

Curriculum Vitae
Christopher S. Schauer, Ph.D.
Director and Animal Scientist, NDSU Hettinger Research Extension Center

Current Position

Director and Animal Scientist
Hettinger Research Extension Center
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Post-Secondary Education

- 2003 Ph.D., Major: Animal Science/Ruminant Nutrition; Minor: Rangeland Resources
Oregon State University, Corvallis
- 2000 M.S., Animal Science/Ruminant Nutrition, North Dakota State University, Fargo
- 1997 B.S., Animal Science, North Dakota State University, Fargo

Professional Positions, Career

- 2006-present Director and Animal Scientist, North Dakota State University
- 2015-present Section Editor, Rangeland Ecology and Management
- 2008-present Editorial Board, Journal of Animal Science and Rangeland Ecology and Management
- 2006-present Adjunct Faculty, Department of Animal Science, North Dakota State University
- 2003-2006 Post-Doctoral Research Associate, Hettinger Research Extension Center, North Dakota State University
Mentors: Dr. Kevin Sedivec and Mr. Timothy Faller
- 2000-2003 Graduate Research Assistant, Eastern Oregon Agriculture Research Center, Oregon State University; Dissertation Topic: Influence of Protein Supplementation Frequency on Cows Consuming Low-Quality Forage: Performance, Grazing Behavior, and Variation in Supplement Intake; Advisor, Dr. David Bohnert
- 1998-2000 Graduate Research Assistant, Department of Animal Sciences, North Dakota State University; Thesis Topic: Self-Limiting Supplements Fed to Cattle; Advisors, Drs. Greg Lardy and Kevin Sedivec

Administrative Responsibilities

- Director, Hettinger Research Extension Center, North Dakota State University. Supervision of 3 scientists (Wildlife and Rangeland, Agronomy, and Weed Science), 1 Extension Specialist (Beef Cattle), and 8 support staff. Annual budget responsibilities exceed \$2.5 million.
 - As Director of the Hettinger REC, one responsibility is to develop legislative priorities for research and extension. I have worked with the VP for Agricultural Affairs and SBARE to develop the HREC priorities for the past 12 years, and presented them to the legislative body at the biennial legislative session.
- NDSU Research Extension Center Association Chair.
- NDSU Research Extension Center Promotion Committee Chair. Re-wrote promotion guidelines for Ag Experiment Station Specialists, Research Professors, and Research Specialists.
- Section Editor, Rangeland Ecology and Management. Responsibility for managing reviewers of refereed journal articles.
- Principal Investigator, Co-Principal Investigator, or Project Director for a total of 20 federally-funded competitive grants from USDA and 30 competitive industry grants, 2004 to present.
- National Sheep Industry Improvement Program, Chair of Carcass Ultrasound Technical Sub-Committee. Lead nation-wide program for training and certifying sheep carcass ultrasound technicians, 2010-present.

Honors, Awards, Professional Activities, and Service

I. Honors and Awards

- North Dakota, EMS Provider of the Year, 2012
- Hettinger Area 2013 Volunteer of the Year
- First Place: Society for Range Management Poster Competition, Casper, WY, 2003
- Second Place: Western Section American Society of Animal Science Graduate Student Paper Competition, Phoenix, AZ, 2003

II. Professional Activities

- Journal of Animal Science Editorial Board, 2008-present
- Rangeland Ecology and Management Editorial Board, 2008-present
- *Ad hoc* reviewer for Journal of Animal Science, Canadian Journal of Animal Science, Livestock Science, Rangeland Ecology and Management, Small Ruminant Research, and Sheep & Goat Research Journal
- Sheep Coordinating Committees (WERA 039 and NCERA-2014) participant, 2006-present (served as Secretary and Chair)
- American Sheep Industry Association, Production, Education, and Research Committee, 2008-present
- American Polypay Sheep Association, Board of Directors, 2010-2016, Secretary
- Western Section American Society of Animal Science Graduate Student Paper Competition Committee, 2012-2017, chair
- Professional Organizations: ND Stockmen's Association, ND Lamb and Wool Producers Association, American Society of Animal Science, Society of Range Management

III. Review Committees

- University of Wyoming Agriculture Experiment Station
- NDSU Agricultural Experiment Station Research Awards Committee

- NDSU Agricultural Experiment Station CRIS review committee
- Cool Season Food Legumes
- North Central Region SARE
- Texas A & M AgriLife

IV. University Service

- NDSU Ag IT Advisory Group – Chairman
- NDSU Research Extension Center Promotion Committee, 2010-2018, Chair
- NDSU Search Committees: Sheep Extension Specialist (2x), Shepherd, Associate Director of the Agriculture Experiment Station, Animal Scientist at Carrington REC, Central Grasslands Interim Director

V. Community Service

- West River Ambulance Service EMT and Squad Leader, 2004-present
- Hettinger Cowboy Band, 1990-present
- Hettinger Chamber of Commerce – Ag Committee
- Southwest Area Health Education Center – Board of Directors and Chairman
- Adams County Fairboard – Chairman
- Hettinger Cub Scouts – Cubmaster
- Hettinger Boy Scouts – Scoutmaster
- Adams County 4-H – Volunteer
- Northern Lights Brass Choir
- West River Veterinary Foundation - Treasurer

Graduate Students

Served as major professor for 7 M.S. and 5 Ph.D. students who have successfully defended their thesis/dissertation and currently serve as major professor for 2 M.S. students. Served on 4 additional M.S. and/or Ph.D. committees.

Grants and Contracts

(PI = Principal Investigator, PD = Project Director, or CoI = Co-investigator)

Total = \$7,840,780 as PI, Co-PI, or CoI

Impacts of banamine injection on pain responses of either rubber ring castrated and tail docked or surgically castrated and burdizzo docked lambs. ND-SBARE: \$9,555.

Funded February, 2018. (PI)

Impacts of FLAXLIC SHEEP on female and male reproductive traits when supplemented prior to breeding. New Generation Feeds: \$35,000. Funded April, 2017. (PI)

Impacts of flax on female and male reproductive traits when supplemented prior to breeding in sheep. AmeriFlax: \$19,954. Funded April, 2017. (PI)

Sheep carcass ultrasound training and certification schools and curriculum.

USDA/Agriculture Marketing Service/National Sheep Industry Improvement Center: \$27,036. Funded December, 2016. (PI)

Collaborative cattle research between ARS and the NDSU-Hettinger Research Extension Center. USDA-ARS: \$36,050. Funded 6/1/2016. (PI)

Expanding the Use and Application of Quantitative Genetics in the Polypay Breed. ASI Let's Grow Committee: \$13,825. Funded July 1, 2016. (PI)

Effects of dried distillers grains and lasalocid on feedlot lamb growth, carcass traits, nutrient digestibility, and ruminal fermentation. ND-SBARE: \$8,054. Funded January, 2015. (PI)

Image processing based wool testing system. American Sheep Industry Association – Wool Council: \$22,000. Funded February, 2013. (Co-PI)

Collaborative livestock research between ARS and NDSU. USDA-ARS: \$48,500. Funded June, 2011. (PI)

Influence of dried distillers grains with solubles on ram lamb growth and reproductive traits. ND-SBARE: \$9,174. Funded January, 2014. (PI)

Effects of monensin and diet particle size on feedlot performance, carcass traits, nutrient digestibility, and incidence of coccidiosis in feedlot lambs. ND-SBARE: \$8,007. Funded January, 2013. (PI)

Periconceptual supplementation to improve lamb production. ND-SBARE: \$11,047. Funded January, 2012. (Co-I)

Influence of the Level of Dried Distiller's Grains with Solubles on Feedlot Performance, Carcass Characteristics, Blood Metabolites, and Semen Quality of Growing Rams. ND-Corn Council: \$7,230. Funded January, 2011. (PI)

Renewal on the Standing Rock Sioux Reservation: Land, Cattle, Beef, and People. AFRI: \$4,987,413. Funded January 2011. (responsible for \$1,442,574). (Co-I)

The effects of arginine on reproductive performance in sheep. ND-SBARE: \$5,864. Funded February 2010. (Co-I)

Determining Best-Fit Forage and Grazing Management Options of Beef Cattle to Enhance Resource Use for Upland Game Birds in the Semi-Arid Region of the Northern Great Plains. USDA-CSREES: \$125,000. Funded 2010. (PI)

Monitoring data collection on the Medora National Grasslands. Medora Grazing Association, 2009-2010: \$25,000. Funded 2009. (Co-I)

Monitoring data collection on the McKenzie National Grasslands. McKenzie Grazing Association, 2009-2011: \$30,000. Funded 2009. (Co-I)

Monitoring data collection on the McKenzie National Grasslands. USDA Forest Service, 2009-2011: \$50,000. Funded 2009. (Co-I)

Monitoring data collection on the Medora National Grasslands. USDA Forest Service, 2009-2011: \$50,000. Funded 2009. (Co-I)

Reintegrating Sheep into Forage Crop Production: Impacts on Arthropod Pests, Soils, and Crop Productivity. USDA-CSREES: \$5,000. Funded September, 2009. (PD)

Use of Annual forages in Beef Cattle Production Systems. USDA-CSREES: \$5,868. Funded September, 2009. (Co-I)

Interseeding Yellow-Flowered Alfalfa to Improve Northern Great Plains Rangeland. USDA-CSREES: \$3,500. Funded September, 2009. (PD)

Monitoring data collection on the Medora National Grasslands. USDA Forest Service, 2008-2009: \$25,000. Funded 2008. (Co-I)

Influence of level of distillers grains plus solubles on animal performance, carcass characteristics, sulfur balance and ruminal hydrogen sulfide gas concentrations in ruminants. ND-SBARE: \$17,040. Funded January, 2009. (PI)

Monitoring data collection on the Grand River National Grasslands. USDA Forest Service, 2008-2009: \$35,000. Funded 2008. (Co-I)

Habitat Factors for Sharp-tailed Grouse – Grand River National Grasslands. USDA-Forest Service: \$100,000. Funded July, 2008. (Co-I)

Monitoring data collection on the Medora National Grasslands. USDA Forest Service 2008-2010: \$25,000. Funded 2008. (Co-I)

Influence of Metabolizable Protein Supplementation in Late Pregnancy on Offspring Feed Efficiency, Carcass Quality and Fertility in Sheep: USDA-National Research Initiative: \$350,000. Funded October, 2008. (Co-I)

Impacts of a Corn and Distillers Grain Natural Feeding System on Growth Performance, Carcass Characteristics, and Production Costs of Spring Born Calves. ND-SBARE and ND Corn Council: \$28,000. Funded June, 2008. (Co-I)

Reducing Costs to Livestock Producers: VLSA (Very Large Scale Aerial) Imagery Compared to Traditional Range Monitoring Field Methods. ND-SBARE: \$7,000.

Funded 4/4/08. (Co-I)
 Monitoring data collection on the McKenzie National Grasslands. USDA Forest Service, 2007-2008: \$15,000. Funded 2007. (Co-I)
 Monitoring data collection on the McKenzie National Grasslands. McKenzie Grazing Association, 2007-2009: \$30,000. Funded 2007. (Co-I)
 Overcoming Challenges Associated with Natural Lamb and Beef Production. USDA-CSREES: \$124,988. Funded October, 2007. (Co-I)
 The proposed use of sildenafil citrate (Viagra) for enhancing pregnancy rates and embryo survival in Rambouillet ewes outside the normal breeding season. ND-SBARE: \$17,045. Funded February, 2007. (Co-I)
 Baseline vegetation data collection – Grand River National Grasslands: Forest Service. USDA-Forest Service: \$90,000. Funded July, 2006. (Co-I)
 Baseline vegetation data collection – Grand River National Grasslands: Grand River Grazing Association. Grand River Grazing Association: \$10,000. Funded July, 2006. (Co-I)
 Value Added Animal Production and Feeding Systems for the Northern Great Plains: USDA/ARS: \$227,035. Funded September, 2006. (Co-I)
 Agrosecurity: Disease surveillance and public health. USDA: \$106,448. Funded September, 2006. (PD)
 Eradication of ovine scrapie TSE. USDA-ARS: \$45,000. (PD)
 Collaborative livestock research between ARS and NDSU. USDA-ARS: \$10,000. Funded October, 2006. (PI)
 Effect of backgrounding ADG on cattle carcass quality. USDA-CSREES: \$18,019. Funded April, 2006. (Co-I)
 Economics of feeding cull cows using different management strategies. USDA-CSREES: \$149,845. Funded April, 2006. (Co-I)
 Profitable calf backgrounding integrating annual forage crops. USDA-CSREES: \$139,023. Funded November, 2005. (Co-I)
 Incorporating sheep into dry land grain production systems: Impacts on fallow management, soil characteristics, and animal performance. USDA-CSREES: \$121,598. Funded November, 2005. (PD)
 Replacement of corn in a corn and alfalfa based finishing ration for lambs with dried distillers grains. North Dakota Corn Utilization Council: \$1,500. Funded March, 2005. (PI)
 Evaluating Environmental and Economic Consequences of Multiple-Use Management of Agricultural Lands in the Northern Great Plains. USDA-National Research Initiative: \$465,000. Funded, March, 2005. (Co-I)
 Protein supplementation of low-quality forage: Influence and frequency of supplementation on ruminant performance and nutrient utilization. ND-SBARE: \$13,190. Funded. December, 2004. (PI)
 Development of high Selenium lamb as a human health food. USDA-CSREES: \$125,972. Funded. October, 2004. (Co-I)
 The effect of calendar date on in situ NDF and CP degradation characteristics of forage kochia (*Kochia prostrata*). AAA Land and Livestock: \$1000. Funded. June, 2002. (PI)

Publications

Senior/Corresponding author and/or graduate student advisory indicated by “*”.

1. Crane, A.R., R.R. Redden, M.S. Crouse, J.D. Kirsch, J.E. Held, K.C. Swanson, and **C.S. Schauer***. 2018. Influence of dried distiller’s grains with solubles on ram lamb growth and reproductive traits. *J. Anim. Sci.* 96:1484-1494. doi: 10.1093/jas/sky031
2. Crane, A.R., R.R. Redden, K.C. Swanson, B.M. Howard, T.J. Frick, K.R. Maddock-Carlin, and **C.S. Schauer***. 2017. Effects of dried distiller’s grains with solubles and

- lasalocid on feedlot lamb growth, carcass traits, nutrient digestibility, ruminal fluid volatile fatty acid concentrations, and ruminal hydrogen sulfide concentration. *J. Anim. Sci.* 95:3198-3205. doi: 10.2527/jas2017.1369
3. Geaumont, B.A., K.K. Sedivec, and **C.S. Schauer***. 2017. Ring-necked pheasant use of post-conservation reserve program lands. *Rangeland Ecol. Manage.* 70:569-575. doi: 10.1016/j.rama.2017.04.003
 4. Van Emon, M.L., K.A. Vonnahme, S.R. Eckerman, P.T. Berg, K.R. Maddock Carlin, and **C.S. Schauer***. 2017. Effects of metabolizable protein supplementation to ewes during late gestation on wether lamb feedlot performance, carcass characteristics, and nitrogen balance. *Small Ruminant Res.* 150:118-125. doi: 10.1016/j.smallrumres.2017.03.014
 5. Swanson, T.J., L.A. Lekatz, M.L. Van Emon, G.A. Perry, **C.S. Schauer**, K.R. Maddock Carlin, C.J. Hammer, and K.A. Vonnahme. 2017. Supplementation of metabolizable protein during late gestation and fetal number impacts ewe organ mass, maternal serum hormone and metabolite concentrations, and conceptus measurements. *Dom. Anim. Endo.* 58:113-125. doi: 10.1016/j.domaniend.2015.08.002
 6. Crane, A.R., R.R. Redden, M.L. VanEmon, T.L. Neville, L.P. Reynolds, J.S. Caton, and **C.S. Schauer***. 2016. Impacts of supplemental arginine on the reproductive performance of fall lambing ewes. *J. Anim. Sci.* 94:3540-3549. doi: 10.2527/jas2016.0379
 7. Olson, K.C., **C.S. Schauer**, C. Engel, J.J. Kincheloe, J.R. Brennan, and B.L. Hauptman. 2016. Effects of Grazing on Rangeland with Prairie Dog Colonies on Cattle Nutrition and Performance: A Progress Report. *Rangelands.* 38(1):29-33.
 8. Misar, C., B. Arvid, P. Johnson, R. Gates, **C.S. Schauer**, and J. Rickertsen. 2016. Establishment and persistence of yellow-flowered alfalfa no-till interseeded into crested wheatgrass stands. *Agron. J.* 108:141-150.
 9. Stackhouse, J.W., **C.S. Schauer**, and B.A. Geaumont. 2015. Use of annual forage crops as a late-season forage for pregnant ewes, insect habitat, and to improve soil health. *Sheep & Goat Res J.* 30:6-12.
 10. Lekatz, L.A., T.J. Swanson, L.E. Comacho, M.L. Van Emon, **C.S. Schauer**, K.R. Maddock Carlin, C.J. Hammer, and K.A. Vonnahme. 2015. Maternal metabolizable protein restriction during late gestation on uterine and umbilical blood flows and maternal and fetal amino acid concentrations near term in sheep. *Anim. Repro. Sci.* 158:115-125.
 11. Van Emon, M.L., **C.S. Schauer***, S.R. Eckerman, K.R. Maddock-Carlin, and K.A. Vonnahme. 2015. Supplementing metabolizable protein to ewes during late gestation: II. Effects on ewe lamb performance and reproductive efficiency. *J. Anim. Sci.* 93:1332-1339.
 12. Crane, A.R., R.R. Redden, P.B. Berg, and **C.S. Schauer***. 2014. Effects of diet particle size and lasalocid on feedlot performance, carcass traits, and N balance in feedlot lambs. *Sheep & Goat Res. J.* 29:17-23.
 13. Van Emon, M.L., **C.S. Schauer***, L.A. Lekatz, S.R. Eckerman, K. Maddock-Carlin, K.A. Vonnahme. 2014. Supplementing metabolizable protein to ewes during late gestation: I. Effects on ewe performance and offspring performance from birth to weaning. *J. Anim. Sci.* 92:332-338.
 14. Van Emon, M.L., K.A. Vonnahme, P.T. Berg, R.R. Redden, M.M. Thompson, J.D. Kirsch, and **C.S. Schauer***. 2013. Influence of the level of dried distillers grains with solubles on feedlot performance, carcass characteristics, serum testosterone concentrations, and spermatozoa motility and concentration of growing rams. *J. Anim. Sci.* 91:5821-5828.
 15. Kronberg, S.L., and **C.S. Schauer**. 2013. Cattle and sheep develop preference for drinking water containing grape seed tannin. *Animal.* DOI: 10.1017/S1751731113001262.
 16. McGuire, D.L., D.W. Bohnert, **C.S. Schauer**, S.J. Falck, and R.F. Cooke. 2013. Daily and alternate day supplementation of urea or soybean meal to ruminants consuming low-

- quality cool-season forage: I. Effects on efficiency of nitrogen use and nutrient digestion. *Livestock Sci.* 155:205-213.
17. Cappellozza, B.I., Bohnert, D.W., **C.S. Schauer**, S.J. Falck, E.S. Vanzant, D.L. Harmon, and R.F. Cooke. 2013. Daily and alternate day supplementation of urea or soybean meal to ruminants consuming low-quality cool-season forage: II. Effects on ruminal fermentation. *Livestock Sci.* 155:214-222.
 18. Eckerman, S.R., G.P. Lardy, M.M. Thompson, M.L. VanEmon, B.W. Neville, P.T. Berg, and **C.S. Schauer***. 2013. Effects of increasing dosage of zeranol implants on lamb growth, carcass characteristics, blood hormones, and nitrogen metabolism. *J. Anim. Sci.* 91:986-994.
 19. Gearhart, A.L., D.T. Booth, K.K. Sedivec, and **C.S. Schauer***. 2013. Use of Kendall's Coefficient of Concordance to assess agreement among observers of very high resolution imagery. *Geocarto International.* 28(6):517-526.
 20. Kronberg, S.L., E.J. Scholljegerdes, E.J. Murphy, R.E. Ward, T.D. Maddock, and **C.S. Schauer**. 2012. Treatment of flaxseed to reduce biohydrogenation of α -linolenic acid by ruminal microbes in sheep and cattle and increase n-3 fatty acid levels in red meat. *J. Anim. Sci.* 90:4618-4624.
 21. Neville, B.W., G.P. Lardy, K.K. Karges, S.R. Eckerman, P.T. Berg, and **C.S. Schauer***. 2012. Interaction of corn processing and distillers dried grains with solubles on health and performance of steers. *J. Anim. Sci.* 90:560-567.
 22. Neville, B.W., G.P. Lardy, K.K. Karges, L.A. Kirschten, and **C.S. Schauer***. 2011. Sulfur intake, excretion, and ruminal hydrogen sulfide concentrations in lambs fed increasing concentrations of distillers dried grains plus solubles. *Sheep & Goat Res. J.* 26:13-19.
 23. Saevre, C.B., J.S. Caton, J.S. Luther, A.M. Meyer, D.V. Dhuyvetter, R.E. Musser, J.D. Kirsch, M. Kapphahn, D.A. Redmer, and **C.S. Schauer***. 2011. Effects of rumen-protected arginine supplementation on ewe serum amino acid concentration, circulating progesterone, and ovarian blood flow. *Sheep & Goat Res. J.* 26:8-12.
 24. Eckerman, S.E., G.P. Lardy, M.M. Thompson, B.W. Neville, M.L. VanEmon, P.T. Berg, and **C.S. Schauer***. 2011. Growth and carcass characteristics of conventionally raised lambs versus naturally raised lambs. *Sheep & Goat Res. J.* 26:1-7.
 25. **Schauer***, **C.S.**, M.L. VanEmon, M.M. Thompson, D.W. Bohnert, J.S. Caton, and K.K. Sedivec. 2010. Protein supplementation of low-quality forage: Influence of frequency of supplementation on ruminant performance and nutrient utilization. *Sheep & Goat Res. J.* 25:66-73.
 26. Scholljegerdes, E.J., W. J. Hill, H. T. Purvis, L. A. Voigt, and **C. S. Schauer**. 2010. Effects of supplemental organic cobalt on nutrient digestion and nitrogen balance in lambs fed forage-based diets. *Sheep & Goat Res. J.* 25:74-77.
 27. Geaumont, B.A., K.K. Sedivec, **C.S. Schauer***. 2010. Ring-necked Pheasant Nest Parasitism of Sharp-tailed Grouse Nests in Southwest North Dakota. *The Prairie Naturalist.* 42(1/2):73-75.
 28. Neville, B.W., **C.S. Schauer***, K. Karges, M.L. Gibson, M.M. Thompson, L.A. Kirschten, N.W. Dyer, P.T. Berg, and G.P. Lardy. 2010. Effect of thiamine concentration on animal health, feedlot performance, carcass characteristics, and ruminal hydrogen sulfide concentrations in lambs fed diets based on 60% distillers dried grains plus solubles. *J. Anim. Sci.* 88:2444-2455.
 29. Loken, B., R. Maddock, M. Stamm, **C. Schauer**, I. Rush, S. Quinn, and G. Lardy. 2009. Growing rate of gain on subsequent feedlot performance, meat, and carcass quality of beef steers. *J. Anim. Sci.* 87:3791-3797.
 30. **Schauer***, **C.S.**, M.M. Stamm, T.D. Maddock, and P.B. Berg. 2008. Feeding 60% of lamb finishing rations as dried distillers grains results in acceptable performance and carcass quality. *Sheep & Goat Res. J.* 23:15-19.

31. Windorski, E.J., **C.S. Schauer***, A.K. Wurst, E.K. Inskip, and J.S. Luther. 2008. Effects of Melengestrol Acetate and PG600 on Fertility in Rambouillet Ewes Outside the Normal Breeding Season. *Theriogenology*. 70:227-232.
32. Evoniuk, J.M., P.T. Berg, M.L. Johnson, D.M. Larson, T.D. Maddock, C.L. Stoltenow, **C.S. Schauer**, K.I. O'Rourke, D.A. Redmer. 2007. Associations between genotypes at codon 171 and 136 of the prion protein gene and production traits in market lambs. *Am. J. Vet. Res.* 68:1073-1078.
33. Carpinelli, M.F., **C.S. Schauer**, D.W. Bohnert, S.P. Hardegree, S.J. Falck, and T.J. Svejcar. 2005. Effect of ruminal incubation on perennial pepperweed germination. *Rangeland Ecol Manage.* 58:632-636.
34. **Schauer, C.S.**, D.W. Bohnert, D.C. Ganskopp, C.J. Richards, and S.J. Falck. 2005. Influence of protein supplementation frequency on cows consuming low-quality forage: Performance, grazing behavior, and variation in supplement intake. *J. Anim. Sci.* 83:1715-1725.
35. Fisher, M.J., D.W. Bohnert, C.J. Ackerman, **C.S. Schauer**, T. DelCurto, A.M. Craig, E.S. Vanzant, D.L. Harmon, and F.N. Schrick. 2004. Evaluation of perennial ryegrass straw as a forage source for ruminants. *J. Anim. Sci.* 82:2175-2184.
36. Currier, T.A., D.W. Bohnert, S.J. Falck, **C.S. Schauer**, and S.J. Bartle. 2004. Daily and alternate day supplementation of urea or biuret to ruminants consuming low-quality forage: II. Effects on site of digestion and microbial efficiency in steers. *J. Anim. Sci.* 82:1518-1527.
37. Currier, T.A., D.W. Bohnert, S.J. Falck, **C.S. Schauer**, and S.J. Bartle. 2004. Daily and alternate day supplementation of urea or biuret to ruminants consuming low-quality forage: III. Effects on ruminal fermentation characteristics in steers. *J. Anim. Sci.* 82:1528-1535.
38. **Schauer, C.S.**, D.W. Bohnert, M.F. Carpinelli, and S.J. Falck. 2004. Nutritional and seed responses of Forage Kochia to ruminal incubation. *Rangelands*. 26:8-11.
39. **Schauer, C.S.**, G.P. Lardy, W.D. Slinger, M.L. Bauer, and K.K. Sedivec. 2004. Self-limiting supplements fed to cattle grazing native mixed-grass prairie in the northern Great Plains. *J. Anim. Sci.* 82:298-306.
40. Bohnert, D.B., **C.S. Schauer**, T. DelCurto. 2002. Influence of Rumen Protein Degradability and Supplementation Frequency on Performance and Nitrogen use in Ruminants Consuming Low-Quality Forage: Cow Performance and Efficiency of Nitrogen Use in Wethers. *J. Anim. Sci.* 80:1629-1637.
41. Bohnert, D.B., **C.S. Schauer**, M.L. Bauer, and T. DelCurto. 2002. Influence of Rumen Protein Degradability and Supplementation Frequency on Steers Consuming Low-Quality Forage: I. Site of Digestion and Microbial Efficiency. *J. Anim. Sci.* 80:2967-2977.
42. Bohnert, D.B., **C.S. Schauer**, S.J. Falck, and T. DelCurto. 2002. Influence of Rumen Protein Degradability and Supplementation Frequency on Steers Consuming Low-Quality Forage: II. Ruminal Fermentation Characteristics. *J. Anim. Sci.* 80:2978-2988.

Manuscripts Submitted or in Preparation

1. Lekatz, L.A., P. Shukla, S.T. O'Rourke, **C.S. Schauer**, M.L. VanEmon, K.C. Maddock-Carlin, and K.A. Vonnahme. Maternal metabolizable protein restriction during gestation affects the vascular function of maternal and fetal placental arteries in sheep. *Placenta*. (**SUBMITTED**).
2. Luther, J.S., C.S. Saevre, D.A. Redmer, J.S. Caton, L.P. Reynolds, G. Wu, and **C.S. Schauer***, J. Luther. Impacts of L-Arginine on ovarian function and reproductive performance in ewes. *Reproduction*. (In preparation).

3. Saevre, C., J. Luther, D. Redmer, J. Caton, and **C.S. Schauer***. Effects of L-Arginine on ovarian function and reproductive performance at the time of maternal recognition of pregnancy in ewes. *J. Anim. Sci.* (In preparation).

Proceedings

1. Crane, A.R., R.R. Redden, M.S. Crouse, J.D. Kirsch, J.E. Held, and **C.S. Schauer**. 2017. Influence of dried distiller's grains with solubles on spermatozoa morphological abnormalities of ram lambs. *J. Anim. Sci. Proc.* 68:304-309.
2. Mansour, H.H., A. Reyaz, V.A. Valkov, L.A. Lekatz, M.L. VanEmon, **C.S. Schauer**, and K.A. Vonnahme. 2017. Effects of metabolizable protein supply and fetal number on placental binucleate cells in pregnant sheep during late gestation. *J. Anim. Sci. Proc.* 68:63-65.
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