

VITA

I. PERSONAL DATA

Name: James R. Russell
Department: Animal Science
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Date: January 2, 2014

II. RANK

Professor

III. EDUCATION

Degree	Institution	Date
Ph.D.	University of Wisconsin	1979
M.S.	University of Wisconsin	1975
B.S.	University of Wisconsin	1972

IV. PROFESSIONAL EXPERIENCE

Year(s)	Activity
1972-79	Research Assistant, University of Wisconsin
1979-85	Assistant Professor (75% research time; emphasis, forage research), Iowa State University
1980	Assistant Professor (25% teaching time; taught, An Sci 519, An Sci 319), Iowa State University
1981	Assistant Professor (25% teaching time; taught, An Sci 519), Iowa State University
1982	Assistant Professor (25% teaching time; taught, An Sci 218, An Sci 518), Iowa State University
1983	Assistant Professor (25% teaching time; taught, An Sci 610; An Sci 218; An Sci 518), Iowa State University
1984	Assistant Professor (25% teaching time; taught, An Sci 218; An Sci 518; An Sci 519), Iowa State University
1985-93	Associate Professor (75% research time; emphasis, forage research), Iowa State University
1985-86	Associate Professor (25% teaching time, taught An Sci 218; An Sci 518; An Sci 519), Iowa State University
1987-90	Associate Professor (25% teaching time; taught An Sci 218, An Sci 519), Iowa State University
1988- 04	Leader, Animal Management Issue Team, Leopold Center for Sustainable Agriculture, Iowa State University

- 1991-93 Associate Professor (25% teaching time; taught, An Sci 218 (On-campus), An Sci 218 (Off-campus video), An Sci 318, An Sci 519), Iowa State University
- 1993-96 Professor (75% research time; emphasis, forage research; 25% teaching time; taught, An Sci 318, An Sci 519), Iowa State University
- 1996- 97 Professor (75% research time; emphasis, forage research; 25% teaching time; taught An Sci 318, An Sci 519, An Sci 520X, An Sci 580X), Iowa State University
- 1998-0 Professor (75% research time; emphasis, forage research; 25% teaching time; taught An Sci 519, An Sci 520, An Sci 580 and advised 10 undergraduates), Iowa State University
- 2000-02 Professor (75% research time; emphasis, forage and environmental research; 25% teaching time; taught An Sci 211, An Sci 515, An Sci 519, An Sci 603, and advised 20 undergraduates), Iowa State University
- 2003-04 Professor (75% research time; emphasis, forage and environmental research; 25% teaching times; taught An Sci 519 and Sus Ag 515 and advised 15 to 30 undergraduates/semester), Iowa State University
- 2005-06 Professor (75% research time, forage, cow-calf nutrition, and environmental research; 25% teaching time; taught An Sci 321x, An Sci 519, and Sus Ag 515 and advised 15 undergraduates/semester), Iowa State University
- 2006-07 Professor (75% research time, forage, cow-calf nutrition, and environmental research; 25% teaching time; taught An Sci 321, An Sci 321L, An Sci 519, and FSHN 553 and advised 10 undergraduates/semester), Iowa State University
- 2007-08 Professor (75% research time, forage, cow-calf nutrition, and environmental research; 25% teaching time; taught An Sci 321, An Sci 321L, and An Sci 515 and advised 8 undergraduates/semester), Iowa State University
- 2008 Professor (75% research time, forage, cow-calf nutrition, and environmental research; 25% teaching time; taught An Sci 321, An Sci 321L, An Sci 419 and An Sci 519 and advised 5 undergraduates/semester), Iowa State University
- 2009 Professor (75% research time, forage, cow-calf nutrition, and environmental research; 25% teaching time; taught An Sci 419, An Sci 543X)
- 2010 Professor (75% research time, forage, cow-calf nutrition, and environmental research; 25% teaching time; taught An Sci 520)
- 2011 Professor (75% research time; forage, cow-calf nutrition, and environmental research; 25% teaching time; taught An Sci 543XA, An Sci 603, Sus Ag 515)
- 2012 Professor (75% research time, forage, cow-calf nutrition, and environmental research; 25% teach time; taught An S 320, An S 520)
- 2013 Professor (75% research time, forage, cow-calf nutrition, and environmental research; 25% teach time; taught An S 320, Sus Ag 515)
- 2014 Professor (75% research time, forage, cow-calf nutrition, and environmental research; 25% teach time; taught An S 319, An S 520)

V. ISU PERSONNEL RECORD

Rank	Appointment Date	Base	Assignment
Assistant Professor	1979	A	75% Research; 25% Teaching
Associate Professor	1985	A	75% Research; 25% Teaching
Graduate Faculty	1992		
Professor	1993	A	75% Research; 25% Teaching

PROFESSIONAL ACTIVITIES

Current Membership
American Society of Animal Science

American Dairy Science Association

American Forage and Grassland Council
Iowa Forage and Grassland Council

Society for Range Management
NCERA-87 Cow-Calf Feeding and Management Committee

NC1181 Enhancing Resiliency of Beef Production under Shifting Forage Resources Committee
NC1182 Management and Environmental Factors Affecting Nitrogen Cycling and Use Efficiency in Forage-based Livestock Production Systems

Offices held
Editorial Board, 1982-84
Editorial Board, 1994-97
Ruminant Program Committee-Midwestern Sectional Meeting, 1997-99 (Chair, 1999)
AFIA Award Committee, 1997
Extension Symposium Committee-Midwestern Sectional Meeting, 2007
Pioneer Hi-bred International, Inc. Forage Award, 2004-2006 (Chair, 2006)

Finance Committee, 1984-87
Planning Committee for 1993
AFGC Meeting, 1992-93

Secretary, 1982
Vice-chair, 1984
Chair, 1984
Secretary, 1996
Vice-chair, 1997
Chair and coordinator, 1998
Member, Ad hoc committee to develop Cow-calf 'Management Effects on Water Quality' Symposium at 2007 Midwest Section Meeting of ASAS, 2006-07

AWARDS, HONORS AND RECOGNITION

Awarded membership to Gamma Sigma Delta Honor Society of Agriculture, 1978

Awarded membership to Sigma Xi Research Honor Society, 1989

Awarded OECD Research Fellowship to study at the Institut fur Bodenbiologie, Bundesforschung fur Landwirtschaft, Braunschweig, FRG, 1986.

Awarded Certificate of Appreciation for the Efforts Directed towards the Advancement of Students with Disabilities, 1991.

Awarded Kellogg Fellowship to the 1992 Leadership Development Program at the National Center for Food and Agricultural Policy, 1992.

Awarded OECD Research Fellowship to study at AgResearch, New Zealand, Palmerston North, New Zealand, 1997.

Received “Forage Industry Merit Award” for the Iowa Forage and Grassland Council, 1998.

Received “Merit Award” from the American Forage and Grassland Council, 2000.

Received ‘Pioneer Hi-Bred International, Inc. Forage Award’ from the American Dairy Science Association, 2003.

Received ‘The Regents Award for Faculty Excellence’ from Iowa State University, 2008.

Received ‘Lee R. Kolmer Award for Applied Research’ from College of Agriculture and Life Science, Iowa State University, 2011

VIII. RESPONSIBILITIES

A. Teaching and Academic Advising. (Last 3 years)

Classes taught.

Catalog Number	Title	Credit hours	Students taught / Sem.
An Sci 520	Ruminant Digestive Physiology and Metabolism	3	6 -15
An Sci 603	Graduate Animal Nutrition Seminar	R	18 – 25
Sus Ag 515	Integrated Crop and Livestock Production Systems	3	15
An Sci 320	Animal Feeds and Feeding	3	30-70
An Sci 319	Animal Nutrition	3	140

Students advised (Total).

Graduate	5
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B. Research Creativity

The overall objective of my research program has been to improve the economic efficiency and environmental soundness of beef production systems by improving the utilization of forages. The central focus of my research efforts in earlier years was evaluating the effects of storage methods on the nutritional value of forages for beef cattle. We continue to conduct similar research.

During the decade of the 1990's, the major objective of my research program was the integration of forage resources to develop and evaluate year-round grazing systems to improve the profitability of beef production. These systems utilized rotational stocking of grass-legume pastures to optimize productivity of summer pastures and winter grazing of crop residues and stockpiled perennial forages to minimize costs associated with feeding of stored feeds. In these experiments, yield, botanical composition and chemical composition of the plants and the feed selection, feed intake and productive performance of the cattle were evaluated in integrated winter and summer grazing systems. This effort was enhanced by my position as the Leader of the Animal Management Issue Team of the Leopold Center for Sustainable Agriculture. Furthermore, because of the similarities of interests in promoting year-round grazing systems, I participated in numerous collaborations in grazing experiments first with a group of researchers from the University of Missouri and then with researchers from the University of Nebraska and Kansas State University in the regional NC-225 project entitled "Improved Grazing Systems for Beef Cattle Production."

As a result of the input of producers and extension and USDA-NRCS personnel that were members of the Animal Management Issue Team in the Leopold Center, the emphasis of my research program has also become more directed towards the effects of grazing management on environmental quality. Working with a team of researchers from ISU extension, ISU Outlying Research and Demonstration Farms, USDA-National Soil Tilth Laboratory, and USDA-Natural Resource Conservation Service, a project was conducted to evaluate the effects of corn crop residue grazing of soil physical properties and subsequent crop production. In 2000-05, I worked with a team of researchers from the ISU Departments of Animal Science, Forestry, and Agricultural and Biosystems Engineering and the USDA-National Soil Tilth Laboratory with cooperation from the Iowa Beef Cattlemen's Association to conduct a project evaluating the effects of grazing management practices on sediment and phosphorus losses from pasture run-off was initiated in 2001 through 2004. In addition to techniques more commonly used in grazing experiments, we conducted rainfall simulation studies to measure water run-off and sediment and phosphorus loss. Because of the relationship of grazing management to water quality in pasture streams, I led a team of researchers from the Department of Animal Science and the USDA-National Soil Tilth Laboratory to develop a proposal to the Iowa Department of Natural Resources' Section 319 program to evaluate the use of grazing management to limit sediment and phosphorus pollution of pasture streams from stream bank erosion and manure deposition at the Iowa State University Rhodes Research Farm that was initiated in 2005. In this project, we are utilizing pins and LIDAR to measure erosion and GPS to measure the spatial/temporal distribution of cattle. To extend this project at the Rhodes Research Farm and expand the work to farms in the Rathbun Lake watershed in southern Iowa, my colleagues and I submitted a proposal entitled "PASTURE MANAGEMENT EFFECTS ON NON-POINT SOURCE POLLUTION OF MIDWESTERN WATERSHEDS" to the USDA National Integrated Water Quality Program 406. This proposal will be funded from 2006 through 2009. Another proposal entitled "GRAZING MANAGEMENT EFFECTS ON PATHOGEN LOADING OF STREAMS IN MIDWESTERN PASTURES" is funded from the USDA NRI from 2007 through 2010. Further funding was received from the Leopold Center for Sustainable Agriculture to continue this work until 2011.

In 2010, interest in mob-grazing amongst producers prompted me to establish a research program to investigate the management and strategic use of mob-grazing to enhance animal productivity, legume establishment, carbon sequestration, water quality, and wildlife habitat. With decreasing availability of grazing lands in the Midwest, this research has become the basis of alliances between beef cattle producers and other recreational land owners wishing to improve wildlife habitat. As an extension of this research on the relationship of grazing management and ecological services, a project investigating the effects of grazing management on the net global warming potential of pastures was initiated.

Graduate students completing degrees:

Student	Thesis title	Year graduated	Degree
Bisinger, J.J.	Grazing management effects on environmental Quality of riparian and upland grassland ecosystems	2014	M.S.
Dunn, M. W.	Stocking system effects on cattle performance, forage, and soil properties of cool-season pastures	2013	M.S.
Bear, D. A.	Pasture management effects on nonpoint source pollution of Midwestern watersheds	2011	M.S.
Schwartz, K. A.	Assessment of the risks of nonpoint source pollution of pasture streams related to grazing management	2010	M.S.
Lasley, Peter W.	Winter grazing systems for fall-calving cows for grass-based beef production systems	2009	M.S.
Haan, Mathew M.	Impacts of forage management on phosphorus cycling and sediment and phosphorus transport in surface run-off	2005	M.S.
Driskill, R. E. M.S.	Effects of stocking rate and corn gluten feed supplementation on bred second-calf heifers grazing stockpiled tall fescue-red clover pastures	2005	
Justin T. Clark	Evaluating efficacy and limitations of winter grazing systems for beef cattle on animal production and soil properties	2003	M.S.
Nicole Janovick	Evaluation of year-round grazing systems for fall- and spring-calving beef cows	2002	M.S.
Mary L Hermann	Evaluation of hay-type and grazing tolerant alfalfa cultivars in season-long and complementary rotational stocking systems for beef cows	2000	M.S.
Matthew J. Hersom	Evaluation of year-round forage management systems for beef cow-calf production	1999	M.S.
M. Akif Karsli	Ruminal microbial protein synthesis in sheep fed forages of varying nutritive value	1998	Ph.D.
Jodi Western	Cow-calf production from alfalfa-grass or smooth brome pastures rotationally stocked at three	1997	M.S.

	rates.		
Andrew C. Hitz	The efficacy of stockpiled perennial forages for winter grazing by beef cattle	1996	M.S.
M. Akif Karsli	Berseem clover as a protein supplement for corn crop residues	1996	M.S.
Tito E. Diaz-Munoz	Ruminal microbial colonization and digestion kinetics of corn stover as affected by chemical treatment and nitrogen supplementation	1993	Ph.D.
Yan-Chin Hsiao	Storage treatment effects on the value of large round bales of alfalfa-smooth brome grass hay as a supplement for corn stover	1988	M.S.
Michael R. Brasche	Influence of storage methods on the utilization of large round hay bales by beef cows	1987	M.S.
Nancy A. Irlbeck	Genetic, agronomic and ensiling effects on forage quality of corn whole plant and stover	1986	M.S.
A. Moses Adamu	Supplemental protein sources for growing cattle fed corn stover silage	1985	Ph.D.
Augusto Rojas-Bourrillon	Effect of rolled corn silage on digestion of nutrients and feedlot performance of growing steers	1985	M.S.
Kathy K. Rennick	The effects of monensin supplementation upon lactating beef cows and growing beef heifers fed crop residues	1982	M.S.
Emma Mallarino	Effect of harvesting method and length of storage on the nutritional value of corn stover	1981	M.S.

Master of Agriculture Students

<u>Student</u>	<u>Creative Component</u>	<u>Year graduated</u>	<u>Degree</u>
Katrina Pille Ag.	Seasonal effects on forage and available soil phosphorus content in cool-season grass pastures in southeastern Iowa	2012	M. of
Angela Richardson	A Survey of Current Grazing Management Practices of Iowa Cow-calf Producers	2011	M. of Ag.

Extension and/or Professional Practice

Although I do not have an extension appointment, I have supported extension activities related to increased forage utilization by preparing 147 extension leaflets and participating in 159 extension or field day/meetings over the last 34 years. I obtained funding for and actively participated in the preparation of a 5 part series of videotapes on improved grazing practices which was distributed to each county extension office in Iowa and sold over 700 copies. As a supplement to this videotape, I participated in the preparation of a book entitled “A Grazing Guide for Livestock Producers” which was published in 1998 and has sold over 1000 copies. Premier Fencing of Washington, Iowa added this book to their catalog, calling it “The best modern guide we’ve seen by far. Highly recommended for all Midwest cattle and sheep producers.” In 1998 through 2003, I worked with a team of extension personnel on the development of a forage budgeting spreadsheet for planning year-round grazing systems to improve the profitability of beef cow-calf production. In 1999 to 2001, we demonstrated the effectiveness of this technology on a producer’s farm near Guthrie Center, Iowa. In 1997 through 2000, I coordinated the An Sci 580 “Sustainable Agriculture Seminar” course transmitted over the Iowa Cable Network to both students and the general public. In 2002, I served as the representative for the NC-225 “Improved Grazing Systems for Beef Cattle” Regional Project in a team with members from the Northern Integrated Resource Management Group and the National Cattlemens’ Beef Association in the development of a conference series entitled “Integrating Cattle and Forage Resources” that was held in four sites across the Midwest. In addition to leading the development of the itinerary for this conference, I also was in charge of announcing and editing abstracts and arranging for the display of research posters and in charge of authoring a leaflet entitled “Making Extended Grazing Work in Iowa” and editing similar leaflet from the other participating states which were distributed at these conferences. Since 2004, I have lead a group of research and extension personnel in the Department of Animal Science and the USDA National Soil Tilth Laboratory conducting the ‘Use of Grazing Management to Limit Sediment and Phosphorus Pollution of Pasture Streams from Streambank Erosion and Manure Deposition’ project which has annual field days to demonstrate the construction and maintenance of stream crossings and the effects of grazing management on the properties of the stream bank and pasture. As part of the project entitled ‘Pasture Management Effects on Non-point Source Pollution of Midwestern Watersheds’ funded by the USDA National Integrated Water Quality Program 406, annual field days at the Rhodes Research Farm and at farms in the Rathbun Lake watershed continued through 2009. Also, as part of this project, I prepared one and edited two publications entitled ‘Managing Pasture Water with subtitles of ‘Riparian Buffers, Stabilized Stream and Pond Access Sites, and Off-stream Water and Nutritional Supplementation’ with supplemental on-line technical publications.

In addition, I have regularly participated in in-service training of area livestock extension specialists, given radio and television interviews, and have given interviews to the Angus Journal, Feedlot Magazine, Successful Farming Magazine, Wallace’s Farmer Magazine, Iowa Farmer Today, Hay and Forage Grower Magazine, Beef Magazine, Iowa Cattlemens’ Magazine, Farm Bureau Spokesman, Drover’s Journal, Country Living Magazine, the Des Moines Register and the Ottumwa Courier in the preparation of articles. Furthermore, I served as the editor of the Annual Report for the McNay Memorial Research Farm from 1990 to 1999 and as the editor of the Environment section of the ISU Animal Industry Report

D. International Activities (last 3 years)

2014

Presented “Grazing Management to Enhance Water Quality and Other Ecological Services from Grasslands’ at the joint meeting of the Argentina Association of Animal Production and the American Society of Animal Science, Buenos Aires, ARG, October 22, 2014.

Hosted Administrators from the University of Kiev, November, 2014.

2013

Participated in ‘Potential of Sisal as a Ruminant Feedstuff’ Workshop at Outreach in Des Moines, IA, July 15, 2013.

Presented “Role of Cattle in Sustainable Agriculture Systems in Tanzania’ at ‘Africa’s Big Five vs the Real Big Five: Crocodiles in the Soup’ Breakout Session at the World Hunger Summit, Des Moines, IA, October 16, 2013.

2011

Hosted Mike and Sharon Barton, Taupo, New Zealand who were speakers in the Sustainable Agriculture Colloquium, 1/14/11

Presented ‘Feeding CaO-treated stover as a partial replacement for corn in feedlot diets’ to tour group of farmers from Argentina, 8/24/11

Reviewed Research Proposal for Israel-US BARD Program, 12/8/11

E. Service. Last 3 years.

Departmental committees:

Member of the Admission Committee for the Graduate Program in Animal Nutrition, 2011-

Member of the Search Committee for an Assistant/Associate Professor of Comparative Animal Nutrition, 2011-12

Member of the PEC committee to review the application for collaborator status for Dr. George Fahey, 2012

Chaired the search committee for a Superintendent of the ISU Sheep Teaching Farm, 2012

Member of the PEC committee to review pre-tenure package of Dr. Stephanie Hansen, 2012 -2014

Member of the Kildee Animal Facility Committee, 2012-

Member of the Electronic Materials, Facilities, and Equipment Committee, 2012-

Ad hoc committee for post-tenure review of the credentials of Dr. Howard Tyler, 2012

Ad hoc committee for post-tenure review of the credentials of Dr. Max Rothschild, 2013

Ad hoc committee for ‘Future of Beef Production’ publication, 2013

Mentor for Dr. Cheryl Morris, 2013-

Peer-reviewed teaching of Nick Gabler in the spring semester, 2013

Ad hoc committee for post-tenure review of the credentials of Dr. Dorian Garrick, 2014

Program committees:

Member of Curriculum Committee of the Interdepartmental Graduate program in Nutrition, 2009-

Member of Admission Committee of the Graduate Program in Environmental Science,
2013-

College committees:

Member of the Search Committee for the Director of the Leopold Center for Sustainable
Agriculture, 2011

Professional/Scientific Societies:

Listed in the AMI Meat and Poultry Expert Guide for Journalists, 2013-

PUBLICATIONS

A. Refereed journal articles.

- Bisinger, J.J., J.R. Russell, and D.G. Morrical. 2015. Beef cattle stock density and duration effects on grassland plant communities and vegetation structure. *Agron. J.* (In review)
- Bisinger, J.J., J.R. Russell, D.G. Morrical, C. Cambardella, and J.L. Kovar. 2015. Beef cattle stock density and duration effects on soil quality characteristics. *Agron. J.* (In review)
- Kovar, J.L., H. Hongthanat, M.L. Thompson, T.M. Isenhardt, and J.R. Russell. 2015. Phosphorus source-sink relationships of stream sediments in the Rathbun Lake watershed in southern, Iowa, USA. *J. Soil Water Conserv.* (Revision in review)
- Summer, P.G., J.A. Rathmacher, and J.R. Russell. 2015. The effect of diet cation-anion difference upon plasma 3-methylhistidine concentration and intracellular fluid volume in growing steers. *J. Anim. Sci.* (Revision in review)
- Russell, J.R. and J.J. Bisinger. 2015. FORAGES AND PASTURES SYMPOSIUM: Improving soil health and productivity on marginal lands using managed grazing of livestock (Accepted for publication)
- Brown, S.B., C.D. Ikenberry, M.L. Soupir, J. Bisinger, and J.R. Russell. 2014. Predicting time cattle spend in streams to quantify direct deposition of manure. *Trans. ASABE* 30(2):187-195.
- Bisinger, J.J., J.R. Russell, D.G. Morrical, and T.M. Isenhardt. 2014. Pasture size effects on the ability of off-stream water or restricted stream access to alter the spatial/temporal distribution of grazing beef cows. *J. Anim. Sci.* 92:3650-3658
- Tufekcioglu, M., T.M. Isenhardt, R.C. Schultz, D.A. Bear, J.L. Kovar, and J.R. Russell. 2012. Stream bank erosion as a source of sediment and phosphorus in grazed pastures in the Rathbun Lake watershed in southern Iowa, United States. *J. Soil Water Conserv.* 67:545-555
- Bear, D.A., J.R. Russell, and D.G. Morrical. 2011. Pasture physical characteristics and shade distribution effects of temporal/spatial distribution of cows in Midwestern pastures. *Rangel. Ecol. Manage.* 65:401-408
- Bear, D.A., J.R. Russell, M. Tufekcioglu, T.M. Isenhardt, D.G. Morrical, and J.L. Kovar. 2012. Stocking rate and riparian vegetation effects on physical characteristics of riparian zones of Midwestern pastures. *Rangel. Ecol. Manage.* 65:119-128
- Schwarte, K.A., J.R. Russell, and D.G. Morrical. 2011. Effects of pasture management and off-stream water on temporal/spatial distribution of cattle and stream bank characteristics in cool-season grass pastures. *J. Anim. Sci.* 89:3236-3247.

- Schwarte, K.A., J.R. Russell, J.L. Kovar, D.G. Morrical, S.M. Ensley, K.J. Yoon, N.A. Cornick, and Y.-I. Cho. 2011. Grazing management effects on sediment, phosphorus, and pathogen loading of streams in cool-season grass pastures. *J. Environ. Qual.* 40:1303-1313.
- Nellesen, S.L., J.L. Kovar, M.M. Haan, and J.R. Russell. 2011. Grazing management effects on stream bank erosion and phosphorus delivery to a pasture stream. *Can. J. Soil Sci.* 91:385-395.
- Davis, J.D., M.J. Darr, H. Xin, J.D. Harmon, and J.R. Russell. 2011. Development of a GPS herd activity and well-being kit (GPS HAWK) to monitor cattle behavior and the effect of sample interval on travel distance. *Appl. Eng. Agric.* 27(1):143-150.
- Webber D.F., S.K. Mickelson, S.I. Ahmed, J.R. Russell, W.J. Powers, R.C. Schultz, and J.L. Kovar. 2010. Livestock grazing and vegetative filter strip buffer effects on runoff sediment, nitrate, and phosphorus losses. *J. Soil Water Conserv.* 65:34-41.
- Haan, M.M., J.R. Russell, J.D. Davis, and D.G. Morrical. 2010. Grazing management and microclimate effects on cattle distribution relative to a cool season pasture stream. *Range. Ecol. and Man.* 63:572-580.
- Roberts, S., H. Xin, B. Kerr, J. Russell, and K. Bregendahl. 2007. Effects of dietary fiber and low crude protein on nitrogen balance and egg production in laying hens. *Poultry Science* 86:1716-1725
- Roberts, S., H. Xin, B. Kerr, J. Russell, and K. Bregendahl. 2007. Effects of dietary crude fiber and low crude protein on ammonia emission from laying-hen manure. *Poultry Sci.* 86:1625-1632
- Driskill, R., J.R. Russell, D.R. Strohbehn, D.G. Morrical, S.K. Barnhart, and J.D. Lawrence. 2007. Effect of stocking rate and corn gluten feed supplementation on the performance of young beef cows grazing winter stockpiled tall fescue-red clover pasture. *J. Anim. Sci.* 85:1577-1586.
- Haan, M.M., J.R. Russell, W.J. Powers, J.L. Kovar, and J.L. Benning. 2007. Effects of forage management on pasture productivity and phosphorus content. *Range. Ecol. and Man.* 60:311-318.
- Haan, M.M., J.R. Russell, W.J. Powers, J.L. Kovar, and J.L. Benning. 2006. Grazing management effects on sediment and phosphorus in surface run-off. *Range. Ecol. and Man.* 59:607-615.
- Janovick, N.A., J.R. Russell, D.R. Strohbehn, and D.G. Morrical. 2005. Grazing and feedlot performance of yearling stocker cattle integrated with spring- and fall-calving beef cows in a year-round grazing system. *J. Anim. Sci.* 83:2696-2704.

- Janovick, N.A., J.R. Russell, D.R. Strohbehn, and D.G. Morrical. 2004. Productivity and hay requirements of beef cattle in a Midwestern year-round grazing system. *J. Anim. Sci.* 82:2503-2515.
- Clark, J.T., J.R. Russell, D.L. Karlen, W.D. Busby, and B.C. Peterson. 2004. Effects of corn crop residue grazing on soil physical properties and subsequent soybean production in a corn-soybean crop rotation. *Agron. J.* 96:1364-1371.
- Blummel, M., A. Karsli, and J.R. Russell. 2003. Influence of diet on growth yields of rumen micro-organisms *in vitro* and *in vivo*: influence on growth yield of variable carbon fluxes to fermentation products. *Brit. J. Nutr.* 90:625-634.
- Karsli, M.A. and J.R. Russell. 2002. Effects of source and concentrations of nitrogen and carbohydrate on ruminal microbial protein synthesis. *Turk. J. Vet. Anim. Sci.* 26:201-207.
- Hermann, M.L., J.R. Russell, and S.K. Barnhart. 2002. Evaluation of hay-type and grazing-tolerant alfalfa cultivars in season-long or complementary rotational stocking systems for beef cows. *J. Anim. Sci.* 80:768-779.
- Karsli, M.A. and J.R. Russell. 2001. Effects of some dietary factors on ruminal microbial protein synthesis. *Turk. J. Vet. Anim. Sci.* 25:681-686.
- Sleugh, B.B., K.J. Moore, E.C. Brummer, A.D. Knapp, J. Russell, and L. Gibson. 2001. Forage nutritive value of various amaranth species at different harvest dates. *Crop Sci.* 41:466-472.
- Russell, J.R., K. Betteridge, D.A. Costall, and A.D. MacKay. 2001. Treading effects on water infiltration and sediment loss from New Zealand hill soil. *J. Range Manage.* 54:184-190.
- Nadeau, E.M.G., J.R. Russell, and D.R. Buxton. 2000. Intake, digestibility, and composition of orchardgrass and alfalfa silages treated with cellulase, inoculant, and formic acid to lambs. *J. Anim. Sci.* 78:2980-2989.
- Nadeau, E.M.G., D.R. Buxton, J.R. Russell, M.J. Allison, and J.W. Young. 2000. Enzyme, bacterial inoculant, and formic acid effects on silage composition of orchardgrass and alfalfa. *J. Dairy Sci.* 83:1487-1502.
- Cerrillo, M. A., J. R. Russell, and M. H. Crump. 1999. The effects of hay maturity and forage to concentrate ratio on digestion kinetics of goats. *Small Ruminant Research* 32:51-60.
- Karsli, M.A. and J.R. Russell. 1999. Factors affecting degradation kinetics and fractions of protein. *J. Konya Vet. Cont. Res Inst.* 10:42-47.
- Karsli, M. A., J. R. Russell, and M. J. Hersom. 1999. Evaluation of berseem clover as a supplement for corn crop residues. *J. Anim. Sci.* 77:2873-2882.

- Hitz, A. C. and J. R. Russell. 1998. Potential of Stockpiled Perennial Forages in Winter Grazing Systems for Pregnant Beef Cows. *J. Anim. Sci.* 76:404-415.
- Harmony, K.R., K. J. Moore, J. R. George, E. C. Brummer, and J. R. Russell. 1997. Determination of pasture biomass using four indirect methods. *Agron. J.* 89:665-672.
- Russell, J. R., M. R. Brasche and A. M. Cowen. 1993. Effects of grazing allowance and system on the use of corn crop residues by gestating beef cows. *J. Anim. Sci.* 71:1256-1265.
- Irlbeck, N. A., J. R. Russell, A. R. Hallauer and D. R. Buxton. 1993. Nutritive value and ensiling characteristics of maize stover as influenced by agronomic factors. *Anim. Feed Sci. Technol.* 41:51-64.
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B. Non-refereed invited papers:

- Russell, J.R., D.A. Bear, K.A. Schwarte, and M.M. Haan. 2010. Pasture management strategies to minimize the impacts of grazing on water quality of surface water resources. Presented in: Environmental Impact of Forage-Based Livestock Production Systems Symposium at the ADSA-PSA-AMPA-CSAS-WSASAS-ASAS Joint Annual Meeting, July 13, 2010, Denver, CO.
- Russell, J.R., M.M. Haan, and K.A. Schwarte. 2010. Managing phosphorus supplementation to enhance the economic and environmental sustainability of beef cow-calf operations. Presented at: Economic and Environmental Sustainability of Cow-calf Operations at the 2010 Meeting of the Midwestern Section of the American Dairy Science Association and American Society of Animal Science, March 16, 2010, Des Moines, IA.
- Russell, J.R. 2009. Grazing management to limit non-point source pollution in pastures. Presented in: Grazing Management for Water Quality Protection Webinar. Livestock and Poultry Environmental Learning Center, October 16, 2009. Website.
- Russell, J.R. and M.M. Haan. 2007. Grazing and nutritional management of beef cows to limit nonpoint source pollution of streams in Midwestern pastures. Presented in: Cow-calf Management Effects on Water Quality at the 2007 meeting of the Midwestern sections of the ASAS/ADSA, March 21, 2007, Des Moines, IA.
- Russell, J.R., J.D. Lawrence, and A. Trenkle. 2006. Integrated beef and crop production in a biofuel era: A case for interdisciplinary approaches. Presented in: Enterprise Integration for Sustainable Beef Production Symposium at 2006 ADSA/ASAS Joint Annual Meeting, July 13, 2006, Minneapolis, MN.

- Russell, J.R. and M. Haan. 2006. Use of GPS to evaluate the effects of grazing management of non-point pollution of pasture streams. Presented at: Grazing Behavior Workshop, July 24, 2006, State College, PA.
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- Clark, J.T. and J.R. Russell. 2003. Effects of stocking rate and energy supplementation on performance and feed intake of heifers grazing stockpiled forages. IN: Proceedings/Reports American Forage and Grassland Council. April 25-27, Lafayette, LA 12:287.
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Bisinger, J.J. and J.R. Russell. 2013. Enhancing botanical composition, wildlife habitat, and carbon sequestration of pastures in Southcentral Iowa through soil disturbance by mob-grazing of beef cattle. *Proceedings and Abstracts: 2013 Annual Conference of the American Forage and Grassland Council*. Covington, KY, CD-ROM

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G. Books

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I. Videotapes

Russell, J. R. 1995. Managed Grazing. Year Around Resource Management. Iowa State University Extension Communications, Ames, IA.

J. Computer software

Russell, J. R. 1998. 'Forage Budgeting for Year-round Grazing' Spreadsheet.

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XI. GRANTS AND CONTRACTS (Funded, 1999-present).

Date	Title	Investigators	Agency	Amount
7/99-6/02	Winter grazing of corn residue effects on soil physical properties and subsequent crop yields from a corn-soybean crop rotation.	J.R. Russell D. Busby L. J. Secor J. Radke (USDA-NSTL) D. Karlen (USDA-NSTL) A. P. Mallarino J. D. Lawrence S. Shouse C. Olsen B. Peterson (USDA-NRCS)	Leopold Center for Sustainable Agriculture	\$103,350
2/99-9/01	Cattle treading effects on soil quality, crop productivity, and pasture health.	J.R. Russell D. Karlen (USDA-NSTL) K. Betteridge (New Zealand AgResearch) P. Singleton (New Zealand AgResearch)	USDA-Foreign Agricultural Service	\$29,490
7/99-6/02	Complementary grazing systems for beef cattle production	K. J. Moore B. A. Brueland M. H. Wiedenhoft J. R. George E. C. Brummer S. K. Barnhart J. R. Russell	Leopold Center for Sustainable Agriculture	\$61,983
9/98-9/01	The development, evaluation, and demonstration of management systems which increase uniformity of the forage supply for year-round grazing by spring- and fall-calving beef cow herds	J. R. Russell D. G. Morrical D. R. Strohhenn S. K. Barnhart J. D. Lawrence A. Hallam L. J. Secor	Leopold Center for Sustainable Agriculture	\$150,000

10/99-9/02	Improved Grazing Systems for Beef Cattle Production (NC-225 Regional Project)	J.R. Russell K.J. Moore C.J. Brummer D.G. Morrill S.K. Barnhart J.D. Lawrence Plus Animal Science and Agronomy Staff from the University of Missouri, University of Nebraska, and Kansas State University	NC Regional Directors	\$150,000 (ISU research)
1/01-12/03	Impacts of Managed Grazing on Stream Ecology and Water Quality	J.R. Russell W. Powers R.C. Schultz T. Isenhardt S. Mickelson J. Kovar C. Balvanz (Iowa Beef Cattlemens' Association)	Iowa Department of Natural Resources 319 Grants Program	\$550,000
7/01-6/04	Effects of Grazing Management on Sediment and Phosphorus Losses from Pastures	J.R. Russell W. Powers R.C. Schultz T. Isenhardt S. Mickelson J. Kovar	Leopold Center for Sustainable Agriculture	\$105,000
7/01-6/04	Effects of Grazing Management on Sediment and Phosphorus Losses from Pastures	J.R. Russell W. Powers R.C. Schultz T. Isenhardt S. Mickelson J. Kovar	Iowa Water Resources Research Institute	\$64,500
7/03-6/05	Use of Grazing Management to Limit the Contribution of Stream Bank Erosion and Manure Deposition to Sediment and Phosphorus Pollution of Pasture Streams	J.R. Russell W.J. Powers J.L. Kovar J.D. Lawrence	Iowa Water Resources Research Institute	\$43,302

6/04-6/07	Use of Grazing Management to Limit Sediment and P Pollution of Pasture Streams from Stream Bank Erosion and Manure Deposition	J.R. Russell W.J. Powers J.L. Kovar, USDA National Soil Tilth Laboratory D.R. Strohbehn D.G. Morrical J.D. Lawrence B. Peterson, USDA-NRCS	Iowa Department of Natural Resources Section 319 Program	\$337,439
7/04-6/07	Quantifying the Role of Riparian Management to Control Non-point Source Pollution of Pasture and Cropland Streams	J.R. Russell W.J. Powers R.C. Schultz D.R. Strohbehn D.G. Morrical J. Kovar, USDA National Soil Tilth Laboratory B. Peterson, USDA-NRCS	Leopold Center for Sustainable Agriculture Ecology Initiative	\$324,723
9/04-8/05	Winter grazing of stockpiled grass-legume forages to reduce costs of developing beef heifers	J.R. Russell D.R. Strohbehn D.G. Morrical J. D. Lawrence	Leopold Center for Sustainable Agriculture Ecology Initiative	\$28,613
5/05-4/09	Source reduction and mitigation strategies for air emissions from turkeys, laying hens, and growing cattle	W.J. Powers Todd Applegate, Purdue University J.R. Russell	USDA-NRI	\$482,424
7/05-6/08	Winter grazing systems for fall-calving cows producing calves for grass-based beef production systems	J.R. Russell D.G. Morrical D.R. Strohbehn J.D. Lawrence	Leopold Center for Sustainable Agriculture	\$85,818
10/06-9/09	Pasture management effects on non-point source pollution of Midwestern watersheds	J.R. Russell W. Powers D.G. Morrical J.L. Kovar T.M. Isenhardt	USDA-CSREES National Integrated Water Quality Program 406	\$598,461
6/07-5/10	Grazing management effects on pathogen loading of Midwestern pasture streams	J.R. Russell S.M. Ensley K.-J. Yoon	USDA-CSREES NRI	\$399,770

4/09-3/12	Site specific implementation of practices that alter the spatial/temporal distribution of grazing cattle to improve water quality of pasture streams in the Rathbun Lake watershed	J.R. Russell	Leopold Center for Sustainable Agriculture Agroecology Initiative	\$65,312
1/09-12/10	Site specific implementation of practices that alter the spatial/temporal distribution of grazing cattle to improve water quality of pasture streams in the Rathbun Lake watershed	J.R. Russell	Iowa Beef Center	\$3,000
1/09-12/10	Effect of moisture content and chemical treatment on storage stability and animal feed value of corn stover harvested using a single-pass technology	J.R. Russell D. Loy	Archer Daniels Midland	\$65,372
1/10-12/11	Effects of chemical treatment of corn crop residues on feedlot performance of beef steers and nutrient digestion by sheep in diets with modified distillers grains with solubles	J.R. Russell D. Loy	Archer Daniels Midland	\$96,368
3/10-6/12	Use of mob grazing to improve cattle production, enhance legume establishment, and increase carbon sequestration in Iowa pastures	J.R. Russell D.G. Morrical H.J. Sellers	Leopold Center for Sustainable Agriculture Agroecology Initiative	\$79,657
10/10-9/11	Planning grant for a proposal on a regional approach to climate change planning for dairy and beef production systems	W. Powers et al. (Including J.R. Russell)	USDA-NIFA	\$50,000
3/11-3/14	Enhancing Botanical Composition, Wildlife Habitat, and Carbon Sequestration of Pastures in South Central Iowa	J. Russell, H.J. Sellers, H. Offenburger, D.G. Morrical, S. Barnhart	Leopold Center for Sustainable Agriculture Agroecology Initiative	\$145,913

	through Soil Disturbance by Mob Grazing of Beef Cattle			
2012/15	Use of Grazing Management to Mitigate Greenhouse Gas Emissions while Increasing Soil Organic Matter and Water-holding Capacity of Cool Season Pastures in Southern Iowa	J. Russell, T. Isenhart, W. Powers	Leopold Center for Sustainable Agriculture Agroecology Initiative	\$142,848
2013/16	Processes Controlling the Source, Movement, and Release of Soil Phosphorus in Midwestern Streams from Pasture and Crop Land	R. Schultz, J. Russell, T. Isenhart, M. Thompson, K. Shilling, M. Tomar	USDA-AFRI	\$498,008
2014	Use of Adaptive Grazing Management to Provide Multiple Ecological Services while Increasing Profitability of Beef Cow-calf Production in Iowa	J. Russell	Leopold Center for Sustainable Agriculture	\$39,997

XIII. SIGNIFICANT PRESENTATIONS (1999-present)

Title	Group addressed	Date
Analyses to Predict Feed Quality	Garst Seed Company Sales Meeting, Slater Iowa	1/20/99
Extending the Winter Grazing Season	Wisconsin Grazing Conference, Madison, WI	2/12/99
Year-round Grazing of Beef Cows	Ohio State University's Jackson Research Farm Field Day	6/7/99
Grazing Legumes	Iowa Lakes Grazing Incomp. Field Day, Sioux Rapids, IA	7/8/99
Forage Availability Affects Supplementation of Beef Cows	Soil-Water-Plant-Animal Management Conference, Lancaster	8/3/99
Integrated Summer and Winter Grazing Systems	Butler County Grazing Workshop, Butler Co., IA	9/2/99
Grazing Crop Residues from bt-Corn Hybrids	Area Livestock Extension Agents In-service Training, Ames, IA	10/20/99

The Development, Evaluation and Demonstration of Management Systems that Increase Uniformity of the Forage Supply for Year-round Grazing by Spring-calving herds	McNay Research and Demonstration Farm Grazing School, Chariton, IA	11/10/99
Using Managed Grazing to Unlock the Potential of Iowa's Grasslands	Agronomy 450 Organic Farm Course, Ames, IA	2/28/00
Composition of the Crop Residues of bt-Corn Hybrids and Their Effects on the Performance of Pregnant Beef Cows	Iowa Feed and Nutrition Seminar, Ames, IA	4/12/00
Composition of the Crop Residues of bt-Corn Hybrids and Their Effects on the Performance of Pregnant Beef Cows	Monsanto Workshop on the Effects on Feeding GMO Crops on Animal Performance, St. Louis, MO	10/5/00
Managing Alfalfa Grazing for Optimal Animal Productivity and Legume Persistence	Iowa Forage Conference, Pella, IA	11/20/00
Year-round Grazing to Optimize the Profitability of Beef Cow-calf Production	Iowa Forage Conference, Pella, IA	11/21/00
Effects of Corn Crop Residue Grazing on Soil Physical Properties and Subsequent Soybean Production in a Corn-Soybean Crop Rotation	Armstrong Research and Demonstration Farm Corn Crop Residue Grazing Field Day, Atlantic, IA	12/14/00
Determining the Nutritive Value of Corn Crop Residues and Their Replacement Value for Hay	Armstrong Research and Demonstration Farm Corn Crop Residue Grazing Field Day, Atlantic, IA	12/14/00
Effects of Corn Crop Residue Grazing on Soil Physical Properties and Subsequent Soybean Production in a Corn-Soybean Crop Rotation	McNay Research and Demonstration Farm Winter Grazing Field Day, Chariton, IA	2/8/01
Utilization of Year-round Grazing to Improve the Profitability of Beef Cow-calf Production	McNay Research and Demonstration Farm Winter Grazing Field Day, Chariton, IA	2/8/01
Overview of Beef Cow-calf Production in Iowa	Swedish Agricultural University, Skara, Sweden	2/14/01
Making Year-round Grazing Work in Iowa	Winter Grazing Field Day, Guthrie Center, IA	2/19/01
Year-round Grazing Systems for Beef Cow-calf Production	Iowa Feed and Nutrition Seminar, Iowa State University, Ames, IA	4/24/01
Effects of Grazing Management on Sediment and Phosphorus Losses from Pastures	Iowa Cattlemen's Association Committee Day	6/22/01

Managed Rotational Grazing Systems	4-H Round-up, Iowa State University, Ames, IA	6/27/01
Beef Heifer Nutrition	Rhodes Research and Demonstration Farm Field Day, Rhodes, IA	7/10/01
Effects of Grazing Management on Sediment and Phosphorus Losses from Pastures	Nebraska Extension and Farm Superintendents Tour, Rhodes Research and Demonstration Farm, Rhodes, IA	8/7/01
Effects of Grazing Management on Sediment and Phosphorus Losses from Pastures	Urbandale High School and Ukranian Visitors Water Quality Tour, Rhodes Research and Demonstration Farm, Rhodes, IA	10/12/01
Water Quality and Grazing Management Progress on the Effects of Grazing Management on Sediment and Phosphorus Loss from Pastures	In-service CEED Training Iowa Cattlemen's Association Annual Meeting, Des Moines, IA	10/24/01 12/6/01
Winter Grazing to Improve Cow Herd Profits (A poster presentation)	American Farm Bureau Federation Meeting, Reno, NV	1/6/02
Animal Scientist's Role in Emerging Environmental Issues	Department of Animal Science Departmental Seminar, Ames, IA	2/15/02
Setting Stocking Rates with Sward Height	4-H Round-up, Ames, IA	6/15/02
Managing Grazing for Water Quality	Rhodes Research and Demonstration Farm, Rhodes, IA	7/9/02
Grazing Corn Stalks and Other Crop Residues During Winter	Missouri Professional Development Training for Extension, Columbia, M)	10/23/02
The Potential of Grazing Management to Control Sediment and Phosphorus Losses in Run Off for Pastures	Iowa Forage Conference, West Des Moines, IA	11/26/02
Crop Residues and Improved Annuals to Extend the Grazing Season	IRM/NC-225/NCBA Integrating Cattle and Forage Resources Conference, Moline, IL	12/3/02
Crop Residues and Improved Annuals to Extend the Grazing Season	IRM/NC-225/NCBA Integrating Cattle and Forage Resources Conference, Moline, IL	12/6/02
Corn Crop Residues and Stockpiled Forage as Options for Extended Grazing Systems	Pasturing for Profit Conference, Maquoketa, IA	1/9/03
Beef Cow-Calf Production in Iowa	Video-streamed presentation to the Swedish University of Agricultural Sciences, Skara, Sweden	1/14/03
Effects of Grazing Management on Non-point Source Pollution of Iowa Streams	Animal Science 490H Honors Seminar, Ames, IA	1/30/03
Nutrient Management of Pastures – Phosphorus	Wisconsin Grazing Conference, Stevens Points, WI	2/18/03
Year-round Grazing Systems	Seniors in Beef Cattle Medicine, ISU Veterinary College	3/25/03
Grazing Management Effects on Sediment and Phosphorus Pollution of Pasture	Water Quality Field Day, Dave Sweeney Farm, Buckeye, IA	8/18/03

Streams

Beef Cattle Grazing Research	Research Committee of the National Cattlemen's Beef Association, Iowa Cattlemen's Beef Association Headquarters, Ames, IA	10/1/03
Grazing Systems to Improve the Profitability of Beef Cow Herds	Iowa Organic Conference, Ames, IA	11/17/03
Beef Cattle Grazing Research	Iowa Cattlemen's Beef Association, Ames, IA	12/2/03
Winter grazing of stockpiled forages for developing heifers	Story County Cattlemens/Nebraska Cattlemens' Field Day, ISU Beef Nutrition Research Farm, Ames, IA	1/31/04
Management of stockpiled forage for winter grazing systems	Winter Grazing Field Day, ISU Beef Nutrition Research Farm, Ames, IA	2/25/04
The potential of stockpiled grass-legume forages to reduce winter feed costs for Iowa cow-calf producers	New Century Cow-Calf Seminar, Newton, IA	2/27/04
Developing stream crossings	Grazing Alliance Field Day, Rhodes Research Farm, Rhodes, IA	8/3/04
Developing stream crossings	Grazing and Streams Field Day, Rhodes Research Farm, Rhodes, IA	8/3/04
Big bale storage and feeding losses	Hay Management and Fly Control Mini-symposium, Manhattan, KS	11/2/04
Year-round grazing systems for fall- and spring-calving cows	Missouri Livestock Symposium, Kirksville, MO	12/4/04
Crop residues and stockpiled forages for winter grazing systems	Missouri Livestock Symposium, Kirksville, MO	12/4/04
Beef Cow-Calf Production in Iowa	WEB-streamed presentation to the Swedish University of Agricultural Sciences, Skara, Sweden	1/12/05
Stockpiling Forage for Winter Grazing Systems	Winter Grazing Field Day, ISU Beef Nutrition Farm, Ames, IA	2/23/05
Managing Beef Cow Grazing to Reduce Costs and Maintain the Environment	Cow-calf Conference, Pella, IA	2/26/05
Building and Maintaining GeoWeb Stream Crossings	Stream Bank Grazing Field Day, Rhodes Research Farm, Rhodes, IA	9/15/05
Economical Ways of Wintering Beef Cows	University of Illinois Dudley Smith Field Day, Taylorsville, IL	10/26/05
Sampling Methodologies for GPS Tracking of Beef Cattle	ISU 2005 GIS Day, Iowa State University, Ames	11/16/05
Using GPS to Evaluate the Behavior of Grazing Beef Cattle	ISU 2005 GIS Day, Iowa State University, Ames	11/16/05
Extending the Grazing Season to Improve Profitability of Cow-Calf Operations	2006 Kansas Graziers Association Meeting, Assaria, KS	1/21/06
Managing Risk to Improve Profitability of Grazing Systems in the Midwest	2006 Kansas Graziers Association Meeting, Assaria, KS	1/21/06
Integrated Beef and Crop Production in a Biofuel Era: A case for Interdisciplinary	Enterprise Integration for Sustainable Beef Production Symposium at 2006	7/13/06

Approaches.	ADSA/ASAS Joint Annual Meeting, Minneapolis, MN.	
Economical Management to Minimize Large Bale Hay Losses	50 th Anniversary Field Day, McNay Memorial Research Farm, Chariton, IA	9/14/06
Grazing Management of Beef Cows to Limit Non-point Source Pollution of Pasture Streams	Veterinary Field Day, McNay Research Farm, Chariton, IA	5/16/07
Effects of Grazing Management on Cattle Distribution in Riparian Pastures	Rhodes Research Farm Field Day, Rhodes, IA	6/28/07
Grazing Research Update	Land O'Lakes Sales Meeting	8/15/07
Grazing Management of Beef Cows to Limit Non-point Source Pollution of Midwestern Pasture Streams	McNay Research Farm Field Day, Chariton, IA	8/28/07
Crop Residues and Stockpiled Forages to Reduce Winter Feed Costs for Beef Cows	McNay Research Farm Field Day, Chariton, IA	8/28/07
Pasture Management Effects on Non-Point Source Pollution in the Rathbun Watershed (A Poster Presentation)	Rathbun Land & Water Alliance Annual Meeting, Chariton, IA	9/13/07
Grazing Management of Beef Cows to Limit Non-point Source Pollution of Midwestern Pasture Streams	Iowa Forage Conference, Des Moines, IA	11/20/07
Grazing Management of Beef Cows to Limit Non-point Source Pollution of Midwestern Pasture Streams	Cornbelt Cow-Calf Conference, Ottumwa, IA	2/23/08
Grazing Management Effects on Bank Erosion and Water Quality of Pasture Streams	Iowa State University Faculty Conference	3/28/08
Grazing Management Effects on Bank Erosion and Water Quality of Pasture Streams	Iowa Farm Bureau Water Quality Conference, West Des Moines, IA	6/25/08
Grazing Management of Cows to Limit Non-point Source Pollution of Streams in Midwestern Pastures	Research Update for Land O'Lakes Sales Staff	8/15/08
Grazing Management of Cows to Limit Non-point Source Pollution of Streams in Midwestern Pastures	Riparian Grazing Workshop for USDA- NRCS, Soil Conservation District, and Extension Staff, Chariton, IA	8/19 – 8/20/08
Grazing Management of Cows to Limit Non-point Source Pollution of Streams in Midwestern Pastures	McNay Research Farm Field Day, Chariton, IA	9/08/08
Grazing Management of Cows to Limit Non-point Source Pollution of Streams in Midwestern Pastures	Rhodes Research Farm Field Day, Rhodes, IA	6/18/09
Grazing Management of Cows to Limit Non-point Source Pollution of Streams in Midwestern Pastures	Optimizing Grazing and Enhancing the Environment Conference, Honey Creek Resort, Promise City, IA	8/25/09
Grazing Management to Limit Non-point	Grazing Management for Water Quality	10/16/09

Source Pollution in Pastures	Protection Webcast, Livestock and Poultry Environmental Learning Center	
Extending the Grazing Season to Improve Profitability of Cow-calf Operations	Leopold Center Grass-based Working Group	12/18/09
Managing Phosphorus Supplementation to Enhance the Economic and Environmental Sustainability of Beef Cow-calf Operations	Economic and Environmental Sustainability of Cow-calf Operations at the 2010 Meeting of the Midwestern Section of the American Dairy Science Association and American Society of Animal Science, Des Moines, IA	3/16/10
Effects of Grazing Management to Limit Non-point Source Pollution of Streams in Midwestern Pastures	Northwest Iowa Pasture Walk, Cushing, IA	6/21/10
Pasture Management Strategies to Minimize the Impacts of Grazing on Water Quality of Surface Water Resources	Environmental Impact of Forage-Based Livestock Production Systems Symposium at the ADSA-PSA-AMPA-CSAS-WSASAS-ASAS Joint Annual Meeting, Denver, CO	7/13/10
Management Strategies to Minimize Nonpoint Source Pollution of Pasture Streams in the Midwest	Northeast Pasture Consortium, State College, PA	2/2/11
Pasture Management Effects on Water Quality of Pasture Streams	Certified Crop Consultant Training, Moravia, IA	8/25/11
ISU Forage Research Review	ISU Beef Field Day, Ames, IA	11/18/11
Feeding CaO-treated stover as a partial replacement for corn in feedlot diets	Argentinian Producer Tour, Ames, IA	8/24/11
Grazing Management	Grazing and Wildlife Workshop, Ames, IA	1/28/11
Prediction of net energy from chemical composition of forages	Area Livestock Extension Specialist In-service Training, Des Moines, IA	3/16/11
Potential for Chemically-treated Corn Stover in Feedlot Diets	Iowa Feed and Nutrition Seminar, Ames, IA	4/5/11
Pasture Management Effects on Water Quality of Pasture Streams	Water Quality Field Day, Hickory Grove Park, Colo, IA	9/8/11
Grazing Management Effects on Non-point Source Pollution of Pasture Streams	Maryland Cattle Industry Convention	3/2/12
Extending the Grazing Season to Improve the Profitability of Cow-calf Operations	Maryland Cattle Industry Convention	3/3/12
Grazing Management Effects on Non-point Source Pollution of Pasture Streams	Iowa Water Conference	3/6/12
Grazing Alternatives and Strategies to Maximize Stocking Densities	Land O' Lakes Beef Feed Sales Training	6/13/12
Grazing Management Effects on Non-point Source Pollution of Pasture Streams	McNay Research Farm Field Day	9/5/12
Strategic Use of Mob-grazing to Improve	McNay Research Farm Field Day	9/5/12

Botanical Composition and Wildlife Habitat in Pastures in South Central Iowa		
Grazing Management Effects on Non-point Source Pollution of Pasture Streams	Mid-Atlantic Crop Management School	11/14/12
Managing Phosphorus Supplementation to Enhance the Economic and Environmental Sustainability of Beef Cow-calf Operations	Mid-Atlantic Crop Management School	11/15/12
Grazing Management Effects on Non-point Source Pollution of Pasture Streams	Iowa Forage Conference	11/20/12
Potential of Mob Grazing for Pasture Management	Southern SARE Forage Webinar	12/7/12
Grazing Management Effects on Non-point Source Pollution of Pasture Streams	Iowa Grazing Conference	6/24/13
Use of Mob-grazing for Wildlife Habitat	CRP Grazing Pasture Walk	9/6/13
Future of Iowa's Grasslands	Animal Science Think Tack	9/30/13
Future of Iowa's Grasslands	Iowa State University Beef Nutrition Showcase	10//2/13
Mob Grazing as a Tool for Grassland Management	Missouri Forage and Grassland Council/Grazing Lands Conservation Initiative	11/5/13
Mob Grazing as a Tool for Grassland Management	University of Missouri Extension In- Service Training	2/12/14

XIV. REVIEW AND EDITING (1990-present):

Manuscripts: 86

Theses: 61

Book chapters: 1

Books: 3

External Research Projects: 35

In-State Research/Outreach/Teaching/ Projects (2002-present): 168

5 Faculty credentials for promotion 7
at external institution

Editor: Editorial Board, Journal of Animal Science, 1994-97; McNay Outlying Research Farm Annual Report, 1990-99; Environmental Section of the ISU Animal Industry Report, 2008-

