# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. GOALS/ACCOMPLISHMENTS</td>
<td>1</td>
</tr>
<tr>
<td>A. Instruction and Student Success</td>
<td>1</td>
</tr>
<tr>
<td>1. Teaching initiatives and innovation</td>
<td>1</td>
</tr>
<tr>
<td>2. Advising initiatives and innovation</td>
<td>2</td>
</tr>
<tr>
<td>3. Curriculum development including new programs, deletion of programs, administrative changes</td>
<td>2</td>
</tr>
<tr>
<td>4. Accreditation or other reviews</td>
<td>2</td>
</tr>
<tr>
<td>5. Activities in student recruitment/retention, enrollment management, and other student activities</td>
<td>3</td>
</tr>
<tr>
<td>6. Distance education (including on-line) progress</td>
<td>3</td>
</tr>
<tr>
<td>7. Assessment</td>
<td>3</td>
</tr>
<tr>
<td>B. Research/Creative Activity</td>
<td>4</td>
</tr>
<tr>
<td>1. Research and creative activities</td>
<td>4</td>
</tr>
<tr>
<td>2. Grants/contracts</td>
<td>4</td>
</tr>
<tr>
<td>3. Articles/books/publications</td>
<td>15</td>
</tr>
<tr>
<td>4. Presentations</td>
<td>30</td>
</tr>
<tr>
<td>5. Technology transfer</td>
<td>39</td>
</tr>
<tr>
<td>C. Outreach</td>
<td>39</td>
</tr>
<tr>
<td>1. Professional service</td>
<td>39</td>
</tr>
<tr>
<td>2. Alumni events and other community-related activities</td>
<td>58</td>
</tr>
<tr>
<td>3. Fund-raising accomplishments</td>
<td>58</td>
</tr>
<tr>
<td>4. Other outreach activities</td>
<td>59</td>
</tr>
<tr>
<td>D. Special Initiatives</td>
<td>59</td>
</tr>
<tr>
<td>1. Cooperative programming/interinstitutional activities</td>
<td>59</td>
</tr>
<tr>
<td>2. International activities</td>
<td>59</td>
</tr>
<tr>
<td>3. Interdisciplinary activities</td>
<td>60</td>
</tr>
<tr>
<td>4. Economic development efforts</td>
<td>60</td>
</tr>
<tr>
<td>5. On-line courses and programming</td>
<td>61</td>
</tr>
<tr>
<td>E. Planning</td>
<td>61</td>
</tr>
<tr>
<td>1. Future plans</td>
<td>61</td>
</tr>
<tr>
<td>2. Program strengths</td>
<td>61</td>
</tr>
<tr>
<td>3. Future challenges</td>
<td>62</td>
</tr>
<tr>
<td>4. The overall unit</td>
<td>62</td>
</tr>
<tr>
<td>F. Enrollment and FTE data</td>
<td>63</td>
</tr>
<tr>
<td>G. Other Relevant Data and Materials</td>
<td>65</td>
</tr>
<tr>
<td>1. Impact statement</td>
<td>65</td>
</tr>
<tr>
<td>2. Graduate students</td>
<td>73</td>
</tr>
<tr>
<td>3. SROI report</td>
<td>74</td>
</tr>
<tr>
<td>4. Personnel linkage</td>
<td>80</td>
</tr>
<tr>
<td>H. Diversity</td>
<td>84</td>
</tr>
<tr>
<td>1. Accomplishments to create a respected and safe environment</td>
<td>84</td>
</tr>
<tr>
<td>2. Progress made to increase representation of historically underrepresented groups among students, staff, and faculty</td>
<td>84</td>
</tr>
<tr>
<td>3. Strategical planning unit has undertaken to address the NDSU</td>
<td>84</td>
</tr>
</tbody>
</table>
I. GOALS/ACCOMPLISHMENTS

The mission of the Department of Animal Sciences is to conduct research, education, and extension to improve the efficiency and profitability of livestock agriculture. 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 between these three components is basic to the effective operation of the Department of Animal Sciences.

A. Instruction and Student Success

1. Teaching initiatives and innovations

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 advise numerous students who are attempting to meet the requirements for admission to a College of Veterinary Medicine.

Dr. Kim Vonnahme initiated a class in Reproductive Management for seniors. Students worked with cooperating producers in the area who provided information about reproductive performance and management. The students developed recommendations for management improvements to enhance reproductive performance. Reviews by students and the cooperating producers were very positive.

Dr. Erika Berg taught a class titled “Introduction to Therapeutic Riding” during 2007 as a temporary instructor. Dr. Berg was hired for a regular faculty position starting January 2008 and has initiated efforts to develop a program in therapeutic riding including development of several new courses and a cooperative arrangement an organization called “Riding on Angel’s Wings”.

The faculty in Animal Sciences make extensive use of Microsoft Powerpoint in presenting lecture information in courses. Most faculty also use the WEB (Blackboard) for placement of syllabi, course material, and readings. Faculty in Veterinary Technology now must observe and document each student in each of 229 essential laboratory tasks as part of AVMA accreditation.
2. **Advising initiatives and innovations**

Having a total approximately 300 students, departmental faculty 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) and other activities (Academic Quadrathlon, undergraduate research).

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

The department has begun a process to revise and expand the options offered for the B.S. in Animal Science degree. Five options have been tentatively identified: Production and Management, Animal Agribusiness, Bio-medical, Meat Science and Livestock Media. The titles are not definite as yet but the concepts have been approved by the department. The Curriculum and Instruction Committee is currently working on developing the options. The planned changes in the animal science curriculum are in response to the career needs of students in the major and expanding the number of undergraduate and graduate students enrolling in animal science courses. The curriculum changes are also directed at improving student recruitment and student retention as well.

The equine program requested and was granted two new courses (Ansc 360 - Equine Nutrition and Ansc 364 - Equine Anatomy and Physiology) to replace Ansc 363 (Equine Nutrition and Physiology). An equine minor in Therapeutic Horsemanship was initiated by Dr. Erica Berg. This minor was subsequently approved and four new NDSU courses were added to the equine curriculum. The four courses are: ANSC 210 Introduction to Therapeutic Horsemanship, ANSC 310 Principles of Therapeutic Horsemanship Instruction, ANSC 375 Methods of Horsemanship Instruction, and ANSC 410 Therapeutic Horsemanship Teaching Practicum.

Student demand initiated instruction of AnSc 222 (Meat Animal Evaluation) for both fall and spring semester. The course was offered only in fall semester previously. AnSc 484 - Swine Industry and Production Systems was taught after a few years of inactivity. Student demand and availability of the expertise of David Newman facilitated the success of the course offering as 16 students enrolled for the class.

4. **Accreditation or other reviews**

The Veterinary Technology Program underwent an accreditation site visit in September 2007. The review team represented the Committee on Veterinary Technician Education and Activities of the American Veterinary Medical Association. As a result of the site visit, the program was granted continued full accreditation. The Veterinary Technology Program has had continuous full accreditation status since 1979.
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, Youth Range Camp, 4-H Horse Camp, etc. 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 Animal Sciences 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 club on campus, Equine 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. For one student this culminated in participation in a research presentation competition at the Midwest Section – American Society of Animal Science.

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

**Summary of Distance Education Activity**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Location provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARSc 463</td>
<td>Physiology of Reproduction</td>
<td>Dickinson State Univ.</td>
</tr>
<tr>
<td>ARSc 790</td>
<td>Graduate Seminar</td>
<td>REC’s, Dickinson State Univ.</td>
</tr>
</tbody>
</table>

The department is discussing the potential of offering additional courses at a distance. There are several parts of this discussion including courses to offer in cooperation with other colleges in the state, courses for professionals in the state who desire to pursue a graduate degree and courses which would have general appeal as distance education courses.

7. **Assessment**

The department requested and was granted the opportunity to change the reporting deadline for the AnSc assessment report from January 2008 to July 2008. The University Assessment representatives met with department personnel to strengthen areas that need improvement. The justification for the change in reporting date centered on the revision of all AnSc curriculum options following the changes in the structure of the department. Additionally, instructors have a greater opportunity to evaluate student learning at the end of the academic year. The assessment report for the department will be submitted in June 2008.
B. Research/Creative Activity

1. Research and creative activities

Summary of Research and Scholarly Accomplishments – 2007

Grants

<table>
<thead>
<tr>
<th></th>
<th>Submitted</th>
<th>Funded</th>
<th>Pending</th>
<th>Not funded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>72</td>
<td>27</td>
<td>10</td>
<td>35</td>
</tr>
<tr>
<td>Dollars</td>
<td>22,593,929</td>
<td>3,076,438</td>
<td>2,021,776</td>
<td>17,495,715</td>
</tr>
</tbody>
</table>

Publications

<table>
<thead>
<tr>
<th>Journal Articles</th>
<th>Books and Book Chapters</th>
<th>Proceedings</th>
<th>Abstracts</th>
<th>Department Reports</th>
<th>Extension</th>
<th>Popular Articles</th>
</tr>
</thead>
<tbody>
<tr>
<td>37</td>
<td>5</td>
<td>18</td>
<td>64</td>
<td>5</td>
<td>17</td>
<td>88</td>
</tr>
</tbody>
</table>

Graduate Research Assistants

<table>
<thead>
<tr>
<th></th>
<th>Current</th>
<th>Graduated</th>
<th>Accepted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>21</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

2. Grants/Contracts

Grants/Contracts (Includes Research, Extension and Instruction Grants)

Proposals funded

Bauer, M.L. Effect of Monensin on Ruminal Sulfur Reduction. Dakota Gold Research Foundation funded ?, $5,000.

Berg, E. and K. Carlin Co-PI. Evaluation of the physiological response of feedlot cattle to working chute environment relative to temperament, growth rate, carcass composition, beef
quality, and tenderness. ND Beef Commission funded Nov. 1, 2007. $64,574.

Berg, E. NDSU – 2006-07 Professional Development Grant: $995.00


Colville, T. Professional Development Grant from North Dakota State University President’s Office, $1,000.


Grazul-Bilska, A.T. Plastic Surgery Institute research grant (PI) “Study of aloe vera effects on the antioxidant system using 3D human skin EpiDerm™ model: Implications for skin protection and wound healing”. $5,000; 2007-2010.


Luther, J.S. (PI), G. Lardy, C.S. Schauer, E. Loe, M. Stamm and T. Paterson. Overcoming Challenges Associated with Natural Lamb and Beef Production. USDA Four-State Ruminant
Consortium - $102,000.


Maddock Carlin, K.R., L.P. Reynolds, J.S. Caton. 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. 01/07-12/08

Park, C.S., PI: Nucleotides and immune function of newborn calf; ND-SBARE; $15,000; 07/01/06-06/30/07.

Park, C.S., PI: Canola oil and breast cancer risk; USDA-CSREES; $29,650; 06/01/03-05/31/08.

Redmer, D., J. Caton, L. Reynolds. Visualizing and quantifying vascular architecture in key nutrient transferring tissues of ruminant livestock. SBARE. $5,850.


Van Gijssel, H. (PI), L.P. Reynolds, 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.

Vonnahme, K. Impacts of maternal nutrition on offspring wool quality. SBARE. $1,750.

Proposals submitted with decisions pending


Grazul-Bilska, A.T. and J. Caton. Effects of nutrition on oocyte quality. USDA-NRI. Total Requested. $349,949

Grazul-Bilska, A.T. and J. Caton. Nutritional effects on oocyte quality. NIH. Total Request. $741,290


Park, C.S., PI: Methyl supplement and breast cancer cell death; American Institute for Cancer Research; $175,000; 06/01/08-05/31/10.


Reynolds, L., overall PD, J. Caton, Animal Core PD, D. Redmer, Laboratory Core PD. Center for Developmental Programming; NIH COBRE: Total request $11,072,101


Reynolds, L.P. Collaborator on various proposals from ARS Dept. (Luther, Vonnahme), Biology Dept. (Reed), and Chem/Biochem. Dept. (Dorsam), NDSU, and also Science Dept., Valley City State Univ. (vonGjissel) to NIH, USDA, Amer. Cancer Soc., and Amer. Heart Assoc.


Wagner, SA Funding Request for Instructional Assistance to Improve Student Preparation for the Veterinary Technician National Examination, NDSU Development Foundation Board of Trustees Endowment, $1,000

**Proposals submitted but not funded**

**EFFECT OF DIRECT FED MICROBIALS AND DISTILLERS’ GRAINS ON FECAL PREVALENCE AND GROWTH OF ESCHERELA COLI O157:H7 IN CATTLE AND CULTURE FERMENTATIONS. 2008, USDA NRI CPG ($599,887).**


Fahrenkrug, S., PI. Co-Investigators: Eric Berg, Yang Da (Univ of MN), Lee Johnston (Univ of MN), & Mike Sturek (Univ of Indiana Medical School); Consultant: David Allison (Univ of Alabama-Biostatistics). Dissecting genetic networks of metabolic syndrome (GNOMS) in


Grazul-Bilska, A.T.  National Sciences Foundation (PI), “Regulation of gap junction function in the cumulus oocyte complex (COC)” $367,749 direct cost ($513,842 total cost); 2008-2011.


Luther, J., and T. Petry. Educational Programs for the New Lamb LRP Program in North Dakota. Risk Management Agency - $10,700.


Park, C.S., PI: Methionine alters DNA methylation in mammary cells; NIH; $258,000.

Park, C.S., PI: Compensatory nutrition and epigenetic control of mammary gene expression; NSF; $425,000.

Park, C.S., PI: Mammary development; USDA; $312,000.

Reynolds, L., overall PD, J. Caton, Animal Core PD, D. Redmer, Laboratory Core PD. Center for Developmental Programming; NIH COBRE: Total request $10,961,916.00


Stoltenow, C.L. Regional International Anthrax Conference to the 2007-2008 Canadian Studies Conference Grant Program. Requested $25,000, offered $8,000. Declined grant because it was insufficient to cover the costs of an international conference.


Vonnahme, K. Effects of selenium and undernutrition on uteroplacental blood flow and vascular reactivity in sheep. Submitted to American Heart Association. $143,000.


Vonnahme, K. Gordon A. Larson Agricultural Research Fund. $5,000. NDSU Research Foundation

Vonnahme, K. Does consumption of beef from cattle administered estrogenic growth promotants cause premature puberty and obesity in young female gilts? NCBA (co-PI with Dr. Eric Berg). $37,100.

Vonnahme, K. By-product Protein Supplementation During Late Pregnancy in the Cow and Ewe: A Low Cost Means for Naturally Enhancing Offspring Feed Efficiency, Carcass Quality and Fertility. SARE. $350,000

Vonnahme, K. Localization and regulation of the serine protease, kallikrein, in reproductive tissues. Internal COBRE proposal with Center for Protease Research. $16,000.

Vonnahme, K. Protein Supplementation in Late Pregnancy as a Management Tool to Enhance Offspring Feed Efficiency, Carcass Quality and Fertility in Sheep. USDA-NRI Growth and Nutrient Utilization. $350,000.

Vonnahme, K. Early nutritional impacts on uteroplacental blood flow and vascular reactivity in pregnant cows. USDA-NRI Reproduction. $350,000.

Vonnahme, K. Influencing sow and piglet welfare via maternal nutrition. NPPC (Co-PI with Eric Berg). $33,600.


**Other funding not included above**

Berg, P. Coordinator and Faculty Advisor to Carnivore Catering (Approximately 55 events & $30,000 net income.

Lardy, G.

Luther, J.
- Agricultural Experiment Station, Dr. Ken Grafton - $13,200 for graduate student assistantship.
- Research Administration, Philip Bjoudak - $2,690 for a rectal ultrasound probe.
- NDEPSCOR, David Givers - $2,690 for a rectal ultrasound probe.
- Agricultural Experiment Station, Dr. Ken Grafton - $2,690 for a rectal ultrasound probe.
- Department of Animal & Range Sciences - $2,690 for a rectal ultrasound probe.
- North Dakota Sheep and Goat AI and Semen Collection Project – Generated ~$500.
Moore, B.
- Shorthorn, Simmental and Angus semen and natural service donations - $10,975.00 valuation.
- Simmental female donation - $4000.

Park, C.S., PI: Calf immune study; Land O’ Lakes, Inc.; $12,000 equivalent nursing formula; 07/01/07-06/30/08.

**Active Research Projects**

Berg, E. Stress factors of farm animals and their effects on performance. Hatch/Multistate Grant.


Berg, E. and K. Carlin Co-PI. Evaluation of the physiological response of feedlot cattle to working chute environment relative to temperament, growth rate, carcass composition, beef quality, and tenderness. ND Beef Commission funded Nov. 1, 2007. $64,574. (Berg’s portion $32,287)


Berg, E. Professional Development Grant. NDSU Office of the President. $995


Caton, J.S., Lewis G, Reynolds LP, Taylor JB. Co-PI’s. 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”.

Danielson, R. Coordination of Beef-Sim (production/economic simulation program for beef producers) modeling program as a part of the ND Beef Systems Center of Excellence Project.

Ford, S.P. (PI) and L.P. Reynolds, Collaborator, USDA, NRI Competitive Research Grant “Effect of early gestational nutrient restriction on offspring growth in cows” (S.P. Ford, Center for the Study of Fetal Programming, Univ. of Wyoming, Laramie).


Lekatz, L., K. Vonnahme, J.S. Luther (PI). Effects of maternal undernutrition and high selenium during gestation on umbilical blood flows throughout pregnancy in sheep. Animal work currently being done. USDA funded project.


Luther, J. (PI) and J.D. Kirsch. Impact of commercially available PG600 versus PMSG on fertility in ewes subjected to LAI. Funds Generated from the North Dakota Sheep AI and Semen Collection Project. April, 2006 to February, 2012.

Maddock Carlin, K., V.L. Anderson, and G.P. Lardy. Effect of Field Peas in Feedlot diets on feedlot performance, carcass quality, ruminal digestion, net returns, and taste panel response. USDA Cool Season Food Legume Research Program (04/05-03/07). Co-PI.

Maddock Carlin, K.R. (PI), G.P. Lardy, M.L. Bauer, and V.L. Anderson. Understanding the
improvement in meat quality from inclusion of field peas in cattle feedlot diets. ND Beef Commission (04/06-04/08).


Moore, B. PI. Hair Sheep Evaluation, ARSc, continuing.

Park, C.S. PI, Lactation Study, Hatch, 10/01/05-09/30/10

Park, C.S., PI, Calf Health, ND-SBARE, 07/01/06-12/31/07

Park, C.S., PI, Canola Study, USDA-CSREES, 06/01/07-05/31/08


Reynolds, L.L. Co-Principal Investigator, 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 Gijsssel); $174,675 total direct costs, August 2004-May 2009.


Schroeder, J.W. (PI). Embryo Bank Phase – Adding value to beef production systems with dairy embryo transfer. ND State Board of Ag Research and Extension – Agricultural Research Fund. 1/1/03 – 11/30/07.

Schroeder, J.W. (PI) Altering conjugated linoleic acid in bovine milk fat for nutraceutical application using flaxseed in feeding high producing dairy cattle. ND State Board of Ag Research and Extension – Agricultural Research Fund. 1/07 - 12/09.


Vonnahme, K.A. (PI) USDA, NRI Competitive Research Grant “Placental efficiency in the ewe: Characterization of the angiogenic profile and vasoactive properties during placentome conversion;” $110,000 total costs.

Vonnahme, K.A. Fall 2004-current—Effect of flax on proliferation and vascularization of the jejunum, uterus and bone of ovariectomized ewes. Animal work is complete. I am the project director. Part of Mr. Matt O’Neil (co-advised with Dr. Greg Lardy) research thesis. Research will be published in peer reviewed manuscript.

Vonnahme, K.A. Fall 2004- current—Effects of maternal undernutrition and high selenium during gestation on growth and vascularization of key nutrient transferring tissues. Animal work currently being done. This is a collaborative project with Joel Caton, Larry Reynolds, and Dale Redmer. USDA funded project.


3. Articles/books/publications

Refereed papers published


Books/book chapters


Edited works


Proceedings


Radisson Fort McDowell Resort & Casino in Scottsdale, Arizona.


Wagner, S.A. “Fever and Diagnosis in Postpartum Cows”, “Culture-Based Therapy of Mastitis”, and “Use of Veterinary Technicians in Large Animal Practice” Proceedings of the North Dakota Veterinary Medical Association Annual Conference, Bismarck, ND August 2007


Abstracts


metabolism. ISEP 2007.


Effects of swathed forage type; big bluestem, crested wheatgrass, or foxtail millet on intake and total tract digestion. J. Anim. Sci. 85 (Suppl. 2):122.


Palmieri, C., Loi P, Reynolds L, Ptak G, Della Salda L. Light and electron microscopic abnormalities in placentae from ovine somatic cell clones at term. EuroSTELLS Workshop, “Challenges in Stem Cell Differentiation and Transplantation,” European Science Foundation and EUROCORES; Milan, Italy, 30 September to 3 October, 2007 (Abstr.), pg 22


Western section of American Society of Animal Sciences meeting, Moscow, Idaho.
Abstract 91.

Department reports


Extension/outreach publications


Lardy, G.
- Upcoming Events, Ranch Hand, Jan., 2007
- Don’t Forget About the Benefits of Crossbreeding at Bull Buying Time, Ranch Hand, Jan. 2007
- Preparing for the Upcoming Calving Season, Ranch Hand, Feb. 2007
- Colostrum Management Important During Calving Season, Ranch Hand, March, 2007
- Biodiesel Industry Byproducts, Ranch Hand, May, 2007
- Dealing with Wet Conditions during Haying, Ranch Hand, June, 2007
- Fly Problem Severe for North Dakota Cattle, Ranch Hand, Aug. 2007
- Heat Stress is a Serious Problem for Cattle, Ranch Hand, Aug., 2007
- Early Weaning Beef Calves, Ranch Hand, Sept., 2007
- Grazing Corn Residue Makes Cents (Sense), Ranch Hand, Oct., 2007
- Earlage an Option for Harvesting Corn, Ranch Hand, Oct., 2007
- Grazing Crop Residues Can Reduce Costs, Ranch Hand, Nov., 2007
- Making the Most of Cull Cow Marketing, Ranch Hand, Dec., 2007

Lardy, G. – Instructionally-related publications
- Field Pea Grain for Beef Cattle, Authors: Vern Anderson, Breanne Isle, and Greg Lardy, Extension Bulletin: AS-1301 (Revised)
- Feeding Coproducts of the Ethanol Industry to Beef Cattle, Author: Greg Lardy, Extension Bulletin, AS-1242. (Revised)

Popular articles


Lardy, G.
- Cold Weather Means Increased Energy Requirements, Hereford E-News
- Controlling Production Costs, Print (Tri-State Livestock News)
- Now is the Time to Manage Cow Body Condition Score in Spring Calving Herds, Hereford E-News
- Now Is the Time to Evaluate Winter Feeding Programs, Print (Tri-State Livestock News)
- Distillers Grains Availability Questions, Print (Agweek)
- Grazing Crop Residues Can Help Reduce Costs, Hereford E-News
- Making Quality Corn Silage, Print (Tri-State Livestock News)
- NDSU Offers Corn Silage Harvesting Tips, Print (NDSU News Release)
- Earlage an Option for Harvesting Corn, Print (NDSU News Release)
- Successful Weaning Programs, Hereford E-News
- Caring for Your New Yearling Bull, Print (SimTalk)
- Sweet on Swaths: Swath Grazing Can Extend the Grazing Season, Print (Beef Magazine)
- Early Weaning Beef Calves, Print (Tri-State Livestock News)
- Ethanol Byproducts Affecting North Dakota Cattle on Feed Numbers, Print (Associated Press)
- Heat Stress Is A Serious Problem for Cattle, Hereford E-News
- Heat Stress a Problem, Even for Northern Plains Cattle, Print (NDSU News Release)
- Drought Management, Hereford E-News
- Natural Beef Programs, Radio (Clear Channel)
- Producers Should Make Natural Beef Decision Now, Print (NDSU News Release)
- Dealing with Higher Feed Prices, Print (Tri-State Livestock News)
- Livestock Feed-Versus-Fuel, Distillers Grains Quarterly


Luther, J.


Stoltenow, C.

4. Presentations

(Includes all extension and outreach oral presentations)

Bauer, M.
Scholarly (n = 1)
Leptin SNP: growth of beef cattle.

Berg, E.
Scholarly (n = 6)
- ND Pork Producers Tailgate, 11-03-07 Fargodome, ~500 attending, cut/cooked/served grilled pork chops.
- Talk: Beef: New and Improved, 08-12-07 Big Iron Expo, West Fargo Fairgrounds, ~30 attending, Speaker.

Berg, P.
Scholarly (n = 2)
- “Beef 101”, Bowman, ND, October 2007
- International Hair Sheep Conference. Fargo, September 2007

Grazul-Bilska, A.
Scholarly (n = 4)
- Effects of nutrition on oocyte quality and early embryonic development in sheep. Meeting of the Mid-Western section of the American Society of Animal Sciences. Des Moines, Presenter.
- Protein expression of vascular endothelial growth factor (VEGF), basic fibroblast growth factor (FGF2), and their receptors in ovine placentomes in single, twin and triplet pregnancies. 40th Annual SSR Meeting, July, 2007. Presenter.
- Assisted reproductive technology in human medicine: importance of animal model. WISMET meeting, December 2007, NDSU.

Hammer, C.
Scholarly (n = 1)
- Effects of maternal nutrition and selenium supplementation on absorption of IgG and survival of lambs.

Other (n = 30)
- Spring Horse Clinic: Horse Slaughter Legislation Panel and Overweight Horses, Minot, ND, 48 attendees, Speaker
- Fleet Farm: John Lyons Horse Event, Fargo, ND, Approx. 150 attendees, Speaker, (answered veterinary questions)
- Reproduction, Fargo, ND, Speaker
- Equine Nutrition and Health, Bowman, ND, 28 attendees, Speaker
- CGREC Research Review: Basic Horse Nutrition, Streeter, ND, 60 attendees, Speaker
- Demystifying Strangles, Fargo, ND, 35 attendees, Speaker
- ND 4-H Horse Survey, Livestock Agents In-service Training, September 6, 2007
- Laminitus, RFD-TV “Live” program 9/17/07.
- Horsemanship Clinic – May 2007 (6 youth participants)
- Fuzzy Wuzzy Open Horse Show – April 2007 (30 participants youth and adult)
- NDSU Horse Fair – April 2007 (over 1000 attendees), Advisor and Speaker
- Wish I Had a Horse Camp – April 2007 (28 youth participants), Coordinator and speaker
- Showmanship Clinic – April 2007 (27 participants, youth and adult)
- Horse Sense Radio – Daily horse program broadcast by 22 radio stations in Minnesota and North Dakota.
  - Not a New Disease. 8/10/2007
  - Infected for Life. 8/9/2007
  - Dear Veterinarian. 8/8/2007
  - EHV – Impacts Respiratory System and More. 8/7/2007
  - EHV – A Major Equine Virus. 8/6/2007
  - Breaking the Disease Cycle. 1/19/2007
  - Florida’s Problem with Equine Herpes Virus-1. 1/18/2007
  - Vaccinations Recommended. 1/17/2007
- The Symptoms of Strangles. 1/16/2007
- Strangles – A Common Disease Problem. 1/15/2007
- Organizer and leader, ND 4-H Horse Advisory Council Rulebook Workshop, September 22, 2007
- Judge, North Dakota State 4-H Horse Judging Contest, July 24, 2007
- Superintendent, North Dakota State Fair 4-H Horse Show, July 23-25, 2007
- Organizer, North Dakota State FFA Horse Judging Contest, June 6, 2007
- Official and Organizer, Winter Show 4-H Hippology Contest, March 9, 2007
- Judge, Little International 4-H Hippology Contest, February 9, 2007

Lardy, G.

Other (n = 72)
- Moorhead, MN, Alternative Feeds, 10 attendees, Speaker
- Crookston, MN, Corn Silage Production and Management Principles, 12 attendees, Speaker
- Crookston, MN, Alternative Feeds, 3 attendees, Speaker
- Park River, ND, Byproducts and Alternative Feeds for Northeast North Dakota, 25 attendees, Speaker
- Gaylord, MI, Innovative Ways to Reduce Cow Wintering Costs, 35 attendees, Speaker
- Escanaba, MI, Innovative Ways to Reduce Cow Wintering Costs, 22 attendees. Speaker
- East Lansing, MI, Innovative Ways to Reduce Cow Wintering Costs, 82 attendees, Speaker
- Carrington, ND (via Polycomm), Using Ethanol Byproducts in Beef Cattle Diets, 4 attendees, Speaker
- Cooperstown, ND (via Polycomm), Using Ethanol Byproducts in Beef Cattle Diets, 2 attendees, Speaker
- Park River, ND (via Polycomm), Using Ethanol Byproducts in Beef Cattle Diets, 1 attendee, Speaker
- LaMoure, ND (via Polycomm), Using Ethanol Byproducts in Beef Cattle Diets, 1 attendee, Speaker
- Linton, ND (via Polycomm), Using Ethanol Byproducts in Beef Cattle Diets, 4 attendees, Speaker
- Hettinger, ND, The Interaction Between Cow Nutrition and Reproduction: Maternal and Fetal Effects, 12 attendees, Speaker
- Watford City, ND, The Interaction Between Cow Nutrition and Reproduction: Maternal and Fetal Effects, 75 attendees, Speaker
- Jamestown, ND, The Interaction Between Cow Nutrition and Reproduction: Maternal and Fetal Effects, 15 attendees, Speaker
- Rapid City, SD, Factors Affecting the Value of North Dakota, South Dakota, and Montana Feeder Calves, 15 attendees, Speaker
- Bowman, ND, Management Strategies for Improved Carcass Quality, 15 attendees, Speaker
- Bowman, ND, Pricing Cattle on Grids, 15 attendees, Speaker
- Mexicali, Mexico, Using Ethanol Byproducts in Beef Cattle Rations, 110 attendees, Speaker
- Fargo, ND, Using Ethanol Byproducts in Beef Cattle Rations, 24 attendees, Speaker
- Jamestown, ND, Using Biodiesel Byproducts in Livestock Rations, 60 attendees, Speaker
- West Fargo, ND, Beef Systems Center of Excellence Update, 225 attendees, Speaker
- West Fargo, ND, Using Ethanol Byproducts in Beef Cattle Diets, 40 attendees, Speaker & Co-Organizer
- Washburn, ND, Co-locating Ethanol Plants and Cattle Feedlots, 35 attendees, Speaker & Co-Organizer
- Dickinson, ND, Factors Affecting the Value of North Dakota Feeder Calves, 97 attendees, Speaker & Co-Organizer
- Bismarck, ND, Co-locating Ethanol Plants and Cattle Feedlots, 24 attendees, Speaker
- Williston, ND, Using Ethanol Byproducts in Beef Cattle Rations, 80 attendees, Speaker
- Fargo, ND, Understanding the Role of the Beef Cattle Producer in Food Safety, 2 attendees, Speaker
- Nashville, TN, The Interaction Between Cow Nutrition and Reproduction: Maternal and Fetal Effects, 60 attendees, Speaker
- Lisbon, ND, Feeding Ethanol Byproducts to Beef Cattle, 65 attendees, Speaker
- Fargo, ND, Feeding Byproducts of the Ethanol Industry, 32 attendees, Speaker
- Fargo, ND, Impacts of the Ethanol Industry on the Seedstock and Cow-Calf Sectors, 60 attendees, Speaker & Co-Organizer
- Fargo, ND, A Snapshot of North Dakota Agriculture, 65 attendees, Speaker & Co-Organizer
- Rapid City, SD, Factors Influencing Sale Price of North Dakota Feeder Calves, 30 attendees, Speaker & Co-Organizer
- Carrington, ND, Does Concurrent Vaccination with 5-way Viral and Mannhemia bacterins Result in Diminished Vaccination Response? 15 attendees, Speaker & Co-Organizer
- Golva, ND, The Ethanol Industry: Challenges and Opportunities for Beef Cattle Producers, 12 attendees, Speaker
- Bismarck, ND (via Conference Call), Feeding Ethanol and Biodiesel Byproducts: Challenges and Opportunities, 8 attendees, Speaker
- Streeter, ND, Limit Feeding Beef Cows, 60 attendees, Speaker
- Streeter, ND, Vaccine Interference Study, 60 attendees, Speaker
- Carrington, ND, Ration Formulation, 35 attendees, Speaker
- Carrington, ND, Optimizing Nutrient Utilization, 35 attendees, Speaker
- Carrington, ND, Feeding Programs-Receiving, Backgrounding, Finishing, Goal Setting, 35 attendees, Speaker
- Langdon, ND (via Polycomm), Beef Systems Center of Excellence Update, 30 attendees, Speaker
- Langdon, ND (via Polycomm), Feeding Ethanol Byproducts, 30 attendees, Speaker
- Williston, ND, Feeding Programs for Cattle Feedlot, 45 attendees, Speaker
- Medora, ND, North Dakota Natural Beef Update, 70 attendees, Speaker
- Medora, ND, Beef Systems Center of Excellence Update, 70 attendees, Speaker
- Medora, ND, Trace Mineral Nutrition for Your Beef Cattle Operation 70 attendees, Speaker
- Killdeer, ND, Beef Systems Center of Excellence Update, 60 attendees, Speaker
- Killdeer, ND, Trace Mineral Nutrition for Your Beef Cattle Operation, 60 attendees, Speaker
- Bowman, ND, Beef Systems Center of Excellence Update, 40 attendees, Speaker
- Bowman, ND, Trace Mineral Nutrition for Your Beef Cattle Operation, 40 attendees, Speaker
- Denver, CO, Drought Management, 75 attendees, Speaker
- Dickinson, ND, Feeding Ethanol Byproducts, 150 attendees, Speaker
- Devils Lake, ND, Feeding Ethanol Byproducts, 25 attendees, Speaker
- Devils Lake, ND, Natural Beef Production and Beef Systems Center Update, 25 attendees, Speaker
- Dickinson, ND, Basic and Applied Beef Cow Nutrition Programs, 35 attendees, Speaker
- Fargo, ND, Extention Agent In Depth Training, 28 enrolled, Organizer and Speaker
- Washburn, ND, Extension Aents Livestock Inservice, 35 enrolled, Co-organizer and Speaker
- Dickinson, ND, Corn, Cattle and Energy, 97 enrolled, Speaker and Co-organizer
- Fargo, ND, American Simmental Association NDSU Breeder meeting, 60 enrolled, Speaker and Co-organizer
- Carrington, ND, Pfizer-NDSU Scientific Exchange, 15 enrolled, Speaker and Co-organizer
- Rapid City, SD, 4-State Beef Cattle Inservice, 25 enrolled, Speaker and Co-organizer
- Drought Management, TV (RFD TV, Cattlemen to Cattlemen)
- Moisture is Welcome, TV (KVLY – Fargo)
- Ethanol Impact on Meat Prices, TV (KVLY – Fargo)
- Beef Systems Center Activities Update, Radio (Clear Channel)
- Natural Beef Production, Radio (Clear Channel)
- Natural Beef Production, Radio (Northern Ag Network)
- Heat Stress a Problem, Even for Northern Plains Cattle, Print
- Corn, Cattle and Energy Workshop in Dickinson, Radio (Clear Channel)
- Early Weaning, Radio (Red River Farm Network)
- Feasibility Study: Anaerobic Digestion and Feedlot, AgWeek
- Feasibility Study: Anaerobic Digestion and Feedlot, Radio (Clear Channel)

Luther, J.

Scholarly (n = 3)
- Effects of Melengestrol Acetate and P.G. 600 on fertility in Rambouillet ewes outside the natural breeding season. NCERA Meetings, 2007. Corvallis, OR.
- Birthweight changes of major U.S. sheep breeds and associated changes in postnatal productivity. NCERA Meetings, 2007. Corvallis, OR.

Other (n = 35)
- Reproductive Management In Sheep. 1st Annual Hettinger Shepherd’s Clinic. Hettinger, ND. January.
- Guided Tour of Southwest ND Sheep Operations. 1st Annual Hettinger Shepherd’s Clinic. Hettinger, ND. January.
- Developing a Fall Lambing Flock. 1st Annual Carrington Sheep Seminar. Carrington, ND. February.
- Application of Artificial Insemination Techniques to the ND Sheep Industry. AI Workshop, Jamestown, ND. April.

- Application of Artificial Insemination Techniques to the ND Sheep Industry. AI Workshop, Bismarck, ND. April.
- Application of Artificial Insemination Techniques to the ND Sheep Industry. AI Workshop, Fargo, ND. April.
- History of the Hettinger Research Extension Center. ASI executive committee meeting, Medora, ND. July
- The North Dakota Sheep Industry. ASI executive committee meeting, Medora, ND. July
- Ram Selection and Management. Fargo Ram Sale, Fargo, ND. August
- The New Lamb LRP. Fargo Ram Sale, Fargo, ND. August
- Application of AI to ND Sheep Industry. Fargo AI Workshop, Fargo, ND. August
- North Dakota Sheep Industry Update. Washburn Livestock Inservice, Washburn, ND. September
- Artificial Insemination in Sheep. International Katahdin Exposition, Fargo, ND. September
- Ultrasonography in Sheep. International Katahdin Exposition, Fargo, ND. September
- Ram Semen Collection and Evaluation. International Katahdin Exposition, Fargo, ND. September
- Reproductive Management in Goats. Tri-State Meat Goat Conference, Aberdeen, SD. October
- Reproductive Management in Sheep. North Dakota Lamb & Wool Producers Convention, Mandan, ND. November
- 2007 Master Sheep Producer Award Winner. North Dakota Lamb & Wool Producers Convention, Mandan, ND. November
- Reproductive Management in Goats. Goat AI Workshop, Towner, ND. December
- Fall Ram Test Field Day, Hettinger, ND, 20 participated, March
- Ram Semen Collection, Fargo, ND, 10 participated, Workshop, March, presented
- Spring Ram Test, Hettinger, ND, 25 participated, May 20th to September 19th
- Animal Science Showcase, Fargo, ND, 75 attendees, September, Co-Organizer
- Hettinger Ram Sale, Hettinger, ND, 190 attendees, September
- ANPC Tour for the NDSU, Fargo, ND, 90 attendees, Harvest Bowl, presented
- Agriculture in the Classroom, Lisbon, ND, 400 attendees, April, presented

Maddock Carlin, K.
Scholarly (n = 1)
- Experiences in Graduate School. ARS Senior Seminar. North Dakota State University.

Maddock, R.
Scholarly (n = 9)
- Carrington REC Field Days (new beef cuts), Carrington
- Extension In-service (grilling the perfect steak), Washburn
- Extension Conference (cull cow quality), Fargo
- Beef 101 (beef quality), Bowman
- Beef Feedlot School (beef quality and value), Carrington
- ND Stockmens (Producing Quality Beef), Bismarck
- ND Lamb and Wool (Grilling the Perfect Lamb Chop), Mandan
- 4-state Backgrounding conference
- (Managing for Beef Quality), Dickinson
- 4-state Backgrounding conference
- (Managing for Beef Quality), Rapid City, SD
Other (n = 4)
- Traceability and the United States Meat Production System. Presented to International Groups brought to campus. (2 presentation)
- HACCP Training, Harvey, ND, 6 participated
- HACCP Training, Fargo, ND, 12 participated

Moore, B.
Scholarly (n = 3)
- Invited presenter, Introduction to Sheep Evaluation
  National Montadale, Cheviot, Oxford, Shropshire & Poly pay Shows, Springfield, IL
- Invited presenter, Midwest Stud Ram Show, Sale and Seminars, Sedalia, MO
- Invited participant as beef judge, Wisconsin State Fair, Milwaukee, WI

Park, C.
Scholarly (n = 1)
- Lipotropes (methyl nutrients) enhance human breast cancer cell death; American Society for Cell Biology Annual Meeting.

Reynolds, L.
Scholarly (n = 2)
- Developmental programming of adult disease: Understanding the impact on human health and animal production; NIH/USDA Workshop on Advantages of Agriculturally Important Domestic Species as Biomedical Models; Bethesda, MD; April 2007.
- Effect of nutrient intake during pregnancy on fetal and placental growth and vascular development; 4th International Conference on the Female Reproductive Tract, Kloster Frauenwörth, Frauenchiemsee, Germany; June 2007.

Schroeder, J.W.
Other (n = 8)
- Presentations: (5)
  Dairy Cow College 07. Feeding Strategies During Times of High Feed Costs. Linton, Dickinson, New Salem, Minot, Jamestown. Audience participation represented 13% of all dairy farms in North Dakota.
- Presentations: (1)
- Presentations: (2)
Presentation: Keeping Dairy Cattle Fit With Flax.
Presentation: Using Flax in Dairy Cattle Diets.

**Stoltenow, C.**

**Scholarly (n = 14)**
- Moving a national veterinary practice act from a communist to a free enterprise system by Stoltenow, April 29, 2007, Mongolian VET Net Advisory Board meeting, Sleep Inn and Suites, Baltimore, MD.
- Diseases, treatments, and Health Programs by Stoltenow. North Dakota Feedlot School, Carrington Research Extension Center, January 23-24, 2007, Carrington, ND.
- Tularemia in ND by Stoltenow. Annual NDSU Veterinary Diagnostic Laboratory Seminar, May 17, 2007, Stevens Auditorium, NDSU, Fargo, ND.
- Tritrichomoniasis foetus regulations in North Dakota by Stoltenow, Big Iron, Red River Valley Fairgrounds, West Fargo, ND, September 12, 2007
- Veterinary Medicine in Mongolia by Stoltenow, NDSU Animal and Range Sciences Graduate Seminar, October 26, 2007, NDSU, Fargo, ND.
- Tritrichomoniasis foetus and its impact in North Dakota by Stoltenow, Calving ’08 Fast Out of the Gate Cow/Calf series, December 3, 2007, Gladstone Inn, Jamestown, ND.
- Tritrichomoniasis foetus and its impact in North Dakota by Stoltenow, The Bovine Connection, December 4, 2007, Outlaws Bar & Grill, Watford City, ND.
- Tritrichomoniasis foetus and its impact in North Dakota by Stoltenow, Calving ’08 Fast Out of the Gate Cow/Calf series, December 5, 2007, NDSU Hettinger Research Extension Center, Hettinger, ND.

**Swanson, T.**

**Scholarly (n = 1)**
- 2007-2008 ASAS National Meetings, Effects of plane of nutrition and selenium supplementation on colostrum quality and mammary development in pregnant ewe lambs.
Other (n = 2)
- Equine Conformation- NDSU Horse Fair
- Richland County 4-H Horse Camp

Vonnahme, K.
Scholarly (n = 4)

Wagner, S.
Scholarly (n = 2)

Other (n = 8)
- “Fever and Diagnosis in Postpartum Cows”, “Culture-Based Therapy of Mastitis”, and “Use of Veterinary Technicians in Large Animal Practice” Proceedings of the North Dakota Veterinary Medical Association Annual Conference, Bismarck, ND August 2007

5. Technology transfer

The focus of technology transfer in the department is through the extension programs. Impact statements from Drs. Lardy, Schroeder, Stoltenow, Luther and Hammer in Section G outlines many of the important points of technology transfer. 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 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.

C. Outreach

1. Professional service


Bauer, M. – Regional
Odor and Nutrient Management committee, Midwest ASAS, chair
Graduate Student Competition committee, Midwest ASAS, member

Bauer, M. – University
Institutional Biosafety committee, member, animal expert

Bauer, M. - Department
Nutrition committee, member
Beef Research committee, member
Curriculum and Student Affairs committee, member
Academic Quadrathlon committee, member

Berg, E. – Professional meetings
- 68th MN Nutrition Conference. Sept. 18-19, Minneapolis, MN. Invited Speaker, Presenter, Attendee.
- National Pork Board – Unified Committee Meeting. Sept. 5-7, Omaha, NE. Presenter, Committee Chair.
- American Meat Science Assoc. 60th Annual Reciprocal Meats Conference. June 17-20, Brookings, SD. Organizer, Committee Chair, Session Chair, Moderator.
- American Society of Animal Science – Midwest Sectional Meetings. Mar. 11-14, Des Moines, IA. Committee Chair, Attendee.

Berg, E. - Editorial Boards
- Journal of Animal Science
- Journal of Muscle Foods


Berg, E. – National/International
- Member, American Society of Animal Science Meats Research Award committee. 2007.
- Member. Pork Checkoff Animal Science Committee, National Pork Board. 2004 to present.
- Member. Educators Advisory Group of Swine Extension and Adult Ag Educators, National Pork Board. 2003 – Present.

Berg, E. – Department
- Chair, Swine Committee, 2007 – present.
- Member, Graduate Committee, 2007 – present.
- Member, Facilities Planning Committee, 2007 – present.
- Member, Academic Quadrathlon Committee, 2007 – present.

Berg, E. – Extension
- ND State FFA Meats Judging Contest, Fargo, ND, ~ 100 attending.

Berg, P.
- Reciprocal Meat Conference, South Dakota State University, June, 2007
- State International Hair Sheep Conference. Fargo, September 2007

Berg, P.

Berg, P.
- Reviewed two papers for Small Ruminant Journal

Berg, P. - Department
- AnSci Sheep Committee

Berryhill, D. - Attended the International Conference on Diseases in Nature Communicable to
Man, August 12-14, 2007, at the University of Wisconsin – Madison.

Berryhill, D.
- Director of Special Programs, College of Agriculture, Food Systems, & Natural Resources (30%), including Director of the General Agriculture Program.
- Responsible Official, Select Agent Program (% to be determined).

Berryhill, D. – University
- Chair, Institutional Biosafety Committee
- Member, Natural Resources Management Coordinating Committee
- Member, Natural Resources Graduate Program Steering Committee
- Member, Electron Microscopy Advisory Committee
- Alternate Member, Institutional Animal Care and Use Committee
- Member, Visual Arts Gallery Program Advisory Committee
- Member, University Athletics Committee
- Member, Laboratory and Chemical Safety Committee
- Member, NCAA Athletics Certification Academic Integrity Subcommittee
- Member, Disaster Resistant University Advisory Committee

Berryhill, D. – College
- Member, College of Agriculture, Food Systems, & Natural Resources Student Progress Committee
- Chair, College of Agriculture, Food Systems, & Natural Resources Curriculum Committee
- Member, College of Agriculture, Food Systems, & Natural Resources Curriculum Committee

Berryhill, D. – Department
- Chair, Awards Nomination Committee
- Member, Curriculum/Student Affairs Committee
- Member, Graduate Committee

Caton, J.
- January 07: Florida Ruminant Nutrition Conference: Invited Speaker
- July 07: National ASAS meetings; Oral and poster presentation of data
- July 07: USDA-NRI PD meeting; Oral presentation of research update
- August 07: Aspen perinatal conference; Workshop organizer, moderator and Invited Speaker
- September 07: AFIA Liquid feed symposium; Invited Speaker
- September 07: International Symposium of Energy and Protein Metabolism; Vichy France, Workshop organizer and Plenary Session Speaker

Caton, J.
- Panel Member NIH-NIDDK-LPR Program
- Numerous manuscripts reviewed and several ad hoc grant reviews for several agencies
- NIH Panel Member
- Fellow Award committee ASAS
Caton, J. – National/International
- Aspen Perinatal Biology symposium Organizing Committee member 2007-2010.

Caton, J. – Regional
- NC1021 Regional Committee Chairman for 2007

Caton, J. – University
- Co-Director Center for Nutrition and Pregnancy
- Academic Affairs Committee

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

Caton, J. – Department
- Nutrition Committee
- ANPC Faculty Leader
- Nutrition Laboratory Faculty Leader
- Graduate Committee
- Ad-hoc Research Coordinator

Colville, T.
- Proposal Reviewer, Delmar Learning, Clifton Park, NY.
- Consulting Veterinarian, American College of Surgeons Advanced Trauma Life Support Course.
- Consulting Veterinarian, American College of Surgeons Pediatric Advanced Life Support Course.
- Liaison to the North Dakota State University Veterinary Technology Program Advisory Committee.

Colville, T. – Department
- Member, ARS Awards Committee.
- Member, ARS Curriculum/Student Affairs Committee.
- Member, ARS Facilities Planning Committee.
- Member, ARS PTE Committee.
- Chair, ARS PTE Mentoring Committees for Dr. Sarah Wagner and Dr. Charles Stoltenow.
- Member, ARS PTE Mentoring Committee Dr. Rob Maddock.

Colville, T. - National

Danielson, R.
- September - 2007 - ND Stockman’s Association Convention - Research & Promotion
Committee member – Bismarck, ND.
- 2007 North Dakota Winter Show Livestock Honoree
- Herd consultant - Goldberg Angus Farms, Moorhead, MN
- Secretary/Treasurer North Dakota Livestock Endowment Foundation
- Jan 2007 -Keynote speaker –Bull Days Program, Bismarck, Merits of Bull Selection
- Jan 2007 - Cow-Calf Days Program Speaker – North Central Beef Program, Carrington
  Improving Beef Production

Danielson, R. – National
- National Cattlemen’s Beef Association – Research Committee – 2004- current
- Beef Improvement Federation - Live Animal Evaluation Committee - 1990-current

Danielson, R. – Regional
- Board of Directors for the ND Cowboy Hall of Fame
- Secretary/Treasurer ND Cowboy Hall of Fame
- ND Cowboy Hall of Fame Executive Fund Raising Committee
- North Star Classic Livestock Show Board of Directors
- ND Winter Show - Livestock Committee
- ND Winter Show - Steer Shows - Chair

Danielson, R. – State
- ND Stockman’s Association Student Mentoring Program Board of Directors
- ND Livestock Endowment Foundation
- United Tribes Technical College Land Grant Strategic Planning and Program Review Committee
- ND Junior Beef Expo Board of Directors

Danielson, R. – University
- University Assessment Committee – 2004-current

Danielson, R. – College
- Academic Advising Committee - 1993-current
- College of Agriculture Scholarship Committee - 2000-current
- College of Agriculture Recruitment Committee - 2001-current

Danielson, R. – Department
- Undergraduate Curriculum & Student Affairs Committee - Chair
- ARS Equine Faculty Search Committee
- ARS Beef Committee
- ARS Equine Committee
- ARS Assessment Committee
- ARS Mentoring Committee for Dr. Carrie Hammer - Chair
Danielson, R. - Secretary/Treasurer North Dakota Livestock Endowment Foundation

Danielson, R.
- Jan 2007 - Keynote speaker –Bull Days Program, Bismarck Merits of Bull Selection
- Jan 2007 - Cow-Calf Days Program Speaker – North Central Beef Program, Carrington Improving Beef Production

Eck, T.
- April 2007, South Dakota State University – Brookings, SD
- April 2007, University of Nebraska – Lincoln, NE
- April 2007, Black Hills State University – Spearfish, SD
- April 2007, National American University – Rapid City, SD
- May 2007, Dickinson State University – Dickinson, ND
- September 2007, University of Wisconsin – River Falls Rodeo; River Falls, WI
- September 2007, Iowa State University Rodeo – Ames, IA
- September 2007, Iowa Central Community College Rodeo – Fort Dodge, IA
- October 2007, North Dakota State University Rodeo – Fargo, ND

Grazul-Bilska, A.T.

Editorial Board - Reproductive Biology and Endocrinology
Award - Selected to the “Tapestry of Diverse Talents” at NDSU.
- Reviewed one research grant for the Natural Sciences and Engineering Research Council of Canada.

Grazul-Bilska, A.T. – State
Mentor for the Principal Investigator from the Dickinson State University within INBRE Program, North Dakota

Grazul-Bilska, A.T. – University
- Radiation Safety Committee member
- Member of the Steering Committee of the CMB program

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

Hammer, C.
- Award, Nominee, William J. and Angelyn A. Autin Advising Award for Excellence, North Dakota State University, 2007.

Hammer, C. – National/International
- American Association of Equine Practitioners – member
  AAEP State Equine Emergency Network Contact for ND
- Equine Science Society – member
  Judge, Graduate Student Competition (Reproduction)

Hammer, C. – 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. – Department
- Equine Committee - Chair
- Search Committee: Assistant Professor, Equine Studies – Chair
- ARSGSO Scholarship Review Committee - Member
- Recruitment, Retention, Placement & Curriculum Committee - Member

Lardy, G. - Meetings
- NCBA Convention
- Midwest ASAS.

Lardy, G. – Editorial Board
- Journal of Animal Science

Lardy, G. – National/International
- Journal of Animal Science, Associate Editor. Production and Management Division. 2006-Present.
Lardy, G. - Regional
- NCR-206. Feedlot cattle nutrition and management.

Lardy, G. - College
- Search Committee: 4-H Specialist, 2007, Member and Chair
- Search Committee: Nutrient Management Engineer Faculty Position, 2007, Member

Lardy, G. – Department
- Beef Research Facility Building Committee, 2007-2008, Member and Chair
- Animal Science Showcase, 2007, Member
- Mentoring Committee, Dr. Kasey Carlin, 2007-present, Member and Co-Chair
- Search Committee: Ruminant Nutrition Technician (Feedlot Manager), 2007, Member and Chair
- Search Committee: Department Head, Animal Sciences, 2006-2007, Member
- Mentoring Committee, Dr. Justin Luther, 2006-present, Member and Chair
- Mentoring Committee, Dr. Carrie Hammer, 2005-present, Member
- Mentoring Committee, Dr. Kim Vonnahme, 2004-present, Member

Luther, J.
- NCR 190 – Increased efficiency of sheep production in Corvallis, OR. National Meeting. Speaker and Participant.
- North Dakota Lamb and Wool Producers Convention in Mandan, ND. State Meeting. Coordinator and Speaker.
- Spring NDSU Extension Conference in Fargo, ND. State Meeting. Participant.
- Fall NDSU Extension Conference in Fargo, ND. State Meeting. Participant.

Luther, J. - 2007 Outstanding Junior Extension Award Nominee in College of Agriculture

Luther, J. - Reviewed 1 article for each Placenta and the Journal of Animal Science. In addition, I reviewed one article for the USDA Sheep Experiment Station manuscript submission process.

Luther, J. National/International
- NCERA 190 Committee: Increased Efficiency of Sheep Production.
- NCERA 190 Resolutions Committee: Increased Efficiency of Sheep Production
- American Sheep Industry Association: Research and Education Committee

Luther, J. – University
- Center for Child Development: Parent Committee

Luther, J. - Department
ARS: Sheep Committee

Maddock Carlin, K.
- American Society of Animal Science Midwestern Section Meetings, Des Moines, IA. Undergraduate Research Competition
- Reciprocal Meats Conference. Brookings, SD. Attendee. Undergraduate Quiz Bowl Coach

Maddock Carlin, K. – NIH-NICHD Travel Award Fellow, Perinatal Biology Symposium, Aspen, CO.

Maddock Carlin, K.
- Reviewed 1 manuscript for Journal of Animal Science
- Reviewed 2 manuscripts for Journal of Muscle Foods

Maddock Carlin, K. – National/International
- Scientific Committee - American Meat Science Association
- AMS Meat Tenderness Committee – Predictive Technology Subcommittee

Maddock Carlin, K. - College
- College Space Audit Committee – supply information on Animal Sciences Dept. Space Usage on Campus

Maddock Carlin, K. – Department
- Awards Committee
- Quadrathalon Committee – Set up Lab Practical

Maddock, R.
- Reciprocal Meat Conference – National Meeting of Meat Scientists
- National Cattlemen’s Beef Association – National Meeting of US Cattlemen
- Beef Quality Summit – National Meeting of Parties Interested in Beef Quality Assurance
- Quality Assurance 101 – A training course for developing Quality Assurance plans for meat processors.

Maddock, R.

Maddock, R. – National/International
- By-laws committee of American Meat Science Association
Maddock, R. – Regional
- W2177 “Improving competitiveness of US Meat” 5% of time.

Maddock, R. – Department
- Curriculum Committee; Capital Assets Committee

Moore, B. – National
- January 2007, National Western Stock Show, Denver, CO
- January 2007, Sioux Empire Farm Show, Sioux Falls, SD
- March 2007, Midwest Meat/Livestock Evaluation Clinic, Oklahoma City, OK
- June 2007, National Oxford & Cheviot Shows, Sales & Annual Meetings, Springfield, IL
- June 2007, National Montadale Show, Sale & Annual Meeting, Springfield, IL
- June 2007, Midwest Stud Ram Show, Sale and Seminars, Sedalia, MO
- August 2007, Wisconsin State Fair, Milwaukee, WI
- August 2007, Minnesota State Fair, St. Paul, MN
- September 2007, National Barrow Show, Austin, MN
- September 2007, World Beef Expo, Milwaukee, WI
- November 2007, American Royal Livestock Show, Kansas City, MO
- November 2007, North American International Livestock Exposition, Louisville, KY

Moore, B. – National/International
- International Kathadin Sheep Expo, Planning Committee
- International Intercollegiate Livestock Coaches Association, Eligibility Committee Chairman
- Montadale Sheep Breeders Association, Scrapie Advisory Committee and Breed Standards Committee
- American Hampshire Sheep Association, Breed Standards Committee
- All American Junior Sheep Show Coordinating Committee, Judging Contest Superintendent
- Sheep Evaluation for Youth Committee, National Montadale, Shropshire, Oxford & Polypay Shows

Moore, B. – State
- March 2007, North Dakota Winter Show, Valley City, ND
- December 2007, North Star Classic, Valley City, ND
- NDSU Regional Livestock Judging Contests, Coordinator
- North Dakota State 4-H & FFA Livestock Judging Contests, Livestock Coordinator and Swine Committee Chairman
- NW Regional Minnesota FFA Livestock Judging Contest, Coordinator
- North Central Minnesota Regional Livestock Judging Contest, Coordinator

Park, C.S.
- Reviewed USDA-NRI proposal (1).
- Reviewed Journal of Dairy Science manuscripts (3).
- Reviewed Pathology and Laboratory Medicine (1).
- Reviewed Pathology-Research and Practice (1).

Park, C.S. – National/International
- Society of Nutrition Education, July.
- Advisory Member of Korean National Academy of Sciences for Agricultural Affairs.

Park, C.S. – University
- Institutional Biosafety Committee

Park, C.S. – Department
- Dairy Committee
- Graduate Committee

Redmer, D.A. - American Society of Cell Biology, 47th Annual Meeting, national meeting, Washington, DC.

Redmer, D.A. – Served on editorial board Biology of Reproduction

Redmer, D.A. – Reviewed manuscripts
- Biology Reprod.
- Reproduction
- J. Clinical Investigation
- Endocrine
- Domestic Animal Endocrinology

Redmer, D.A. – University
- University Senate - senator
- Research Information Technology Advisory Group (RITAG) – member
- Institutional Animal Care and Use Committee - member

Redmer, D.A. – College
- PTE Committee
- Mentoring Program – Dr. Kendra Grenlee (Biology)

Redmer, D.A. – Department
- Sheep Committee (Chair)
- PTE Committee
- Ad hoc Technology/Equipment Committee
- Mentoring committees: Charlie Stoltenow, Anna Grazul-Bilska, Carrie Hammer

Reynolds, L.P.
- NIH/USDA Workshop on Advantages of Agriculturally Important Domestic Species as Biomedical Models; Bethesda, MD; April 2007
- 4th International Conference on the Female Reproductive Tract, Kloster Frauenwörth, Frauenchiemsee, Germany; June 2007
- Co-Organizer and Session Chair, 1st Aspen Perinatal Biology Symposium on Interaction of Maternal, Placental and Fetal Systems in Perinatal Biology, Aspen, CO; August 2007


Reynolds, L.P.
- Co-Director, Center for Nutrition and Pregnancy – North Dakota State University, 2002-present
- Executive Committee (Board of Directors), American Society of Animal Science, Sept 2005 to Aug 2008
- Reviewed proposals for 2 US federal granting agencies: US National Institutes of Health (NIH); US Department of Agriculture-NRICGP (these were study sections/peer review panels, see below)
- Reviewed 20+ 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,
  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, 2000-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,
  Obstetrics & Gynecology, 1997-present,
  Pediatric Research, 1996-present,
  Placenta, 1993-present,
  Prostaglandins, 1992-present,
  Reproduction (formerly Journal of Reproduction and Fertility), 1988-present,
  Theriogenology, 1994-present

Reynolds, L.P. – National/International
- National Institutes of Health (ORWH, NIAMS, NICHD, NIDDK, NIDA, NIEHS, NIMH) and FDA Special Emphasis Panel, RFA for Specialized Centers of Interdisciplinary Research (SCOR) on Sex and Gender Factors affecting Women’s Health (P50), Panel Member, Mail Reviewer; March 2007
- National Institute of Child Health and Human Development, Program Project Special Emphasis Panel (ZHD1 DSR-L CH) Member, NIH; Conference Call Review; July 2007
- National Institute of Child Health and Human Development, Program Project Special Emphasis Panel (ZRG1 EMNR-H 02 M; Member Conflict, Reproductive Biology Review Committee) Member, NIH; Conference Call Review; August 2007
- Ad hoc reviewer, US and international agencies:

Reynolds, L.P. – University
- Faculty, undergraduate Biotechnology Program
- Faculty, graduate Cellular and Molecular Biology Ph.D. Program
- Mentor, 2 new faculty, NDSU – Dr. Chengwen Sun, Asst. Prof., Dept. of Pharm. Sci.; and Dr. Peggy Biga, Asst. Prof., Dept. of Biol./Zool.
- Mentor, 2 faculty associated with active grants – Dr. Glenn Dorsam, Dept. of Chem./Biochem., NDSU, COBRE (Sibi, PI); and Dr. Hilde vonGijsell, Dept. of Science, Valley City State Univ., INBRE (Sens, 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-present
- Faculty Grantsmanship Mentor, New Faculty (currently 6 faculty) – Department of Animal & Range Sciences, North Dakota State University, 2004-present
- Member, PTE Mentoring Committee for Dr. Anna Grazul-Bilska, Assoc. Prof., 2004-present
- Member, PTE Mentoring Committee for Dr. Sarah Wagner, Asst. Prof., 2004-present

Schroeder, J.W. - Regional
- Midwest Section Joint ADSA/ASAS, Des Moines, IA
- Midwest Dairy Association, American Dairy Council; ex-officio advisor, represent NDSU.
- Heart of America DHIA, University Extension representative; ex-officio advisor.
Schroeder, J.W. – State
- North Dakota Dairy Coalition.
  Board of directors
  In-state dairy retention and expansion committee
- North Dakota State Dairy Show Association, David Thoreson, Nome, ND, President.
  Open dairy show organization and management
- Milk Producers Association of North Dakota; university representative and advisor
  Education committee, Convention coordinator
- North Dakota Dairy Products Promotion Commission/ADA; ex-officio advisor.

Schroeder, J.W. – University
- University Senate, Representative from the College of Agriculture, Food Systems, and Natural Resources. 2006-2009.
- University Assessment Committee (UAC) Extension Service representative, 2000 to 2008.

Schroeder, J.W. – College
- Animal Nutrition and Physiology Center (ANPC) Research Facility Use Committee

Schroeder, J.W. – Department
- Dairy Committee, ARS standing research committee, chair
- Technology Transfer Committee, member
- Nutrition Laboratory Committee, member

Schroeder, J.W. – Other committees
- Central Dakota Dairy, feasibility study with Greg Lardy and Wally Eide. Plans for a 5,000-cow dairy with methane digester.
- Dakota Farms dairy specialty and branded products development collaboration
- On-farm dairy processing plant feasibility

Schroeder, J.W.
- Larson/Yaggie Excellence in Research Award, Early Career Nominee – NDSU Agriculture Faculty and Staff Awards, December 2007.

Schroeder, J.W.
- Reviewed 5 abstracts for 2008 Midwest ADSA/ASAS joint meetings, Des Moines, IA. Invited presentations Extension Dairy Symposium, “Focus on Forages – Facts and Fantasies”
- Reviewed manuscripts:
  2) Temporal Changes in Milk Conjugated Linoleic Acid for Cows Fed a Pasture or Conserved Forages-Based Diet and Supplemented with Fish Oil and Sunflower Oil Corresponding Author Amer AbuGhazaleh. Reviewed October 2007, Canadian Journal of Animal Science.
- Extension document reviewed: DAIRExNET Community of Practice. I have contributed to the calf and heifer domain plus the nutrition, production, and management domain. Reviewed 16 submissions.
Schroeder, J.W. – Extension
- Farm Yard Social, 200 plus adults and youth
  Assisted in the organization and implementation of a regional Day-on-the-Farm in collaboration
  with Gary Hoffman, Executive Director of the North Dakota Dairy Coalition and Char Heer,
  Midwest Dairy Association.
- Dairy Cow College, 1/28 to 2/01 (Plan, coordinate, prepare, promote, and co-present):
  - Education program, Linton, 31 participants
    New Salem, 10 participants
    Dickinson, 15 participants
    Minot, 19 participants
    Jamestown, 17 participants
- State Dairy Convention, 11/26-28 (Organize, advertise, promote, coordinate and co-present):
  Mandan, 120 participants
- Dairy Market Analysis Alliance
  Jamestown, 9 participants
- State 4-H Dairy Contest, 06/22 (Co-organize with Dean Aakre, Extension 4-H/Youth and the
  Animal Sciences Dairy Research and Teaching Center:
    Teams, 3
    Individuals, 13
- State FFA Convention (06/04-08) NDSU ARS, Fargo:
  Dairy cattle judging Contest, 6/05, 98 youth, 11 adults
  Pedigree evaluation, 6/05, 112 youth, 10 adults
  Herd record evaluation, 6/05, 112 youth, 10 adults
  Dairy products judging Contest, 6/06, 133 youth, 9 adults
  Written individual exam, 6/06, 133 youth, 9 adults
  Team problem-solving - dairy foods, 6/06, 133 youth, 9 adults
- Technology Transfer:
  Internet
  NDSU Dairy Research and Extension Homepage @ 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.
- Internet, NDSU Dairy Research information and user links added to my Web site.
- Dairy Connections, Quarterly newsletter circulated to all North Dakota dairy producers and
  many of their service providers. (Copies available on request).
- Western Dairy News Contributor to a seven-state collaboration of Dairy Extension Specialists.
  R. Adams, Colorado State University, editor. Published monthly in Dairy Today, published by
  Farm Journal Corporation, Philadelphia, PA.
- Progressive Dairyman, Contributing author.
- Dairy Star, Contributing author.
Schroeder, J.W. – Radio and TV
1-4-07, Dairy Cow College to Feature Crossbreeding, Using Ethanol Byproducts, news release
2-9-07, Why Would You Crossbreed? Column, Sun, Dairy Star,
2-15-07, Dairies Consider Shorter Dry Period, news release
6-14-07, Dairy Focus: Dairy Producers Compete with Ethanol for Corn, column, AgWeek, Progressive Dairyman
6-21-07, Dairy Focus: Consider Pros and Cons of Alternatives to Corn, column
6-28-07, Dairy Focus: Know the Cost of Raising Replacement Heifers, column, Central Plains Dairy Industry News
7-5-07, Dairy Focus: Know Your Feed Costs Per Hundredweight, column, AgWeek, Dairy Star, Progressive Dairyman
7-12-07, Dairy Focus: Feeding Impacts Dairy Efficiency, column, Progressive Dairyman
7-19-07, Dairy Focus: Develop Strategies to Lower Feed Costs, column, AgWeek, Sun, Dairy Star, Progressive Dairyman
7-26-07, Dairy Focus: Why Feed Byproducts? column
8-2-07, Dairy Focus: Alternative Renewable Fuel Synergies Create Potential for Northern Plains, column, AgWeek
8-9-07, Dairy Focus: Extend the Shelf Life of Wet Distillers Grains, column
8-16-07, Dairy Focus: Manage Wet Byproducts to Prevent Spoilage, column, AgWeek, Progressive Dairyman
8-23-07, Dairy Focus: Distillers Grains Can Contribute to Performance and Cost, column, Progressive Dairyman
8-30-07, Dairy Focus: Study the Economics of Distillers Feeds, column, AgWeek, Sun, Dairy Star, Progressive Dairyman
9-6-07, Dairy Focus: Ethanol Production Byproducts Nutritious Animal Feed, column, Sun, Dairy Star, Progressive Dairyman
9-13-07, Dairy Focus: Maximize Quality and Quantity of Dairy Forages, column, Dairy Star
9-20-07, Dairy Focus: Water - It’s What You Don’t See That Counts, column
10-4-07, Dairy Focus: Coalition Launches Dairy Animal Well-being Effort, column
10-25-07, Dairy Focus: Balance Ration to Offset Expensive Corn, column, enews
- Also, Web pages updated bi-weekly to monthly featuring Co-product Price update
- 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.

Stoltenow, C. – National
- eXtension Communities of Practice (COP) Wiki Usability Study and Workshop, May 14-16, 2007, Hilton Suites, Lexington Green, Lexington, KY.
- Charles River Laboratory Animal Medicine Short Course, June 18-21, 2007, Marriott Hotel, Newton, MA. Scholarship recipient from the Charles River Laboratories Foundation.
- EDEN (Extension Disaster Education Network) 2007 Annual Meeting, Castle Resorts &
Hotels, Hilo, HI, November 4-9, 2007.
- Member, National Association of Extension Veterinarians
- Member, American Association of Equine Practitioners
- Member, American Association of Bovine Practitioners
- Diplomate, American College of Veterinary Preventive Medicine
- Member and Chair, EDEN eXtension Community of Practice (CoP) Agrosecurity Team

Stoltenow, C. – National/International
- Mongolian VET Net Advisory Group - Serve as an advisor to Mongolian VET Net, a Non-Governmental Organization in Mongolia that provides veterinary continuing education and efficacious veterinary pharmaceuticals and biologics to Mongolian veterinarians.

Stoltenow, C. – Regional
The 110th Annual Meeting of the Minnesota Veterinary Medical Association, February 1-3, 2007, Hilton Hotel, Minneapolis, MN.

Stoltenow, C. – State
- Environmental Management in Swine Production in North Dakota, January 11-12, 2007, Governor’s Inn, Casselton, ND.
- Extension Spring Conference 2007, March 27-29, 2007, Doublewood Inn, Fargo, ND.
- Pfizer Animal Health-NDSU Scientific Exchange program, April 3, 2007, Carrington Research Extension Center, Carrington, ND.
- North Dakota Stockmen’s Association Spring Roundup, District 2, June 6, 2007, Lisbon Golf Course, Lisbon, ND.
- Red Trail Energy Ethanol Tour, July 2, 2007, Richardton, ND.
- North Dakota Veterinary Medical Association’s 102nd Annual Meeting, August 1-3, 2007, Doublewood Inn, Bismarck, ND.
- Diamond-V-NDSU Scientific Exchange, Ponderosa Country Club, August 14, 2007, Glyndon, MN.
- North Dakota Department of Emergency Services Lignite Wind 08 Avian Influenza Pandemic training exercise seminar, August 21, 2007, Bismarck, ND.
- Corn, cattle and energy: Developing successful strategies for managing your beef cattle operation in an ethanol world. August 23, 2007, Days Inn, Grand Dakota Lodge, Dickinson, ND.
- North Dakota Department of Emergency Services Lignite Wind 08 Avian Influenza Pandemic training tabletop exercise, September 5, 2007, Bismarck, ND.
- North Dakota Stockmen’s Association 78th Annual Convention, September 27-29, 2007, Doublewood Inn, Bismarck, ND.
- NDSU Extension Service/ND Agricultural Experiment Station Engage, Enlighten and Enjoy Fall Conference, October 15-17, 2007, Doublewood Inn, Fargo, ND.
- NDSU Feedlot Tour, October 22, 2007, Casselton, Walcott and Milnor ND.
- North Dakota Department of Emergency Services Lignite Wind 08 Avian Influenza Pandemic training three day functional exercise, October 23-25, 2007, Fargo and Casselton, ND. Hosted the Chief Veterinary Medical Officer and Chief Armed Forces Veterinary Officer for the country
of Ghana. Also rode in a Blackhawk helicopter.
- Third Annual Joint North Dakota Dairy and Pork Convention, November 27-28, 2007, Best Western Seven Seas Inn, Mandan, ND.

- Consulting veterinarian for the ND Board of Animal Health Johnne’s Disease Committee Member
- Proctor for the ND Board of Veterinary Medical Examiners Veterinary Technician National Exam, January 19, 2007
- Member, North Dakota Stockmen’s Association
- Referee for Dr. Simon Kenyon’s, Associate Professor of Veterinary Clinical Sciences, Purdue University College of Veterinary Medicine promotion to full professor. Requested by Dr. Peter Constable, Head of Veterinary Clinical Sciences.
- North Dakota Veterinary Medical Association (NDVMA)
  Member of the NDVMA Executive Board
  Member, Legislative Affairs Committee

Stoltenow, C. – University
- Institutional Animal Care and Use Committee
  Alternate for Animal and Range Sciences
- NDSU Rodeo Team Attending Veterinarian

Stoltenow, C. – College
- NDSU Extension Service 2007 Spring Conference Planning Committee, Chair

Stoltenow, C. – Department
- Sheep Committee member
- Awards Committee member
- Animal Care Consultant to the Department

Stoltenow, C. - Served as the Chair of the 2007 EDEN eXtension Community of Practice (CoP) Agrosecurity Team and as such supervised the creation, editing, and publishing of over 70 articles for inclusion in the national launch of eXtension in February of 2008.

Stoltenow, C. - North Dakota Veterinary Medical Association (NDVMA) President’s Award for exemplary service to the profession of veterinary medicine in North Dakota (with plaque).

Stoltenow, C.
- 2007 Spring Conference, March 27-29, 2007, Fargo, 134 participants
- Calving 08 Fast out of the Gate, Preparing for Calving School, 45 participants, December 3-5, 2007, presented information on Tritrichomoniasis in cattle

Stoltenow, C. – Radio and TV
- Toxicosis in Animals, Interviewed by Al Gustin 1/9/07 KFYR
- Pet Owners Urged to Check Food Labels, Melamine contamination, Press Release, April 4, 2007
- Pet Food Recall May Affect Area, Interview by Chistinia Crippes, Dickinson Press, April 8, 2007

- Colostrum Management in Cattle, Interview by Steffany Briggs, Dickinson Press, April 13, 2007
- Don’t Forget Anthrax in 2007, Press Release, April 24, 2007
- Anthrax and the anthrax vaccine, Interview by Dale Hildebrand, Farm and Ranch Guide, May 23, 2007
- Anthrax, anthrax vaccine and natural disasters, Interview by Becky Mills, Angus Journal, May 24, 2007
- Preventing Anthrax, Interview by Haylie Shipp, Northern Ag Network, July 10, 2007
- The Anthrax Situation, Interview by Al Gustin, KFYR, July 10, 2007
- Calving 08: Fast out of the Gate, Interview by Stephanie Briggs, Dickinson Press, November 27, 2007
- Bluetongue in south central Minnesota, Interview by Al Gustin, KFYR, September 17, 2007
- Bluetongue in south central Minnesota, Interview by John Knutson, September 24, 2007

Swanson, T.
- Equine Science Society Symposium- 6/5-6/8/07
- Animal Science National Meetings-7/8/07-7/12/07

Swanson, T.
3/3- Showmanship Clinic, Equine Center, 27 participants
4/14-4/15- Horse Fair, Equine Center
4/21- Wish I Had a Horse Camp, Equine Center, 28 paraticipants
4/22- Fuzzy Wuzzy Horse Show, Equine Center
6/27- Horsemanship Camp, Equine Center, 10 participants
1/26- Little I Showmanship Demonstration, Fargo, ND
2/9- Little I Hippology Contest, Fargo, ND
3/9- Winter Show Hippology Contest, Valley City, ND
6/20- Cass Co. 4-H Horse Show, Fargo, ND
7/22-7/25- ND State Fair, Minot, ND

Swanson, T. - NDSU Equine Studies Program, RFD TV

Vonnahme, K. – Meetings
- ASAS (national; attended)
- NCR 1006 (regional; attended)
- W112 (regional; did not attend)

Vonnahme, K. – National/International
- On SSR membership committee
- On ASAS Triennial Reproductive Symposium committee

Vonnahme, K. – Regional
- NCR 1006 (Reproductive Efficiency in Cattle)
- W112 (Reproduction in Ruminants)
- On Midwestern Section of ASAS—Quadrathlon committee

Vonnahme, K. – College
- Momentum committee
- Distance Education committee
Vonnahme, K. – Department
- Library committee - pick books that would be of interest to our department
- Recruitment and Retention committee
- Quadrathlon committee

Wagner, S.
- North Dakota Veterinary Medical Association Annual Conference, Bismarck, ND August 2007. Continuing education presentations

Wagner, S.
Earl and Dorothy Foster Excellence in Teaching Award, NDSU College of Agriculture, December 2007.

Wagner, S. – National/International
- Committee on Veterinary Technician Education and Activities, American Veterinary Medical Association. Committee member
- Committee on Pharmaceutical and Biological Issues, American Association of Bovine Practitioners, Committee member
- Exam Committee, American College of Veterinary Clinical Pharmacology, Committee member

Wagner, S. University
- Institutional Animal Care and Use Committee. Committee Member

Wagner, S. - Department
- Committee member: Dairy Committee, Awards Nomination Committee

2. **Alumni events and other community-related activities**

During the past year, department faculty participated in the NDSU College of Agriculture, Food Systems, and National Resources Fall Festival, Harvest Bowl Banquet, Student Scholarship Luncheon, College Awards Ceremonies and various other related events. The department also initiated a new event in September 2007. Alumni were invited for a weekend, in conjunction with a football game, of activities at Oak Grove Park and Shepperd Arena. The activities culminated with a tail-gate and celebration of a fund-raising success that resulted in shaving Dr. Paul Berg’s beard.

3. **Fund-raising accomplishments**
Dr. Kim Vonnahme and Ms. Marsha Kapphahn coordinated the departmental Momentum Campaign in 2007. Professor Russ Danielson was successful in soliciting additional funds for the Livestock Endowment student scholarship fund. The alumni event mentioned in Section C2 raised more than $5000 for the V.K. Johnson Judging Fund.

4. Other outreach activities

Department faculty participate in numerous outside activities each year. For example:

a. Dr. Larry Reynolds is Editor-in-Chief of the Journal of Animal Science.
b. Dr. David Buchanan is a member of the Board of Directors for the Federation of Animal Science Societies.
c. Professor Russ Danielson serves on the Research and Promotion Committee of the N.D. Stockman’s Association.
d. Professor Russ Danielson acts as the secretary/treasurer of the N.D. Livestock Endowment Foundation.
e. Dr. Eric Berg was Program Chair for the annual Reciprocal Meats Conference.

D. Special Initiatives

1. Cooperative programming/interinstitutional activities

As outlined in section A. 6. the department provides academic coursework to Dickinson State University through distance education. Professor Danielson participates in planning efforts for agriculture curricula at other colleges in the state.

2. International activities

Departmental faculty were very active in international activities during 2007. Drs. Reynolds and Grazul-Bilska continued their collaboration with Drs. Lino Loi and Grazyna Ptak, who are on the faculty of Veterinary Medicine at the University of Teramo, Italy. The collaborative research project is focused on evaluating why pregnancies fail at a relatively high rate in embryos created in vitro (in other words, in 'test tube babies') when using so-called 'assisted reproductive technologies,' such as in vitro fertilization and somatic cell nuclear transfer.

Additional collaborators include Drs. Dale Redmer and Mary Lynn Johnson of Animal Sciences at NDSU, Dr. Robert Feil at the Institute of Molecular Genetics, CNRS, University of Montpellier, France, who is one of the world's leading experts on epigenetic regulation of genes during embryonic development, and Dr. Michael Clinton in the Department of Gene Expression and Development at the Roslin Institute in Scotland, who is one of the world's leading experts on regulation of protein expression by micro-RNAs: This international team has several grant proposals pending, including proposals to the U.S. National Institutes of Health, the U.S. Department of Agriculture, as well as the European Union's Human Frontiers Science Program, and the Italian Ministry of Science. The visit that Reynolds just returned from is part of an ongoing effort to obtain preliminary data for these grant proposals, and was funded in part by the Animal & Range Sciences Department, the Agricultural Experiment Station, and the Research Administration at NDSU, and also by the University of Teramo in Italy. ] Reynolds, Grazul-Bilska, and a post-doctoral fellow in their
group, Dr. Pawel Borowicz, have together spent approximately six months in Italy working on this project in the last two and a half years and already have several publications with their Italian collaborators, including a recent article in the international journal, *Placenta*.

Dr. Grazul-Bilska initiated a collaborative project with Dr. Norman Rawlings from the Department of Veterinary Biomedical Sciences, Western College of Veterinary Medicine, University of Saskatchewan, Saskatoon, Saskatchewan in Canada to study ovarian function in sheep. Doctoral student, Srinivas Seekallu from Dr. Rawlings laboratory spent 3 weeks in the laboratory of Dr.Grazul-Bilska in February 2008 to determine expression of several factors regulating creation and maintenance of vascularization in ovine ovarian follicles at the cellular and molecular level using immunohistological methods and quantitative real time RT-PCR. This study will help to better understand the regulation of ovarian function, and regulation of blood vessel development and maintenance in normal and pathological conditions. This collaboration will result in publication of one or two papers in a scientific journal.

In 2007 Dr. Charlie Stoltenow continued to collaborate with the Chief Veterinary Officer of Mongolia in developing a national veterinary practice act. Also in conjunction with Dr. Neil Dyer, director of the NDSU Veterinary Diagnostic Laboratory, Dr. Stoltenow developed a Memorandum of Understanding with the Mongolian State University School of Veterinary Medicine at Ulaanbaatar concerning the education and training of veterinary students. In addition, Dr. Stoltenow traveled to Winnipeg, MB to meet with Dr. Wayne Lees, Chief Provincial Veterinarian, for planning of an International Animal Agrosecurity Conference to be hosted in Fargo.

Dr. Sarah Wagner travelled to Agassiz, British Columbia, Canada in the autumn of 2007 to meet animal behaviorists Dr. Jeffrey Rushen and Dr. Anne-Marie de Pasillé and plan a research collaboration to evaluate the effects of pain-relieving drugs in lame dairy cows. Drs Rushen and de Pasillé work for the University of British Columbia Animal Welfare Program and Agriculture and Agri-Food Canada. The visit was the beginning of the development of a research proposal that was submitted to the USDA National Research Initiative in late 2007 and selected for funding in early 2008. The two-year project will commence in the autumn of 2008.

### 3. Interdisciplinary activities

International interdisciplinary activities were centered around the Center for Nutrition and Pregnancy (CNP) as detailed in Section D. 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 ARS 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

The department’s major economic development activity continues to be the Beef Systems Center of Excellence (BSCOE). The BSCOE has the objectives of:
a. Economic development of the livestock industry in the state.
b. Build the research capacity of beef cattle in the state.
c. Increase educational opportunities for livestock producers and students in the state.

The Center’s private business partner is completing construction and renovation on 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 currently harvesting about 45 head of natural cattle per week. 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.

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. Future plans

Current students advised in the department total almost 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.

The department participated in some initial planning by developing ideas for new positions, facilities and equipment needs, curricular changes, and goals for research, teaching and extension programs. The planning was not a comprehensive strategic planning effort, which still needs to be pursued, but did supply needed information for addressing several immediate issues during the year.

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 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 strength 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 programming; 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. 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

<table>
<thead>
<tr>
<th>Course Number &amp; Title</th>
<th>Fall 2007</th>
<th>Spr 2008</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>114 Intro/Animal Science</td>
<td>71</td>
<td>52</td>
<td>Danielson</td>
</tr>
<tr>
<td>123 Feeds &amp; Feeding</td>
<td>53</td>
<td>40</td>
<td>Moore</td>
</tr>
<tr>
<td>196 Field Experience/Little I</td>
<td></td>
<td>59</td>
<td>Danielson</td>
</tr>
<tr>
<td>220 Production of Meat Animals</td>
<td>38</td>
<td>34</td>
<td>Danielson</td>
</tr>
<tr>
<td>222 Meat Animal Evaluation</td>
<td>35</td>
<td>24</td>
<td>Berg, Eric</td>
</tr>
<tr>
<td>260 Horse Production</td>
<td>47</td>
<td></td>
<td>Swanson</td>
</tr>
<tr>
<td>260L Equine Care/Mgmt. Pract.</td>
<td>12</td>
<td></td>
<td>Eck</td>
</tr>
<tr>
<td>261 Basic Equitation &amp; Horsemanship</td>
<td>27</td>
<td></td>
<td>Grazul-Bilska</td>
</tr>
<tr>
<td>263 Intro/Animal Biotechnology</td>
<td></td>
<td>11</td>
<td>Grazul-Bilska</td>
</tr>
<tr>
<td>320 Dairy Cattle Selection</td>
<td>11</td>
<td></td>
<td>Schimek</td>
</tr>
<tr>
<td>323 Fundamentals of Nutrition</td>
<td>1</td>
<td>39</td>
<td>Caton/Reed</td>
</tr>
<tr>
<td>330 Meat Selection/Grading/Judging</td>
<td>19</td>
<td>11</td>
<td>Berg, Eric</td>
</tr>
<tr>
<td>331 Livestock Selection I</td>
<td>15</td>
<td>5</td>
<td>Moore</td>
</tr>
<tr>
<td>331 Livestock Selection II</td>
<td></td>
<td></td>
<td>Moore</td>
</tr>
<tr>
<td>340 Meat Sci. &amp; Technology</td>
<td></td>
<td>12</td>
<td>Maddock Carlin</td>
</tr>
<tr>
<td>344 Processed Meat</td>
<td>12</td>
<td></td>
<td>Maddock, R.</td>
</tr>
<tr>
<td>357 Animal Genetics</td>
<td>1</td>
<td>37</td>
<td>Berg, P.</td>
</tr>
<tr>
<td>361 Intermediate Horsemanship</td>
<td>13</td>
<td>18</td>
<td>Swanson</td>
</tr>
<tr>
<td>363 Equine Nutrition &amp; Physiology</td>
<td></td>
<td>22</td>
<td>Hammer</td>
</tr>
<tr>
<td>365 Equine Evaluation</td>
<td>10</td>
<td>6</td>
<td>Hammer</td>
</tr>
<tr>
<td>396 Field Exp/Therapeutic Horsemanship</td>
<td>13</td>
<td>2</td>
<td>Berg, Erika</td>
</tr>
<tr>
<td>461 Adv. Horse/Equitation</td>
<td></td>
<td></td>
<td>Eck</td>
</tr>
<tr>
<td>463/663 Physiology of Reproduction</td>
<td>12</td>
<td>43</td>
<td>Vonnahme</td>
</tr>
<tr>
<td>464 Repro Management Procedures</td>
<td>19</td>
<td></td>
<td>Vonnahme</td>
</tr>
<tr>
<td>466 Princ. of Feed Production</td>
<td>10</td>
<td></td>
<td>Koch</td>
</tr>
<tr>
<td>470 Applied Nutrition</td>
<td>27</td>
<td></td>
<td>Bauer</td>
</tr>
<tr>
<td>480 Equine Industry &amp; Prod.</td>
<td>14</td>
<td></td>
<td>Hammer</td>
</tr>
<tr>
<td>482 Sheep Production</td>
<td></td>
<td></td>
<td>Moore</td>
</tr>
<tr>
<td>486 Beef Production</td>
<td>23</td>
<td>8</td>
<td>Danielson</td>
</tr>
<tr>
<td>488 Dairy Production/Dairy Products</td>
<td>11</td>
<td></td>
<td>Park/Schimek</td>
</tr>
<tr>
<td>491 Undergraduate Seminar</td>
<td>17</td>
<td>15</td>
<td>Buchanan</td>
</tr>
<tr>
<td>494 IS-Immunohisto. Comp.</td>
<td>6</td>
<td>3</td>
<td>Grazul-Bilska</td>
</tr>
<tr>
<td>494 IS-Computerized Image Analysis</td>
<td>3</td>
<td>4</td>
<td>Grazul-Bilska</td>
</tr>
<tr>
<td>494 Individual Study</td>
<td>3</td>
<td></td>
<td>Maddock Carlin</td>
</tr>
<tr>
<td>494 Individual Study</td>
<td>1</td>
<td></td>
<td>Caton</td>
</tr>
<tr>
<td>494 IS-Internship</td>
<td>1</td>
<td></td>
<td>Danielson</td>
</tr>
<tr>
<td>494 Equine Internship</td>
<td>12</td>
<td></td>
<td>Hammer</td>
</tr>
<tr>
<td>494 Individual Study</td>
<td>2</td>
<td></td>
<td>Eck</td>
</tr>
<tr>
<td>494 Cell Biomarkers Det.</td>
<td>2</td>
<td></td>
<td>Grazul-Bilska</td>
</tr>
<tr>
<td>496 Field Experience</td>
<td></td>
<td>2</td>
<td>Moore</td>
</tr>
<tr>
<td>496 Field Exp.</td>
<td>2</td>
<td>14</td>
<td>Swanson</td>
</tr>
<tr>
<td>496 Field Exp.-Equine Evaluation</td>
<td>1</td>
<td></td>
<td>Hammer</td>
</tr>
<tr>
<td>496 Field Exp.-Nutr. &amp; Physiol.</td>
<td>1</td>
<td></td>
<td>Hammer</td>
</tr>
<tr>
<td>496 Field Exp.-Horse Fair</td>
<td></td>
<td>11</td>
<td>Hammer</td>
</tr>
<tr>
<td>496 Livestock Muscle Physiol.</td>
<td></td>
<td>6</td>
<td>Berg, Eric</td>
</tr>
<tr>
<td>496 Field Exp/AI (2 sections)</td>
<td>8</td>
<td>23</td>
<td>Danielson</td>
</tr>
<tr>
<td>496 Field Exp/Little I</td>
<td>82</td>
<td></td>
<td>Danielson</td>
</tr>
<tr>
<td>695 Livest. Muscle Physiol.</td>
<td>5</td>
<td></td>
<td>Berg, Eric</td>
</tr>
<tr>
<td>720 Adv. Cell Biol.</td>
<td>6</td>
<td></td>
<td>Reynolds</td>
</tr>
<tr>
<td>728 Advanced Reprod Biology</td>
<td></td>
<td>4</td>
<td>Reynolds</td>
</tr>
<tr>
<td>736 Exp Nutrition Methods</td>
<td>1</td>
<td></td>
<td>Bauer</td>
</tr>
<tr>
<td>773 Energy Metabolism</td>
<td></td>
<td>4</td>
<td>Reed</td>
</tr>
<tr>
<td>776 Digestive Physiology</td>
<td>9</td>
<td></td>
<td>Bauer</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
<td>Hours</td>
</tr>
<tr>
<td>-------------</td>
<td>---------------------------------------------</td>
<td>---------</td>
<td>-------</td>
</tr>
<tr>
<td>790</td>
<td>Graduate Seminar</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>790</td>
<td>IS-Tutorial</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>793</td>
<td>IS-Tutorial</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>793</td>
<td>IS-Tutorial</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>793</td>
<td>IS-Tutorial</td>
<td></td>
<td></td>
</tr>
<tr>
<td>793</td>
<td>Individual Study – TA</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>793</td>
<td>Individual Study – TA</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>793</td>
<td>IS-Tutorial</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>793</td>
<td>Nutr. &amp; Mammary Development</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>793</td>
<td>IS-Tutorial</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>793</td>
<td>Individual Study</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>798</td>
<td>Masters Thesis</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>799</td>
<td>Doctoral Dissertation</td>
<td>3</td>
<td>5</td>
</tr>
</tbody>
</table>

**VETS**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Hours</th>
<th>Instructor(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>115</td>
<td>Medical Terminology/Paraprofession</td>
<td>58</td>
<td></td>
<td>Wagner</td>
</tr>
<tr>
<td>125</td>
<td>Animal Restraint</td>
<td>46</td>
<td></td>
<td>Ellwein</td>
</tr>
<tr>
<td>130</td>
<td>Companion Animal Breeds</td>
<td>58</td>
<td></td>
<td>Sonsthagen</td>
</tr>
<tr>
<td>135</td>
<td>Anatomy/Physiol/Domestic Animals</td>
<td>106</td>
<td></td>
<td>Colville</td>
</tr>
<tr>
<td>136</td>
<td>Anatomy &amp; Physiology Lab</td>
<td>63</td>
<td></td>
<td>Ellwein</td>
</tr>
<tr>
<td>150</td>
<td>Intro/Veterinary Profession</td>
<td>91</td>
<td></td>
<td>Sonsthagen</td>
</tr>
<tr>
<td>194</td>
<td>IS-Small Anim. Nutr.</td>
<td>14</td>
<td></td>
<td>Hill</td>
</tr>
<tr>
<td>196</td>
<td>Field Experience</td>
<td>17</td>
<td></td>
<td>Hill</td>
</tr>
<tr>
<td>255</td>
<td>Fund/Vet. Radiography</td>
<td>27</td>
<td></td>
<td>Colville</td>
</tr>
<tr>
<td>256</td>
<td>Vet Clinical Techniques/Instrum.</td>
<td>25</td>
<td></td>
<td>Sonsthagen</td>
</tr>
<tr>
<td>259</td>
<td>Small Animal Diseases</td>
<td>25</td>
<td></td>
<td>Colville</td>
</tr>
<tr>
<td>357</td>
<td>Veterinary Pharmacology</td>
<td>26</td>
<td></td>
<td>Wagner</td>
</tr>
<tr>
<td>358</td>
<td>Vet Surgical Nursing Tech.</td>
<td>25</td>
<td></td>
<td>Colville</td>
</tr>
<tr>
<td>359</td>
<td>Vet Hospital Inform/Procedure</td>
<td>27</td>
<td></td>
<td>Sonsthagen</td>
</tr>
<tr>
<td>385</td>
<td>Vet Clinical Pathology I</td>
<td>13</td>
<td></td>
<td>Hill</td>
</tr>
<tr>
<td>386</td>
<td>Vet Clinical Pathology II</td>
<td>25</td>
<td></td>
<td>Hill</td>
</tr>
<tr>
<td>387</td>
<td>Vet Clinical Pathology III</td>
<td>25</td>
<td></td>
<td>Hill</td>
</tr>
<tr>
<td>440</td>
<td>Zoonoses</td>
<td>29</td>
<td></td>
<td>Berryhill</td>
</tr>
<tr>
<td>481</td>
<td>Ward Care/Clinic Care</td>
<td>53</td>
<td>52</td>
<td>Ellwein</td>
</tr>
<tr>
<td>482</td>
<td>Large Animal Techniques</td>
<td></td>
<td></td>
<td>Wagner</td>
</tr>
<tr>
<td>483</td>
<td>Clinical Vet Practicum</td>
<td>60</td>
<td>53</td>
<td>Ellwein</td>
</tr>
<tr>
<td>485</td>
<td>Vet Tech Externship</td>
<td>2</td>
<td>2</td>
<td>Hill</td>
</tr>
<tr>
<td>491</td>
<td>Seminar</td>
<td>5</td>
<td>3</td>
<td>Newell</td>
</tr>
<tr>
<td>494</td>
<td>Individual Study - TA</td>
<td>6</td>
<td>5</td>
<td>Colville</td>
</tr>
<tr>
<td>494</td>
<td>IS-Large Anim. Res.</td>
<td>4</td>
<td></td>
<td>Wagner</td>
</tr>
<tr>
<td>496</td>
<td>Field Experience</td>
<td>5</td>
<td>3</td>
<td>Ellwein</td>
</tr>
</tbody>
</table>
G. Other relevant data and materials

Impact statement

Berg, E.
- 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. I have been listed as PI, Co-PI, or collaborator this last year on $156,624 worth of competitive grants.

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.
- Research efforts have resulted in several invited papers and two more scheduled in 2008.

Colville, T.
- Among the 145 accredited veterinary technology educational programs in the United States, the NDSU Veterinary Technology Program is one of only 16 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 Program offers students interested in careers in animal health care 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 development of 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 2006 Veterinary Technology Program Graduate Survey, graduates of the program are spread over 22 states, but more than 75% of the survey respondents are located in North Dakota, South Dakota and Minnesota. Responses from the 2007 graduate survey are currently being compiled.
- Through the Robinson Hall Veterinary Wellness clinic, Veterinary Technology Program students and staff provided wellness services to animals from the F-M Humane Society and the Red River Zoo.
- 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.

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 will 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

Lardy, G.
- Beef Systems Center of Excellence. From a physical standpoint, the work toward the Beef Systems Center of Excellence actually became reality in August with the groundbreaking for the North Dakota Natural Beef, LLC building. The project has provided me with a valuable opportunity to learn firsthand the challenges of a start up company along with valuable lessons on dealing with a wide variety of personalities outside of university personnel. I’m proud of my involvement in the center and the company and appreciate the opportunity I have been give to work on this project. This center continues to be a highly visible feature of the department and it has generated a lot of interest across the state.
- Extension Programming. This year has given me an opportunity to do extension programming with a focus on the long term impacts of higher feed prices on the beef cattle industry. With the fundraising portion of the Beef Systems Center of Excellence project behind me, I have been better able to meet the needs of my extension clientele and the amount of extension programming I am doing has returned to 2003 levels. This year I reached over 2400 direct audience contacts and had the chance to do a presentation in Mexico. Interactions with ranchers and cattle producers across the region continue to be one of the most rewarding parts of my job.
- Research. This year I only had 6 peer reviewed publications and $130,000 in grant dollars, which is down considerably from years past. I graduated two M.S. students (both of whom were coadvised).
- Service. Seeing the Beef Cattle Research Facility come to fruition has been rewarding. I look forward to being able to complete the facility, but realize it will not come without a lot of hard work on the part of many people to see that happen. I have also enjoyed the opportunity to work with and mentor Justin, Carrie, Kim, and Kasey. Seeing them develop as faculty members and knowing that I am someone they come to for advice has been and continues to be rewarding.

Luther, J.
- My extension and research efforts deliver enthusiasm and modern knowledge to North Dakota sheep producers. Since my research background and current focus is on reproductive physiology in sheep, these efforts will enhance income of ND sheep producers through increased reproductive efficiency. Furthermore, my active involvement with state and national sheep committees will aid in making NDSU’s Sheep Extension and Research Program one of the top sheep programs in the nation.

Maddock 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.

Maddock, R.
- Adding value to livestock production by improving end product quality will result in greater economic returns to livestock producers and meat processors. By conducting relevant research and providing timely information to stakeholders, a noticeable improvement in the quality and value of meat products will result.

Moore, B.
- The NDSU sheep flock has been a source of improved genetic material and is recognized nationally. Many questions on production and management of sheep are directed to NDSU from all across the nation. The problem with scrapie has focused some negative attention but has provided unique opportunities to study and disseminate information on the disease. The university beef herd is recognized as having a positive and progressive purebred program. Most importantly, NDSU Animal and Range Sciences graduates are held in high regard, are highly employable, and are important contributors to the livestock industry.

Park, C.
- 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 18 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.

- 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 with the result being a metabolic imprinting process.

- Area 2. Nucleotides and Calf Health and Immune Status:

Calf mortality and disease treatment represents an income loss of more than $250 and $750 million each year for dairy and beef producers, respectively. Our recent efforts focus on dietary supplementation of nucleotides to enhance immune status and health of the neonatal animal. If nucleotide supplementation to the neonate and/or the mother enhances health in general and decreases mortality of the neonate, livestock producers will benefit economically. Moreover, the animal feed industry may have the opportunity to develop an improved formula for nursing products.

- Area 3. Basic Mammary and Cancer Biology:

We have been studying the role of dietary methyl donor nutrients (choline, methionine, folic acid, and vitamin B12) in mammary development as well as in tumorigenesis. A dietary strategy that increases the supply of methyl donors may have practical applications in cancer treatment. If dietary supplementation of lipotropes induces apoptotic death of mammary cancer cells, then there is a possibility of developing a dietary regimen that may reduce and treat breast cancer.

- Area 4. Vegetable Oils (canola and soybean) 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 very essential to create new markets for the canola industry. This may help augment the economic benefits for existing producers while also pushing production due to high consumer demand.
Redmer, D.
- 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.
- 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 several recent invited reviews.
- 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,
Schroeder, J.W.
- Team advisors contribute to dairy farm success. The business of farming and ranching has become increasingly complicated. Family-run dairy farms are typically multiple enterprises. The North Dakota Dairy Diagnostic program helps dairy families form an advisory team. A dairy diagnostic advisory team is a group of specialists who help to improve the success of your dairy farm business. The overall goal of the team is to improve the profitability of your farm business and your quality of life. Most teams typically consist of three to eight people. Together, effective teams divide the work and multiply the results - making all participants more effective and efficient.

- Measuring Impact. Implementing technology advances in feeding, breeding, enterprise analysis and waste management has contributed to greater profitability. Nearly 18% of the 306 dairy farms (January 2007) in North Dakota have been involved in a Dairy Diagnostic Advisory Team. Examples of specific annual economic impacts include:
  - Developed a management and nutrition plan. Annual Impact: $49,550 of additional gross income.
  - Reorganized labor arrangements over a 2-year period to lower costs and improve efficiency. Annual Impact: $71,958 additional gross income.
  - Increased net income (after inventory change and depreciation), from $25,221 to $436,850 in 3 years (includes total of three years income). Annual Impact: $953,573 of additional net income.

- Dairy Retention/Sustainability. The NDSU Extension Service, the Animal Sciences Department, the North Dakota Department of Agriculture – Dairy Division and the North Dakota Association of Rural Electric Cooperatives collaborated to launch the North Dakota Dairy Coalition for providing central leadership for dairy expansion.

- Many of our agricultural communities are now beginning to understand the significance of economics associated with dairy. Moreover, many now see that livestock is an essential ingredient to the success of the sustainability for renewable fuels.

- Some of the accomplishments derived from the above-described:
  - Thirteen land sites have been pre-permitted for dairy use and are near established rural communities who welcome new dairy farm families (map available at http://www.nddairy.com/sites.htm); a few private investment groups are currently preparing business plans.
  - Recruitment of in-state and out-of-state operators who have purchased vacant dairies: 1] The largest of which includes 1600 cows, 2] Another added 100 cow its farm and brought in a young family of five kids, 3] A third dairy began the process of filling a 490 cow facility with a new family, and 4] Permitted for 1500 cows, a new dairy is about to be announced for the Carrington Area in March.
  - Efforts currently in progress with a high likelihood of success include:
    1] Helping a family to complete a dealing on an county dairy with about 75 cows, 2] Bringing in both Eastern and Midwestern U.S. dairy families to view offerings in North Dakota, and 3] Two parties are interested in a larger ND investor dairy that was recently closed Central Dakota Dairy project is currently being studied. Greg Lardy, Wally Eide, and I have begun the feasibility process on a 5000 cow dairy.

Stoltenow, C.
- Through my efforts and in collaboration with the Office of the State Veterinarian, no cases of tritrichomoniasis have been officially reported in North Dakota in 2007.
- Through my efforts and collaboration with NDSU Ag Communications, EDEN and eXtension, NDSU was able to have two CoP leaders (Hellevang and Stoltenow) involved in the launch of a new educational delivery system for the entire nation.
- Through my efforts and collaboration with the NDSU Extension Service 2007 Spring Conference Planning Committee, I lead a successful effort to revamp and re-energize the conference. Attendee ratings of the conference were the highest ever recorded both in response rate (117/134) and rate of satisfied or very satisfied of 91.5% (107/117). Subsequent conferences have adopted many of the innovative ideas implemented in 2007. Attendees expressed a new desire to enhance the spring conference to become the showcase event for extension continuing education, training and networking.

Swanson, T.
- My goals included implementation of an educational newsletter and clinics for the youth in the state. These two educational tools have helped to expand knowledge concerning various equine topics. In addition they have served as a way to introduce the participants to the Equine Studies faculty, students and the program.
- Continued expansion of equine classes is a goal which is being accomplished. With the addition of the Equine Industry Tour class I hope to give students the opportunity to experience an industry different from their own. Also, I hope this will open some doors for internship and job opportunities.
- Improvement of the North Dakota 4-H Horse Program is something I really want to focus on. We spent many hours this year rewriting and refocusing the 4-H rulebook in an attempt to make the rules and procedures very clear to participants and similar to national rules. To expand on this I hope to implement a 4-H Judges Certification program. This will serve as a way to train judges and make sure everyone is working together for a successful program.

Vonnahme, K.
My research in fetal 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.
- 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.

Wagner, S.
- I continue to be instrumental in the training of veterinary technicians for large animal practice in order to help alleviate possible shortages in the food animal segment of veterinary practice.
- In addition, I have provided service to help the largest national organization of bovine veterinarians shape its policies regarding therapeutic drug use in livestock, in order to maximize safety and efficacy of such use. I have been appointed to the committee that accredits veterinary technology programs, and so will assist in keeping overall quality of veterinary technician education in the United States high.
- In addition, I have completed and published, in both scientific and lay publications, research that helps veterinarians and producers determine whether their cows are sick. I am currently conducting research to evaluate side effect risks of a common therapy used in dairy cows, and I have a grant proposal under consideration to investigate drug therapy for lame cows. All of my research efforts should help producers and vets treat the right cows safely and effectively, thus maximizing the benefits and minimizing the expenses and risks of detecting and treating sick cows.
ANIMAL SCIENCES DEPARTMENT

<table>
<thead>
<tr>
<th>GRADUATE STUDENT</th>
<th>DEGREE</th>
<th>ADVISOR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Full-time GRA’s</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bork, Nicholas</td>
<td>MS</td>
<td>Schroeder</td>
</tr>
<tr>
<td>Cho, Kyongshin</td>
<td>PhD</td>
<td>Park</td>
</tr>
<tr>
<td>Coupe, Lindsey</td>
<td>MS</td>
<td>Lardy</td>
</tr>
<tr>
<td>Galbreath, Justin</td>
<td>MS</td>
<td>Berg, E.</td>
</tr>
<tr>
<td>Hall, Noah</td>
<td>MS</td>
<td>Berg, E.</td>
</tr>
<tr>
<td>Lekatz, Leslie</td>
<td>MS</td>
<td>Vonnahme</td>
</tr>
<tr>
<td>Lepper, Ashley</td>
<td>MS</td>
<td>Berg, E.</td>
</tr>
<tr>
<td>Mabasa, Lawrence</td>
<td>PhD</td>
<td>Park</td>
</tr>
<tr>
<td>Magolski, James</td>
<td>MS</td>
<td>Maddock Carlin</td>
</tr>
<tr>
<td>Meyer, Allison</td>
<td>PhD</td>
<td>Caton</td>
</tr>
<tr>
<td>Nester, Penny</td>
<td>MS</td>
<td>Schroeder, Vonnahme</td>
</tr>
<tr>
<td>Newman, David</td>
<td>PhD</td>
<td>Berg, E.</td>
</tr>
<tr>
<td>Stoltenow, Beth</td>
<td>MS</td>
<td>Lardy, Maddock</td>
</tr>
<tr>
<td>Thorson, Jennifer</td>
<td>MS</td>
<td>Hammer</td>
</tr>
<tr>
<td>Windorski, Erin</td>
<td>MS</td>
<td>Luther</td>
</tr>
<tr>
<td><strong>Part-Time GRA’s</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gilbery, Trent</td>
<td>MS</td>
<td>Lardy</td>
</tr>
<tr>
<td>Ilse, Breanna</td>
<td>MS</td>
<td>Vonnahme</td>
</tr>
<tr>
<td>Leupp, Jennifer</td>
<td>PhD</td>
<td>Lardy</td>
</tr>
<tr>
<td>Neville, Bryan</td>
<td>MS</td>
<td>Lardy, Sedivec</td>
</tr>
<tr>
<td>Swanson, Tara</td>
<td>MS</td>
<td>Hammer</td>
</tr>
<tr>
<td>Tweeten, Kacey</td>
<td>MS</td>
<td>Park</td>
</tr>
<tr>
<td>Item</td>
<td>1. your satisfaction with the instruction in this course.</td>
<td>2. the instructor as a teacher.</td>
</tr>
<tr>
<td>-----------</td>
<td>----------------------------------------------------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td></td>
<td>308 260 46 12 3 8</td>
<td>412 217 44 7 1 8</td>
</tr>
<tr>
<td></td>
<td>53.6 36.7 6.5 1.7 0.4 1.1</td>
<td>60.9 30.6 6.2 1.0 0.1 1.1</td>
</tr>
<tr>
<td></td>
<td>Department: 4.408 0.734 1301</td>
<td>College: 4.251 0.824 7570</td>
</tr>
<tr>
<td></td>
<td>Level: 4.467 0.699 700</td>
<td>Department: 4.423 0.732 1300</td>
</tr>
<tr>
<td></td>
<td>University: 4.070 0.836 70014</td>
<td>Department: 4.045 0.883 70020</td>
</tr>
<tr>
<td></td>
<td>380 260 46 12 3 8</td>
<td>412 217 44 7 1 8</td>
</tr>
<tr>
<td></td>
<td>53.6 36.7 6.5 1.7 0.4 1.1</td>
<td>60.9 30.6 6.2 1.0 0.1 1.1</td>
</tr>
<tr>
<td></td>
<td>Department: 4.408 0.734 1301</td>
<td>College: 4.251 0.824 7570</td>
</tr>
<tr>
<td></td>
<td>Level: 4.467 0.699 700</td>
<td>Department: 4.423 0.732 1300</td>
</tr>
<tr>
<td></td>
<td>University: 4.070 0.836 70014</td>
<td>Department: 4.045 0.883 70020</td>
</tr>
</tbody>
</table>

Please rate: A=5  B=4  C=3  D=2  E=1

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

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.
### North Dakota State University Annual Report Information

Student Rating of Instruction --- Course Level Summary Report

Report Generated on 24JUN08 Using Data from Fall 2007 & Spring 2008

<table>
<thead>
<tr>
<th>Department Information</th>
<th>Number of Students:</th>
<th>Response Key:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level: 100 &amp; 200 Level Courses</td>
<td></td>
<td>A = (5)</td>
</tr>
<tr>
<td>Dept: ANIMAL &amp; RANGE SCIENCE</td>
<td></td>
<td>B = (4)</td>
</tr>
<tr>
<td># Sheets Scanned: This Level .... 709</td>
<td></td>
<td>C = (3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>D = (2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E = (1)</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Please rate:</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>OMIT</th>
<th>AREA</th>
<th>MEAN</th>
<th>S.D.</th>
<th>#R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 22.</td>
<td>393</td>
<td>225</td>
<td>65</td>
<td>11</td>
<td>3</td>
<td>12</td>
<td>Level</td>
<td>4.426</td>
<td>0.760</td>
<td>697</td>
</tr>
<tr>
<td></td>
<td>55.4</td>
<td>31.7</td>
<td>9.2</td>
<td>1.6</td>
<td>0.4</td>
<td>1.7</td>
<td>Department</td>
<td>4.465</td>
<td>0.743</td>
<td>1231</td>
</tr>
<tr>
<td>Item 23.</td>
<td>407</td>
<td>245</td>
<td>39</td>
<td>4</td>
<td>1</td>
<td>13</td>
<td>Level</td>
<td>4.513</td>
<td>0.644</td>
<td>696</td>
</tr>
<tr>
<td></td>
<td>57.4</td>
<td>34.6</td>
<td>5.5</td>
<td>0.6</td>
<td>0.1</td>
<td>1.8</td>
<td>Department</td>
<td>4.528</td>
<td>0.645</td>
<td>1221</td>
</tr>
<tr>
<td>Item 24.</td>
<td>385</td>
<td>233</td>
<td>45</td>
<td>13</td>
<td>15</td>
<td></td>
<td>Level</td>
<td>4.382</td>
<td>0.864</td>
<td>694</td>
</tr>
<tr>
<td></td>
<td>54.3</td>
<td>32.9</td>
<td>6.3</td>
<td>2.5</td>
<td>1.8</td>
<td>2.1</td>
<td>Department</td>
<td>4.381</td>
<td>0.834</td>
<td>1214</td>
</tr>
<tr>
<td>Item 25.</td>
<td>378</td>
<td>217</td>
<td>75</td>
<td>11</td>
<td>11</td>
<td>17</td>
<td>Level</td>
<td>4.358</td>
<td>0.857</td>
<td>692</td>
</tr>
<tr>
<td></td>
<td>53.3</td>
<td>30.6</td>
<td>10.6</td>
<td>1.6</td>
<td>1.6</td>
<td>2.4</td>
<td>Department</td>
<td>4.359</td>
<td>0.872</td>
<td>1212</td>
</tr>
<tr>
<td>Item 26.</td>
<td>329</td>
<td>261</td>
<td>63</td>
<td>26</td>
<td>13</td>
<td>17</td>
<td>Level</td>
<td>4.253</td>
<td>0.907</td>
<td>692</td>
</tr>
<tr>
<td></td>
<td>46.4</td>
<td>36.8</td>
<td>8.9</td>
<td>3.7</td>
<td>1.8</td>
<td>2.4</td>
<td>Department</td>
<td>4.269</td>
<td>0.868</td>
<td>1211</td>
</tr>
<tr>
<td>Item 27.</td>
<td>374</td>
<td>225</td>
<td>72</td>
<td>14</td>
<td>1</td>
<td>23</td>
<td>Level</td>
<td>4.395</td>
<td>0.768</td>
<td>686</td>
</tr>
<tr>
<td></td>
<td>59.8</td>
<td>31.7</td>
<td>10.2</td>
<td>2.0</td>
<td>0.1</td>
<td>3.2</td>
<td>Department</td>
<td>4.408</td>
<td>0.759</td>
<td>1209</td>
</tr>
</tbody>
</table>
### Student Rating of Instruction --- Course Level Summary Report

North Dakota State University Annual Report Information

Report Generated on 24JUN08 Using Data from Fall 2007 & Spring 2008

<table>
<thead>
<tr>
<th>Department Information</th>
<th>Number of Students:</th>
<th>Response Key:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level: 300 &amp; 400 Level Courses</td>
<td>VG= Very Good.....(5)</td>
<td></td>
</tr>
<tr>
<td>Dept: ANIMAL &amp; RANGE SCIENCE</td>
<td>G= Good.....(4)</td>
<td></td>
</tr>
<tr>
<td># Sheets Scanned: This Level .... 560</td>
<td>IB-In Between.....(3)</td>
<td></td>
</tr>
<tr>
<td>Your Dept ...... 1359</td>
<td>P= Poor.....(2)</td>
<td></td>
</tr>
<tr>
<td>Your College .. 7667</td>
<td>V= Very Poor.....(1)</td>
<td></td>
</tr>
</tbody>
</table>

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.

#### Please rate:

<table>
<thead>
<tr>
<th>Item</th>
<th>Level</th>
<th>Department</th>
<th>University</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. your satisfaction with the instruction in this course.</td>
<td>292 214 40 14</td>
<td>4.400 0.731</td>
<td>560 0.758</td>
</tr>
<tr>
<td></td>
<td>52.1 38.2 7.1</td>
<td>4.408 0.734</td>
<td>1301 0.758</td>
</tr>
<tr>
<td></td>
<td>2.9 0.0 0.0</td>
<td>4.451 0.824</td>
<td>7570 0.758</td>
</tr>
<tr>
<td></td>
<td>0.2 1.6</td>
<td>4.152 0.885</td>
<td>70065 0.758</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Level</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. the instructor as a teacher.</td>
<td>317 187 48 8</td>
<td>4.388 0.759</td>
</tr>
<tr>
<td></td>
<td>56.6 33.4 8.6</td>
<td>4.485 0.700</td>
</tr>
<tr>
<td></td>
<td>1.4 0.0 0.0</td>
<td>4.318 0.830</td>
</tr>
<tr>
<td></td>
<td>0.0 0.0 0.0</td>
<td>4.152 0.885</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Level</th>
<th>Department</th>
<th>University</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. the ability of the instructor to communicate effectively.</td>
<td>298 192 61 7</td>
<td>4.350 0.724</td>
<td></td>
</tr>
<tr>
<td></td>
<td>53.2 34.3 10.9</td>
<td>4.439 0.722</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1.3 0.4 0.0</td>
<td>4.250 0.865</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.0 0.0 0.0</td>
<td>4.158 0.727</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Level</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. the quality of this course.</td>
<td>268 230 53 8</td>
<td>4.428 0.668</td>
</tr>
<tr>
<td></td>
<td>47.9 41.1 9.5</td>
<td>4.325 0.732</td>
</tr>
<tr>
<td></td>
<td>1.4 0.2 0.0</td>
<td>4.250 0.865</td>
</tr>
<tr>
<td></td>
<td>0.0 0.0 0.0</td>
<td>4.158 0.727</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Level</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. the fairness of procedures for grading this course.</td>
<td>289 226 38 6</td>
<td>4.428 0.668</td>
</tr>
<tr>
<td></td>
<td>51.6 40.4 6.8</td>
<td>4.325 0.732</td>
</tr>
<tr>
<td></td>
<td>1.1 0.0 0.2</td>
<td>4.250 0.865</td>
</tr>
<tr>
<td></td>
<td>0.0 0.0 0.0</td>
<td>4.158 0.727</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Level</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. your understanding of the course content.</td>
<td>203 272 71 7</td>
<td>4.196 0.745</td>
</tr>
<tr>
<td></td>
<td>36.3 48.6 12.7</td>
<td>4.428 0.668</td>
</tr>
<tr>
<td></td>
<td>1.3 0.5 0.7</td>
<td>4.250 0.865</td>
</tr>
<tr>
<td></td>
<td>0.0 0.0 0.0</td>
<td>4.158 0.727</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Item</th>
<th>Level</th>
<th>Department</th>
<th>University</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item 7.</td>
<td>271 205 59 11 1</td>
<td>4.342 0.764</td>
<td></td>
</tr>
<tr>
<td></td>
<td>48.7 36.9 10.6</td>
<td>4.394 0.742</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.0 0.2 1.6</td>
<td>1278 0.742</td>
<td></td>
</tr>
</tbody>
</table>

| Item 8. | 270 172 83 16 4 | 4.262 0.874 |
|         | 48.6 30.9 14.9 | 4.299 0.832 |
|         | 2.1 0.7 2.0   | 1280 0.832 |

| Item 9. | 330 184 28 4 | 4.538 0.629 |
|         | 59.4 33.1 5.0 | 4.383 0.629 |
|         | 0.7 0.0 1.8   | 546 0.629 |

| Item 10. | 277 226 33 7 1 | 4.417 0.682 |
|          | 14.8 40.6 5.9 | 4.438 0.682 |
|          | 1.2 0.2 0.0   | 544 0.682 |

| Item 11. | 301 181 43 16 2 | 4.405 0.788 |
|          | 54.1 32.6 7.7 | 4.438 0.788 |
|          | 2.0 0.4 0.7   | 543 0.788 |

| Item 12. | 302 187 45 11 | 4.421 0.796 |
|          | 54.3 33.6 8.1 | 4.421 0.796 |
|          | 2.0 0.0 2.0   | 541 0.796 |

| Item 13. | 274 187 70 10 4 | 4.316 0.820 |
|          | 49.3 33.6 12.6 | 4.294 0.842 |
|          | 1.8 0.7 2.0   | 545 0.820 |

| Item 14. | 286 184 34 3 | 4.477 0.666 |
|          | 55.4 35.7 6.6 | 4.477 0.666 |
|          | 0.6 0.0 1.7   | 1222 0.666 |

| Item 15. | 291 181 25 3 8 | 4.474 0.717 |
|          | 56.4 35.1 4.8 | 4.484 0.696 |
|          | 1.6 0.6 1.6   | 508 0.717 |

| Item 16. | 284 178 36 10 0 | 4.449 0.713 |
|          | 55.0 34.5 7.0 | 4.428 0.739 |
|          | 0.0 0.0 1.6   | 1223 0.739 |

| Item 17. | 288 159 54 6 | 4.438 0.729 |
|          | 55.8 30.8 10.5 | 4.438 0.729 |
|          | 0.0 0.0 1.7   | 507 0.729 |

| Item 18. | 315 151 27 | 4.514 0.732 |
|          | 61.0 29.3 5.2 | 4.544 0.691 |
|          | 2.1 0.4 1.9   | 506 0.732 |

| Item 19. | 335 146 24 | 4.600 0.609 |
|          | 64.9 28.3 4.7 | 4.419 0.701 |
|          | 0.6 0.0 1.6   | 508 0.609 |

| Item 20. | 294 178 32 | 4.495 0.660 |
|          | 57.0 34.5 6.2 | 4.495 0.660 |
|          | 0.0 0.0 1.4   | 509 0.660 |

| Item 21. | 245 181 66 | 4.278 0.817 |
|          | 47.5 35.1 10.8 | 4.204 0.827 |
|          | 0.0 0.0 1.6   | 508 0.817 |

| Item 22. | 294 178 32 | 4.495 0.660 |
|          | 57.0 34.5 6.2 | 4.495 0.660 |
|          | 0.0 0.0 1.4   | 509 0.660 |

| Item 23. | 245 181 66 | 4.278 0.817 |
|          | 47.5 35.1 10.8 | 4.204 0.827 |
|          | 0.0 0.0 1.6   | 508 0.817 |

78
North Dakota State University Annual Report Information
Student Rating of Instruction --- Course Level Summary Report
Report Generated on 24JUN08 Using Data from Fall 2007 & Spring 2008

<table>
<thead>
<tr>
<th>Department Information</th>
<th>Number of Students:</th>
<th>Response Key:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level: 300 &amp; 400 Level Courses</td>
<td>Dept: ANIMAL &amp; RANGE SCIENCE</td>
<td>A = (5)</td>
</tr>
<tr>
<td># Sheets Scanned: This Level .... 516</td>
<td>B = (4)</td>
<td>C = (3)</td>
</tr>
<tr>
<td></td>
<td>D = (2)</td>
<td>E = (1)</td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Item 22.</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>OMIT</th>
<th>AREA</th>
<th>MEAN</th>
<th>S.D.</th>
<th>#R</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>304</td>
<td>167</td>
<td>27</td>
<td>9</td>
<td>2</td>
<td>7</td>
<td>Level 4.497</td>
<td>0.714</td>
<td>509</td>
<td></td>
</tr>
<tr>
<td></td>
<td>58.9</td>
<td>32.4</td>
<td>5.2</td>
<td>1.7</td>
<td>0.4</td>
<td>1.4</td>
<td>Department 4.450</td>
<td>0.743</td>
<td>1231</td>
<td></td>
</tr>
<tr>
<td>Item 23.</td>
<td>322</td>
<td>152</td>
<td>29</td>
<td>5</td>
<td>0</td>
<td>8</td>
<td>Level 4.557</td>
<td>0.649</td>
<td>508</td>
<td></td>
</tr>
<tr>
<td></td>
<td>62.4</td>
<td>29.5</td>
<td>5.6</td>
<td>1.0</td>
<td>0.0</td>
<td>1.6</td>
<td>Department 4.528</td>
<td>0.645</td>
<td>1221</td>
<td></td>
</tr>
<tr>
<td>Item 24.</td>
<td>273</td>
<td>159</td>
<td>60</td>
<td>8</td>
<td>3</td>
<td>13</td>
<td>Level 4.374</td>
<td>0.801</td>
<td>503</td>
<td></td>
</tr>
<tr>
<td></td>
<td>52.9</td>
<td>30.8</td>
<td>11.6</td>
<td>1.6</td>
<td>0.6</td>
<td>2.5</td>
<td>Department 4.381</td>
<td>0.834</td>
<td>1214</td>
<td></td>
</tr>
<tr>
<td>Item 25.</td>
<td>254</td>
<td>176</td>
<td>48</td>
<td>16</td>
<td>9</td>
<td>13</td>
<td>Level 4.292</td>
<td>0.897</td>
<td>503</td>
<td></td>
</tr>
<tr>
<td></td>
<td>49.2</td>
<td>34.1</td>
<td>9.3</td>
<td>3.1</td>
<td>2.5</td>
<td></td>
<td>Department 4.330</td>
<td>0.872</td>
<td>1212</td>
<td></td>
</tr>
<tr>
<td>Item 26.</td>
<td>240</td>
<td>185</td>
<td>63</td>
<td>12</td>
<td>3</td>
<td>13</td>
<td>Level 4.286</td>
<td>0.819</td>
<td>503</td>
<td></td>
</tr>
<tr>
<td></td>
<td>46.5</td>
<td>35.9</td>
<td>12.2</td>
<td>2.3</td>
<td>0.6</td>
<td>2.5</td>
<td>Department 4.269</td>
<td>0.868</td>
<td>1211</td>
<td></td>
</tr>
<tr>
<td>Item 27.</td>
<td>284</td>
<td>172</td>
<td>42</td>
<td>7</td>
<td>2</td>
<td>9</td>
<td>Level 4.438</td>
<td>0.737</td>
<td>507</td>
<td></td>
</tr>
<tr>
<td></td>
<td>55.0</td>
<td>33.3</td>
<td>8.1</td>
<td>1.4</td>
<td>0.4</td>
<td>1.7</td>
<td>Department 4.408</td>
<td>0.759</td>
<td>1209</td>
<td></td>
</tr>
</tbody>
</table>

79
### Student Rating of Instruction --- Course Level Summary Report

North Dakota State University Annual Report Information

Report Generated on 24JUN08 Using Data from Fall 2007 & Spring 2008

<table>
<thead>
<tr>
<th>Item 21.</th>
<th>7 12 6 0 0</th>
<th>Level 4.040</th>
<th>0.735</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>48.0</td>
<td>40.0</td>
<td>Department 4.419</td>
<td>0.701</td>
<td>1231</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item 20.</th>
<th>12 10 1 2</th>
<th>Level 4.280</th>
<th>0.891</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>24.0</td>
<td>64.0</td>
<td>Department 4.428</td>
<td>0.739</td>
<td>1223</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item 19.</th>
<th>18 15 6 1</th>
<th>Level 4.250</th>
<th>0.809</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>52.5</td>
<td>45.0</td>
<td>Department 4.438</td>
<td>0.713</td>
<td>1277</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item 18.</th>
<th>7 12 4 0</th>
<th>Level 4.130</th>
<th>0.694</th>
<th>23</th>
</tr>
</thead>
<tbody>
<tr>
<td>24.0</td>
<td>44.0</td>
<td>Department 4.354</td>
<td>0.786</td>
<td>1219</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item 17.</th>
<th>6 11 7 1</th>
<th>Level 3.880</th>
<th>0.833</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.0</td>
<td>64.0</td>
<td>Department 4.422</td>
<td>0.723</td>
<td>1300</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item 16.</th>
<th>5 16 4 0</th>
<th>Level 4.040</th>
<th>0.611</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>36.0</td>
<td>52.0</td>
<td>Department 4.408</td>
<td>0.734</td>
<td>1301</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item 15.</th>
<th>9 13 2 0</th>
<th>Level 4.292</th>
<th>0.624</th>
<th>24</th>
</tr>
</thead>
<tbody>
<tr>
<td>36.0</td>
<td>52.0</td>
<td>Department 4.484</td>
<td>0.696</td>
<td>1224</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item 14.</th>
<th>10 14 1 0</th>
<th>Level 4.360</th>
<th>0.569</th>
<th>25</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>21</td>
<td>Department 4.432</td>
<td>0.728</td>
<td>1300</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item 13.</th>
<th>16 17 3 3</th>
<th>Level 4.100</th>
<th>0.796</th>
<th>1278</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>27</td>
<td>Department 4.421</td>
<td>0.809</td>
<td>40</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item 12.</th>
<th>18 15 6 1</th>
<th>Level 4.250</th>
<th>0.841</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>35.0</td>
<td>45.0</td>
<td>Department 4.394</td>
<td>0.742</td>
<td>1278</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item 11.</th>
<th>20 13 5 1</th>
<th>Level 4.250</th>
<th>0.955</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>52.5</td>
<td>45.0</td>
<td>Department 4.438</td>
<td>0.713</td>
<td>1277</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item 10.</th>
<th>21 18 1 0</th>
<th>Level 4.500</th>
<th>0.555</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>52.5</td>
<td>45.0</td>
<td>Department 4.438</td>
<td>0.713</td>
<td>1277</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item 9.</th>
<th>16 20 3 1</th>
<th>Level 4.275</th>
<th>0.716</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>40.0</td>
<td>50.0</td>
<td>Department 4.428</td>
<td>0.731</td>
<td>1277</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item 8.</th>
<th>10 21 5 3</th>
<th>Level 3.900</th>
<th>0.955</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>25.0</td>
<td>52.5</td>
<td>Department 4.394</td>
<td>0.832</td>
<td>1280</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item 7.</th>
<th>14 18 6 2</th>
<th>Level 4.100</th>
<th>0.841</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>35.0</td>
<td>45.0</td>
<td>Department 4.394</td>
<td>0.742</td>
<td>1278</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item 6.</th>
<th>8 24 8 0</th>
<th>Level 4.000</th>
<th>0.641</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.0</td>
<td>60.0</td>
<td>Department 4.422</td>
<td>0.723</td>
<td>1300</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item 5.</th>
<th>23 17 0 0</th>
<th>Level 4.575</th>
<th>0.501</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>57.5</td>
<td>42.5</td>
<td>Department 4.422</td>
<td>0.723</td>
<td>1300</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item 4.</th>
<th>11 21 8 0</th>
<th>Level 4.075</th>
<th>0.692</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>27.5</td>
<td>52.5</td>
<td>Department 4.422</td>
<td>0.723</td>
<td>1300</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item 3.</th>
<th>16 16 6 2</th>
<th>Level 4.150</th>
<th>0.864</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>40.0</td>
<td>47.5</td>
<td>Department 4.422</td>
<td>0.772</td>
<td>1300</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item 2.</th>
<th>19 19 1 4</th>
<th>Level 4.485</th>
<th>0.700</th>
<th>1301</th>
</tr>
</thead>
<tbody>
<tr>
<td>40.0</td>
<td>47.5</td>
<td>Department 4.422</td>
<td>0.772</td>
<td>1300</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item 1.</th>
<th>15 18 5 2</th>
<th>Level 4.150</th>
<th>0.864</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>37.5</td>
<td>45.0</td>
<td>Department 4.422</td>
<td>0.772</td>
<td>1300</td>
</tr>
</tbody>
</table>

---

**Please rate:**

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

- VG = Very Good
- G = Good
- IB = In Between
- P = Poor
- VP = Very Poor

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

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

- A5 B4 C3 D2 E1 #R

---

North Dakota State University Annual Report Information

Student Rating of Instruction --- Course Level Summary Report

Report Generated on 24JUN08 Using Data from Fall 2007 & Spring 2008
### Department Information
- **Level:** 600 & 700 Level Courses
- **Dept:** ANIMAL & RANGE SCIENCE
- **# Sheets Scanned:** This Level .... 25

### Response Key:
- 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.

<table>
<thead>
<tr>
<th>Item 22.</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>OMIT</th>
<th>AREA</th>
<th>MEAN</th>
<th>S.D.</th>
<th>#R</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>14</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
<td>Level</td>
<td>4.160</td>
<td>0.746</td>
<td>25</td>
</tr>
<tr>
<td>32.0</td>
<td>56.0</td>
<td>8.0</td>
<td>4.0</td>
<td>0.0</td>
<td>0.0</td>
<td></td>
<td>Department</td>
<td>4.450</td>
<td>0.743</td>
<td>1231</td>
</tr>
<tr>
<td>Item 23.</td>
<td>6</td>
<td>10</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Level</td>
<td>4.294</td>
<td>0.588</td>
<td>17</td>
</tr>
<tr>
<td>35.3</td>
<td>58.8</td>
<td>5.9</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td></td>
<td>Department</td>
<td>4.381</td>
<td>0.645</td>
<td>1221</td>
</tr>
<tr>
<td>Item 24.</td>
<td>10</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Level</td>
<td>4.588</td>
<td>0.507</td>
<td>17</td>
</tr>
<tr>
<td>58.8</td>
<td>41.2</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td></td>
<td>Department</td>
<td>4.330</td>
<td>0.872</td>
<td>1212</td>
</tr>
<tr>
<td>Item 25.</td>
<td>7</td>
<td>8</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Level</td>
<td>4.294</td>
<td>0.686</td>
<td>17</td>
</tr>
<tr>
<td>41.2</td>
<td>47.1</td>
<td>11.8</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td></td>
<td>Department</td>
<td>4.330</td>
<td>0.872</td>
<td>1212</td>
</tr>
<tr>
<td>Item 26.</td>
<td>8</td>
<td>7</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>Level</td>
<td>4.438</td>
<td>0.629</td>
<td>16</td>
</tr>
<tr>
<td>47.1</td>
<td>41.2</td>
<td>5.9</td>
<td>0.0</td>
<td>0.0</td>
<td>5.9</td>
<td></td>
<td>Department</td>
<td>4.269</td>
<td>0.868</td>
<td>1211</td>
</tr>
<tr>
<td>Item 27.</td>
<td>5</td>
<td>8</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>Level</td>
<td>4.000</td>
<td>0.966</td>
<td>16</td>
</tr>
<tr>
<td>29.4</td>
<td>47.1</td>
<td>11.8</td>
<td>0.0</td>
<td>5.9</td>
<td>5.9</td>
<td></td>
<td>Department</td>
<td>4.408</td>
<td>0.759</td>
<td>1209</td>
</tr>
</tbody>
</table>
Personnel linkage
Personnel linkage
Personnel linkage
Personnel linkage
H. Diversity

1. List accomplishments to create a respected and safe environment.
   The department has experienced a first. We have a faculty member who has given birth (as of June 2008) while serving on the faculty. In anticipation of this event, we have engaged in discussion about how we will handle such events in the life of the department. 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.

2. What progress has been made to increase representation of historically underrepresented groups among students, staff, and faculty.
   The department faculty originated from three countries, the USA, Poland and Korea. In addition, seven female faculty are included of which six have four or fewer years tenure at NDSU. Females are historically underrepresented in Animal Science. This has changed rapidly in student populations where many departments of Animal Science now have student populations that are majority 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.

3. What strategical planning has your unit undertaken to address the NDSU Strategic Plan of Diversity.
   Planning that addresses the NDSU Strategic Plan of Diversity has taken place in many ways. The focus of such planning is generally for reasons other than diversity planning but diversity ends up being an important part of the issue none-the-less. A good example is the ongoing effort to plan for new and more diverse study options. Part of this effort is to enable us to have programs that appeal to a broader cross-section of prospective programs. We hope that we will have programs that will appeal to students who have primary interests that include such things as bio-medical interests, foods and journalism. Such interests would increase diversity of interests, backgrounds and ways of thinking among our undergraduate population.