

MARCY A. WARD, Ph.D.

New Mexico State University
Department of Extension Animal Science & Natural Resources
MSC 3AE, P.O. Box 30003
Las Cruces, NM 88003
757-646-5947
maward@nmsu.edu

Education:

Ph.D., Animal Science (Ruminant Nutrition)

North Dakota State University, Fargo, North Dakota. 2002 – 2005

Dissertation: “Effects of dietary restriction and selenium supply on maternal and fetal tissue selenium distribution, metabolic hormones, and intestinal growth and cellularity”

Advisor: Dr. Joel Caton

M.S., Animal Science (Ruminant Nutrition)

New Mexico State University, Las Cruces, New Mexico. 1991 - 1993

Thesis: “Effects of sodium sulfate, methionine, or cottonseed meal additions on in vitro gas production using inoculum sources depleted in nitrogen over an extended period of time”

Advisor: Dr. Mark Petersen

B.S., Animal Science (Science Option)

Colorado State University, Ft. Collins, Colorado. 1988 – 1990

Montana State University, Bozeman, Montana. 1986 - 1988

Skills

Teaching:

- Develop lectures, exams, and assignments appropriate for the material to be learned.
- Create visuals that students can focus on and learn from.
- Utilize Power Point programs and other audio or visual tools for lectures and educational seminars.
- Communicate technical information that is clearly understood by a wide range of audiences.
- Develop a curriculum of course requirements that best suite today’s college student.
- Utilize GrowSafe® Feeding Systems data collection for student and producer education purposes.

Professional:

- Write scientific and extension publications.
- Delegate responsibilities through proper supervision.
- Organize and conduct professional meetings, seminars, and educational events.
- Accomplish goals with a group or as an individual.
- Manage a bull test development center and production sale for seedstock producers.
- Devising, communicating, and implementing new ideas for programs that will improve and organize business strategies.
- Feed and product inventory management.
- Retail consulting for small agriculturally related businesses.
- Create websites and promotional opportunities for small businesses.
- Organization and presentation of state extension educational programs for cattle producers, horse owners, and 4-H groups.

Livestock and Forage Management:

- Handling and processing – sheep, cattle, and horses.
- Administer animal health practices.
- Evaluate animal health and structural soundness.
- Carcass evaluation through ultrasound technology.
- Ration balancing for all stages of production for beef, dairy, sheep, and horses.
- Estrus synchronization and artificial insemination techniques in cattle.
- Evaluate range condition, productivity, and stocking rates.
- Forage production, harvest, and storage.
- Processing harvested grain to be priced and stored in a grain elevator.
- Utilize pasture systems for forage and livestock management.

Technical:

- Design and conduct large animal experiments focused on improving productivity and to better understand certain biological mechanisms.
 - Laboratory Analysis – proximate analysis techniques, nitrogen, spectrophotometric analysis, microbial in vitro cultures, tissue RNA, DNA, and protein quantification, immunohistology techniques.
 - Experimental surgery – blood sampling and processing, complete necropsies, and ruminal cannulations.
 - In vivo studies – digestion and metabolism, intake, in situ, growth, and animal production.
 - Herbage assessment – in vivo, diet sampling, quadrat clipping, transect counts, and plant taxonomy.
 - Data collection, management, and analysis.
 - Statistical analysis of data using spreadsheet formulation, and SAS
 - Interpretation and publication of research results.
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Experience

Teaching:

Instructor and Beef Program Director: Colby Community College, Colby, KS

Sept 2005 – May 2013

- Basic and Applied Nutrition Courses
- Beef Production Courses
- Farm and Ranch Management Techniques Courses
- Artificial Insemination Course
- Feedlot Management Courses
- Range Management Course

Instructor: North Dakota State University, Fargo, ND

August 2004 – 2005

- Equine nutrition and physiology
- Horse production

Graduate assistant: North Dakota State University, Fargo, ND

August 2002 – 2005

- Feeds and Feeding
- Fundamentals of Nutrition

Graduate Assistant: New Mexico State University, Las Cruces, NM

August 1991 – October 1993

- Feeds and Feeding
- Beef Production
- Anatomy Physiology

Extension:

Extension Livestock Specialist: New Mexico State University

2013- Present

Co-Facilitator/Speaker: North Dakota Cow Calf Management School

2004-2005

Co-Facilitator/Speaker: NDSU Horse Fair, Fargo, ND

2004-2005

Project Judge: Cass County Achievement Days, Fargo, ND

2003-2004

Judge: Butler County Fair, El Dorado, KS

2000-2001

Industry:

Day work: Eagle Creek Ranch, Alcova, WY
May 2002-August 2002

Assistant manager: Douglass Grain and Feed, Douglass, KS
May 2001 – May 2002

Pen manager: El Dorado Livestock Sales, El Dorado, KS
February 2001 – May 2002

Self-employed: Double Diamond Services, Latham, KS
March 2000 – May 2002

District Manager: Purina Mills, Inc., Wichita, KS and Ft. Worth TX
October 1993 – October 1999

Hired help: Roberts Red Angus, Las Cruces, NM
1991-1992

Day Work: Sun Land and Cattle Company, Alcova, WY
Summers 1985-1990

Research:

Graduate assistant: North Dakota State University, Fargo, ND
August 2002 – 2005

Graduate Assistant: New Mexico State University, Las Cruces New Mexico
August 1991 – October 1993

Laboratory Assistant: Colorado State University, Ft. Collins, Colorado
September 1988 – December 1990.

Honors:

- Beef Backer Award (New Mexico Beef Council) NMYRMC - 2016
- Graduate School Research Award for Outstanding Teaching in the College of Agriculture, Food Systems, and Natural Resources (2005)
- NDSU Animal and Range Science Graduate Student Organization Scholarship (2005)
- Arlon Hazen Scholarship/North Dakota State Livestock Endowment (2003, and 2004).
- Gamma Sigma Delta Honorary Fraternity
- Dean's List 1990
- Alpha Zeta Honorary Fraternity

Grants:

- **National Science Foundation Advanced Technical Education Grant 2011**
 - *Digital Cattle Feed Efficiency Data Technician Development Program*
- **Kansas Board Of Regents Perkins Funding**
 - *Aloka Ultrasound Machine with Reproductive Transducer - 2006*
 - *Carcass Transducer -2007*

Committees and Offices Held:

- New Mexico Cattle Growers Assn: Cattlemen's College Committee
- NMSU Extension Specialist Assn: President (2016)
- Western Section American Society of Animal Science: Beef Symposium Committee (2015- present)
- Beef Commodity Board: Kansas Farm Bureau
- Advisor: Colby Community College's Collegiate Farm Bureau Organization
- Curriculum committee: in charge of developing a structured Equine Science major and minor option within the NDSU Department of Animal and Range Science.
- Search committees: NDSU Department of Animal and Range Sciences, Colby Community College, and New Mexico State University
- NDSU Animal and Range Graduate Student Organization – President (2003-2005)
- NDSU Animal and Range Graduate Student Organization – Treasurer (2002)

Professional and Community Memberships:

- Lions Club – Gem, KS
- Kansas Farm Bureau – Thomas County
- American Society of Animal Science
- Latham City Council, Latham, KS (1998 – 2001)

Publications

Refereed Journals:

Neville TL, Redmer DA, Borowicz PP, Reed JJ, Ward MA, Johnson ML, Taylor JB, Soto-Navarro SA, Vonnahme KA, Reynolds LP, Caton JS. 2010. Maternal dietary restriction and selenium supply alters messenger ribonucleic acid expression of angiogenic factors in maternal intestine, mammary gland, and fetal jejunal tissues during late gestation in pregnant ewe lambs. *J Anim Sci.* 88:2692-702.

Lekatz LA, Ward MA, Borowicz PP, Taylor JB, Redmer DA, Grazul-Bilska AT, Reynolds LP, Caton JS, Vonnahme KA. 2010. Cotyledonary responses to maternal selenium and dietary restriction may influence alterations in fetal weight and fetal liver glycogen in sheep. *Anim Reprod Sci.* 117:216-25.

- Ward, M. A., J. S. Caton, J. B. Taylor, S. Soto-Navarro, D. A. Redmer, and L.P. Reynolds. 2008. Effect of level and source of selenium on maternal and fetal metabolic hormones in pregnant ewe lambs. *J Anim Sci.* 86:1254-62.
- Neville TL, Ward MA, Reed JJ, Soto-Navarro SA, Julius SL, Borowicz PP, Taylor JB, Redmer DA, Reynolds LP, Caton JS. 2008. Effects of level and source of dietary selenium on maternal and fetal body weight, visceral organ mass, cellularity estimates, and jejunal vascularity in pregnant ewe lambs. *J Anim Sci.* 86:890-901.
- Reed JJ, Ward MA, Vonnahme KA, Neville TL, Julius SL, Borowicz PP, Taylor JB, Redmer DA, Grazul-Bilska AT, Reynolds LP, Caton JS. 2007. Effects of selenium supply and dietary restriction on maternal and fetal body weight, visceral organ mass and cellularity estimates, and jejunal vascularity in pregnant ewe lambs. *J Anim Sci.* 85:2721-33.
- Grazul-Bilska, A. T., D. Pant, J. S. Luther, P.P. Borowicz, C. Navanukraw, J. Caton, M. Ward, D. A. Redmer, and L. P. Reynolds. 2006. Pregnancy rates and gravid uterine parameters in naturally bred ewes and ewes after transfer of in vitro produced embryos, and in single, twin and triplet pregnancies. *J. Anim Reprod Sci.* 92:268-83.
- Shellito, S. M., M. A. Ward, G. P. Lardy, M. L. Bauer, and J. S. Caton. 2006. Effects of concentrated separator by-product on intake, ruminal fermentation, digestion, and microbial efficiency in beef steers fed grass hay. *J. Anim. Sci.* 84:1535–1543.

Proceedings:

- Ward, M. A..(2017). *Using EPD's as a Genetic Tool to Improve Herd Genetics.* Proc SWBS Jan. 11-12, 2017.
- Ward, M. A..(2016). *How To Properly Castrate Beef Calves.* Proc INLSD May 11-13, 2016.
- Ward, M. A..(2014). *To Restock or Not?* Proc INLSD May 14-16, 2014.
- Ward, M. A..(2014). *Finding and Using the Right Kind of Females.* Proc SWBS Jan. 9-10, 2014.
- Ward, M. A.. (2013) *Explanation of EPDs and Genomics and how they can be used as a Selection Tool.* Proc Ag Days Degree Sept. 6-7, 2013.
- Ward, M. A.. (2013) *Animal Welfare in the Eye of the Consumer.* Proc Ag Days Degree Sept. 6-7, 2013.

Caton, J. S., K. A. Vonnahme, D. A. Redmer, P. P. Borowicz, M. A. Ward, C. E. Oliver, J. J. Reed, M. L. Johnson, M. L. Bauer, and L. P. Reynolds. 2005. Effects of maternal nutrition on intestinal growth, development, and vascularity in ruminants. Colorado Nutrition Roundtable. Colorado State University, Ft. Collins, CO.

Ward, M. A., J. S. Caton, J. B. Taylor, D. M. Hallford, J. J. Reed, P. B. Borowicz, K. A. Vonnahme, D. A. Redmer, and L.P. Reynolds. 2005. Effect of nutrient restriction and dietary selenium (Se) on maternal and fetal metabolic hormones in pregnant ewe lambs. (pp. 421-425) 56. Proc. Western Sec. A.S.A.S. Las Cruces, NM.

Ward, M. A., J. S. Caton, J. B. Taylor, J. J. Reed, P. B. Borowicz, K. A. Vonnahme, D. A. Redmer, and L.P. Reynolds. 2005. Effect of nutrient restriction and dietary Se on growth and estimates of cellularity in jejunal, placental, and mammary tissues in pregnant ewe lambs. 56:417-419. Proc. Western Sec. A.S.A.S. Las Cruces, NM.

Ward, M. A., J. S. Caton, J. B. Taylor, J. J. Reed, P. B. Borowicz, K. A. Vonnahme, M. Kapphahn, K. Freeberg, D. A. Redmer, and L.P. Reynolds. 2005. Effect of nutrient restriction and dietary selenium on selenium concentrations in maternal and fetal tissues in pregnant ewe lambs. 56: 437-441. Proc. Western Sec. A.S.A.S. Las Cruces, NM.

Ward, M. A., J. S. Caton, J. B. Taylor, S. Soto-Navarro, K. A. Vonnahme, J. J. Reed, D. A. Redmer, and L.P. Reynolds. 2005. Effect of level and source of dietary selenium (Se) on maternal and fetal Se concentrations in pregnant ewe lambs. 56: 413-416. Proc. Western Sec. A.S.A.S. Las Cruces, NM.

Ward, M. A., J. S. Caton, B. Taylor, T. L. Lawler, S. Soto-Navarro, D. A. Redmer, and L.P. Reynolds. 2004. Effect of level and source of selenium on maternal and fetal metabolic hormones in pregnant ewe lambs. 55:367-369. Proc. Western Sec. A.S.A.S., Corvallis, OR.

Ward, M. A., M. K. Petersen, D. V. Dhuyvetter, and M. D. Gambill. 1993. Effects of sodium sulfate, DL-methionine or cottonseed meal additions on invitro using inoculum sources depleted in nitrogen over and extended period of time. 44:409-412. Proc. Western Sec. A.S.A.S., Spokane, WA.

Ward, M. A., M. K. Petersen, and R. Betty. 1992. Effects of sodium sulfate, DL-methionine or cottonseed meal source on invitro gas production, using two different inoculum sources. 43:411-413. Proc. Western Sec. A.S.A.S., Fort Collins, CO.

Abstracts:

Ward, M. A., A. F. Summers, S. Roscano, J. Beard, S. A. Soto-Navarro, and D. M. Hallford. 2016. Effects of predation on cortisol and progesterone levels in gestating ewes. A. S. A. S. National Meeting. July, 2016.

Ward, M. A., J. S. Caton, J. B. Taylor, J. J. Reed, P. P. Borowicz, K. A. Vonnahme, D. A. Redmer and L. P. Reynolds 2005. Effects of nutrient restriction and organically bound selenium on maternal and fetal organ mass in pregnant ewe lambs. National A.S.A.S Conf.

Arndt, W. J., K. A. Vonnahme, E. Borowczyk, P. P. Borowicz, M. A. Ward, J. S. Caton, D. A. Redmer, L. P. Reynolds, and A. T. Grazul-Bilska. 2005. Effects of nutrient restriction and dietary selenium on cellular proliferation in fetal ovarian follicles obtained from sheep in late pregnancy. North Dakota Academy of Science.

Ward, M. A., J. S. Caton, B. Taylor, T. L. Lawler, S. Soto-Navarro, D. A. Redmer, and L.P. Reynolds. 2004. Effect of level and source of selenium on mass and growth of maternal visceral tissues in growing pregnant ewe lambs. (Abstr # 257) A.S.A.S Midwestern Sec Conf.

Ward, M. A., J. S. Caton, B. Taylor, T. L. Lawler, S. Soto-Navarro, D. A. Redmer, and L.P. Reynolds. 2004. Effect of level and source of selenium on gravid uterine tissues in growing pregnant ewe lambs. (Abstr # 427) Soc.Gyn. Inv. Annual Conf.

Ward, M. A., M. K. Petersen, G. Parker, L. Tubbs, D.V. Dhuyvetter, M. D. Gambill. J. D. Wallace, and G. Donart. 1993. Effects of feeding a loose bypass protein supplement versus a standard cottonseed cake to yearling cattle grazing dormant winter pasture in central New Mexico. (Abstr #592) A.S.A.S Ann. Natl. Meeting

Ward, M. A., J. F. Smith, and M. K. Petersen. 1993. The effects of milking two times versus three times per day on reproduction and milk production for dairies in New Mexico. (Abstr #139) A.S.A.S Ann. Natl. Meeting

Dhuyvetter, D. V., M. K. Peresen, D. M. Hallford, J. D. Wallace, M. D. Gambill, and M. A. Ward. 1993. Postpartum reproduction in young beef cows treated with insulin. A.S.A.S Ann. Natl. Meeting.

Carmean, B. E., D. E. Johnson, M. A. Ward, and G. W. Trotter. 1991. The persistence of monensin effects on ruminal VFA and ammonia-N concentrations and nutrient digestibility. A.S.A.S Ann. Natl. Meeting.

Experiment Station and Extension Publications:

Ward, Marcy, A. F. Summers, S. Roscano, J. Beard, S. A. Soto-Navarro and D. M. Hallford. 2017. *Effects of Stress from Predation in Gestating Ewes- A Case Study*. (ed., pp3). Las Cruces, NM: New Mexico State University. aces.nmsu.edu.

Ward, M. A. 2017. *Sheep Breeds Best Suited for Arid Climates*. (ed., pp. 9). Las Cruces, NM: New Mexico State University.

- Ward, M. A. and C. Gifford 2017. *Sheep Nutrition*. (ed., pp 8). Las Cruces, NM: New Mexico State University. Date Accepted: January 4, 2017
- Ward, M. A., Ashcroft, N. K., Smallidge, S. T., Scholljegerdes, E. J. 2015. *Estimating Water Intake for Range Beef Cattle* (ed., pp. 2). New Mexico State University. aces.nmsu.edu.
- Ward, M. A. 2015. *Small Poultry Flock Management* (ed., pp. 8). Las Cruces, NM: New Mexico State University. Date Accepted: August 12, 2015, (Revised from original publication by Dave Francis, 7 pages).
- Ward, M. A., N. K. Ashcroft, S. T. Smallidge, and E. J. Scholljegerdes. 2015. Estimating Water Intake for Range Beef Cattle. New Mexico State University. aces.nmsu.edu.
- Ward, M. A. 2015. Small Poultry Flock Management. New Mexico State University. *Revised from original publication by Dave Francis*.
- Ward, M. A., and G. P. Lardy. 2005. Mineral nutrition in the beef cow. NDSU Extension Bulletin.
- Ward, M. A., and G. P. Lardy. 2005. Phosphorus supplementation and requirements in Beef Cows. NDSU Extension Bulletin.
- Ward, M. A.. Managing the three-year-old cow. NDSU Ranch Hand Newsletter.
- Ward, M. A., M. K. Petersen, G. Parker, L. Tubbs, D. V. Dhuyvetter, M. D. Gambill, J. D. Wallace, and G. Donart. 1993. Effects of feeding a loose bypass protein supplement versus a standard cottonseed cake to yearling cattle grazing dormant winter pasture in central New Mexico. Livestock Res. Briefs Cattle Growers' Short Course.
- Ward, M. A., J. F. Smith, and M. K. Petersen. 1993. The effects of milking two times versus three times per day on reproduction and milk production for dairies in New Mexico. Livestock Res. Briefs Cattle Growers' Short Course.
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References:

Dr. Sandy Johnson
Livestock Extension Specialist
Northwest Area Extension Office
105 Experiment Farm Rd.
K-State Extension Service
Colby, KS 67701
785-462-7575

Paige Ayers, DVM
Butterfield Veterinary Services
624 Cherry
Russell Springs, KS 67764
785-953-0250

Dr. Joel Caton - Professor (Advisor)
Department of Animal & Range Sciences
100 Hultz Hall, NDSU
Fargo, ND 58105
701-231-7653
joel.caton@ndsu.nodak.edu

Dr. Greg Lardy – Department Chair
Department of Animal & Range Sciences
100 Hultz Hall, NDSU
Fargo, ND 58105
701-231-7660
glardy@ndsuxext.nodak.edu

Dr. Ken Odde – Department Chair
Department of Animal & Range Sciences
Weber Hall, KSU
Manhattan, KS
701-231-7658