2009
NDSU
Animal
Sciences

[ANNUAL REPORT]
Prepared: July 2010 covering the Academic Year, July 1, 2009 – June 30, 2010 and Research & Outreach January – December (CY2009)
ANNUAL REPORT
DEPARTMENT OF ANIMAL SCIENCES
Prepared: July 2010
Academic Year, July 1, 2009 – June 30, 2010
Research and Outreach, January-December (CY2009)

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I. Goals/accomplishments current year (College/unit)

The mission of the Department of Animal Sciences is to serve the livestock industry in teaching, research, and extension. In fulfilling this mission the Department of Animal Sciences is committed to:

- Scholarly inquiry in basic and applied sciences as a foundation for the department’s instructional and service functions, and to enhance the efficiency and profitability of North Dakota’s animal agriculture industry;

- Education of undergraduate and graduate students by providing both specialized knowledge and educational breadth in animal agriculture, animal science, and supporting disciplines;

- Effective and timely transfer of research-generated knowledge and technology to the agricultural industry and the larger scientific and public sectors to benefit the state, the nation, and the world.

Although teaching, research, and extension are individually and equally important, each enhances the others. The maintenance of strong linkages among these three components is basic to the effective operation of the Department of Animal Sciences.

A. Instruction and Student Success - To be included in this section are activities such as, but not limited to:

1. Teaching initiatives, and innovation;

The department offers options of study in Animal Science Production/Business, Animal Science, Equine Studies and Veterinary Technology leading to a B.S. degree. In addition, M.S. and Ph.D. degrees are offered in Animal Sciences with various emphases available. Department faculty also advises numerous students who are attempting to meet the requirements for admission to a College of Veterinary Medicine.

2. Advising initiatives, and innovation;

With a total of around 320 undergraduate students and 22 graduate students, departmental faculty members are actively engaged in undergraduate and graduate advising. Advising not only consists of course scheduling and academic program tracking, but career planning and professional development as well. Numerous faculty serve as major advisors to graduate students and most faculty serve on graduate committees for students within and outside the department. Senior exit interviews generally praised advisors in the department for their care of
students and knowledge of the necessary rules and regulations. In addition to academic advising, faculty and staff serve as advisors to various clubs (Saddle and Sirloin, Dairy Club, Equine Club, Veterinary Technology Club, Judging Club) and other activities (Academic Quadrathlon, undergraduate research, Governor’s School students).

3. Curriculum development including new programs, deletion of programs, administrative changes;

New courses are being proposed to support creation of five new options which will replace the existing options in the Animal Science major: Animal Agribusiness; Animal Production, Management, and Husbandry; Animal Biomedical Sciences; Livestock Media; and Meat Science.

4. Accreditation or other reviews;

The Veterinary Technology Program has been granted continued full accreditation status by the Committee on Veterinary Technician Education and Activities of the American Veterinary Medical Association.

5. Activities in student recruitment/retention, enrollment management, and other student activities;

Much of the recruiting efforts are conducted by the individual faculty in the department such as at “Little I” activities, 4-H Horse Camp, etc. Top place winners in the Little International and state 4-H and FFA Livestock Judging contests received a letter of congratulations this year as a recruiting tool. We have the good fortune of having numerous faculty and staff who understand the need for being active recruiters at all times. Additionally, we contact all students indicating an interest in our programs who are on the distributed prospective student lists, and members of the department have participated in judging at science fairs.

Students participate in numerous organizations including Saddle and Sirloin (largest student organization on campus), Equine Club, Rodeo Club, Judging Club, Veterinary Technology Club and the Dairy Club. These activities are highly important in teaching students leadership skills. Numerous students take part in the research programs in the department.

6. Distance education (including on-line) progress;

Summary of Distance Education Activity

<table>
<thead>
<tr>
<th>Course</th>
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</tr>
</thead>
<tbody>
<tr>
<td>ANSC 791</td>
<td>Genetic Improvement of Livestock during Spring 2010</td>
<td>Online (Buchanan)</td>
</tr>
</tbody>
</table>
7. Assessment - describe how each department makes use of assessment data in decision making within the framework of the institution’s mission and purpose.

The Animal Sciences Department has approached assessment efforts through a number of avenues. Regular faculty meetings throughout the year address assessment of student learning. Electronic mailings and handouts provided by the Director of University Assessment have been circulated to faculty with the intent of strengthening awareness of good assessment practices. The mentoring committees for new faculty members continue to emphasis the need for proper documentation of assessment in teaching portfolios to enhance success during the promotion and tenure process. We continue to develop assessment and to improve upon the manner at which we assess our courses in Animal Sciences.

The Department continues to provide students a variety of learning opportunities within the classroom as well as a wide variety of extracurricular organizations and activities. A high percentage of our majors participate in activities of the Saddle and Sirloin Club, Judging Club, Dairy Club, Equine Club, Judging Club and Vet Tech Club.

B. Research/Creative Activity - To be included in this section are activities such as, but not limited to

1. Research and creative activities;
Summary of Research and Scholarly Accomplishments – 2009

<table>
<thead>
<tr>
<th>Grants</th>
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<th>Pending</th>
<th>Not funded</th>
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<th>Proceedings</th>
<th>Abstracts</th>
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Graduate Research Assistants

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<th>Accepted</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>24</td>
<td>1</td>
<td>5</td>
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</tbody>
</table>

2. Grants/Contracts;

**Proposals funded**

- Berg EL. Instructional Development Grant for ANSC 364 Equine Anatomy and Physiology. NDSU University Senate Faculty Development Committee, January 2009, $3,000.
- Berg EL. Faculty Development Grant for a presentation at the National Association of Equine Affiliated Academics. The Centennial Endowment Fund through NDSU, May 2009, $1,580.
- Berg P. Educating North Dakota beef producers on market potential of New Age Beef Value Cuts, North Dakota Beef Commission, $15,000.
- Berg P. Meat Judging Team Competitive Scholarship North Dakota Beef Commission, $1000.
- Buchanan DS. Bill and Melinda Gates Foundation - Mosquitocidal immunity in cattle to augment zooprophylaxis (PI is Dr. Jefferson Vaughn from the University of North Dakota at the NDSU Dairy Center) – generates ~ $20,000 for use at the Dairy Center.
- Caton J, Dhuyvetter D, Musser R, and J. Luther. Ridley Block. Effects of organically bound sulfur and essential oils on vitro estimates of digestibility in differing forage types, $10,700
- Caton J. and Luther J. Ruminal By-Pass Supplementation of L-Arginine in Ruminants: Impacts on Reproduction. SBARE. $8,860
- Colville TP Professional Development Grant from NDSU President’s Office, $1,000.


O’Rourke S, Reynolds L, & Caton J. Undernutrition in Pregnancy and Developmental Programming of Vascular Function. NIH-R03 $100,000

Park CS, PI: Canola oil for mammary development and breast cancer risk; USDA-NIFA, 06/01/09-05/31/10; $35,000.

Park, CS, PI: Methyl nutrients and mammary cancer risk; DOD-Medical Research Program, 09/01/09-08/31/10; $120,000.


Redmer DA (PI), (Co-PI’s Caton JS & Reynolds LP), Visualizing and quantifying vascular architecture in key nutrient transferring tissues of ruminant livestock. State Board of Agricultural Research, Agricultural Research Fund, TDC; 3/08 – 2/09, $6,000

Reynolds LP. Co-recipient (one of numerous Co-Investigators), NSF-INBRE Grant, “IdeA Networks for Biomedical Research Excellence” – Director, Cell Biology Core Laboratory, and Mentor, “Effect of MCPA, 2,4-D and bromoxynil on lung development (Dr. Hilde van Gijssel); $174,675 total direct costs, August 2004-May 2009

Reynolds LP Co-recipient (PI), USDA, NRI Grant, “Epigenetics of Placental Angiogenesis in Cloned and Monoparental Sheep Fetuses”; $315,000 total direct costs, September 2007-August 2010

Reynolds LP Co-recipient (Co-PI), PHS Grant NHLBI R03___-01-02, “Undernutrition in Pregnancy and Developmental Programming of Vascular Function”; $100,000 total direct costs, September 2009-August 2011

Reynolds LP, Redmer DA, & Wallace JM. Nutrition, fetal growth, and placental angiogenesis. NIH-NICHD, PHS, April 2005 – May 2009, $1,250,000 TDC.


Stoltenow CL. Extension Disaster Education Network eXtension Communities of Practice, Agrosecurity and Flooding, USDA/CSREES/Purdue University, May 2009, $26,000.


Vonnahme KA. Influence of Maternal Endocrine and Metabolic Status on Offspring Growth and Performance. $23,000 Advance FORWARD Leap Grant.

Vonnahme KA. (CoPD) with Rick Funston (UNL), Scott Lake (UWyoming), Andrea Weaver (SDSU). Economic Impacts of Protein Supplementation During Late Gestation on Rebreading in Cows and Effects on Growth, Development and Carcass Characteristics of Steers Calves. 5 States Ruminant Consortium. $9,478 (my portion).

Vonnahme KA & Berg EP. Use of young female gilts as a biomedical model of human females to determine if consumption of beef from cattle administered estrogenic growth promotants results in premature puberty and obesity. ND Beef Commission, 1/14/09. Requested $39,100; granted $30,000.

Vonnahme KA & Berg EP. Impacts of maternal exercise on litter size, offspring growth, and muscle fiber characteristics. ND State Board of Agriculture Research and Education, 1/13/09. $10,270.

Vonnahme KA (PD) Co-PDs are Luther JS, Schauer C, & Carlin KM. Influence of Metabolizable Protein Supplementation in Late Pregnancy on Offspring Feed Efficiency, Carcass Quality and Fertility in Sheep. USDA-CSREES-NRI, $350,000.

Vonnahme KA, O’Rourke S, & Lardy GP. Early nutritional impacts on uteroplacental blood flow and vascular reactivity in pregnant cows. USDA-CSREES AFRI. $350,000

Wagner SA. Grant to facilitate attendance of NDSU veterinary technology students at the 42nd annual meeting of the American Association of Bovine practitioners. Board of Trustees
Endowment, NDSU Development Foundation, September 2009, $1,000.

Proposals submitted with decisions pending

Berg EL, Wagner S, Hammer CH, Stoltenow C, & Dyer N. Interdisciplinary Instructional Development Grant. NDSU University Senate Faculty Development Committee, November 2009, $4,500.
Buchanan DS. National Institutes of Health (COBRE) – Center for Developmental Programming. Listed as Data Advisor. 4% of time. PI is Dr. Larry Reynolds. Submitted 2009.
Caton J, Hess B, & Meyer A. Ruminally undegradable protein supplementation of beef cows nutrient restricted during early to mid-gestation: Impacts on maternal metabolic state and offspring feed efficiency and intestinal vascularity. ND SBARE, $8,933
Reynolds LP, Redmer DA, Wallace J, Caton J, & Adam C. Nutrition, Fetal Growth, and Placental Angiogenesis: NIH-NICHD, R01, $1,500,000
Schroeder JW. Cool Season Food Legumes (CSFL) research through the USDA-Cooperative State Research, Education, and Extension Services (CSREES). $36,715.

Proposals submitted and not funded

Berg EP. Does post-fasting hyperphagia in finishing swine improve feed utilization, rate of gain, and reduce feed production costs? ND State Board of Agriculture Research and Education. 1/6/09, $10,290.
Berg EP (Co-PI) with Anderson V. Evaluation of beef carcass quality and palatability from
feedlot heifers fed glycerol as an energy source. ND Beef Commission 10/17/09, $20,704.


Cammack, Hess, Alexander, Austin, Means, Paisley, Lake, & Caton. Developmental programming of beef steers as affected by plane of maternal nutrition at two different stages of gestation. USDA-CSREES-Five-State $90,286.


Grazul-Bilska A (Co-PI). The role of kallikrein-kinin system in the utero-placenta throughout pregnancy”, R15, NIH, 2010-2012, $300,000 direct cost ($430,500 total cost).

Grazul-Bilska A & Caton J. Nutritional effects on oocyte quality. NIH. $430,500


Landblom D, Fausti S, Gramig G, Kutka F, Diersen M, Sedivec K, Lardy G, & Brevik E. Enhancing small farm profitability through integrated beef cattle and crop production systems. USDA-CSREES AFRI. Four Years. $500,000.

Maddock Carlin KR (PI) 2009. Does inclusion of field peas in beef finishing diets influence beef tenderness of steaks from multiple muscles in cattle genetically indexing for poor palatability traits? NDSU Forward Leap Grant, $30,000.


Park CS (PI). Dietary methyl nutrients and mammary cell growth and death; NIH, 12/01/09-11/30/11, $143,000.

Park CS (PI). Compensatory nutrition and epigenetic control of mammary gene expression; USDA; $285,000

Rahman S, Lardy G, & DeSutter T. Acquisition of a Photoacoustic Gas Analyzer (INNOVA 1412). USDA-CSREES AFRI. One Year. $58,615.

Redmer DA (PI) & Borowicz PP (Co-PI), Shared Instrumentation Grant Program (S10), NIH SIG, National Center for Research Resources, 1S10RR027135-01, “Advanced Imaging and Microscopy Laboratory (AIM): Acquisition of a Zeiss Axio Imager Z1 Microscope and LSM700 Laser Attachment”. Tentative project period 4/1/2010 – 3/31/2011. $311,935 TDC. Submitted


Schroeder JW & Chester-Jones H 2009-2010. Optimizing Dry Field Peas in Diets for Pre-weaned Dairy Replacements. Cool Season Food Legumes (CSFL) research through the USDA-Cooperative State Research, Education, and Extension Services (CSREES). $36,715, 90%.

Swanson T. University Senate Faculty Development Committee, Instructional Development Grant

Vonnahme K. The role of the kallikrein-kinin system in the utero-placenta throughout pregnancy. Submitted to NIH-RO3. PI. $150,000.

Wagner SA, Hammer CJ, & Fajt VR. “Comparative Pharmacokinetics of Flunixin Meglumine in Pregnant and Non-Pregnant Mares” Submitted June 2009 to NDSU Advance FORWARD Leap Grant Program. Budget: $23,893

Other funding not included above


Berg P. Coordinator and Faculty Advisor to Carnivore Catering (Approximately 75 events & $50,000 net income.

Lardy GP. Donation of 50 tons of dried corn distillers grains. Poet Nutrition, October 2009, Value = $5,000.

Active research projects

Bauer ML. Ruminal sulfur reduction timing and alternative reducing equivalents.

Berg EP (Co-PI) with Vonnahme KA. Use of young female gilts as a biomedical model of human females to determine if consumption of beef from cattle administered estrogenic growth promotants results in premature puberty and obesity.. ND Beef Commission; Requested $39,100; granted $30,000, 1/14/09.

Berg EP (Co-PI) with Vonnahme KA. Impacts of maternal exercise on litter size, offspring growth, and muscle fiber characteristics. ND State Board of Agriculture Research and Education; $10,000, 1/13/09.


Berg EP (Co-Investigator) with Anderson V. Effects of Feeding Field Peas to Bison on Animal Performance and Meat Quality Traits., CREC. Submitted to SBARE requesting $8,000 (Eric Berg portion $3,450) until 6/30/09.

Berg EP with Co-PI Maddock R. Willingness to purchase known tender beef steak from foodservice and retail. ND Beef Commission; $47,364 til 11/30/09.


Berg PT (Co-PI) with Schauer C. Minimal Management Sheep Production – CRIS report from the Hettinger Research Extension Center.

Berg PT (PI). Assess the Effectiveness of Oxygen (O2) Barrier Oven Bags in Low Temperature Cooking on Reduction of Warmed Over Flavor (WOF) in Beef Roasts.


Caton JS, Lewis G, Reynolds LP, & Taylor JB. Specific Cooperative Agreement, USDA Sheep Experiment Research Station, Dubois ID, “Birth weight and production characteristics in sheep; and Effects of elevated dietary selenium and nutrient intake on development of key maternal and fetal nutrient transferring tissues in pregnant ewe lambs”

Caton JS (PI) & Reynolds LP (Collaborator). USDA, NRI Competitive Research Grant “Effect of maternal undernutrition and high selenium during gestation on growth and vascularization of key nutrient transferring tissues;” $422,000 total costs

Ford SP (PI) & Reynolds LP (Collaborator). USDA, NRI Competitive Research Grant “Effect of early gestational nutrient restriction on offspring growth in cows”


Maddock Carlin KR (PI). Impact of oxidation on susceptibility of skeletal muscle myofibrillar protein cleavage by calpain I. ND INBRE. $8,000.

Maddock Carlin KR (PI), Reynolds LP, & Caton JS. Effects of maternal nutrition and selenium status on postnatal muscle growth and meat quality. USDA Cooperative State Research, Education, and Extension Service Strengthening Award. Funded $125,000.

Maddock RJ. Health and Beef Quality. Evaluation of the relationship between cattle feedlot health and meat quality. A local feedlot operator is cooperating with us by providing health records and carcass data for a large number (>4000) of cattle. A subset of this is being evaluated at the packing plant for evidence of lung lesions, and a further subset will be evaluated for tenderness.

O’Rourke S (PI) & Reynolds LP (Co-PI). NIH RO3 grant, “,” (dates) Co-recipient (Co-PI), PHS Grant NHLBI R03__-01-02, “Undernutrition in Pregnancy and Developmental Programming of Vascular Function”; $100,000 total direct costs, September 2009-August 2011

Park CS (PI). Lactation Study, Hatch, 10/01/05-09/30/10

Park CS (PI). Canola Study, USDA-CSREES, 06/01/07-05/31/10

Park CS (PI). Methyl Nutrient Study, Morris Animal Foundation, 10/01/08-09/30/09

Park CS (PI). Lipotrope Study, DOD-Medical Research, 09/01/09-08/31/09

Redmer DA (PI). USDA ARS Animal Disease Research Unit, Specific Cooperative Agreement

Reynolds LP (Co-PI). Hatch ND01705, “Reproductive efficiency in farm animals.”

Reynolds LP (PI). USDA, NRI Grant, “Epigenetics of Placental Angiogenesis in Cloned and Monoparental Sheep Fetuses”; $315,000 total direct costs, September 2007-August 2010

Reynolds LP, Dorsam G, & Caton JS joint Sci/Math-CAFSNR research project. “Role of GLP-2 in intestinal development and function in sheep”


Reynolds LP (Co-PI) & Reed W, joint Sci/Math-CAFSNR research project. “Role of corticoid receptors in development of quail embryos”

Schroeder JW (PI). Novel feeds from North Dakota co-products for high producing dairy cattle—pulse crops and co-products, North Dakota Superfeeds Consortium, 10/01/08-12/31/09

Schroeder JW (PI). Novel feeds from North Dakota co-products for high producing dairy cattle—pulse crops and co-products, North Dakota Superfeeds Consortium, 11/1/9-6/30/11

Schroeder JW (PI). Metabolic relationships in supply of nutrients for lactating cows, Hatch Project NC 1040 (renewed), 10/1/07-9/31/08

Vonnahme KA. Early nutritional impacts on uteroplacental blood flow and vascular reactivity in pregnant cows: Planning for the project. Ms. Leticia Camacho was hired to lead the project as she works towards her PhD. Main portion of the project will begin in 2010

Vonnahme KA. Influence of Maternal Endocrine and Metabolic Status on Offspring Growth and Performance: Maternal hormones were assayed from pregnant ewe lambs in blood samples that were collected throughout gestation.

Vonnahme KA. Economic Impacts of Protein Supplementation During Late Gestation on Rebreeding in Cows and Effects on Growth, Development and Carcass Characteristics of Steers Calves. This project will take place in 2010.

Vonnahme KA. Use of young female gilts as a biomedical model of human females to determine if consumption of beef from cattle administered estrogenic growth promotants results in premature puberty and obesity. This project will take place in 2010.

Vonnahme KA. Impacts of maternal exercise on litter size, offspring growth, and muscle fiber characteristics. Ms. Erin Harris’s MS project. We have completed the first parity of this project and noted that maternal activity (exercise for 30 minutes, 3 times a week) can influence birth weight and neonatal organ weight. Muscle fiber type is being determined and offspring carcass characteristics will be evaluated in 2010.

Vonnahme KA. Influence of Metabolizable Protein Supplementation in Late Pregnancy on Offspring Feed Efficiency, Carcass Quality and Fertility in Sheep. An intense ewe project was completed in December 2009. Ewes were fed 3 diets which were isocaloric, but differed in the
Vonnahme KA. Does estrogen influence the kininogen, kallikrein, bradykinin system in the uterus? This project has the majority of the animal work completed. Laboratory analyses are underway.


Wagner SA (Project Director/Principal Investigator, NDSU) & Rushen JP (Co-Principal Investigator, Agriculture and Agri-Food Canada). “Development of Quantitative Methods of Evaluating Analgesic Drug Efficacy In Lame Dairy Cows” USDA CSREES National Research Initiative, Fall September 1, 2008-September 1, 2010

Wagner SA (PI), Fajt VR & Pederson L. “Dairy Beef Quality Assurance: Does injection of reproductive hormones cause significant edible tissue damage?” National Cattlemen’s Beef Association $3,680 (Spring 2009- Fall 2009)

3. Articles/books/publications;

Refereed papers published


Redmer DA, Luther JS, Milne JS, Aitken RP, Johnson ML, Borowicz PP, Borowicz MA, Reynolds LP, & Wallace JM 2009. Fetoplacental growth and vascular development in
overnourished adolescent sheep at day 50, 90 and 130 of gestation. Reproduction 137:749-757.
http://dx.doi.org/10.1530/REP-08-0516


Wagner SA, Jones DE, & Apley MA. “Endotoxic Mastitis in Cows Causes Sloughing of Epithelial Cells into the Milk” American Journal of Veterinary Research 70 (6) 796-799 June 2009

Books/book chapters


Buchanan DS 2009. Mitosis and Meiosis (revised). In Pond, W and A. Bell (Ed) Encyclopedia of
Animal Science. Marcel Dekker Inc. (invited)


**Publications/Reports/Proceedings**


Extension/outreach publications


Swanson T. Valley Equestrian Article August 2009, NDSU Loaner Horse Program
Swanson T. NDSU Headtosser, Winter 09, Summer 09

Abstracts

Berg EL  2009. Therapeutic Horsemanship Minor at North Dakota State University. Presented at the National Academy of Equine Affiliated Academics, Denver, CO.


Cho K, Mabasa L, Fowler AW, & Park CS. Effects of canola oil on breast cancer cell growth and


Johnson ML, Aitken RP, Milne JS, Carlson DB, Razdan M, Reynolds LP, Wallace JM, &


Lepper AN, Maddock RJ, & Berg EB 2009. Restaurant patrons’ perceptions of North Dakota and guaranteed tender labeling relative to price paid and palatability. J. Anim. Sci. 87: (e-Suppl. 3). **2ND PLACE IN POSTER COMPETITION


Leupp JL, Lardy GP, Maddock RJ, Bauer ML, Karges K, Gibson ML, & Caton JS 2009. Effects of distillers dried grains with solubles inclusion in growing and finishing diets on intake, average
daily gain, and gain efficiency of beef steers. J. Anim. Sci. 87 Suppl. 3 (abstr):295 and Midwest
ASAS Meeting.

Mabasa L, Cho K, Fowler AW, & Park CS. Effect of methyl nutrients on the growth of

Differences in beef tenderness associated with working chute behavior are not related to


Meyer AM, Neville TL, Reed JJ, Taylor JB, Reynolds LP, Redmer DA, Vonnahme KA, & Caton
JS 2009. Effects of nutritional plane and selenium supply on intestinal mass and mRNA
87 Suppl. 3 (abstr):69.

Meyer AM, Reed JJ, Neville TL, Coupe LR, Taylor JB, Reynolds LP, Redmer DA, Vonnahme
KA, & Caton JS 2009. Effects of nutritional plane and selenium supply on intestinal mass,

Meyer AM, Reed JJ, Neville TL, Taylor JB, Redmer DA, Reynolds LP, Vonnahme KA, & Caton
JS 2009. Effects of nutritional plane and selenium supply during gestation on neonatal
offspring growth and visceral organ mass. In: Proceedings, International Symposium on
Ruminant Physiology. Clermont-Ferrand, France. EAAP Publication.

Meyer AM, Reed JJ, Newman DJ, Taylor JB, Reynolds LP, Redmer DA, Vonnahme KA, & Caton
JS 2009. Effects of nutritional plane and selenium supply during gestation on ewe
(abstr):124.

Meyer AM, Redmer DA, Wallace JM, Vonnahme KA, Reynolds LP, Hess BW, & Caton JS
2009. Maternal and offspring intestinal responses to gestational nutrition in the ruminant:
Growth, vascularity, and angiogenic factor expression. Inaugural ASAS-CAAV Asia Pacific
Rim Meeting, November 8–10, Beijing, China; page 17.

Neville TL, Meyer AM, Reed JJ, Taylor JB, Reynolds LP, Redmer DA, Maddock Carlin KR,
Vonnahme KA, & Caton JS 2009. Effects of nutritional plane and selenium supply on cellularity
estimates of neonatal lamb jejunal mucosa, heart, and skeletal muscle. J. Anim. Sci. 87 (Suppl.
2).

Neville BW, Schauer CS, Kirschten LA, Karges K, Gibson ML, & Lardy GP 2009. Influence of
dietary thiamin supplementation on ruminal pH and hydrogen sulfide gas concentration in lambs
fed a ration containing 60% distillers dried grains with solubles. Midwest ASAS Meeting.

location, and lairage length on pork quality and blood cortisol concentration. J. Anim. Sci. 87: (e-
Suppl. 3).

Park CS, Cho KS, Mabasa L, & Fowler AW. Canola oil inhibits human breast cancer cell growth
by regulating caspase-3 and p53. FASEB 2009;23:897.9

Redmer DA, Aitken RP, Milne JS, Johnson ML, Carlson DB, Razdan M, Reynolds LP, &
Wallace JM 2009. Placental tissue mRNA expression of angiogenic factors (AF) and their receptors (AFR) in response to in vitro hypoxia as influenced by maternal nutrition in adolescent sheep at day 75 of pregnancy. Biol Reprod 81(Suppl.):143, abstr. 418.


Popular Articles


**Instructionally-related publications**

Colville TP. Revised and updated the following courses: Vets 135, Anatomy & Physiology of Domestic Animals, 3 credits, Vets 255, Fundamentals of Veterinary Radiography, 3 credits, Vets 259, Small Animal Diseases, 2 credits, Vets 358, Veterinary Surgical Nursing Techniques, 4 credits

Colville TP. Reviewed and updated “Standard Operating Procedures” for veterinary radiography tasks under the following headings: Safety, Taking Radiographs, Technique Chart Darkroom, Specific Studies, Logs & Records and Quality Control

Colville TP. Revised and updated Anesthesia/Pain Management Protocols for surgical and dental procedures.

Colville TP. Tracked student performance of essential diagnostic radiography skills and tasks as required by the Veterinary Technology Program’s accrediting body, the Committee on Veterinary Technician Education and Activities of the American Veterinary Medical Assoc.

**Other**

Colville TP (Principal author), August 28, 2009 Biennial Veterinary Technology Program Accreditation Report submitted to the Committee on Veterinary Technician Education and Activities (CVTEA) of the American Veterinary Medical Association. As a result of the report, the Veterinary Technology Program was granted continued full accreditation status.


Lardy, G.P.-

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<th>Title</th>
<th>Media Type</th>
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<tbody>
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<td>2009</td>
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<tr>
<td>Cautions with Moldy Corn</td>
<td>Red River Farm Network</td>
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<tr>
<td>Animal Sciences Department Head</td>
<td>Ag Talk, KQLX, Lisbon</td>
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<tr>
<td>Animal Sciences Department Head</td>
<td>Clear Channel, Bismarck</td>
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<tr>
<td>Livestock Outlook</td>
<td>Red River Farm Network</td>
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<tr>
<td>Black Bonus</td>
<td>Print (Certified Angus Beef)</td>
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<tr>
<td>Flax May Be Efficient Livestock Feed</td>
<td>Print (Prairie Farmer)</td>
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<tr>
<td>Economy Impacts Agricultural Research</td>
<td>Radio-Country Connection</td>
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<tr>
<td>Check for Storage Molds in Feed Grains and Hay</td>
<td>Print (NDSU News Release)</td>
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<tr>
<td>Substitute Grain or Coproducts for Hay in Beef Cow Rations</td>
<td>Print (NDSU News Release)</td>
</tr>
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<td>Media Type</td>
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<tr>
<td>NDSU Beef Systems Center of Excellence Update</td>
<td>Radio-Clear Channel</td>
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<tr>
<td>North Dakota Hay Supplies Tight</td>
<td>E-Hay Weekly Electronic Newsletter</td>
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<tr>
<td>Plan Now to Find Hay Substitutes</td>
<td>Print (NDSU News Release)</td>
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<tr>
<td>NDSU Web Site Offers Winter Weather Survival Tips</td>
<td>Print (NDSU News Release)</td>
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<tr>
<td>Winter Weather Tough on Cattle, Cattle Producers</td>
<td>Print (NDSU News Release)</td>
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</tbody>
</table>


Swanson T. 4-H Rulebook class additions

4. Presentations;

Bauer, M.

Scholarly (n = 0)

Other (n=2)

- New technologies in the Feedlot, Michigan State University short course given at East Lansing, Michigan, Bowling Green, Ohio, and Wyoming, Ontario. March 2009

- Feedlot Management in the United States given at the International Symposium on Animal Production, UAEM, Toluca Mexico, October 2009

Berg, E.P.

Scholarly (n = 3)


- Cutting Edge Opportunities in Pork. Value Cut$ Summit II (Sponsored by Meatingplace and Plate Magazine). Texas Culinary Institute, Austin, TX. May 1, 2009.


Other (n = 5)


Berg, E.L.

Scholarly (n = 1)

Other (n = 1)

Berg, P.T.
Scholarly (n = 16)
- “Bar-B-Q Boot Camps”, Richland, Ransom, Foster, Eddy, Towner, Williams, Stark, Stutsman, Burleigh and Cass counties: June, July & August 2009 (approximately 850 attendees)
- Bar-B-Q Boot camp planning committee for 2010 season
- Bovine Connection Presentation, Williston, December, 2009
- Beef Production meetings Flasher & Napoleon, December, 2009
- Product (beef) demonstration at North Star Classic, Valley City, December, 2009

Berryhill, D.
Scholarly (n=0)

Buchanan, D.S.
Scholarly (n = 2).
- September 2009 – Tri-State Meat Goat Conference (Fargo) – Genetic improvement programs to advance the Meat-Goat Industry.
- December 2009 – Bovine Connection (Williston) – Genetic Defects in Cattle.
Other (n = 2). List below by title.
- September 2009 – Livestock in-service training. (Washburn) – Beef Cattle selection programs and genetic defects.

Carlin, K.R.
Scholarly (n = 0).

Caton, J.
Scholarly (n = 20).
- I presented three times at the national or international levels (USA, France and China). Of significant note is the high number of abstracts (n = 20) that were presented by either students (graduate or undergraduate) or other colleagues that were dependent upon collaborative team efforts. It is also important to note that Allison Meyer, my Ph.D. student has presented original data both in France and China (invited) this year.
Colville, T.P.
Scholarly (n= 0)

Eck, T.
Scholarly (n= 0)

Grazul-Bilska, A.T.
Scholarly (n = 13).
Hammer, C.J.
Scholarly (n = 0).
Other (n = 5).
- Speaker: Barnes Co. Hippology Workout, Valley City, ND; 7 attended
- Organizer, speaker: Judge’s Certification Clinic, Minot, ND; 7 attended
- Co-chair, speaker: Barrel and Pole Camp, Washburn, ND; 25 attended
- Speaker: Horse Science – 4H Conference, Fargo, ND; 21 attended
- Organizer, Speaker: Judge’s Certification Clinic, Fargo, ND; 11 attended
- Speaker: Changes in the ND 4-H Horse Program, Washburn, ND; 20 attended

Lardy, G.P.
Scholarly (n = 2).
- Speaker: Extension employment opportunities following the completion of a MS Degree in Animal Science, Montreal, Quebec; 175 enrolled
- Speaker: Effects of various coproducts on beef consumer sensory and tenderness traits, Montreal, Quebec; 65 enrolled

Other (n = 20).

<table>
<thead>
<tr>
<th>Location</th>
<th>Title</th>
<th>Number Enrolled</th>
<th>Role</th>
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<tbody>
<tr>
<td>2009 Presentations</td>
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<tr>
<td>Williston, ND</td>
<td>Utilization of Cover Crops and Annual Forages for Grazing Cattle</td>
<td>125</td>
<td>Speaker</td>
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<tr>
<td>Bismarck, ND</td>
<td>Taking the NDSU Animal Sciences Department from Good to Great</td>
<td>50</td>
<td>Speaker</td>
</tr>
<tr>
<td>Manhomen, MN</td>
<td>Factors Driving Change in the Beef Industry</td>
<td>75</td>
<td>Speaker</td>
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<tr>
<td>West Fargo, ND</td>
<td>Value Added Opportunities in the Beef Industry</td>
<td>240</td>
<td>Speaker</td>
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<tr>
<td>Fargo, ND</td>
<td>Taking the NDSU Animal Sciences Department from Good to Great</td>
<td>50</td>
<td>Speaker</td>
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<tr>
<td>Fargo, ND</td>
<td>Using Ethanol Byproducts in Beef Cattle Diets</td>
<td>8</td>
<td>Speaker</td>
</tr>
<tr>
<td>London, Ontario (via webcast)</td>
<td>Use of Camelina and Camelina Meal in Ruminant Diets</td>
<td>30</td>
<td>Speaker</td>
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<tr>
<td>Fargo, ND</td>
<td>Using Soybean Meal in Diets for Dairy Cattle</td>
<td>6</td>
<td>Speaker</td>
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<tr>
<td>Location</td>
<td>Title</td>
<td>Page</td>
<td>Speaker</td>
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<tr>
<td>Bozeman, MT</td>
<td>Protein Supplementation of Grazing Livestock</td>
<td>193</td>
<td>Speaker</td>
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<tr>
<td>Staples, MN</td>
<td>Reducing Cow Wintering Costs</td>
<td>52</td>
<td>Speaker</td>
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<tr>
<td>Tomah, WI</td>
<td>Innovative Ways to Reduce Cow and Feeder Cattle Wintering Costs</td>
<td>75</td>
<td>Speaker</td>
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<tr>
<td>Streeter, ND</td>
<td>Niche Market Opportunities for Your Beef Cattle Operation</td>
<td>45</td>
<td>Speaker</td>
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<tr>
<td>Streeter, ND</td>
<td>Cost Cutting Measures for Your Cow Herd</td>
<td>45</td>
<td>Speaker</td>
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<tr>
<td>Carrington, ND</td>
<td>Optimizing Nutrient Utilization</td>
<td>17</td>
<td>Speaker</td>
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<tr>
<td>Carrington, ND</td>
<td>Feeding Programs-Receiving, Backgrounding, Finishing, Goal Setting</td>
<td>17</td>
<td>Speaker</td>
</tr>
<tr>
<td>Minot, ND</td>
<td>Using Ethanol Byproducts to Stretch Winter Feed Supplies</td>
<td>23</td>
<td>Speaker</td>
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<tr>
<td>Medora, ND</td>
<td>Factors Affecting the Value of ND, SD, and MT Feeder Calves</td>
<td>48</td>
<td>Speaker</td>
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<tr>
<td>Rhame, ND</td>
<td>Factors Affecting the Value of ND, SD, and MT Feeder Calves</td>
<td>48</td>
<td>Speaker</td>
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<tr>
<td>Devils Lake, ND</td>
<td>The Interaction Between Cow Nutrition and Reproduction: Maternal and Fetal Effects</td>
<td>15</td>
<td>Speaker</td>
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<tr>
<td>Dickinson, ND</td>
<td>Practical Cow Nutrition Programs</td>
<td>19</td>
<td>Speaker</td>
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</tbody>
</table>

**Maddock, R.J.**  
**Scholarly (n = 1).**  
- Least cost sausage formulations. Presented at the American Meat Institute “World-wide Food Expo”

**Park, C.**  
**Scholarly (n = 1).**  
- Canola oil inhibits human breast cancer cell growth; Experimental Biology (FASEB) Meeting.

**Redmer, D.A.**  
**Scholarly (n = 1).**  
List below by title:
Scientific presentations are listed in abstracts and meetings attended.
Reynolds, L.P.
Scholarly (n = 10).
- “Advantages of domestic animals as dual-purpose models that benefit agricultural and biomedical research,” Domestic Animal Biomedical Embryology (DABE) Symposium, International Embryo Transfer Society, San Diego, CA, January 2009
- Part 1: Angiogenesis, Frontiers in Reproduction Summer Course for Advanced Students, Postdocs, Junior Faculty, Marine Biological Laboratory, Woods Hole, MA; May 2009
- Part 2: Angiogenesis in the reproductive system, Frontiers in Reproduction Summer Course for Advanced Students, Postdocs, Junior Faculty, Marine Biological Laboratory, Woods Hole, MA; May 2009
- “Background and Philosophies,” ASAS Graduate Student Luncheon, American Society of Animal Science, Montreal, Canada; July 2009
- “Large animal models of developmental programming;” Growth and Development Symposium, American Society of Animal Science, Montreal, Canada; July 2009
- “Taking a crack at the placenta: Why it’s important and how it contributes to lifelong health,” Summer Science Series, North Dakota State University, July 2009
- “Uteroplacental vascular development and placental function: An update;” President’s Symposium, Annual Meeting, Perinatal Research Society, Mohonk House, New Paltz NY, September 2009
- “How fetal development affects adult health,” Harvest Bowl, College of Agriculture, Food Systems, and Natural Resources, North Dakota State University, October 2009
- “Uteroplacental vascular development and placental function: An update;” Reproductive Biology Interdisciplinary Program, Texas A&M University, October 2009
- “Uteroplacental vascular development and placental function: An update;” Graduate Seminar Lecture, Department of Animal Science, Texas A&M University, College Station; October 2009

Schroeder, J.W.
Scholarly (n = 1).

Other (n = 6). List below by title:
- Presentations: (five locations): Dairy Cow College >09. 16th Annual effort started by me and held at: Linton, Dickinson, New Salem, Minot, Valley City. Audience participation represented 19% of all dairy farms and 25 other related-industry participants in North Dakota. Evaluation scored 3.6 of 4.0 points possible.
- Presentations: (one location): 42nd Annual State Dairy Convention sponsored by the Milk Producers of North Dakota. I coordinate all educational programs including “The People Behind the People - Family Farm Panel” coordinator, program manager and emcee, and contribute to the business meeting. Mandan, ND. November 20-21, 2008.

Stoltenow, C.L.
Scholarly (n = 19).
- January 13, 2009, Dakota Cow/Calf Clinic, Herd Health, Interactive Video Network, Fargo, ND.
- University of Wisconsin Extension 2009 Cattle Feeder Workshops
  January 19, 2009  Sparta, WI
  January 20, 2009  Janesville, WI
  January 20, 2009  Waldo, WI
  January 21, 2009  Marshfield, WI
  January 21, 2009  Green Bay, WI
  January 22, 2009  Bloomer, WI
  January 22, 2009  Spring Valley, WI
- January 27, 2009, Managing Feeder Calf Health, 2009 North Dakota Feedlot School, Carrington, ND.
- January 30, 2009, Walsh County Beef Days, Mycobacterium bovis update, Park River, ND.
- February 19, 2009, Pembina County Livestock Association, Mycobacterium bovis update, Cavalier, ND.
- February 4, 2009, Dakota Cow/Calf Clinic, Pasture related issues, pink eye, foot rot and anthrax, Interactive Video Network, Fargo, ND.
- March 12, 2009, Manure Biosecurity, Manure Applicator/CAFO Operator School, Carrington, ND.
- March 21, 2009, Equine Health Update, Mountrail County Horse Classic, Stanley, ND.
- May 21, 2009, Tuberculosis update, NDSU Annual Veterinary Diagnostic Laboratory Seminar, Fargo, ND.
- September 10, 2009, Tuberculosis Update and what to expect as an agent during a traceback event, Livestock In-Service training, Washburn, ND.
- September 11, 2009, Responding to Bovine Emergencies, are we vulnerable?, American Association of Bovine Practitioners, Omaha, NE.
- October 28, 2009, The truth on H1N1, North Dakota Environmental Health Association annual conference, Doublewood, Fargo, ND.
- November 4, 2009, Epidemiology of Anthrax in North America, University of Mongolia at Ulaanbaatar, Mongolia.

Other (n = __2__).
- January 12, 2009, New BQA Coordinator Training Session, Developing your stakeholders and champions presentation, Denver Renaissance hotel.
- October 14, 2009, Being an Extension Professional, NDSU Fall Extension Conference, Holiday Inn, Fargo, ND.

Swanson, T.
Scholarly (n = _0_).

Vonnahme, K.A.
Scholarly (n = __3__).
- Life Before Birth: Impacts of Maternal Offspring Performance in Livestock. Invited by the
Wagner, S.A.
Scholarly (n = __1__).
- (Presenting author), and Fajt, V.R. “Dairy Beef Quality Assurance: Do Reproductive Hormone Injections in Dairy Cows Cause Significant Edible Tissue Damage?” Research Summaries Session, American Association of Bovine Practitioners 42nd Annual Meeting, Omaha, NE, September 11, 2009

Other (n = __2__).
- Using Animal Behavior to Measure Pain and Analgesia in Lame Dairy Cows” Summer Science Seminar Series, North Dakota State University, July 16, 2009
- “Evaluating Bioequivalence among intramammary mastitis products” American Academy of Veterinary Pharmacology and Therapeutics 16th Biennial Symposium, Rockville, MD, June 16, 2009

Williams, B.
Scholarly (n = _0__).
Other (n = _2__).
- Replacement Heifer Selection: Flasher, ND
- Replacement Heifer Selection: Napoleon, ND

5. Technology transfer.

The focus of technology transfer in the department is through the extension programs. Increasing input costs due to increased feed costs have caused considerable need to help producers understand how to utilize alternative feedstuffs that can lower costs of production. Much of this, especially through the efforts of Drs. Lardy, Newman, and Schroeder has focused upon co-products from the ethanol industry. These efforts have also been facilitated through cooperative efforts with the Research-Extension Centers. Lower prices for swine and milk have increased the demand for cost-saving practices for pork and dairy producers.

C. Outreach - To be included in this section are activities such as, but not limited to
1. Professional service;
Bauer, M. – Professional Meetings
- Midwest ASAS/ADSA annual meetings: committee member and session chair
Bauer, M. – Regional
- Graduate Student Competition committee, Midwest ASAS, member
Bauer, M. – University
- Institutional Biosafety committee, member, animal expert
- Institutional Animal Use and Care committee, alternate member
Bauer, M. – Department
- Head search committee
- Beef Herdsman search committee
- Beef Cattle Research Center building committee
- Nutrition committee, member
- Beef Research committee, member
- Curriculum and Student Affairs committee, member
- Academic Quadrathlon committee, member

Berg, E.P. – Professional Meetings

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<tr>
<th>Date</th>
<th>Activity</th>
<th>Location</th>
<th>Role</th>
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<tr>
<td>2009</td>
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<tr>
<td>Jan. 6</td>
<td>SBARE Presentation</td>
<td>Fargo, ND</td>
<td>Invited Speaker</td>
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<tr>
<td>Feb. 5-6</td>
<td>ND Pork Producers Convention</td>
<td>Fargo, ND</td>
<td>Coordinator Attendee</td>
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<tr>
<td>Feb 16 – 17</td>
<td>National Pork Board (NPB) Unified Research Committee Meeting</td>
<td>Raleigh, NC</td>
<td>NPB An Sci Committee Member Attendee</td>
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<tr>
<td>Mar. 15 – 16</td>
<td>MW Regional American Society of Animal Science Academic Quadrathlon</td>
<td>Ames &amp; Des Moines, IA</td>
<td>AQ Chairman</td>
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<tr>
<td>Mar. 16 – 18</td>
<td>MW Regional American Society of Animal Science Meetings</td>
<td>Des Moines, IA</td>
<td>Attendee</td>
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<tr>
<td>Apr. 24 – 25</td>
<td>ND Meat Processors convention</td>
<td>Fargo, ND</td>
<td>Participant Organizer</td>
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<tr>
<td>May 1</td>
<td>Value Cuts Summit II</td>
<td>Austen, TX</td>
<td>Invited Speaker</td>
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<tr>
<td>May 20 – 21</td>
<td>AMTek site visit with Hormel research collaborators</td>
<td>Cedar Rapids, IA</td>
<td>Research collaborator</td>
</tr>
<tr>
<td>May 27 – 30</td>
<td>Equine Science Societies Annual meeting</td>
<td>Breckenridge, CO</td>
<td>Attendee</td>
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<tr>
<td>June 22 – 25</td>
<td>AMSA Annual Meeting: Reciprocal Meats Conference</td>
<td>Rogers, AR</td>
<td>Committee Chair Session Chair Moderator</td>
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<td>July 28</td>
<td>Military Appreciation Feed</td>
<td>Minot, ND</td>
<td>Meat Carver</td>
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<tr>
<td>Sept. 1</td>
<td>Value Cuts Summit III</td>
<td>Chicago, IL</td>
<td>Invited Speaker</td>
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<tr>
<td>Sept. 24 – 26</td>
<td>ND Stockman’s Association Annual Meeting</td>
<td>Minot, ND</td>
<td>Invited Cook Member Attendee</td>
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<tr>
<td>Nov. 13 – 15</td>
<td>International Intercollegiate Meat Judging Contest</td>
<td>Dakota City, NE</td>
<td>Committee member</td>
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<tr>
<td>Dec. 1</td>
<td>NorthStar Classic</td>
<td>Valley City, ND</td>
<td>Cook Presenter</td>
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Berg, E.P. – Editorial Boards
Berg, E.P.- Reviews
- Reviewed 31 research proposals submitted to the National Pork Board call for Nutritional Efficiency RFP.
- Manuscript reviews: 2 Journal of Animal Science; 1 Meat Science; 1 Professional Animal Scientist.

Berg, E.P. – National/International

Berg, E.P. - Regional

Berg, E.P. – College
- Member, Multi-cultural Student Faculty Advisory Committee. 2008 – Present

Berg, E.P. - Department
- Chair, Search Committee, Lecturer, Animal Science – Livestock Judging/ Youth activities: 2009.
- Member, Beef Research Facility Committee, Oct. 2007 to Aug. 2009
- Chair, Swine Committee, 2007 – present.
- Member, Graduate Committee, 2007 – present.
- Member, Facilities Planning Committee, 2007 – present.
- Member, Academic Quadrathlon Committee, 2007 – present.

Berg, E.L. – Professional Meetings

Berg, E.L. – Awards

Berg, E.L. – Reviews
Berg, E.L. – University
- University Senate, member

Berg, E.L. – Department
- Awards, member
- Equine, member
- Recruitment, Retention, Placement, Curriculum, member
- Coach for the Intercollegiate Hunt Seat Equestrian Team
- Advisor for the NDSU Horseman’s Association
- Guest instructor for ANSC 260L Equine Care and Management
- Guest instructor for ANSC 360 Equine Nutrition
- Guest instructor for ANSC 361 Intermediate Horsemanship
- Faculty advisor for the NDSU Saddle and Sirloin Club

Berg, E.L. – Other
- Alpha Equus English Riders, Treasurer and Horse Show Chairperson

Berg, E.L. – Extension
- Presenter, Wish I Had a Horse Camp-Fargo, ND, 11/1/09; 40 participants
- Presenter, F-M Head Start Horse Care for Kids-Fargo, ND, 11/19/09; 50 participants
- Judge for Sr. Team Prob & Reasons, State 4-H Hippology and Judging contest, Fargo, ND 5/6/09
- Judge for Sr. Team Prob, Winter Show Hippology Contest, Valley City, 3/6/09
- Tour guide of NDSU Equine Center, Epsilon Sigma Phi National Extension, Fargo, ND, 9/13/09
- Tour guide of NDSU Equine Center, National Red Angus Tour, 9/19/09
- Official & Judge for Senior Team, Little International Hippology & Judging Contest, Fargo, ND, 2/13/09

Berg, E.L. – TV
- NDSU Therapeutic Horsemanship Program, KXJB, 2/28/09

Berg, P.- Professional Meetings
- Reciprocal Meat Conference, University of Arkansas, June, 2009
- National North Dakota Stockmen’s Association Annual Meeting, Bismarck. September, 2009, (cooked and served for Opening Social, Thursday evening.)

Berg, P. – Awards
- AMSA Signal Service Award & AMSA fellowship (at 2009 RMC, University of Arkansas, June 2009

Berg, P. – National/International
- Intercollegiate Meat Coaches Assoc. of AMSA
- Official committee member for the AMSA Eastern Meat Judging Contest, Wylusing PA
Oct. 2009
- Official Committee member for the AMSA Meat Animal Evaluation Contest, Stillwater, OK
Mar 2009

Berg, P. – Department
- AnSci Sheep Committee
- Co-coach NDSU Meat Animal Evaluation Team
- Coordinator ND State FFA Meat Judging Contest, Northwest Minnesota FFA meat Judging Contest
- Faculty Advisor NDSU Judging Club
- Faculty Advisor NDSU Animal and Range Science Graduate Student Organization

Berryhill, D. – Department
- Participated in student presentation in VETS 259, Small Animal Diseases
- Chair, Awards Nomination Committee
- Member, Curriculum/Student Affairs Committee
- Member, Graduate Committee
- Chair, Veterinary Technologist Search Committee

Berryhill, D. – College
- Director of Special Programs, College of Agriculture, Food Systems, & Natural Resources (30%), including Director of the General Agriculture Program
- Member, College of Agriculture, Food Systems, & Natural Resources Student Progress Committee
- Member, College of Agriculture, Food Systems, & Natural Resources -Curriculum Committee

Berryhill, D. – University
- Responsible Official, Select Agent Program (% not determined)
- Chair, Institutional Biosafety Committee
- Alternate Member, Institutional Review Board
- Member, Laboratory and Chemical Safety Committee
- Member, Disaster Resistant University Advisory Committee
- Member, Multicultural Student Services Faculty Advisory Committee

Buchanan, D. – Department
- Taught ANSC 123 for the first time. Started with notes from Dr. Bauer and made some major modifications in the lab exercises. Wrote Excel spreadsheets to balance rations.
- Taught ANSC 793 – Data Analysis for Animal Science. Developed all materials for class including lecture materials, example data sets for analyses and SAS analysis demonstrations.
- Currently working on revisions of the course to make it a 3 credit course (ANSC 740) to be taught Fall 2010.
- Prepared and submitted for approval – ANSC 791 Genetic Improvement in Livestock. This is a graduate course, primarily for extension workers. Its offering will be entirely online (taught in Spring 2010).
- April 2009 – organized session on Molecular Biology for North Dakota Science Olympiad
- Guest lecture in Graduate Experiences class (Spring 2009)
- Guest lecture in Therapeutic Riding class (Spring 2009 and Fall 2009)

Buchanan, D.S. – Professional Meetings
- NCA-6 meeting in Atlanta (Animal Science Department Heads)
- North Dakota Stockmen’s Association

Buchanan, D.S. – Paper Reviews
- Reviewed 2 papers for the Journal of Animal Science

Buchanan, D.S. – National/International
- Swine Science Online Advisory Committee – US Pork Center of Excellence – (2007- )
- ASAS AdHoc Communications Committee (2009- )
- Expert Review Committee – USDA - Animal Metabolism-Agricultural Chemicals Research Unit (2009, Chair)

Buchanan, D.S. – Regional

Buchanan, D.S. – State
- SBARE Animal Agriculture Committee – (2008-)  

Buchanan, D.S. – University
- Advising Task Force - Chair (2008- )

Buchanan, D.S. – Department
- Teaching, Curriculum Committee (2009- )
- PTE Committee (2009-, Chair: 2010- )
- Swine Position Search Committee (2009)
- Beef Research-Teaching position (2009- )

Carlin, K. – Professional Meetings
- Chair, Joint Annual Meeting, National Meeting of American Society of Animal Science, Montreat, QB, Canada, 7/12-15, 2009

Carlin, K. – National/International
- American Society of Animal Science – member since 1999
  - Meat Science and Muscle Biology Committee 2008-2011
- American Meat Science Association – member since 2001
  - Scientific Committee member 2007-2009
  - Meats Judging Committee member 2005-2007
- USDA Agricultural Marketing Service Beef Tenderness Forum; Predictive Technology Committee 2007-present

Carlin, K. – Regional
- NC1184: Molecular Mechanisms Regulating Skeletal Muscle Growth and Differentiation – member since 2009

Carlin, K. - Department
- Animal Science 774 Nitrogen Metabolism (Spring 2009), Muscle protein turnover.
- Animal Science 330 Meat Selection and Grading (Fall 2009), Lamb carcass judging and grading.
- Animal Science 357 Animal Breeding and Genetics (Spring 2009), DNA replication, transcription, and translation. Each semester included three lectures and one laboratory assignment.
  - Search Committee member- Asst Prof/Swine 2009
  - Search Committee member- Grant Coordinator 2009
  - Quadrathalon Committee member 2007-09
  - Award Nomination Committee member 2007-09

Caton, J. – Professional Meetings
- March 09: Aberdeen Scotland. Finalized plans for Sabbatical starting in the Fall of 2009, discussed current data and collected data on a collaborative project.
- June 09: Western Regional Committee; Present data, Participate in planning Grazing Livestock Nutrition Conference, including funding requests. Assisted with final writing of project now W-1012 which is from WERA 110. I also collected data on collaborative project with Bret Hess.
- September 09: XIth International Symposium on Ruminant Physiology. Clermont-Ferrand, France. Presented data
- October 09: First International Conference on Selenium in the Environment and Human Health. Suzhou, China. Invited Speaker

Caton, J. – Awards
- Currently on Sabbatical at the Rowett institute of Nutrition and Health, University as Honorary Research Fellow
Caton, J. - Panel Member NIH-NIDDK-LPR Program.
Caton, J. - Numerous manuscripts reviewed and several ad hoc grant reviews for several agencies

Caton, J. – National/International
- Aspen Perinatal Biology symposium Organizing Committee member 2007-2010

Caton, J. – Regional
- NC1021 Regional Committee now NC1182: participated in writing the project
- WERA-110 now W-1012: Participated in writing the project, and planning the GLNC.

Caton, J. – University
- Co-Director Center for Nutrition and Pregnancy
- Academic Affairs Committee
- Mentor for Junior investigator on an existing NDSU funded NIH-COBRE

Caton, J. – College
- College PTE Committee
- College Program Review Committee

Caton, J. – Department
- Nutrition Committee
- ANPC Faculty Leader
- Nutrition Laboratory Faculty Leader
- Graduate Committee
- PTE Committee
- Search Committee; Beef Extension
- Several official and unofficial Mentoring roles in the Department
- Facility Committee

Colville, T. – Professional Meetings

Colville, T. – Awards

Colville, T. – Department
- Faculty advisor, Veterinary Technology Club
- Liaison to the North Dakota State University Veterinary Technology Program Advisory Committee.
- Member, Animal Sciences Awards Committee.
- Member, Animal Sciences Curriculum/Student Affairs Committee.
- Member, Animal Sciences Facilities Planning Committee.
- Member, Animal Sciences PTE Committee.
- Chair, Animal Sciences PTE Mentoring Committees for Dr. Sarah Wagner and Dr. Charles Stoltenow.
- Member, Animal Sciences PTE Mentoring Committee for Dr. Rob Maddock.

Eck, T. – Professional Meetings
- South Dakota State University – Brookings, SD; April 2009
- University of Nebraska – Lincoln, NE; April 2009
- Black Hills State University – Spearfish, SD; April 2009
- Dickinson State University – Dickinson, ND; May 2009
- NIRA National Summer Board Meeting – Casper, WY; June 2009
- University of Wisconsin – River Falls Rodeo - River Falls, WI; September 2009
- Iowa State University Rodeo – Ames, IA; September 2009
- Iowa Central Community College Rodeo – Fort Dodge, IA; September 2009
- North Dakota State University Rodeo – Fargo, ND; October 2009
- NIRA National Winter Board Meeting – Las Vegas, NV; December 2009

Grazul-Bilska, A. – Professional Meeting
- Society for the Study of Reproduction meeting, Pittsburgh, PA, July 2009 - international meeting.
- Department of Gynecological Endocrinology and Reproductive Medicine, University of Heidelberg, Germany; Seminar for faculty and research staff “Angiogenesis in uterus and placenta”, 2009; invited.
- Polish Society of Physiology and Society of Reproductive Physiology joined meeting, Olsztyn, Poland; “Angiogenesis in placenta and uterus: an animal model”, 2009; invited.

Grazul-Bilska, A. – Awards
-Nominated for Eugene R. Dahl Excellence in Research Award 2009

Grazul-Bilska, A. – Reviews
- Grant for the Graduate Student Teaching Award
- Grant for Graduate Student Research Award at NDSU
- Book chapter entitled “Transgenic Animals” from textbook “Biotechnology” by David P. Clark and Nanette J. Pazdernik; Academic Press.
- Animal Reproduction Sciences- 1 manuscript
- Biology of Reproduction - 1 manuscript
- Endocrine – 1 manuscript
- Domestic Animal Endocrinology – 3 manuscripts
- Journal of Applied Genetics - 1 manuscript
- Reproduction - 2 manuscripts
- Reproduction in Domestic Animals – 2 manuscripts
- Reproductive Biology -1 manuscript
- Reproductive Biology and Endocrinology - 1 manuscript
- Theriogenology - 6 manuscripts
- USDA paper internal reviewer - 1 manuscript.

Grazul-Bilska, A.T. – National/International
- Society for the Study of Reproduction, 2008-present, member of the Membership Committee

Grazul-Bilska, A.T. - University
- Radiation Safety Committee, member
- Member of the Steering Committee of the CMB program
- Senate, member
- NDSU Equal Opportunity Hearing Panel, member
- Mentor for junior faculty, NDSU Mentoring Program

Grazul-Bilska, A.T. – College
- Faculty Development Committee, member

Grazul-Bilska, A.T. - Department
- Graduate Coordinating Committee, chair
- Quadrathlon Committee, member

Hammer, C.J. – Professional Meetings
- Attendee, American Association of Equine Practitioners, Las Vegas, NV; Dec. 5-9, 2009
- Attendee & Grad Competition Judge, Equine Science Society, Keystone, CO; May 29-31, 2009

Hammer, C.J. – Awards
- Nominee, Earl and Dorothy Foster Excellence in Teaching Award from NDSU, 2009

Hammer, C.J. – Reviews
- Journal of Animal Science, 2 manuscripts
- Journal of Equine Veterinary Science, 1 manuscript

Hammer, C.J. – National/International
- American Society of Animal Science - Member, Horse Committee and Late-breaking Abstract Committee
- American Association of Equine Practitioners
- AAEP State Equine Emergency Network Contact for ND National Western 4-H Roundup – Horse Committee Co-Chair, Quiz Bowl

Hammer, C.J. – State
- North Dakota Animal ID Committee – Equine representative
- North Dakota Quarter Horse Association – Open Board member
- North Dakota Horse Park Foundation - Board member

Hammer, C.J. – College
- Gamma Sigma Delta – Member, Awards Committee, Historian, Chair, Photo Contest Judging

Hammer, C.J. – Department
- Equine Committee – Chair
- ARSGSO Scholarship Review Committee – Chair
- Recruitment, Retention, Placement & Curriculum Committee - Member

Hammer, C.J. – Extension
- Wish I Had A Horse Camp – October 2009 (40 youth participants), Coordinator and speaker
- NDSU Horse Fair and Fuzzy Wuzzy Open Horse Show were planned for Spring of 2009 but were cancelled due to flooding in Fargo
- Judge, Regional Simmental Cattle Public Speaking Contest, June 18, 2009
- Organizer and Official, North Dakota State FFA Horse Judging Contest, June 3, 2009
- Organizer, State 4-H Hippology and Judging Contest, May 9, 2009
- Organizer, Winter Show 4-H Hippology Contest, March 6, 2009
- Judge, Little International 4-H Hippology Contest, February 13, 2009
- Judge, National Western Horse Classic Horse Bowl, January 10, 2009
- Judge, National Western Horse Classic Hippology, January 9, 2009

Lardy, G.P. – National/International
Lardy, G.P. – Ad Hoc Reviews
- Journal of Animal Science (0)
- Canadian Journal of Animal Science (1)
- Animal Science and Feed Technology (1)
- Rangeland Ecology and Management (0)
- Renewable Agriculture and Food Systems (1)
- British Journal of Nutrition (1)

Lardy, G.P. – Regional
- Midwest ASAS. Director-At-Large. 2008 to present.
- NCR-SARE Technical Committee Grant Review Panel Member, 2006-Present.
- NCERA-87, Cow-Calf Management, member.
- NCERA 208, Feedlot nutrition and management, member.

Lardy, G.P. – State
- Ex-Officio Member, North Dakota Stockmen’s Association Standing Committee on Beef Cattle Research.
- Ex-Officio Advisor, North Dakota Lamb and Wool Producers Board.
- Advisor to the Board of Governors, North Dakota Natural Beef, LLC, Fargo, ND.
- Board Member, Home on the Range, Sentinel Butte North Dakota.

Lardy, G.P. – University
- Phi Kappa Phi Scholarship Chair. 2006 to present.

Lardy, G.P. – College
- PTE Mentoring Committee, Kevin Sedivec, faculty member, School of Natural Resources.

Lardy, G.P. – Department

<table>
<thead>
<tr>
<th>Committee</th>
<th>Dates</th>
<th>Member</th>
<th>Chair</th>
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<tbody>
<tr>
<td>Search Committee, Lecturer, Animal Sciences</td>
<td>2008-2009</td>
<td>X</td>
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<tr>
<td>Search Committee, Assistant Professor, Animal Sciences</td>
<td>2008-2009</td>
<td>X</td>
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<tr>
<td>Search Committee, Beef Herdsman</td>
<td>2008-2009</td>
<td>X</td>
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<tr>
<td>Beef Research Facility Building Committee</td>
<td>2007-Present</td>
<td>X</td>
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<tr>
<td>Animal Science Showcase</td>
<td>2007-Present</td>
<td>X</td>
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<tr>
<td>Mentoring Committee, Dr. Kasey Carlin</td>
<td>2007-2009</td>
<td>X</td>
<td>X(Co-Chair)</td>
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Mentoring Committee, Dr. Justin Luther 2006-2009  X  X
Mentoring Committee, Dr. Carrie Hammer 2005-2009  X
Mentoring Committee, Dr. Kim Vonnahme 2004-2009  X
Beef Committee 2000-present  X  X

Lardy, G.P. – Extension

<table>
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<tr>
<th>Location</th>
<th>Title</th>
<th>Number Enrolled</th>
<th>Role</th>
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<tbody>
<tr>
<td>Rapid City, SD</td>
<td>Natural Beef Production Systems</td>
<td>32</td>
<td>Co-Organizer</td>
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<td>Fargo, ND</td>
<td>Livestock Systems Tour Extension Conference</td>
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<td>Organizer</td>
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<tr>
<td>Washburn, ND</td>
<td>Extension Agents Livestock Inservice</td>
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<td>Organizer</td>
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Lardy, G.P. – Media

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<tr>
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<tbody>
<tr>
<td>2009</td>
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<tr>
<td>Cautions with Moldy Corn</td>
<td>Red River Farm Network</td>
</tr>
<tr>
<td>Animal Sciences Department Head</td>
<td>Ag Talk, KQLX, Lisbon</td>
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<tr>
<td>Animal Sciences Department Head</td>
<td>Clear Channel, Bismarck</td>
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<tr>
<td>Livestock Outlook</td>
<td>Red River Farm Network</td>
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<tr>
<td>Black Bonus</td>
<td>Print (Certified Angus Beef)</td>
</tr>
<tr>
<td>Flax May Be Efficient Livestock Feed</td>
<td>Print (Prairie Farmer)</td>
</tr>
<tr>
<td>Economy Impacts Agricultural Research</td>
<td>Radio-Country Connection</td>
</tr>
<tr>
<td>Check for Storage Molds in Feed Grains and Hay</td>
<td>Print (NDSU News Release)</td>
</tr>
<tr>
<td>Substitute Grain or Coproducts for Hay in Beef Cow Rations</td>
<td>Print (NDSU News Release)</td>
</tr>
<tr>
<td>Title</td>
<td>Media Type</td>
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<td>---------------------------------------------------------------------</td>
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<tr>
<td>NDSU Beef Systems Center of Excellence Update</td>
<td>Radio-Clear Channel</td>
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<tr>
<td>North Dakota Hay Supplies Tight</td>
<td>E-Hay Weekly Electronic Newsletter</td>
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<tr>
<td>Plan Now to Find Hay Substitutes</td>
<td>Print (NDSU News Release)</td>
</tr>
<tr>
<td>NDSU Web Site Offers Winter Weather Survival Tips</td>
<td>Print (NDSU News Release)</td>
</tr>
<tr>
<td>Winter Weather Tough on Cattle, Cattle Producers</td>
<td>Print (NDSU News Release)</td>
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Maddock, R.J. – Professional Meetings
- Reciprocal meats conference, University of Arkansas, national meeting

Maddock, R.J. – Reviews
- 2 grant proposal for National Pork Board.
- 8 manuscripts, 4 for “Meat Science” 3 for “Journal of Animal Science” and 1 for “Food Science”

Maddock, R.J. – National/International
- Meat Science Association
- Graduate Student Poster Committee, member and judge
- Meat Judging Coaches Association, member

Maddock, R.J. – Regional
- W2177-Increasing competitiveness of US beef, member

Maddock, R.J. – Extension

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<tr>
<th>Location</th>
<th>Youth</th>
<th>Adults</th>
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<tr>
<td>BBQ Boot Camp</td>
<td>various</td>
<td>approx. 1000 total</td>
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I developed the concept and held the very first BBQ Boot Camp while still employed at SDSU in 2006. In 2008, I led the development of the initial BBQ Boot Camp in Carrington. In 2009 I assisted with developing the BBQ Boot Camp program, including developing materials for one station. I lead a station at 5 camps, plus we did a mini boot camp for a 4-H group during a meeting on campus.

North Dakota HACCP Courses. Fargo 20
Training in HACCP is required for at least one employee of every inspected meat plant, and many other food processing plants require HACCP training. In total over 60 people have been HACCP trained. Companies have sent people for training include JM Smucker, ND Natural Beef, Roffe Container, ND Meat Inspection, Dakota Sausage Kitchen, Goodfella’s Pizza, and many small ND, MN, and SD meat processors. If HACCP training were not offered at NDSU, the next closest location for training is Omaha.

Beef Feedlot School, Carrington (2007-09). I presented information about beef quality to feedlot operators about the importance of beef quality to profitability for the past three years.

NDSA feedlot course, Bismarck. Presentations have been given to feedlot operators about how to manage feedlot cattle for improved quality for the past two years.

Redmer, D.A. – Professional Meetings
- National - Society for the Study of Reproduction, Annual Meeting
- Invited member of Faculty, Frontiers in Reproduction (http://fir.mbl.edu/), Marine Biological Laboratory (MBL), Woods Hole, MA. Course title: Techniques in angiogenesis for reproductive tissues. 2009, 2010

Park, C.S. – Professional Meetings
- Experimental Biology Meeting, April.
- American Society for Cell Biology Meeting, December.

Park, C.S. – Editorial Boards
- Reviewed USDA-NRI proposal (1).
- Reviewed Journal of Dairy Science manuscripts (2).
- Reviewed Journal of Animal Science (1).
- Reviewed Domestic Animal Endocrinology (1).

Park, C.S. – National/International
- Advisory Member of Korean National Academy of Sciences for Agricultural Affairs.
- Appointed by The Animal Production and Health Section of the Joint Food and Agriculture Organization and International Atomic Energy Agency Division of the UN to coordinate a research project to study effective nutrition regimens for sustainable food production systems for both developing and industrialized countries

Park, C.S. – Department
- Promotion, Tenure and Evaluation Committee, Chair
- Dairy Committee
- Graduate Committee
- Nutrition Committee

Park, C.S. – Extension
- Provide advice to NDSU extension specialists and county agents.
- Continue advising livestock producers (dairy, beef, swine) in the state and U.S. on compensatory growth rearing system.

Redmer, D.A. – Editorial Boards
- Biology of Reproduction

Redmer, D.A. – Manuscript Reviews
- Biology Reproduction
- Reproduction – Based in United Kingdom
- Journal of Animal Science

Redmer, D.A. – University
- Research Information Technology Advisory Group (RITAG) – member
- Institutional Animal Care and Use Committee – member
- New Faculty Mentoring Program

Redmer, D.A. – College
- Promotion, Evaluation and Tenure committee – elected to replace Joel Caton
- Head search committee for Dept. of Animals Sciences

Redmer, D.A. - Department
- Sheep Committee (Chair)
- Shepherd search committee
- Sheep Unit Faculty-in-Charge
- Extension Sheep Specialist Search Committee
- PTE Committee
- Mentoring committees: Charlie Stoltenow, Anna Grazul-Bilska, Carrie Hammer, Erica Berg

Reynolds, L.P. – Professional Meetings
- Faculty, *Frontiers in Reproduction* Summer Course for Advanced Students, Postdocs, Junior Faculty, Marine Biological Laboratory, Woods Hole, MA; May 2009
- Annual meeting, American Society of Animal Science, Montreal, QB; July 2009

Reynolds, L.P. – Editorial Boards

Reynolds, L.P. – Other Professional Activities
- Co-Director, Center for Nutrition and Pregnancy – North Dakota State University, 2002-2009
- Member, Promotion, Tenure, and Evaluation Committee, Department of Pharmaceutical Sciences, North Dakota State University, Fargo, ND; 2008-present

Reynolds, L.P. - Reviews
a. Reviewed 30+ scientific papers, total, for the following professional journals:
   - American Journal of Pathology, 2000-present
   - American Journal of Physiology, 1994-present
   - Animal Reproduction Science, 2003-present
   - Biology of Reproduction, 1990-present
   - Comparative Medicine, 2009-present
   - Domestic Animal Endocrinology, 1993-present
   - Endocrine, 1994-present
- Endocrinology, 1989-present
- Endothelium, 2004-present
- Experimental Biology and Medicine, 2002-present
- FASEB Journal, 2004-present
- Fertility and Sterility, 2000-present
- Journal of Animal Science, 1984-present
- Journal of Biotechnology
- Journal of Biomedicine and Biotechnology, 2008-present
- Journal of Clinical Endocrinology and Metabolism, 2000-present
- Journal of Dairy Science, 1997-present
- Journal of Endocrinology, 1994-present
- Journal of Molecular Endocrinology, 2005-present
- Journal of Nutrition, 2006-present
- Journal of Pharmaceutical Sciences, 1999-present
- Journal of Physiology, 2004-present
- Molecular and Cellular Endocrinology, 2001-present
- Molecular Reproduction & Development, 2009-present
- Obstetrics & Gynecology, 1997-present
- Pediatric Research, 1996-present
- Placenta, 1993-present
- Prostaglandins, 1992-present
- Theriogenology, 1994-present
- Ultrasound in Medicine and Biology, 2009-present

Reynolds, L.P. – Structured Professional Service
- Director, Cell Biology Center – Biotechnology Institute, North Dakota State University; and Cell Biology Center, Biology Core, North Dakota University System, Infrastructure Network for Biomedical Research Excellence (INBRE), NIH, 1990-present
- Supervisor, Research Development Coordinator/Grants Management Specialist (responsible to 9 faculty) – Department of Animal Sciences, North Dakota State University, 2001-present
- Principal Investigator, Co-Principal Investigator, or Project Director for a total of __ federally-funded competitive grants from NIH, NSF, and USDA, 1986-present

Reynolds, L.P. – National/International
- Center for Scientific Review, for National Heart, Lung, and Blood Institute, R13 (Conference Grant) Review Panel [2009/05 ZHL1 CSR-N (M1)], Member, NIH; Asynchronous Electronic Discussion panel meeting; April 2009
- Pregnancy and Neonatology Study Section, Temporary Panel Member, National Institute of Child Health and Human Development, NIH; Washington DC; June 2009
- Symposium/Review Article Committee, American Society of Animal Science, 2008-09 Member, International Scientific Committee and Session Chair, 8th International Ruminant Reproduction Symposium, Anchorage, AK, Sept., 2010
- Animal Physiology Symposium Committee, Western Section, American Society of Animal Science, 2009-10
- Ad hoc reviewer, US and international agencies:
  - Agricultural Research Service, USDA, 1988-present
  - Biomedical Research Support Grant Program, NIH, 1988-present
  - Biotechnology and Biological Sciences Research Council (UK equivalent to NSF), UK, 1997-present
  - Competitive Research Grants Program, USDA, 1988-present
  - IDeA (EPSCoR) Seed Grant Program, NIH, 1993-present
  - Medical Research Council (UK equivalent to NIH), UK, 2007-present
  - National Science Foundation, Switzerland, 1994-present
  - National Science Foundation, USA; Applied Mathematics and Computational Mathematics Program; Integrative Animal Biology, Physiology and Behavior Program; Integrative Animal Biology, Signal Transduction and Regulation Program; 1995-present
  - National Science Foundation, USA; EPSCoR program, 1996-present
  - Research Grants Council of Hong Kong, University Grants Committee, 2002-present
  - Small Business Innovation Research Program, USDA, 1987-present
  - University of Kansas Medical Center Res. Inst., Inc., Res. Pilot Awards Program, 1999
  - U.S.-Israel Binational Agricultural Research and Development Fund (BARD), 1995-present
  - The Wellcome Trust, London, UK, 2000-present

Reynolds, L.P. – University
- Faculty, undergraduate Biotechnology Program
- Faculty, graduate Cellular and Molecular Biology Ph.D. Program
- Mentor, new faculty, NDSU – 7 Assistant Professors from across NDSU campus
- Mentor, 1 faculty associated with active grants – Dr. Glenn Dorsam, Dept. of Chem./Biochem., NDSU, COBRE (Sibi, PI)

Reynolds, L.P. – Department
- Supervisor, Physiology Laboratory Technician Pool (4 permanent and 1 to 2 temporary [3 to 5 yr] technical positions), which is responsible to 7 PIs – Department of Animal & Range Sciences, North Dakota State University, 2004-2009
- Faculty Grantsmanship Mentor, New Faculty (currently 3 tenure-track and 2 soft-funded faculty) – Department of Animal & Range Sciences, North Dakota State University, 2004-present
- Chair, PTE Mentoring Committee for Dr. Eric Berg, Assoc. Prof., 2007-present
- Chair, PTE Mentoring Committee for Dr. Kasey Maddock-Carlin, Asst. Prof., 2007-present
- Member, PTE Mentoring Committee for Dr. Sarah Wagner, Asst. Prof., 2004-present

Schroeder, J.W. – Professional Meetings
- National Holstein Convention – official North Dakota representative
- Midwest Section Joint ADSA-ASAS Annual Meeting, Des Moines, IA; Graduate poster competition judge

Schroeder, J.W. – Regional
- Midwest Section - American Dairy Science Association – Graduate poster committee vice chair and judge of both MS and PhD competition. Des Moines, IA. March 15-18, 2009
- Midwest Dairy Association, American Dairy Council; ex-officio advisor, represent NDSU.
- Heart of America DHIA, University Extension representative; ex-officio advisor.
- North Dakota Dairy Products Promotion Commission/ADA; ex-officio advisor.

Schroeder, J.W. – State
- North Dakota Dairy Coalition: Board of directors and Dairy retention and expansion committee
- North Dakota State Dairy Show Association, David. Thoreson, Nome, ND, President: Open dairy show organization and manager
- North Dakota State Dairy Judging Contest: Coordinate with Dean Aakre, State 4-H Office, Officiate
- Milk Producers Association of North Dakota; University representative and advisor, Education committee, Convention coordinator

Schroeder, J.W. – University
- University Senate, 1.] Representative from the College of Agriculture, Food Systems, and Natural Resources, 2006-2009; and 2.] University Senate, Executive Committee, 2008 to 2009

Schroeder, J.W. – Department
- Graduate Review Committee, member, 2009 to present.
- Extension Sheep Specialist recruitment chair, 2009 to present.
- Dairy Committee, ARS standing research committee, chair, 1993 to present.
- Nutrition Lab committee, 1996 to present.

Schroeder, J.W. - Other
- Dakota Farms Dairy, a specialty and branded products development collaboration with ND Dairy Coalition.
- On-farm dairy processing plant feasibility with NDAREC and ND Dairy Coalition

Schroeder, J.W. – Extension

<table>
<thead>
<tr>
<th>Activity and Date</th>
<th>Location</th>
<th>Youth or Adults</th>
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<tbody>
<tr>
<td>Dairy Cow College, 1/26 to 1/30</td>
<td>Linton 17</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>New Salem 16</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Dickinson 22</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Minot 16</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Valley City 23</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>94</strong></td>
<td><strong>46 (~19%)</strong></td>
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</table>
State Dairy Convention, 11/20-21 (Organize, advertise, promote, coordinate and co-present):
   Mandan 160

State 4-H Dairy Contest, 06/21 (Co-organize with Dean Aakre, Extension 4-H/Youth, Jackie Buckley, Morton County Extension Educator, and 3 producers from the New Salem area.
   Teams 3 counties, 1 FFA
   Individuals 18

Activity and Date | Location | Youth / Adults
--- | --- | ---
State FFA Convention (06/01-05) NDSU, Fargo:
   Dairy cattle judging Contest, 6/02 | 96 / 10 = 106
   Pedigree evaluation, 6/02 | 103 / 9 = 112
   Herd record evaluation, 6/02 | 103 / 10 = 113
   Dairy Showmanship contest, 6/02 | 33 / 6 = 39
   Dairy products judging Contest, 6/03 | 138 / 9 = 147
   Written individual exam, 6/03 | 138 / 9 = 147
   Team problem-solving - dairy foods, 6/03 | 138 / 9 = 147

Schroeder, J.W. – Technology Transfer
   - Internet: NDSU Dairy Research and Extension Homepage
     [http://www.ag.ndsu.nodak.edu/aginfo/dairy](http://www.ag.ndsu.nodak.edu/aginfo/dairy). Contains a variety of dairy producer-related topics, plus a FAQ Frequently Asked Questions section in response to popular phone calls and email requests.
   - Listserv: Moderator of NDSU-Dairy-tf and NDSU-Coalition-dir Listservs. Membership includes dairy leaders, etc, including Al Gustin, KFYR

Schroeder, J.W. – Extension Teaching Materials
   **Title:** Type of material
   (slide set, leader guides, video tapes, computer programs)
   **Internet** NDSU Dairy Research information and user links on current issues important to the dairy community.
   **eXtension** Respond to questions.
   **Dairy Connections** Quarterly newsletter circulated to all North Dakota dairy producers and many of their service providers. (Copies available on request).

Schroeder, J.W. – Radio & TV

<table>
<thead>
<tr>
<th>Date</th>
<th>Title of Press Release</th>
<th>Location</th>
<th>TV</th>
<th>Radio</th>
<th>NewsEnews</th>
<th>Other</th>
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<tbody>
<tr>
<td>01-15-09</td>
<td>Dairy Focus: MILC Program Renewed</td>
<td>Regional</td>
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<tr>
<td>01-22-09</td>
<td>Midwest Winters Challenge Dairy Calf Survival</td>
<td>Regional</td>
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<td>02-05-09</td>
<td>Dairy Focus: Economic Conditions Could Get Ugly</td>
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<td>02-05-09</td>
<td>Use Feed List to Buy or Sell Needed Feeds</td>
<td>Regional</td>
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<td>02-10-09</td>
<td>Surviving in a down economy.</td>
<td>Regional</td>
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<td>Max Yield Cooperative</td>
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<td>02-13-09</td>
<td>Affordable Forages to Compliment Dairy Diets</td>
<td>Telephone</td>
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<td>Hay &amp; Forage Magazine</td>
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<td>02-14-09</td>
<td>Calf Survival Techniques</td>
<td>Telephone</td>
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<td>Max Yield, Ag Coop Website</td>
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<td>02-17-09</td>
<td>Don’t let pre-weaned dairy calves go hungry</td>
<td>Regional</td>
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<td>Max Yield, Ag Coop Website</td>
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<td>03-02-09</td>
<td>Radio interview at the ND Winter Show</td>
<td>Telephone</td>
<td>KOV C</td>
<td>Steve Urness, Valley City</td>
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<tr>
<td>04-02-09</td>
<td>Dairy Focus: Dealing with Stress</td>
<td>Regional</td>
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<tr>
<td>06-11-2009</td>
<td>Dairy Outlook</td>
<td>Telephone</td>
<td>KFY R</td>
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<tr>
<td>06-15-09</td>
<td>Forages Key to Dairy Nutrition</td>
<td>Regional</td>
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<tr>
<td>06-22-2009</td>
<td>Dairy Forage Allocation</td>
<td>Telephone</td>
<td>Ag Coop Website</td>
<td>Max Yield, Lura Roti</td>
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<tr>
<td>07-07-09</td>
<td>Proper harvesting, storage impacts silage quality</td>
<td>Regional</td>
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<td>Max Yield, Ag Coop Website</td>
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<tr>
<td>07-20-09</td>
<td>Avoid Heat Stress in Calves</td>
<td>Regional</td>
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<td>07-23-09</td>
<td>Dairy Focus: Suicides a Tragic Result of Farm Economy</td>
<td>Regional</td>
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<td>07-27-09</td>
<td>Heifer Synchronization Programs Can Be Cost Effective</td>
<td>Regional</td>
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<tr>
<td>08-04-09</td>
<td>Watch for signs of depression</td>
<td>Regional</td>
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<td>Max Yield, Ag Coop Website</td>
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<tr>
<td>08-11-09</td>
<td>Heifer synchronization programs can be cost effective</td>
<td>Regional</td>
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<td>Max Yield, Ag Coop Website</td>
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<td>08-31-09</td>
<td>Dairy Focus: Dare to Compare</td>
<td>Regional</td>
<td></td>
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<tr>
<td>09-08-09</td>
<td>Dairy Focus: Feed Shrink, the Dairy Managers’ Nemesis</td>
<td>Regional</td>
<td></td>
<td>Max Yield, Ag Coop Website</td>
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<tr>
<td>09-11-09</td>
<td>Dairy farm managers dare to compare</td>
<td>Regional</td>
<td></td>
<td>Max Yield, Ag Coop Website</td>
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<td>09-14-2009</td>
<td>Preservatives Make Wet Hay Useable</td>
<td>Regional</td>
<td></td>
<td>Feedstuffs Vol. 81, No 40, p 25</td>
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<tr>
<td>09-15-2009</td>
<td>Silage Preservatives</td>
<td></td>
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<td>Mick Kjar</td>
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<td>09-28-2009</td>
<td>Harvesting Frosted Corn for Silage an Option</td>
<td>Regional</td>
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<tr>
<td>10-06-09</td>
<td>Dairy Focus: FARM Program Will Authenticate Dairy Farm Practices</td>
<td>Regional</td>
<td><a href="http://www.maxyield.cooperative.com">www.maxyield.cooperative.com</a></td>
<td>Max Yield, Ag Coop Website</td>
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<tr>
<td>10-06-09</td>
<td>Preservatives make wet hay useable</td>
<td>Regional</td>
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<td>Max Yield, Ag Coop Website</td>
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<tr>
<td>10-06-09</td>
<td>Stop feed loss to birds</td>
<td>Regional</td>
<td></td>
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<tr>
<td>10-09-09</td>
<td>Turn Frost-damaged Corn into Silage</td>
<td>Regional</td>
<td></td>
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<tr>
<td>10-12-09</td>
<td>Dairy Focus: Cold Temperatures Challenge Corn Silage Production</td>
<td>Regional</td>
<td></td>
<td>E-Moo Dairy Newsletter, Dairy Today Magazine,</td>
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<tr>
<td>10-12-09</td>
<td>Cold Temps Hinder Silage Production</td>
<td></td>
<td></td>
<td>Dairy Today magazine and E-moo Dairy Newsletter</td>
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<tr>
<td>10-28-09</td>
<td>High-moisture Corn Creates Storage Problems</td>
<td>Statewide</td>
<td></td>
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<tr>
<td>10-28-09</td>
<td>Van Bedaf dairy is one of few new ones in state</td>
<td>Regional</td>
<td></td>
<td>AgWeek</td>
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<tr>
<td>10-29-09</td>
<td>Cold Temps Hinder Silage Production</td>
<td>National</td>
<td><a href="http://hayandforage.com">http://hayandforage.com</a></td>
<td>Hay &amp; Forage Grower,</td>
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<tr>
<td>11-04-09</td>
<td>Sustaining Farm and Family</td>
<td>Statewide</td>
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<tr>
<td>11-05-09</td>
<td>Frozen Silage – What to expect</td>
<td>U.S.</td>
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<td>Progressive Forage Magazine</td>
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<tr>
<td>11-11-09</td>
<td>Silage Fermentation Problems Continue into 2010</td>
<td>U.S.</td>
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<td>eCorn Silage newsletter, Hay &amp; Forage Grower</td>
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<td>11-24-09</td>
<td>Feed Frozen 'Silage' Carefully</td>
<td></td>
<td></td>
<td>Hay &amp; Forage Grower and eCornSilage Newsletter</td>
</tr>
<tr>
<td>12-04-09</td>
<td>Dairy Focus: Bagging Wet Corn</td>
<td>Regional</td>
<td></td>
<td></td>
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<tr>
<td>12-14-09</td>
<td>Organic acids help protect corn</td>
<td>National</td>
<td></td>
<td>Feedstuffs Vol. 81, No 51, p 11-12.</td>
</tr>
</tbody>
</table>

Schroeder, J.W. – Other Extension  
**ND3P (North Dakota Dairy Diagnostic Program).**  
On-farm advisory teams designed specific to the individual dairy farm family=s needs.  
Organized and conducted with ND3P facilitator and statewide coordinator (T. Risdal) to improve
leadership and planning skills, enhance profitability, and transfer technology.

**Summary of hours for Extension (75%) program reporting:**

<table>
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<tr>
<th>Year</th>
<th>Hours</th>
<th>Audience</th>
<th>Work Hours</th>
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</thead>
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<tr>
<td>FY09 (Oct-Sep)</td>
<td>2266</td>
<td>5,723 (direct contacts)</td>
<td>188.8 hr/mo</td>
</tr>
</tbody>
</table>

------- (direct contacts include any event that actively featured me in any setting)

Stoltenow, C.S. – Professional Meetings
- May 27-29, 2009, International Conference on the Use of Antimicrobials in Cattle Production, Manhattan, KS.
- July 10-16, 2009, attended the 146th American Veterinary Medical Association annual Convention, Seattle, WA.
- August 5-7, 2009, attended the 104th North Dakota Veterinary Medical Association annual convention.
- August 28-29, 2009, attended as the NDVMA’s representative the Heartland Veterinary Leadership Conference, Milwaukee, WI.

Stoltenow, C.S. – Awards
- NDSU Extension Service 2009 Large Team Program Excellence Award – BBQ Boot Camp

Stoltenow, C.S. – Reviews
- Outside reviewer for the USDA Agriculture Research Service on the paper “Depletion of urinary zilpaterol residues in horses as measured by ELISA and UPLC-MS/MS”, by David Smith (USDA:ARA:BL) and Carolyn Hammer (NDSU Animal Sciences) November 11, 2009.

Stoltenow, C.S. – National/International
- VET Net Mongolia NGO Advisory Board, provide direction and leadership for the education and instruction of veterinarians in Mongolia. This position fits directly into the stated AFRI goal of global food security.
- Extension Disaster Education Network (EDEN) Community of Practice (COP) national program leader for Agrosecurity. As the leader I oversee the EDEN Agrosecurity COP which also functions as the eXtension COP. Under my direction the COP has created approximately 350 frequently asked question and 487 published pages of articles.

Stoltenow, C.S. - State
- North Dakota Veterinary Medical Association, Member of the Executive Board
- Consulting veterinarian to the ND Board of Animal Health. Time commitment at approximately 5%. This position is mandated by the State Century Code and the purpose of the position is to advise the Board on all scientific and technical matters before the Board.
- Served as the livestock coordinator during the 2009 Spring Flood/Snowstorms. Coordinated
activities between Office of the State Veterinarian, USDA Veterinary Services AVIC, state FSA office and the ND Extension Services system. Provided leadership in developing public service announcements, developing protocols for collecting livestock loss information, and developing protocols for setting up emergency animal shelters.

Stoltenow, C.S. – College
- Served as a member of the NDSU Extension Professional Development Leadership Team charged with revamping the self assessment portion of the program. Project was very successful and adopted by Extension Leadership Team. Feedback from extension faculty and staff have been very positive. This program is the basis of determining professional development needs within Extension. Other Extension programs from around the country have expressed interest in copying our program.
- Served as a member of the 2009 NDSU BBQ Boot Camp program. Provided expertise in logo design and development, and in developing program assessment questionnaires.
- Served as a member of the NDSU Extension eXtension Leadership Team. This team is charged with developing, incorporating and assimilating the eXtension system within the NDSU Extension Service.
- Served as a member of the NDSU Extension moldy corn task force. Primary responsibilities included formulating recommendations for utilizing corn possibly contaminated with mycotoxins for utilization by livestock, specifically beef cattle.
- Appointed Livestock program leader and initiated a complete re-write of the livestock profitability program plan for NDSU extension. The complete re-write of the livestock plan of work is designed to incorporate the needs of the counties into the state plan of work, and provide a cohesive action plan for the livestock program.

Stoltenow, C.S. – Department
- Member, Animal Sciences Department Head Search Committee, search was successful with the hire of Dr. Greg Lardy.
- Chair, Animal Sciences Department Swine Faculty Committee, search was successful with the hire of Dr. David Newman.
- Chair, Holiday Celebration Committee.
- Member, Animal Sciences Awards Committee
- Member, Animal Sciences Equine Committee
- Member, Animal Sciences Sheep Committee
- Member, Animal Sciences Web Site Committee

Stoltenow, C.S. – Extension Coordinated Activities
- February 10, 2009 Small animal continuing education program, Fargo, Ramada Plaza Suites. 25 veterinarians in attendance
- October 15, 2009, co-coordinated logistics with Dr. Greg Lardy for the Livestock Systems in-depth training bus trip.
- December 14-15, 2009, co-coordinated with Lisa Pederson “Keep’n the best, Hav’n Success” program in Flasher and Napoleon, ND.
- Assumed responsibility for, planned, budgeted and coordinated the 2009 Tri-State Meat Goat Conference. Approximately 95 participants from four states and one Canadian province. Conference was well received by participants, 74% of participants related they had learned
something that they would change or implement within their operation.
- Created the original CattleDocs concept. CattleDocs is designed to be a one-stop shopping experience for all things beef within North Dakota. The primary stakeholders are ND producers, decisions makers, NDSU Extension personnel, NDSU researchers and the ND public. The system is designed to fit within the eXtension system, yet provide ND derived beef information to ND stakeholders, and others across the nation and internationally. I hosted initial meetings with key individuals to discuss the creation of a one-stop-shopping event for cattle producers in North Dakota.

Stoltenow, C.S. – Media Presentations

<table>
<thead>
<tr>
<th>Title of presentation and location</th>
<th>Type of Media</th>
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</thead>
</table>
| Preparing for Calving, interview by Al Gustin  
Report for KFYR, February 24, 2009 | TV XXX PSA |
| Vet says ND cattle losses pegged at more than 80,000,  
| Livestock losses in ND. Interview by Lura Rhode  
Agriculture Cooperative Writer, Sioux Falls, SD.  
April 22, 2009. | PSA XXX |
| Impact of H1N1 on livestock, with Mick Kjar  
Reporter with KQLX, April 27, 2009 | TV XXX |
| Dealing with livestock in drought, with Jodi Henke  
Living the country life, national radio program  
Meredith Corporation, Successful Farming, June 1, 2009. | Radio XXX |
| Methicillin resistant Staphylococcus aureus (MRSA) in livestock  
Interview with Mick Kjar, June 15, 2009 | TV XXX |
| Swine flu (H1N1) in a Minnesota pig.  
Interview with Mick Kjar, October 19, 2009 | Radio XXX |
| Antibiotic residues in dairy cattle, invited guest on  
The Jack and Sandy Show, KFGO, November 23, 2009 | PSA XXX |

Stoltenow, C.S. – Other Extension Events
- June 29, 2009, site visit to sheep farm to investigate possible intoxication of sheep. Four ewe deaths reported.
- Served as a 4-H Juniors judge at the Mountrail Horse Classic, Stanley, ND, March 21, 2009.
- April 15, 2009, provided transportation and hosted Jeff Blackwood, legislative assistant to Senator Dorgan to view flooding, livestock losses, and aftermath damage in southeastern North Dakota.
- June 3, 2009, represented the ND Veterinary Medical Association, NDSU Animal Sciences and the NDSU Extension Service at the 80th ND FFA State Convention by presenting the veterinary medicine proficiency award.
- Provided third party verification for the LIP program for David Thompson, rancher.
- December 3, 2009, participated in the Griggs county business and historical tour.
- Provided Daryl Richeson, local TV personality with a personal tour of NDSU facilities to increase public awareness of NDSU’s mission and scope.
Swanson, T. – Professional Meetings
- American Youth Horse Council Symposium attendee- National
- National Association of Equine Affiliated Academics Conference attendee- National
- Equine Science Society Meeting attendee- National
- NDSU Teaching & Learning Conference- College

Swanson, T. – Awards
- Sigma Kappa Delta member
- ND certified 4-H judge

Swanson, T. – Other
- Equine Science Society- member
- American Quarter Horse Association- member

Swanson, T. – Regional
- Intercollegiate Horse Show Association Standards and Ethics Committee

Swanson, T. - College
- Equine Committee

Swanson, T. – Extension

<table>
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<tr>
<th>Location</th>
<th>No. Particip.</th>
<th>Activity and Date</th>
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<tr>
<td>Winter Show Hippology</td>
<td>100 Youth</td>
<td>3/06/09</td>
<td>Fargo, ND</td>
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<td></td>
<td>100 Adults</td>
<td>Co-coordinator</td>
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<tr>
<td>State 4-H Judging &amp; Hippology</td>
<td>100</td>
<td>5/08/09</td>
<td>Fargo, ND</td>
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<tr>
<td></td>
<td></td>
<td>Co-coordinator/speaker</td>
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<tr>
<td>FM Posse Horsemanship Clinic</td>
<td>15 5</td>
<td>6/27/09</td>
<td>Fargo, ND</td>
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<td></td>
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<tr>
<td>4-H Judges Certification</td>
<td>10</td>
<td>9/19/09</td>
<td>Minot, ND</td>
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<td>Carrington FFA Judging Clinic</td>
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<td>10/14/09</td>
<td>Fargo, ND</td>
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<td>Wish I Had a Horse Camp</td>
<td>50</td>
<td>11/14/09</td>
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Swanson, T. – Other Extension

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<tr>
<td>Little I showmanship demonstration- clinician</td>
<td>Fargo, ND</td>
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<td>Little I hippology contest- judge</td>
<td>Fargo, ND</td>
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<tr>
<td>State FFA judging contest- judge</td>
<td>Fargo, ND</td>
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<td>4-H Leadership Workshop- speaker</td>
<td>Fargo, ND</td>
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<td>LaMoure County 4-H Show-judge</td>
<td>Edgeley, ND</td>
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<tr>
<td>FM Posse Horse Show- judge</td>
<td>Fargo, ND</td>
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<tr>
<td>Kansas East Central District Horse Show- judge</td>
<td>Lawrence, KS</td>
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</table>
7/11/09  North Dakota Horse Show Association Show-judge   Devils Lake, ND
8/01/09  Hawley Open Horse Show- judge   Hawley, MN
8/02/09  Edgeley Open Horse Show- judge   Edgeley, ND
8/09/09  Northwest Saddle Club Association Show- judge Williston, ND
8/12/09  Dawson County Fair Open Horse Show- judge Glendive, MT
8/15/09  Bismarck Saddle Club Open Horse Show- judge Bismarck, ND
8/23/09  Ransom County 4-H Horse Show- judge Lisbon, ND
7/15-7/16  Red River Valley Horse Show- show assistant Fargo, ND
7/26-7/29  ND State Fair Horse Show- show assistant Minot, ND

Vonnahme, K.A. – Professional Meetings
- Midwest Section American Society of Animal Science
- American Society of Animal Science
- Society for the Study of Reproduction
- W112—Reproduction in Domestic Ruminants
- NCR1006—Reproductive Efficiency in Cattle

Vonnahme, K.A. – Other Professional
- USDA-AFRI Animal Growth and Nutrient Utilization Grant Panel
- Reviewed several manuscripts for several journals

Vonnahme, K.A. – National/International
- American Society of Animal Science; On the Triannual Reproductive Symposium Committee for the --- ASAS meetings in Montreal 2009; On the Casida Award Committee for ASAS

Vonnahme, K.A. – Regional
- American Society of Animal Science on Midwest Section Quadrathlon Committee; 2009
  Chair of - --
- Physiology Section at 2010 Midwest ASAS; W112 member, NCR 1006 member

Vonnahme, K.A. – University
- Co-Director of Center for Nutrition and Pregnancy, May 2009

Vonnahme, K.A. – College
- On Research Award Committee for CAFSNR

Vonnahme, K.A. – Department
- Quadrathlon Committee—chair
- Library liaison
- Swine Committee
- Beef Committee
- Curriculum Committee
- Swine Position Search Committee
- Animal Science Showcase Committee

Vonnahme, K.A. – Extension
- Invited Speaker; ND Continuing Education for State Veterinarians. Reproductive Anatomy, Physiology, and Estrous Synchronization. 5/21/09
- Presenter; Bovine reproduction, rectal palpation, and embryo development. Midwest Regional ADSA-SAD Convention. 2/28/09
- Invited Speaker; Dunn County Extension. Maternal nutrition during pregnancy and its effects on productivity of their offspring. Kildeer, ND. 2/7/09
- Assisted NDSU Bison Dairy Club as they hosted the regional ADSA-SAD meeting by writing questions for quiz bowl competition

Wagner, S.A. – Manuscript Reviews
- The Bovine Practitioner (1)
- Journal of the American Veterinary Medical Association (1)
- Veterinary Therapeutics (1)
- Journal of Dairy Science (1)
- American Journal of Veterinary Research (1)

Wagner, S.A. – National/International
- American Veterinary Medical Association
- Committee on Veterinary Technician Education and Activities, 2007- present
- Representing Large Animal Practice
- American Association of Bovine Practitioners
- Committee on Lameness, committee member, September 2008- present

- American College of Veterinary Clinical Pharmacology: Exam Committee Member, Member of 10-person committee charged with writing and grading the certification examination for the college

Wagner, S.A. – College
- Committee Member, Search Committee, Department Head, Department of Animal Sciences, NDSU

Wagner, S.A. - Department
- Committee Member, Department of Animal Sciences Dairy Committee 2004-present
- Committee Member, Department of Animal Sciences Awards Committee 2007-present

Williams, B. – Professional Meetings
- Fall 2009 Extension Conference: Fargo, ND
- Extension plan of work meeting: Carrington, ND

Williams, B. – Structured Professional Service
- A total of 15-20 hours a week are spend with the livestock judging team on nights and weekends in addition to class/practice time during the traditional 8 to 5 work day.
Williams, B. - Extension
- Conducted a livestock judging workout for 4-H and FFA youth at the North Star Classic in Valley City in December. Classes were brought from NDSU and cattle classes were pulled from exhibitors present at the show. A total of eight classes were offered and about 40 participants.
- Offered a livestock judging workout at NDSU’s animal farms for youth in November. Twelve classes were organized and available for viewing for eight hours. An estimation of 30 students participated.

2. Alumni events and other community-related activities;

**Paul Berg** organized and served “Military Appreciation Day” sponsored by the ND Beef Commission at the State Fair, July 2009 (sixth year of providing a noon meal for approximately 1500 servicemen and women). He also served as Judge for Northern Steer Classic, North Dakota Winter Show. Planned and provided “special” dinners for NDSU football team (two events, fall 2009)

**Thomas Colville** is a consulting Veterinarian for the Fargo-Moorhead Humane Society. He volunteered his professional services implanting RFID microchips in animals belonging to members of the public at 4 Fargo-Moorhead Humane Society microchip clinics. He is also a consulting Veterinarian to the American College of Surgeons Advanced Trauma Life Support Course and their Pediatric Advanced Life Support Course. He is also a member of Fargo-Moorhead Humane Society Policy Committee.

3. Fund-raising accomplishments;

4. Other outreach activities.

**Carrie Hammer** has been meeting with tribal college administrators to discuss possible collaborative efforts among programs (Turtle Mountain, United Tribal Technical College, Ft. Yates).

**D. Special Initiatives**
1. Cooperative programming/interinstitutional activities (e.g., NDUS, TCU, etc.);

The department provides academic coursework to Dickinson State University through distance education.

2. International activities;

**Kasey Maddock Carlin** was the chair of the Meat Science Technical Session & Meat Science Committee member at the Joint Annual Meeting, Nation Meeting of American Society of Animal Science in Montreal, QB, Canada.

**Dr. Joel Caton** was on sabbatical at the Rowett Institute of Nutrition and Health, Aberdeen,
Scotland as an Honorary Research Fellow. He presented data in September 2009 at the XIth International Symposium on Ruminent Physiology in Clermont-Ferrand, France. He was also an invited speaker in October 2009 at the First International Conference on Selenium in the Environment and Human Health in Suzhou, China.

**Dr. Anna Grazul-Bilska** gave invited presentations for the Department of Gynecological Endocrinology and Reproductive Medicine, University of Heidelberg, Germany, and the Polish Society of Physiology and Society of Reproductive Physiology joint meeting, Olsztyn, Poland.

**Dr. Greg Lardy** is an Ad Hoc reviewer for the Canadian Journal of Animal Science.

**Dr. Chung Park** is an advisory member of the Korean National Academy of Sciences for Agricultural Affairs. He also was appointed by the Animal Production and Health Section of the Joint Food and Agriculture Organization and International Atomic Energy Agency Division of the UN to coordinate a research project to study effective nutrition regimens for sustainable food production systems for both developing and industrialized countries.

**Dr. Charlie Stoltenow** is a member of the VET Net Mongolia NGO Advisory Board. He also participated in Cochrane Fellowship Program: USDA Foreign Agriculture Service Training for Senior and Mid-level specialists and administrators concerned with international trade and relations.

3. Interdisciplinary activities;

International interdisciplinary activities were centered around the Center for Nutrition and Pregnancy (CNP) as detailed in Section D. 3. The goals of the CNP are to perform cutting edge nutritional research that promotes fetal and neonatal growth, provided a mechanism for coordinated research and training programs in nutrition and pregnancy, and deliver leadership training for students and clinicians in research and education. The CNP has participation from ANSC faculty; Food and Nutrition faculty; University of Wyoming and Nebraska faculty; the USDA in Dubois, Idaho and Grand Forks, ND; faculty from the University of Teramo, Italy; and researchers from the Rowett Research Institute for Nutrition, Aberdeen, Scotland.

4. Economic development efforts; and

The department’s major economic development activity continues to be the Beef Systems Center of Excellence (BSCOE). The BSCOE has objectives for North Dakota of:

- Economic development of the livestock industry
- Build the research capacity of beef cattle
- Increase educational opportunities for livestock producers and students

The Center’s private business partner completed construction and renovation of a beef processing, fabrication, and distribution center near the NDSU campus. This facility will be capable of processing approximately 50,000 head of beef and bison annually. The company is
Department faculty have been instrumental in assisting the company in several areas including: 1) sourcing fed cattle and identification of potential suppliers, 2) assistance with the development of HACCP plans and troubleshooting food safety issues, 3) development of specifications for the program, and 4) sourcing additional grant funds for market research. When fully implemented the company’s business plan calls for purchasing 25,000 head of fed cattle (valued at approximately $32 million dollars). In addition the company will employ approximately 100 people at its Fargo location. The company has developed custom processing ventures with several beef marketers in the region.

5. On-line courses and programming.
Most of the courses in the department use Blackboard for availability of course materials and communication. The department has on-line courses, at least in that limited sense. There are not any stand-alone on-line courses in which students may enroll and proceed at their own pace. Discussions have initiated concerning developing such classes.

E. Planning
1. Describe each department’s future plans, future challenges and programs strengths, as well as the overall unit.

We need to successfully conclude searches for personnel. Current students advised in the department total over 300. Our goal is to increase student members. Plans to expand and diversify the study options are critical to the successes of recruiting. New study options can increase the range of students with an interest in the department and will also provide marketing opportunities that make our programs more appealing to prospective students.

Research programs will continue to emphasize more fundamental areas of research centered on the general area of developmental programming as well as more applied research in beef, dairy, sheep and swine nutrition, physiology and management. The addition of new faculty members in the meats area and development of the Beef Center Systems of Excellence is facilitating expanded research in that discipline.

2. Program strengths
The program has a great many strengths. The teaching program is well known in the state and regionally. There is a good combination of senior faculty who have shown teaching excellence for many years and younger faculty who have already developed reputations as excellent teachers. A rapidly developing teaching strength is the equine program with four faculty members and programs in equine nutrition and physiology, therapeutic riding, equine evaluation and general horsemanship and riding. The Veterinary Technology Program continues to be recognized nationally, and is now attracting international students.

The research program is an international leader in the area of developmental programming as pursued by the participants in the Center for Nutrition and Pregnancy. Additionally, the Beef Systems Center of Excellence is a new strength in the department with faculty who pursue research in meats and beef management. In addition to these centers, the department has excellent research programs in dairy nutrition and management, beef nutrition, management and physiology and sheep production. Opportunities for collaboration with the Research-Extension
Centers also provide a plus for the department in both beef cattle and sheep research.

3. Future challenges
The departmental challenges are common to most academic units on the NDSU campus. We are extremely short of space: offices for faculty, staff and graduate students; laboratories for research and teaching; classrooms for academic programs; and land to provide for the livestock at the departmental farm units. We are also in great need of repair and update of facilities. Funds that should go to support academic activities are being siphoned off to maintain an aging infrastructure.

A common challenge for departments of animal science around the country is the difficulty of balancing the changing demands of teaching, research and extension programs. The three missions are moving in somewhat different directions. Extension efforts must focus increasingly on providing very high level support to large production units while still maintaining contact with the many producers with small herds and flocks. Students coming to departments such as this one are increasingly interested in animals other than traditional farm livestock and they require different types of programs. These teaching and extension changes must be balance with the need to do interdisciplinary research that is increasingly fundamental in nature but still meet the practical demands supplied by a changing livestock industry.

Budgets need to be increased. We have a large and dynamic faculty with many teaching, research and extension interests need to have resources. The opportunity to use the equipment money made available by the legislature during the past biennium has been a nice chance to obtain new equipment but much more is needed. We face considerable uncertainty in the future of departmental livestock programs because of the large changes in input costs, which are similar to those of our clientele.

4. The overall unit
The Department of Animal Sciences contributes to NDSU’s position as a comprehensive university (B.S., M.S. PhD programs and highly regarded teaching, research and outreach programs), a land-grant university (serves agriculture in the state, region, nationally and internationally through teaching, research and extension) as well as its emerging importance as a national research university (internationally known research program in developmental programming as well as important research programs in nutrition, physiology and food science pertaining to animals and products of the beef, dairy, sheep and swine industry). Undergraduate degree programs in Animal Science, Equine Science and Veterinary Technology are all meeting needs for training young people for dynamic job markets.
# F. Enrollment and FTE data

## Animal Sciences Course Enrollment

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G. Other relevant data and materials

Impact Statement

**Berg, E.P.** - I have been an integral member of the Animal Science faculty. I have contributed as a leader and team player in the development of Meat Science curriculum and programmatic criteria through local, national, and international presentations, graduate student recruitment, and scientific publication.

My research focuses on the influence of environment, nutrition, and genetic factors as they impact meat-animal production efficiency, health, carcass composition, and meat quality. I have worked very hard to establish a domestic and international reputation for research in this area of specialty and feel that I have gained considerable headway toward achieving this goal. The progress toward that goal was, in part, described above with regard to attracting and placing successful graduate students.

**Berg, E.L.** - During my second year at NDSU I have worked towards establishing relationships with additional equine assisted activities and therapies programs throughout the state of North Dakota in an effort to form collaborative research endeavors. These programs include Home on the Range and the Dakota Boys and Girls Ranch. The potential for gaining novel information in this area is tremendous since there is little published data; therefore the potential impact to the community is immense.

Additionally I secured a graduate student in the fall of 2009 who is pursuing applied research in the area of reproductive physiology. We are investigating a supplement that affects glucose, insulin, and progesterone concentrations, and the implications for reproductive performance in the ovine model.

**Berg, P.** - Bar-B-Que Boot camps were very successful in attracting a nontraditional audience to extension presentations and acquainting this audience with current events in anima agriculture Results of both the O² Barrier cooking and Educating producers on next generation value cuts were very positive and will be of value for the advertising programs of the North Dakota Beef Commission.

**Buchanan, D.S.** - Educational materials and presentations concerning genetic defects in cattle will help beef producers avoid some of the negative impacts associated with genetic defects such as Arthrogryposis Multiplex.

Discussion of genetic improvement at the Tri-State Meat Goat Conference should enable goat producers to begin to use modern genetic technology (quantitative and molecular) to improve production efficiency.

Assistance for scientists concerning data analysis will enhance the value of the research by improving the level of confidence in the conclusions.

**Carlin, K.** - My research in meat science and muscle biology has important implications:

Because utilization of field peas in feedlot diets may impact tenderness of beef. Tenderness is the most important palatability trait of beef and may provide a means of providing a guaranteed tender beef product to consumers. Additionally, North Dakota produces more field peas annually than any other state, and demand for field peas may be impacted if found to improve meat quality.
Maternal nutrition has huge impacts on offspring growth. The impacts on muscle growth, and subsequent carcass composition and meat quality may be economically measurable as well as have implications of maternal nutrition in human growth and development as it pertains to growth of offspring.

Caton, J. - Efforts in Maternal Nutrition and Selenium on maternal and fetal outcomes have contributed to the development of multiple symposia and workshops. Efforts in this regard have been contagious and numerous projects have developed from the platform of data at NDSU. In addition, numerous invitations for collaborative efforts, invited speakers, and other contributions have occurred. Of particular note is the dominance of nutritional paradigms developmental programming in the foundational components of large components of our departmental research programs. NDSU is clearly recognized nationally and internationally as taking a leading role in large animal efforts to evaluate relevance of developmental programming.

Research efforts have resulted in several invited papers and others already scheduled in 2010.

Colville, T. - Among the 160 veterinary technology educational programs in the United States and Canada that are accredited by the Committee on Veterinary Technician Education and Activities of the American Veterinary Medical Association, the NDSU Veterinary Technology Program is one of only 20 that offer the Bachelor of Science degree. This attracts students from around the country in addition to students from North Dakota and the surrounding region. The Veterinary Technology Professional Program currently has one Canadian student enrolled.

The Veterinary Technology Program offers students interested in animal health care careers an educational alternative to pursuit of a veterinary degree. The complexity of modern-day animal health care has resulted in the veterinary profession moving increasingly toward the animal health care team concept. The animal health care team consists of veterinarians working with skilled veterinary technicians, and other aides and assistants. The education students receive in the NDSU Veterinary Technology Program fosters the development of professional knowledge, manual skills and critical thinking in the context of a complete university Bachelor of Science education. According to the 2008 Veterinary Technology Program Graduate Survey, graduates of the program are spread over 25 states and one Canadian province, but more than 75% of the survey respondents were located in North Dakota, South Dakota and Minnesota. Responses from the 2009 graduate survey are currently being compiled.

Through the Robinson Hall Veterinary Wellness clinic, Veterinary Technology Program faculty, staff, and students provided wellness services to animals from two area non-profit agencies – the F-M Humane Society and the Red River Zoo.

During the spring 2009 flood, Veterinary Technology Program faculty, staff, and students provided health care to animals in the Community Emergency Animal Shelter. The shelter was set up to care for animals belonging to people who were evacuated from their homes due to the flood. The Veterinary Technology Program received an FM Humane Society Humane Award December 3, 2009 for its role in the success of the shelter.

Through its graduates, the Veterinary Technology Program contributes to improving the quality of animal health care in North Dakota, the upper mid-west region and across the country. This impacts the public through improved prevention, diagnosis and treatment of livestock and companion animal diseases and injuries.

Veterinary Technology Program staff members contribute to the advancement of veterinary
technician education and the veterinary technology profession in general. Two program staff members are past presidents of national professional associations – the Association of Veterinary Technician Educators (Thomas Colville and Teresa Sonsthagen) and the National Association of Veterinary Technicians in America (Teresa Sonsthagen). All program staff members have authored all or part of veterinary technology textbooks and other educational resources that are widely used in veterinary technology programs in the United States and Canada.

Grazul-Bilska, A. - The results of my research program will help to enhance reproductive efficiency, which may have a direct impact on reducing high input costs to the animal industry. Development and establishment of an animal embryology program and animal embryology laboratory at NDSU bring these new technologies to North Dakota, and make them available for practical on-farm use. The immediate practical impact of this research is that it will enable the development of practical methods of assisted reproductive technologies (ART) that will serve the animal agriculture industry in North Dakota. The practical and economical merits of ART in the domestic animal industry include not only improvements in reproductive efficiency, but also in the breeding improvement programs through use of embryos with specific genetics (e.g., sex selection on dairy farms), importation and exportation of animals in the form of frozen embryos, production of transgenic animals with highly desirable genes, etc. Having this technology available in North Dakota will open up these specialized markets to North Dakota producers. In addition, the proposed activity will help to generate preliminary data to apply for grants from outside sources, and recruit undergraduate and graduate student researchers. Therefore, the impact of a strong research program in this area will strengthen our teaching program by bringing these new biotechnologies to North Dakota students. In summary, these proposed studies will enhance our research, teaching, and outreach activities, which in turn should have a major impact on the livestock industry and economy of North Dakota.

Hammer, C. - Extension efforts will help ND horse owners improve their quality of horse care and increase owner knowledge resulting in higher performance and enhanced economic potential. Promotion of the ND horse industry will increase awareness of opportunities and business potential within the industry. Research efforts will enhance understanding of immunoglobulin transport and absorption resulting in improved neonatal health.

Maddock, R.M. - My overall goal is to improve the wellbeing of North Dakota ranchers and farmers by adding value to livestock. My research and Extension activities will investigate and report the importance of animal health, production practices, and marketing options on the value of livestock. I will accomplish this via applied research and teaching of new knowledge gained by conducting research.

Park, C.S. -

Area 1. Nutritional Strategy for Animal Development and Epigenetic Control of Lactation:

The economic future of livestock (beef and dairy) operations depends largely on a sound rearing program for replacement heifers. Successful heifer rearing, in turn, is determined by efficiency of heifer growth and, more importantly, their subsequent lactation potential. An effective
replacement heifer program is vital to farm profitability.

For nearly 23 years, our laboratory has been investigating the use of a stair-step compensatory growth feeding regimen to improve lifelong heifer production. The basic concept of this regimen is to reduce energy levels [restriction phase] at times when heifers are not as likely to put it to good use (e.g., early to mid-gestation) and to push energy [realimentation phase] when the animal can make the best use of it (e.g., late gestation). Heifers raised on our stair-step nutrition regimens exhibit enhancements in 1) growth efficiency, 2) mammary gland development with improved lactation performance over two or more lactations, 3) prepartum metabolic and immune status, and 4) reproductive performance in first calf dairy and beef heifers.

**Animal agriculture.** Dairy heifers reared on compensatory nutrition regimens have at least a 10% enhancement in lactation performance which carries through to subsequent lactations. If heritable genes regulating milk synthesis are identified, the possibility exists to manipulate genes to further improve lactation as well as the longevity of lactation. An increase in lactation efficiency may increase profits without increasing cow number which has economical as well as environmental impact (e.g., land use).

**Human health.** Findings from these studies may facilitate future studies on a broad range of biological pathways regulating proliferation, functional differentiation, and apoptosis of the mammary cell. By establishing a correlation between nutrition and development of the mammary gland, we may be closer to controlling lactation potential. Also, the ability of compensatory growth-directed and gestation-specific mammogenesis to influence epigenetic changes in the expression of genes regulating milk synthesis may aid in developing practical means of enhancing quality and quantity of milk (e.g., infant health, the secretion of certain immunoglobulins or growth factors) as well as longevity of lactation.

In addition, the degree of development of specific lobular types is highly associated with a susceptibility to carcinogenesis; fuller differentiation of lobules is considered to have anticancer activity. If compensatory mammary growth during the first pregnancy alters DNA methylation and stimulates full mammary cell differentiation, then this information could potentially be used to develop improved maternal diets that may help to prevent and reduce the breast cancer risk.

**Impact.** Stair-step regimen has been adapted as a basic model for the Animal Production and Health Section of the Joint Food and Agriculture Organization and International Atomic Energy Agency Division of the UN to develop effective nutrition regimens for sustainable food production systems for both developing and industrialized countries.

**Future studies.** We have established that the stair-step compensatory nutrition regimen has lasting effects on mammary development, differentiation, and lactation. Thus, the principal challenge will be to document the extent to which nutritionally directed compensatory mammary hyperplasia induced once during the first gestation affects methylation status thereby producing stable epigenetic changes in genes (i.e., metabolic imprinting) that are biologically important in lactation and human health.

**Area 2. Methyl Nutrients, Mammary Development and Cancer Epigenetics:**

We have been studying the role of dietary methyl donor nutrients (choline, methionine, folic acid, and vitamin B₁₂) in epigenetic control of mammary development and tumorigenesis. A dietary strategy that increases the supply of methyl donors may have practical applications in enhancing mammary growth and development. Further, the information from this study may aid
pharmaceutical and food industries in developing nutraceutical products that may improve human health and reduce breast cancer risk.

**Area 3. Canola Oil and Mammary Cancer:**

Recent evidence suggesting that not all dietary fats are associated with an increase in breast cancer risk has ignited the need for adequate research to determine which vegetable oils are associated with a decrease in breast cancer risk. We are currently conducting a study to determine the effect of canola oil on breast cancer risk. Findings from this project are conducive to creating and expanding a potentially new market avenue for canola industry, especially in nutrition and human health. This may help augment the economic benefits for existing producers while also pushing production due to high consumer demand.

**Redmer, D.A.** - The impact of my research program is to make progress towards increased reproductive efficiency of farm animals, making animal agriculture more profitable for the livestock producer and less expensive to the consumer.

A secondary impact of my research program is increased overall understanding of the mechanisms that regulate reproductive processes and tissue growth in general, leading to improved animal agriculture, human fertility, and health care.

**Reynolds, L.P.** - Production of animals for meat is a multi-billion dollar industry in the U.S. alone. Income from the sale of animals, feed consumed by animals, and meat consumed in the U.S. is, conservatively, a quarter of a trillion dollars per year. Because the costs of maintaining reproductively sound females is a primary expense for livestock producers, reproductive failure remains one of the most limiting and costly problems facing the livestock industry. Thus, methods to improve reproductive efficiency would have a major impact on the profitability of animal agriculture.

Beyond that, the world’s population is expected to continue its explosive growth and is conservatively expected to double from its present 6 billion to nearly 12 billion by 2050. Along with world population growth will come a large increase in the demand for meat and milk products. Thus, the efficient production of animal protein, especially from low-quality forages, should remain a driving force for agricultural research. Understanding the mechanisms controlling reproductive efficiency of farm animal therefore has important economic as well as social implication for North Dakota, the nation, and the world.

The placenta is the organ through which all of the nutrients, respiratory gases, and wastes are transferred between the maternal and fetal systems. Thus, normal growth and development of the fetus depends on an adequate blood supply to the placenta. Normal fetal growth and development, in turn, are critical determinants of postnatal survival as well as long-term health and productivity of the offspring. Dr. Reynolds' research emphasizes the mechanisms regulating placental growth and vascular development (angiogenesis), using in vivo and in vitro (including histological) approaches.

Dr. Reynolds' research focuses on the mechanisms regulating placental growth and vascular development (angiogenesis), using in vivo and in vitro (including histological) approaches. His research career has extended over 3 decades, and he is widely recognized as one of the world's leading placental physiologists. In addition, throughout his research career, Dr. Reynolds has made important contributions to our understanding of the effects of nutrition during pregnancy on fetal and placental growth and development. These accomplishments are summarized in
The long-term goal of Dr. Reynolds’ research efforts is to provide an optimal uterine environment to ensure maternal, fetal, and postnatal health in humans and livestock. His current research is focused in 3 areas: (1) Further characterizing placental vascular growth at the light and electron microscopy levels, with the goal of developing robust mathematical and physical models of the influence of changes in placental vascular architecture on placental function in normal and compromised pregnancies; (2) Evaluating placental growth and vascular development of in vitro produced embryos, including in vitro fertilized and cloned embryos, with the goal of understanding the basis of altered placental function leading to a high rate of abnormal embryonic development and death in these pregnancies; and (3) Investigating the use of modulators of placental vascular growth and function as therapeutic tools in the management of compromised pregnancies, with the goal of minimizing fetal growth restriction and loss. Current collaborators in these efforts include: Drs. Steve Ford, Bret Hess, and Peter Nathanielsz, the University of Wyoming; Dr. Shireen Hafez, Alexandria University, Egypt; Drs. Greg Lewis and Brett Taylor, the U.S. Sheep Experiment Station, Dubois, ID; Drs. Lino Loi and Grazyna Ptak, the University of Teramo, Italy; Dr. Norman Rawlings, the University of Saskatchewan; Dr. Sergio Soto-Navarro, New Mexico State University; and Dr. Jacqueline Wallace, the Rowett Research Institute, Aberdeen, Scotland.

References Cited:

Schroeder, J.W. - North Dakota Dairy Diagnostic Program

The situation
Dairy farm families in 2009 have endured the lowest milk prices (when adjusted for inflation) since 1934. The rise to and the fall from record high milk prices, exacerbated with recording-breaking expenditures took a few more dairy farms from our state. Yet when compared to the industry as a whole, the diversified Midwest dairy farm survival rate greatly exceed that of dairies in the West and Southwest. Managing multiple enterprises as is common practice in our region and requires a vast array of skills ranging from business management to animal husbandry to people management. There will be a long financial healing process ahead, fraught with challenges brought on by this economic depression. The North Dakota Dairy Diagnostic program helped dairy families develop those skills to manage the business and support the family by implementing an advisory board to optimize short- and long-range decisions to attain farm and family goals.

**Extension response**

Team members are responsible for providing support on a variety of decisions that will determine farm financial success. The dairy diagnostic advisory team facilitator guides managers and their families through a decision-making processes intended to improve their business success and personal life-style. These experts serve as a board of directors who share in the goals and objectives of the farm. The team leader holds the decision-makers accountable and guides the process. The team meets periodically on-farm to conduct a one- to two-hour business meeting, conducts a SWOT (strengths, weaknesses, opportunities and threats) analysis and monitors progress.

**Impacts** *(2009 analysis in progress, the following are one example from each of the past years’ accomplishments)*

Dairy farm families implement skills gained and apply appropriate technology for greater profitability and enterprise satisfaction. Over the years dairy farm families have enrolled, participated, and graduated from the Dairy Diagnostic Advisory experience. Examples of results from team-directed decisions and their impact are:

- **[2008]** Expanded milking herd by 100 head without experiencing typical production losses in the transition. *Annual impact: $394,200* of additional gross income.
- **[2007]** Reorganized labor arrangements over a 2-year period to lower costs and improve efficiency. *Annual impact: $71,958* additional gross income.
- **[2006]** Adopted a milk-marketing plan using forward contracts. The results resulted in an *Annual impact: $80,000* additional gross income.
- **[2005]** Improved management of calf-rearing facilities and raised the quality of replacement heifers. Changes resulted in an increase in milk yield for first-calf heifers (compared to the previous year) by 5 pounds per cow per day. *Annual Impact: = $52,613.*

**Stoltenow, C.L.-** Wisconsin Feed Calf Presentations: Expanded NDSU’s reputation as a leader in beef cattle production and influenced producers from WI to attend the NDSU 2009 Feedlot school in Carrington.
TB outbreak in ND:  Provided scientific evidence to the emotionally charged issue of management of tuberculosis in wildlife and the issue of baiting deer during the hunting season in ND.  NDSU was seen as a credible expert in these areas.  I was called on by state representatives and senators to provide factual data and expert opinion on state law and policy.

Board of Animal Health, Consulting Veterinarian:  Providing veterinary consultation to the Board of Animal Health allows NDSU the opportunity to sit at the table for the development and enforcement of animal health policy.  NDSU is seen as the credible expert in these areas.

eXtension National Program Leader for Agrosecurity:  Providing leadership to the national eXtension initiative enhances NDSU’s reputation as an early adopter of technology and innovation.

Briefing Tour to Mr. Jeff Blackwood:  Provided personal tour of flood damaged southeastern ND with Jeff Blackwood which presented me with the opportunity to explain to Mr. Blackwood how costs are incurred on a cow/calf operation and that the costs need to be paid for by the calf of the cow.  The impact was that Mr. Blackwood was able to go back to Washington DC, reopen discussions with the USDA, and have the rules of the Livestock Indemnity Program changed to reflect the lost opportunity costs associated with early calf death.

Keep’n the best, havin’ success program in Flasher and Napoleon:  Adoption of new practices Based on post meeting survey results, 85.2% of attendees stated they incorporated the information they learned at the program and made a change in their operation.

Economic Impact Though no quantitative data was collected, the comments stated that cattle handling was improved and calving difficulties were handled in a more proper manner. This directly affects cattle health and survivability which increases the bottom line. 92.3% of attendees indicated that the program was money well spent and 88.9% indicated they have shared what they have learned with others.

**Swanson, T.** - As a land grant university it is important that we intertwine teaching, research, and extension. An integral part of this is keeping connect between our programs and the community. My biggest goal for this year is to make a stronger connect between the NDSU Equine Studies Program and the equine community and youth programs. We have started a foundation for this through the 4-H judges program and various clinics hosted by the Horsemen’s Association. I would like to create a leaders training offered through our program geared towards 4-H leaders and extension agents to make that connection between our university and the extension community. In addition I would like to start plans to offer a series of summer horse camps which would be offered throughout the state to get important information out to the various regions in North Dakota. Going along with this would be the creation of small booklets for the various events offered through the 4-H program with tips, rules, and practice patterns. I think these publications would help to clarify some misconceptions and focus all groups to the same understanding of the classes. All of these advancements within the extension program will help to unify and strengthen the ties between the university and community programs.

Our program is growing and positive exposure both on a national and local level are critical for continued growth. I am hoping to continue to qualify students for national intercollegiate horse
shows and gain that recognition for NDSU. Also, getting our clubs involved in national organizations is an excellent way to gain positive exposure for NDSU. Along with this national representation it is also important to keep the state updated on successes within our program whether through news releases or simply word of mouth.

In terms of teaching I feel that hands-on practical knowledge is very important to be successful. So I would like to work on implementing more of that particularly into my Introduction to Equine Studies class. This will be more challenging because it is a larger class and is not taught at the Equine Center so live examples are not readily available. However, I think this would help the students to get a better understanding of concepts taught. Changing and integrating new teaching methods is always important to keep classes up to date with advanced techniques. Attending teaching conferences is a good way to stay current with new teaching methods and this year I would like to incorporate more teaching conferences to help me stay current on teaching strategies and technology.

Vonnahme, K.A. - My research in reproductive biology and development programming has important implications:

- Because early gestation is a crucial period for placental and fetal growth and differentiation, maternal nutrition during this critical period has a real potential to impact subsequent growth rate and carcass composition of their calves/lambs. The long term goal is to determine how calves/lambs born from dams receiving different diets during gestation, perform in the feedlot.
- Alterations in placentomal vascular development and function may impact nutrient delivery to the growing fetus, potentially affecting the subsequent health, growth efficiency and carcass quality of their offspring, which will have direct relevance to the US beef industry.
- Nutrition during pregnancy may also impact the developing mammary gland, impacting the health and development of the neonate.
- Decreased growth rate and sub-optimal carcasses cost feedlot producers millions of dollars annually. These data will undoubtedly lead to a better understanding of factors limiting in utero fetal growth and development, which could lead to reduced offspring health, production efficiency and longevity.

Sow housing standards may impact the development of the skeletal muscle of their offspring. We are studying how activity during gestation may influence the carcass of the offspring and muscle fiber type.

Wagner, S.A. - Received grant from NDSU Development Foundation to take students to AABP conference. This provided novel learning experiences for the students, plus they were part of a trade show booth promoting the Department of Animal Sciences at NDSU.

Executed research funded by USDA in dairy cow lameness. Presented results at national conference and they are being published in Journal of Dairy Science, disseminating new information about pain control in cows and raising awareness of NDSU as a research institution. This success should also enhance my ability to receive funding in the future.

Participated in the education future vet techs, preparing them to contribute to efficiency and profitability of veterinary practices in the state and the region, in both large and small animal
Williams, B.- The potential impacts of the extension programs I am involved with have the opportunity to provide a strong and positive image, not only for the livestock judging program, but the Animal Science department at NDSU. Building relationships between NDSU and prospective students at an individual and personal level will do nothing but benefit our department. The means through which I can provide this type of interaction is through livestock judging camps, clinics, contests, and shows. The opportunity for me to share my passion with livestock to youth and make it an enjoyable experience will be a connection for NDSU.

From a teaching perspective, I would like to think I can relate with students and present the material to them in a practical way understandable to different learning styles. I realize I need to continue to improve on my teaching ability and methods; however, I feel I am on the right track, and my course evaluations demonstrate this understanding. The following are a few quotes written by students on the evaluations.

“I have learned more in this class than any I have ever taken.”
“He was very descriptive and made sure everyone understood what he was talking about.”
“…he is a very good teacher that actually wants to help you learn & understand the subject and encourages participation.”
“I really liked how he was willing & wanted to work w/ students outside of class.”
“…ability to reach everyone’s learning styles. Highly recommend class!”
“Encourages students to make themselves better.”
## ANIMAL SCIENCES DEPARTMENT

### GRADUATE STUDENT | DEGREE | ADVISOR
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### Full-time GRA’s
Bae, Sajin | MS | Park
Camacho, Leticia | PhD | Vonnahme
Cho, Kyongshin | PhD | Park
Coupe, Lindsey | MS | Lardy
Eckerman, Steven | MS | Schauer/Lardy
Harris, Erin | MS | Berg, Eric
Jeske, Theresa | MS | Carlin
Lekatz, Leslie | PhD | Vonnahme
Lepper, Ashley | MS | Berg, Eric
Mabasa, Lawrence | PhD | Park
Magolski, James | MS | Carlin
Meyer, Allison | PhD | Caton
Mottet, Rachel | MS | Berg, Erika
Newman, David | PhD | Berg, E.
Saevre, Chelsey | MS | Luther/Schauer
Van Emon, Megan | PhD | Schauer/Vonnahme
Wilkens, Jayme | MS | Bauer
Yunusova, Roza | PhD | Redmer/Caton

### Part-Time GRA’s
Germolus, Austin | MS | Berg, Eric
Gilbery, Trent | MS | Lardy
Ilse, Breanna | MS | Vonnahme
Leupp, Jennifer | PhD | Lardy
Nester, Penny | MS | Schroeder
Neville, Bryan | PhD | Lardy
Swanson, Tara | MS | Hammer
Tweeten, Kacey | MS | Park
Zimprich, Craig | MS | Vonnahme
**North Dakota State University Annual Report Information**

**Student Rating of Instruction --- Course Level Summary Report**

Report Generated on 22JUN10 Using Data from Fall 2009 & Spring 2010

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Frequencies (top row) and percents (bottom row) are provided to the right of each question. S.D. is the Standard Deviation and #R is the Number of Valid Responses.

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Questions beyond #6 are optional, vary by department, and use the following key:

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### North Dakota State University Annual Report Information

Student Rating of Instruction - Course Level Summary Report

Report Generated on 22JUN10 Using Data from Fall 2009 & Spring 2010

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Student Rating of Instruction - Course Level Summary Report

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Level: 300 & 400 Level Courses
Dept: ANIMAL SCIENCE

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Student Rating of Instruction --- Course Level Summary Report
Report Generated on 22JUN10 Using Data from Fall 2009 & Spring 2010

Department Information

Number of Students: 1046
Response Key:

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Frequencies (top row) and percents (bottom row) are provided to the right of each question.
S.D. is the Standard Deviation and #R is the Number of Valid Responses.

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2. the instructor as a teacher. | 72.5 | 22.1 | 3.5 | 0.2 | 0.0 | 1.7 | Level | 4.388 | 0.821 | 8550 |
| Your College .. 8652 | College | 4.328 | 0.810 | 8549 |
| University | 4.234 | 0.917 | 75502 |

3. the ability of the instructor to communicate effectively. | 71.5 | 23.8 | 2.5 | 0.5 | 0.0 | 1.7 | Level | 4.308 | 0.873 | 8543 |
| Your College .. 8652 | College | 4.166 | 0.953 | 75448 |

4. the quality of this course. | 62.3 | 29.3 | 5.5 | 1.0 | 0.0 | 2.0 | Level | 4.476 | 0.680 | 7547 |
| College | 4.229 | 0.813 | 8545 |
| University | 4.082 | 0.887 | 75404 |

5. the fairness of procedures for grading this course. | 64.3 | 27.3 | 4.5 | 1.7 | 0.2 | 2.0 | Level | 4.564 | 0.659 | 7547 |
| College | 4.404 | 0.775 | 8547 |
| University | 4.226 | 0.899 | 75440 |

6. your understanding of the course content. | 60.3 | 31.8 | 5.0 | 0.5 | 0.7 | 1.7 | Level | 4.620 | 0.738 | 7547 |
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| University | 4.083 | 0.857 | 75437 |</p>
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North Dakota State University Annual Report Information
Student Rating of Instruction --- Course Level Summary Report
Report Generated on 22JUN10 Using Data from Fall 2009 & Spring 2010

Department Information
Number of Students:
Response Key:

Level: 100 & 200 Level Courses
Dept: ANIMAL & RANGE SCIENCE
# Sheets Scanned: This Level .... 403

Frequencies (top row) and percents (bottom row) are provided to the right of each question. S.D. is the Standard Deviation and #R is the Number of Valid Responses.
**Department Information**

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**Percentage of Students**

- **A=5**  
- **B=4**  
- **C=3**  
- **D=2**  
- **E=1**

**Frequencies (top row) and percents (bottom row) are provided to the right of each question.**

**S.D.** is the Standard Deviation and **#R** is the Number of Valid Responses.

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**Questions beyond #6 are optional, vary by department, and use the following key:**

- **A=5**  
- **B=4**  
- **C=3**  
- **D=2**  
- **E=1**

**S.D. is the Standard Deviation and **#R** is the Number of Valid Responses.**

**Frequencies (top row) and percents (bottom row) are provided to the right of each question.**

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North Dakota State University Annual Report Information
Student Rating of Instruction --- Course Level Summary Report
Report Generated on 22JUN10 Using Data from Fall 2009 & Spring 2010

Department Information
Number of Students: Response Key:

Level: 300 & 400 Level Courses
Dept: ANIMAL & RANGE SCIENCE
# Sheets Scanned: This Level .... 181

Frequencies (top row) and percents (bottom row) are provided to the right of each question.
S.D. is the Standard Deviation and #R is the Number of Valid Responses.

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H. Diversity

1. Attach report sent to Equity, Diversity, and Global Outreach in previous year.

Objective 1: Institutional Commitment - Create an environment where everyone feels welcome, respected, and safe.

Chairs of search committees have undergone mandatory training offered by the Division of Equity, Diversity and Global Outreach. All personnel are expected to participate in online training opportunities offered through the Division of Equity, Diversity and Global Outreach.

We now have three faculty members who have given birth while serving on the faculty. We have an informal policy for family medical leave and agreement that we will pursue the necessary efforts to account for needed work to be accomplished when faculty members are away following the birth of a child. This should be an important step in helping to create a respected and safe working environment which is part of the NDSU Strategic Plan of Diversity.

Objective 2: Learning and Pedagogy - Develop an inclusive-learning environment that guides students, faculty, and staff to think critically about diversity, equity, and community in the classroom and workplace.

The new minor and certificate programs in Therapeutic Horsemanship include four courses that address issues facing individuals with disabilities. Specifically, Introduction to Therapeutic Horsemanship includes articles and discussion on disability etiquette, history of the ADA, guest speakers on various topics, and perspectives of disability. The additional courses include role playing activities as well as class discussion and reflective assignments. It appears that students enrolled in these courses come away with a better perspective and understanding of individuals who have different abilities than they may have.

Objective 4: Recruitment and Retention - Increase the representation of historically underrepresented populations among students, faculty, staff, and administrators.

The department faculty members originated from three countries: the USA, Poland, and Korea. Moreover, there are seven female faculty members with most having 6 or fewer years tenure at NDSU. Females are historically underrepresented in animal science. Many Departments of Animal Science now have student populations that are mostly female. The change has been slower in coming in faculty positions, partially because the pipeline of females with the necessary background for faculty positions has been slow to develop. We are pleased that recent faculty hires have taken large strides to change this situation.

Objective 5: Inter-group and Intra-group Relations - Celebrate human differences/similarities and recognize socially constructed differences (e.g., gender, race, disability, GLBT, etc.) through encouraging and supporting the continuing interaction of diverse cultures.

David Berryhill, Thomas Colville, Melissa Eslinger, and Teresa Sonsthagen are Safe Zone allies.