoPI: J. A. Carroll, S. J. Jones. Collaborators: J. O. Buntyn (PhD dissertation), S. E. Sieren. Merck Animal Health. Awarded \$125,000.
17. Dose Effect of *Saccharomyces boulardii* on inflammatory response and immune parameters of stressed receiving cattle. PI: Ty B. Schmidt, Co-PI: James MacDonald. Lallemand Inc.. 2013. Awarded \$59,998.
18. XRMEGA-10 Zero Photonic Imaging System – Equipment Grant. PI: Ty B. Schmidt, Co-Investigator: Amy Schmidt. University of Nebraska – Lincoln, Hatch Equipment Funding. 2013. Awarded \$75,000.
19. Mechanism of meat tenderness during oxidation. PI: Chris Calkins, Co-PI: Gary Sullivan and Ty B. Schmidt. National Cattlemen’s Beef Association. 2013. Awarded \$50,000.
20. Impact of feeding de-oiled wet distillers grains plus solubles on beef shelf-life. PI: Chris Calkins, Co-PI: Ty B. Schmidt, and Gary Sullivan. Nebraska Beef Council. 2012. Awarded \$48,814.
21. Assessment of *E. coli* O157:H7-pAK1-lux in vitro, ex vivo, and growth curve comparison between naturally isolated *E. coli* O157:H7 for determination of photonic properties and survivability of the transformed *E. coli* O157:H7-lux within cattle. Mississippi State University Special Research Initiative. 2010. PI: Ty B. Schmidt, Co-Investigators: Peter Ryan, Keesla Moulton, Jason Behrends, and Rand Broadway. Awarded \$40,860.
22. Comparison of growth, stability, competitive nature, and plasmid stability of two strains of *E. coli* O157:H7 (pathogenic and non-pathogenic) transformed with the XEN14 transposon. Mississippi State University Special Research Initiative. 2010. PI: Ty B. Schmidt, Co-PI: Janet R. Donaldson, Co-Investigators: Jeff Carroll, Todd Callaway, and Rand Broadway. Awarded \$39,750.
23. Plasmid Transformation of *Escherichia coli* O157:H7 with the pAK1-lux gene cassette. Oak Ridge Associated Universities Junior Faculty Enhancement Award. 2009. PI: Ty B. Schmidt, Co-Investigators: Scott Willard and Keesla Moulton. Awarded \$10,000.
24. Consumer preference of the steak surface area in the retail display case from strip loins, ribeye roll, and top sirloin when cut to a consistent weight. National Cattlemen’s Beef Association. 2008. PI: Jason Behrends, Co-Investigators: Wes Schilling, Sally Yoder, and Ty B. Schmidt. Awarded \$59,715.
25. Performance of cattle fed dried distillers grains produced from mycotoxin contaminated corn. Mississippi Corn Promotion Board. 2009. PI: Stephanie Hill, Co-PI: Ty B. Schmidt, Brian Rude, Jeff Wilkinson, and Ashli Brown. Awarded \$38,500.
26. Evaluating and decreasing the impact aflatoxins on corn for ethanol. Mississippi Corn Promotion Board. 2009. PI: Jeff Wilkinson, Co-PI: Ashli Brown, Ty B. Schmidt, Stephanie Hill, and Brian Rude. Awarded: \$60,000.
27. Willingness to purchase known tender beef steak from foodservice and retail. North Dakota Cattlemen’s Association. 2008. PI: Ty B. Schmidt, Eric Berg, and Robert Maddock. North Dakota State University Beef Systems Center of Excellence Awarded \$47,364. Contracted \$8,300 for Mississippi State University.
28. Determining the role house flies (*Musca domestica* L) play in the contamination of beef carcass through surveillance and bio-photonic evaluation. Mississippi State University Special Research Initiative. 2007. PI: Ty B. Schmidt, Co-Investigators: Peter Ryan, Greta Schuster, Keesla Moulton, and Sally Yoder. Awarded \$39,715
29. Effect of dietary lipoic acid on circulating metabolic hormones and acute phase proteins of virus challenged beef steers. University of Missouri CAFNR Health Formula Funds. 2003. PI: Eric Berg, Co-PI’s: K. C. Olson, Robert Larson, Marcia Shannon, Vern Pierce, and Cooperating PI: Michael Brown (West Texas A&M University); grant written by Ty B. Schmidt. Awarded \$22,000.
30. Consumer’s willingness to purchase guaranteed tender beef top loin steaks within a restaurant setting. MBIC Competitive Grants Proposal. 2005. PI: Ty B. Schmidt, Co-PI: Eric Berg. Awarded \$20,200.

Submitted (Not Funded)

1. Behavioral analysis and health state monitoring of group-housed pigs using depth-enabled video tracking. USDA-NIFA - Agricultural Engineering (A-1521) is a priority within the Agriculture Systems and Technology. 2016. PIs: Eric Psota, Benny Mote, Ty B. Schmidt, Lance Perez, and Thomas Burkey. Requested \$295,752.
2. Utilization of Kinect and infrared imaging systems to determine immune compromised swine prior to exhibiting clinical symptoms. PI: T. B. Schmidt and E. Posota, CoPI: T. Burkey, P. Miller, and L. Pérez. 2015. National Pork Board. Requested \$44,811.
3. Impact of Ractopamine HCL (Optaflexx) on health and wellbeing in cattle. PI: Dustin Yates, Jessica Petersen, and T. B. Schmidt. Nebraska Beef Council. Requested \$43,965.
4. Impacts of feeding dietary antioxidants on lipid oxidation in cooked beef. PI: Gary Sullivan, Chris Calkins, Ty B. Schmidt, and Jim MacDonald. 2013. Nebraska Beef Council. Requested \$37,493.
5. Improving cattle health and productivity through integrated management education. PI: A. M. Schmidt. CoPI: D. B. Taylor, D. A. Golick, K. M. Friesen, T. B. Schmidt, L. M. Durso, M. C. Vuran. USDA-AFRI. 2013. Requested \$1,000,000. – Medium Priority.
6. An assessment of United States cattle temperament to determine the impact managing temperament would have on animal health and product losses. PI: Tanner Machado (Texas A&M – Kingsville). CoPI: T. B. Schmidt, C. C. Carr (University of Florida), K. McCuiston (Texas A&M – Kingsville), M. Brown (West Texas A&M). USDA-AFRI. 2013. Requested \$249,433.
7. Identification of pathway markers associated with lung damage in bovine respiratory disease. PI: Bindu Nanduri, Co-PI: Ty B. Schmidt and Bill Epperson. USDA-AFRI. 2012: Requested \$1,000,000.
8. CAP-STEC: Coordinated Approaches to prevent Shiga Toxin-producing E. coli in Beef. USDA-NFRI. 2010. Project leader: Bushan Jayarao. Co-I: 71 Scientist from 19 US Universities, 1 Canadian University, 2 Canadian Public and Agriculture Agencies, 3 US Federal Agencies, 1 State Agency, 1 Consultancy Service, and 3 Industry Partners. Researchers from Mississippi State are: Jason Behrends, Ty B. Schmidt, Bill Epperson, Mark Lawrence, Janet Donaldson, and Bindu Nanduri.: Requested \$25,000,000.
9. CAP-BRD: A Comprehensive Project for the Amelioration of Bovine Respiratory Disease Complex. USDA-NFRI. 2010. Project leader: Christopher Chase. Co-I: Researchers from Auburn University, University of California – Davis, University of California-San Diego, University of Georgia, University of Idaho, Iowa State University, NADC, Kansas State University, Michigan State University, Mississippi State University, University of Nebraska, Ohio State University, Noble Foundation, Oklahoma State University, Virginia Tech University, South Dakota State University, and University of Wisconsin. Researchers from Mississippi State University are: Mark Lawrence, Fiona McCarthy, Bindu Naduri, Leysa Pinchuk, and Ty B. Schmidt.: Requested \$15,000,000.
10. Comparative metaproteomic analysis of gastrointestinal microbiome in the presence of enteric disease. NIH. 2009. PI: Janet Donaldson, Co-I: Mark Lawrence, Bindu Nanduri, Ty B. Schmidt, and John Brooks. Requested: \$1,938,415.
11. Development of a novel real-time archetype for monitoring E. coli O157:H7 transmission/contamination in cattle. USDA-AFRI. 2009. PI: Ty B. Schmidt, Co-Investigators: Scott Willard, Peter Ryan, Jason Behrends, Greta Schuster, and Jeff C. Carroll. \$582,077.
12. Comprehensive monitoring program for animal health status and identity preservation during transportation. USDA-AFRI. 2009. PI: J. D. Davis, Co-Investigators: J. C. Carroll, T. B. Schmidt, H. Xin, J. L. Purswell, R. S. Gates, and S. R. Hill. Requested: \$374,052.
13. Evaluation of the effect infectious bovine rhinotracheitis virus (IBRV), *Mainheimia haemolytica*, and physiological stress can have on energy re-partitioning, cytokine response, and growth-related endocrine

- function in beef cattle. Mississippi State University Research Initiation Program. 2008. PI: Ty B. Schmidt, Co-PI: Shollie Behrends. Requested \$10,000.
14. Effect of antibiotic treatment for bovine respiratory disease on pathogen shedding and antimicrobial resistance in beef steers. National Cattlemen's Beef Association. 2007. PI: Ty B. Schmidt, Co-PI: Sally Yoder, Thomas Wittum, Shollie Behrends, Carla Huston, and Chin Ling (Grant was written by Shollie Behrends). Requested \$49,995.
  15. Evaluation of respiratory distress at point of harvest and the subsequent effect on carcass quality and tenderness in beef cattle. National Cattlemen's Beef Association. 2007. PI: Ty B. Schmidt, Co-PI: Ty Lawrence, Carla Huston, Shollie Behrends, and Wes Schilling (Grant was written by Shollie Behrends). Requested \$51,324.
  16. Investigation of cotton mote as a fiber/protein source and as a supplemental carrier of energy in the production of Boer-cross meat goats. Mississippi Cotton Incorporated State Support Program. 2007. PI: Ty B. Schmidt, Co-PI: Brian Rude, Mike Martin, and Shollie Behrends (Grant was written by Shollie Behrends). Requested \$33,798.
  17. Investigation of cotton mote fed as a fiber/protein source and as a supplemental carrier for energy in stocker calves. Mississippi Cotton Incorporated State Support Program. 2007. PI: Ty B. Schmidt, Co-PI: Brian Rude, Shollie Behrends, and Jason Behrends (Grant was written by Shollie Behrends). Requested \$33,938.
  18. Effects of Weaning Management and Vaccination History on Carcass Value in Beef Steers MBIC Competitive Grants Program. 2005. PI: K C Olson, Co-PI's: Ty B. Schmidt and Eric Berg. Requested: \$28,765.
  19. Consumers' willingness to purchase known tender beef steaks within a restaurant setting. MBIC Competitive Grants Program. 2004. PI: Eric Berg, Co-PI's Ty B. Schmidt and Mike Keene. Requested \$13,900.
  20. Evaluation of the unique antioxidant lipoic acid, when supplemented to feeder cattle and its affect on immune response, metabolic rate of gain, meat quality, and shelf life. NRI-CSREES Competitive Research Proposal. 2003. PI: Eric Berg, Co-PI's K. C. Olson and Robert Larson; grant written by Ty B. Schmidt. Requested \$130,000.
  21. Descriptive analysis and external preference mapping of steaks that have been classified using instrument tenderness classification systems. Missouri Beef Improvement Council. 2002. PI: Carol Lorenzen; grant written by Ty B. Schmidt. Requested \$25,150.
  22. Calpastatin bio-sensor for meat tenderness. University of Missouri Research Board. 2001. Co-PI's: Carol Lorenzen and Sheila Grant; grant written by Ty B. Schmidt. Requested \$147,000.

## Teaching Summary

University of Nebraska – Lincoln: 60% teaching appointment

ASCI 240 – Anatomy and Physiology of Animals (4 credits)

Instructor of Record – Spring 2019 to present.

Student Enrollment							Total
	2019	2020	2021	2022	2023	2024	
<i>Enrollment</i>	63	99	75	64	60	61	422

ASCI 310 – Fresh Meats: Resident (3 credit hours)

Instructor of Record – Fall 2012 to present

ASCI 310 – Fresh Meats: Distance (3 credit hours)

Instructor of Record – Fall 2012 to 2022

ASCI 300A – Principles of Meat Evaluation, Grading and Judging (1 credit hour)

Instructor of Record – Fall 2012 to 2020



- ASCI 381 - *Beef Industry Scholars – Practicum* (2 credit hours)  
 Instructor of Record – Fall 2020 to present  
 Co-Instructor of Record – Spring 2013 to Present
- ASCI 395A – *Experiential Learning for Career Development in Animal Sciences* (2 – 4 credit hours)  
 Instructor of Record – Fall 2012 to Spring 2023
- ASCI 400A – *Advanced Meat Grading and Judging* (1 credit hour)  
 Instructor of Record – Spring 2013 to 2020
- ASCI 917 – *Advanced Fresh Meats* (3 credit hours)  
 Instructor of Record – Fall 2012 to 2019
- ASCI 918 – *Animal Growth and Development* (3 credit hours)  
 Instructor of Record – Fall 2023

Undergraduate and Graduate Advising											
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Total <sup>a</sup>
<i>Undergraduate advisee</i>	9	14	12	14	13	14	14	12	8	4	57
<i>Graduate Advisee</i>	1 <sup>b</sup>	1	1	1	2	2			2	2	3

Mississippi State University Coursework Instruction:

(40% teaching appointment)

- ADS 3213 – *Growth and Development of Livestock and Carcass Evaluation* (3 credit hours)  
 Instructor of record – Fall 2007 to Fall 2011
- ADS/FHP 3142 – *Meats Judging* (2 credit hours)  
 Instructor of Record – Spring 2008 to Spring 2011
- ADS 4222 – *Small Ruminants and Diversified Livestock* (2 credit hours)  
 Instructor of Record – Fall 2009 to Fall 2011
- ADS 4221 – *Senior Seminar* (1 credit hour)  
 Instructor of Record – Fall 2007 to Fall 2011
- ADS/PHY 8433 – *Bone, Muscle, and Fat Deposition of Livestock* (3 credit hours)  
 Instructor of Record – Fall 2008
- ADS/FNHP 4313/6313 – *Advanced Science of Muscle Foods* (3 credit hours)  
 Instructor of Record – Spring 2010 and Spring 2011

## Current Graduate Students

### Committee Chair:

- Brooke Parrish (PhD, Expected Graduation December 2024) – Committee Chair  
 Animal Science Department – University of Nebraska - Lincoln
- Storey Forester (MS, Expected Graduation May 2024) – Committee Chair  
 Animal Science Department – University of Nebraska - Lincoln
- Avery Veirreger (MS, Expected Graduation May 2024) – Committee Chair  
 Animal Science Department – University of Nebraska - Lincoln
- Aaron Holliday (MS, Expected Graduation May 2024) – Committee Chair  
 Animal Science Department – University of Nebraska - Lincoln

## Former Graduate Students

- Hayle Beers (PhD, Graduation Dec 2022) – Co-Committee Chair

Animal Science Department – University of Nebraska - Lincoln

Jessica Lancaster (MS; Graduation August 2018) – Committee Chair  
Animal Science Department – *University of Nebraska - Lincoln*

Lauren Kett (MS; Graduation August 2018) – Committee Chair  
Animal Science Department – *University of Nebraska - Lincoln*

Joe O. Buntyn (PhD; Graduation Aug 2016) – Committee Chair  
Animal Science Department – *University of Nebraska - Lincoln*  
Dissertation Title: Evaluation of the metabolic response, blood chemistry, and cardiac morphology of beef heifers supplemented with Zilpaterol Hydrochloride followed by an endocrine induced stress challenge.

Joe O. Buntyn (MS; Graduated Dec 2012) – Committee Chair  
Department of Animal and Dairy Sciences – *Mississippi State University*  
Thesis Title: Use of Lipopolysaccharide (LPS) challenge to evaluate the innate immune response of Angus heifers with genotypic differences in DNA markers for intramuscular fat deposition.

Heather Duoss (MS; Graduated May 2012) – Committee Chair  
Department of Animal and Dairy Sciences – *Mississippi State University*  
Thesis Title: Validation of biophotonically transformed pathogenic and non-pathogenic serotypes of *Escherichia coli* O157:H7 as a novel paradigm for pre-harvest food safety intervention.

Shollie Falkenberg (PhD; Graduated Aug 2011) – Committee Chair  
Department of Animal and Dairy Sciences – *Mississippi State University*  
Dissertation Title: Bovine Respiratory Disease: Understanding how stress modulates immune and growth parameters when cattle are challenged with respiratory pathogens (viral and bacterial).

Committee Member - Primary investigator of research program:

Sara Sieren: (MS, Graduated Aug 2016)  
Animal Science Department – *University of Nebraska – Lincoln*  
Thesis Title: Evaluation of hematological and serum biochemical profiles associated with the supplementation of Zilpaterol Hydrochloride to feedlot heifers.

Paul R. Broadway (MS, Graduated May 2011)  
Department of Food Science – *Mississippi State University*  
Thesis Title: Stability of biophotonic *Escherichia Coli* O157:H7 and its effectiveness as a validation tool in beef purge sampling methodologies.

Committee Member:

Zena Hicks (PhD): Animal Science Department – *University of Nebraska - Lincoln*

Rachel Gibbs (PhD): Animal Science Department – *University of Nebraska - Lincoln*

Katharine Domenech (PhD): Animal Science Department – *University of Nebraska - Lincoln*  
Graduated Aug 2016

Curtis Bittner (PhD): Animal Science Department – *University of Nebraska - Lincoln*  
December 2016)

Michelle Semler (MS) Department of Animal Science – *University of Nebraska - Lincoln*  
Graduated May 2013)

Rebecca Singleterry (MS, Graduated Dec 2010)  
Department of Biochemistry – *Mississippi State University*

Wayne Boshart (MS, Graduated August 2010)  
Department of Animal and Dairy Sciences – *Mississippi State University*

Vamsidhar Battula (MS, Graduated December 2007)

Department of Food Science – *Mississippi State University*

**Departmental Service**

University of Nebraska – Lincoln

*Departmental Graduate Committee – Member (Meat Science Faculty)*

Fall 2013 to 2022

*Departmental Undergraduate Curriculum Committee – Member (Meat Science Faculty)*

Fall 2013 to Present

*Departmental Internal Advisor Committee – Member (Meat Science Faculty)*

Fall 2021 to Present

*Block & Bridle Student Organization – Faculty Advisor*

Freshman Advisor – Fall 2013/Spring 2014

Junior Advisor – Fall 2014/Spring 2015

Senior Advisor – Fall 2015/Spring 2016

Freshman Advisor – Fall 2016/Spring 2017

*Collegiate Cattlemen's Group – Faculty Advisor*

Fall 2013 to 2016

*Animal Science Graduate Student Association – Advisor*

Spring 2013/Fall 2014

*Meats Judging Coach Graduate Students – Faculty Advisor*

Ashley Hahn – MS

2024 –

Renae Seick – BS

2018 – 2019

Jessica Lancaster – MS

2016 – 2018

Sara Sieren – MS

2015 - 2016

Brandy Cleveland – MS

2012 – 2014

**Professional Affiliations**

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<i>Journal of Animal Science</i> – Associate Editor Ruminant Section, Nutrition Division	2010 – 2013
<i>Journal of Animal Science</i> – Technical Reviewer	2003 – Present
<i>Journal of Meat Science</i> – Technical Reviewer	2004 – Present
<i>Journal of Muscle Foods</i> – Technical Reviewer	2008 – Present
<i>Journal of Food Science</i> – Technical Reviewer	2010 – Present
<i>Food and Agriculture Immunity</i> – Technical Reviewer	2010 – Present
<i>American Society of Animal Science</i> Member	1998 – Present
Animal Health Committee Member	2010 – 2013
National Meat Science and Muscle Biology Committee Member	2012 - 2015
Southern Section Meat Science Committee Member	2008 – 2011
Southern Section Meat Science Committee Chair	2011 – 2012
Southern Section Emerging Scholar Award Committee	2011 - 2013

*American Meat Science Association*

Member	1998 – Present
Quiz Bowl Committee Member	2006 – 2009
RMC Planning Committee Member	2008 – 2012
RMC Abstract Committee Chair	2012
RMC Host Committee	2015

**Activities and Achievements**


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Omtvet Innovation Award for Team Research NUtrack Livestock Monitoring System	2019
National Pork Board Swine Industry Award for Innovation	2013
Mississippi State University State Pride Award for Faculty Excellence	2010
Ralph E. Powe Junior Faculty Enhancement Award Oak Ridge Associated Universities – Plasmid transformation of <i>Escherichia coli</i> O157:H7 with the pAK1-lux gene cassette	2009
National Champion Meat Science Quiz Bowl Team Faculty Advisor: Reciprocal Meats Conference, University of Florida	2008
Reserve National Champion Meat Science Quiz Bowl Team Faculty Advisor: Reciprocal Meats Conference, University of Florida	2008
University of Missouri Harold P. Dugdale Outstanding Meat Science Graduate Student Scholarship	2002
University of Missouri Graduate Student Recruitment Committee Member	2001 – 2004
University of Missouri Intercollegiate Meats Team, Assistant Coach	2001 – 2002
West Texas A&M University Student Research Conference 3 <sup>rd</sup> Place Finish. <i>A survey of carcass and offal characteristics present in the Texas panhandle</i>	1999
West Texas A&M University Intercollegiate Meats Team, Assistant Coach	1997 – 2000
West Texas A&M Intercollegiate Meats Team, Member	1996 – 1997
Intercollegiate Meat Judging Contest: National Western Livestock Show 3 <sup>rd</sup> High Individual – Lamb Carcasses	1997
West Texas A&M University Intercollegiate Livestock Team, Member	1996
Intercollegiate Livestock Judging Contest: Southwestern Livestock Show 2 <sup>nd</sup> High Individual – Beef Cattle	1996
FFA American Farmer Degree	1993
FFA Star State American Farmer – Agribusiness Texas FFA Area I	1993