
Richard (Rick) K. Koelsch, Ph.D.

Vita

Title:	Associate Dean for Extension, University of Nebraska - Lincoln		
Address:	211 Ag Hall, University of Nebraska-Lincoln Lincoln, NE 68583-0703	(402) 472-2296 Fax: (402) 472-5557 E-mail rkoelsch1@unl.edu	
Education:	Ph.D. 1992	Cornell University	Major: Ag. & Biological Engineering Minor: Animal Science
	M.S. 1977	Kansas State University	Major: Agricultural Engineering
	B.S. 1975	Kansas State University	Major: Agricultural Engineering
Employment History:	Professor	UNL	2008 - present
	Associate Dean for Extension,	UNL	2011- 2015
	Assistant Dean for Extension,	UNL	2008-2011
	Extension Administration (0.4 FTE)	UNL	2005-07
	Associate Professor	UNL	2001-07
	Assistant Professor	UNL	1995-2001
	Senior Extension Assoc.	Cornell University	1978-1995
	Research Associate	Kansas State University	1976-1978

Responsibilities:

Rick returned in 2016 to the Departments of Biological Systems Engineering and Animal Science where he had extension and teaching responsibilities for agricultural environmental related issues. He has provided national leadership of a Livestock and Poultry Environmental Learning Center that hosts a national eXtension web site a monthly web seminar on animal manure issues. He will have responsibility for programs targeting animal manure management and sustainability of agricultural systems.

Rick Koelsch recently completed his role as Associate Dean for Extension programs. He was primarily responsible for extension programs in agriculture, natural resources, and community development. He facilitated implementation of extension action teams, impact assessment and evaluation, distance learning and internet technology application in Extension, Extension response to emerging issues such as climate change, pest resistance to control technologies, animal welfare, drought, and others.

Honors:	2011 eXtension Outstanding Community of Practice Award
	2010 USDA-NIFA Gerald A. Miller Outreach Team Award
	2007 Region 7 Regional Administrator's Leadership Award
	2006 NASULGC Excellence in Extension North Central Regional Award
	2006 ASABE Presidential Citation
	2006 ASABE Standards Development Award
	2006 ASABE Blue Ribbon Award for "Agricultural Environmental Management Systems" educational bulletin series
	2005 G.B. Gunlogson Countryside Engineering Award for outstanding delivery of environmental engineering knowledge to the agricultural community presented by American Society of Agricultural Engineers (ASAE)

2005 ASAE Blue Ribbon Award for “Georgia Poultry Environmental Management Systems Guidebook” in the Bulletin category
2002 ASAE Blue Ribbon Award for “Livestock and Poultry Environmental Stewardship” curriculum in the educational methods category
2000 Initiated into Gamma Sigma Delta
1999 Member of the Year Award, ASAE Mid-Central Region
1999 ASAE Blue Ribbon Award for “Manure Matters” Newsletter, Educational Aids
1998 Engineer of the Year Award, NE Section of ASAE
1998 Outstanding New Nebraska Extension Specialist Award
1996 Nebraska Pork Producers Association Pork Industry Service Award
1985 Cornell Cooperative Extension 4-H Agent Association Award of Merit for Statewide Leadership in 4-H Programs
1981 Outstanding Cornell University Cooperative Extension Program Award

National/Regional Leadership Roles

- Member of UN Food and Agricultural Organization’s Technical Advisory Committee for Livestock Nutrient Issues (2016)
- Member of Field to Market national Education and Engagement Committee (2016)
- Co-Chair of North Central Cropping Systems Academy (2015)
- Executive Committee for North Central Water Network (2014- 2016)
- Chair of North Central Agriculture and Natural Resource Program Leaders (2010-2011)
- Member of USDA NIFA Impact Indicators work group (2011)
- Chair of North Central Agricultural and Natural Resources Program Leaders (2010-11)
- Co-lead/PI for a national Livestock and Poultry Environmental Learning Center (eXtension Community of Practice) connecting national experts to those who influence animal producer decisions; funded by a CSREES Water Quality national facilitation project and engaging nine issue teams and 100+ plus individuals from land-grant universities, USDA ARS and NRCS, USGS, USEPA, and other groups (2005-10)
- Co-lead/PI for a animal manure management regional Heartland team funded by the CSREES Water Quality program to address educational need of regulatory, agency, and private sector advisors (2001-07)
- Chair for a national USDA NRCS technical guidance team addressing Alternative Technologies for CAFOs that engaged technical experts from EPA, USDA ARS, and land-grant university representatives and industry stakeholders (2004-05)
- Co-lead/PI on a USDA IFAFS funded program to implement Environmental Management Assessment Systems for the dairy, poultry, and beef cattle industries (2000-05)
- Program Chair for International Symposium on Animal, Agriculture, and Food Processing Wastes (2003)
- Co-Chair for joint ASABE/American Society of Animal Science team to re-write manure nutrient excretion standards to be based on feed intake and nutrient retention principles (2003-04)
- Co-lead/PI for a national Livestock and Poultry Environmental Stewardship curriculum development effort funded by EPA and USDA (1999-2004)
- Chair for Structures and Environment Division steering committee of ASABE and for three ASABE technical committees on environmental issues (1999-2006)

Additional Professional Activities:

- ASABE Membership Development Council (2007-2010)
- ASABE SE-01-02 Structures and Environment Division Executive and Steering committees chair member (2002-2009)
- ASABE M-155 Gunlogson Countryside Engineering Awards Selection Committee (2007-present)
- Member of multi-state project S1032 – Improving the Sustainability of Livestock and Poultry Production in the United States (2006-2010)
- Six-month sabbatical with USDA Natural Resources Conservation Service’s Animal Husbandry and Clean Water Program with focus on policy implementation issues (2004)
- EPA’s National Compliance Assistance Advisory Committee (member, 2002-2004)
- National Center for Animal Waste Management, NC State University, Policy Advisory committee member (2002-2005)
- USDA CSREES National Animal Waste Initiative, North Central regional representative to committee (1999-2002)
- ASAE SE-40 Facilities and Systems Group member (1999-2003)
- ASAE SW-263. Land Application of Waste Committee member (1996-2004)
- ASAE SE-412. Agricultural Waste Management Committee member (1997-2006)
- Member of EPA National Compliance Assistance Committee (1998-2001)
- NCR-189. UNL Representative to NCR-189, “Air Quality Issues Associated with Livestock Facilities” (1995-2000)
- MWPS. Chair of Midwest Plan Service Executive Committee (1999-2000) and Nebraska representative (1996–2006)
- National Cattlemen’s Beef Association Environmental Stewardship Awards Committee Member (1998-2007)
- Member of Nebraska Pork Producers Association Environmental & Education Committees (1995-2007)
- Member of UNL IANR Nebraska Farm*A*Syst. Implementation Team (1995-1998)
- Member of Cooperative Extension Integrated Animal Systems Management action team (1995-2000)
- Specialist Section Representative to NCEA Board of Directors (1997-1999)
- Member of ASABE (1977-present)

Research and Extension Publications:

Peer Reviewed Scholarly Publications.

Koelsch, R. K. And Q. M. Kettering. 2016. Whole Farm Nutrient Balance: A Systems Approach to Dairy Nutrient Planning. Large Dairy Herd management e-Handbook. American Society of Dairy Science. (In Publishing for 2017 release).

Kissinger, W. F., Koelsch, R. K., Erickson, G. E., and Klopfenstein, T. J. 2007. Characteristics of manure harvested from beef cattle feedlots. Applied Engineering in Agriculture. 23(3): 357-365.

Hudson, T. D., J. H. Harrison, R. K. Koelsch. 2006. Livestock-influenced water quality risk assessment tools. Journal of Extension. 44:5 Article Number 5TOT7. <http://www.joe.org/joe/2006october/tt7.shtml>.

Risse, L M, W L Bland, R K Koelsch, E A Bird, and T M Bass. 2006. An American Experiment with Environmental Management Systems for Livestock and Poultry Operations. Farm Policy Journal, Australian Farm Institute. 3(4) 23-32.

- Koelsch, R., J. Lorimor, and K. Mankin. 2006. Vegetative treatment systems for open lot runoff: review of literature. *Applied Engineering in Agriculture*. 22(1)141-153.
- Koelsch, R. K. (editor). 2006. Vegetative treatment systems for open lot runoff, a collaborative report. USDA Natural Resources Conservation Service. <http://www.heartlandwq.iastate.edu/ManureManagement/AlternativeTech/vtsguidance/> 173 pages.
- Summers, R., R. Koelsch, and L. Wuff. Understanding Environmental Regulations and Procedures for Evaluating Alternative Technologies. Chapter 2. 12 pages
- Koelsch, R., J. Lorimor, B. Boyd, and J. Brach. System Options Based Upon Vegetative Treatment Areas. Chapter 3. 12 pages.
- Koelsch, R, D. Frundle, and J. Porter. Sighting Criteria for Vegetative Treatment Systems. Chapter 4. 14 pages.
- Nienaber, J., J. George, R. Koelsch. Liquid-Solid Separation. Chapter 5. 18 pages.
- Woodbury, B., R. Koelsch, B. Boyd, J. Harner, and L. Wuff. Vegetative Treatment Area Design. Chapter 6. 17 pg
- Lorimor, J., M. Helmers, R. Koelsch. Vegetative Infiltration Basin Design. Chapter7. 10 pages.
- Kuenstler, B. and R. Koelsch. Management Guidelines for Vegetative Treatment Systems. Chapter 8. 13 pages.
- Koelsch, R, J. Lorimor, and K. Mankin. 2004. Review of Literature. Chapter 9. 32 pages.
- Koelsch, R., J. Lorimor, and K. Mankin. 2005. Vegetative treatment systems for open lot runoff: Review of literature. Submitted as White Paper for National Center for Manure and Animal Waste Management. http://www.cals.ncsu.edu/waste_mgt/natlcenter/activities.htm. 32 pages.
- Koelsch, R. Evaluating livestock system environmental performance with whole-farm nutrient balance. *J. Environmental Qual.* 34:January-February 2005, 149-155.
- Erickson, G.E., R. Koelsch, C. Shapiro, and C. Wortmann. 2004. Confined animal feeding operation (CAFO) regulations impact and record keeping requirements for livestock operations. *J. Anim. Sci.* 82(Suppl. 1):79.
- Wortmann, C.S., R.K. Koelsch, C.A. Shapiro, R.L. DeLoughery, D. Tarkalson. 2005. Manure use planning: an evaluation of a producer training program. *Journal of Extension*, Vol 43 : 4. <http://www.joe.org/joe/2005august/rb5.shtml>
- Humenik, F.J., J. M. Rice, C. L. Baird, R. K. Koelsch. 2004. Environmentally superior technologies for swine waste management. *Water Science and Technology*. 49 (5-6) 15-22.
- Koelsch, R., B. Woodbury, D. Stenberg, D. Miller, and D. Schulte. 2004. Survey of hydrogen sulfide concentrations in vicinity of beef cattle feedlots. *ASAE Applied Engineering*. Vol. 20 (1):77-85.
- Chen, T., D. Schulte, R. Koelsch, A. Parkhurst. 2003. Characteristics of Phototrophic and Non- Phototrophic Lagoons for Swine Manure. *Transactions of ASAE*. Vol. 46(4). Pages 1285-1292
- Gilley, J. E., D. P. Spare, R. K. Koelsch, D. D. Schulte, P. S. Miller, and A. M. Parkhurst. 2000. Phototrophic anaerobic lagoons as affected by copper and zinc in swine diets. *Transactions of ASAE*. Vol.43(6): 1853-1859.
- Koelsch, R., L. Howard, S. Pritchard, and P. Hay. 2000. Implementation of a Livestock Systems Environmental Assessment Tool. *Journal of Extension*. <http://joeorg/joe/2000february/a3.html>. 38:1, 7 pages.
- Koelsch, R. K. 2001. Principles of Environmental Stewardship. Lesson 1 of Livestock and Poultry Environmental Stewardship national curriculum. Midwest Plan Service. Ames, IA. 22 pages.
- Koelsch, R. K. 2001. Whole Farm Nutrient Planning. Lesson 2 of Livestock and Poultry Environmental Stewardship national curriculum. Midwest Plan Service. Ames, IA. 30 pages.
- Koelsch, R. and D. Schulte. 2000. Competency Requirements for Technical Advisors Developing Environmental and Compliance Plans for Animal Feeding Operations. Published by the Nebraska Board of Engineers and Architects. 11 pages.
- Koelsch, R. 1999. Manure Nutrient Inventory Spreadsheet. <http://ianrwww.unl.edu/manure>. Spreadsheet is used by DEQ in all reviews of permit applications.
- Koelsch, R. and Lesoing, G. 1999. Nutrient Balance on Nebraska Livestock Confinement Systems. *Journal of Animal Science*. Vol. 77, Suppl.2/J. Pages 63-71.
- Hutson, J. L., R. E. Pitt, R. K. Koelsch, J. B. Houser, and R. J. Wagenet. 1998. Improving Dairy Farm Sustainability II: Environmental Losses and Nutrient Flows. *Journal of Production Agriculture*. 11:233-239.
- Koelsch, R. K. 1997. Livestock Systems Environmental Assessment. UNL Cooperative Extension. EC97-781-D. 25 pg
- Koelsch, R. K. 1995. Managing Livestock Odors, Principles Assessment, and Planning . EC 95-745-B.
- Koelsch, R. K., D. J. Aneshansley, and W. R. Butler. 1994. Analysis of Activity for Accurate Oestrus Detection in Dairy Cattle. *Journal of Agricultural Engineering Research*. Volume 58. pp. 115-120.
- Koelsch, R. K., D. J. Aneshansley, and W. R. Butler. 1993. Milk Progesterone Sensor for Application with Dairy Cattle. *Journal of Agricultural Engineering Research*. Volume 58. pp. 107-114.

- Koelsch, R. K. and S. J. Clarke. 1979. A Comparison of Hydrogen and Propane Fueling of an Internal Combustion Engine. Paper No. 79-0677 presented at Society of Automotive Engineers Passenger Car Meeting, Dearbourne. MI.
- Koelsch, R. K., S. J. Clark, W. H. Johnson, and G. H. Larson. 1977. Use of Crop Residues to Support a Municipal Electrical Utility. Proceedings of Cornell Agricultural Waste Management Conference. pp. 489-506.

Publication Editor

- Koelsch, R. K. (editor). 2000. Air quality issues associated with animal facilities: Summary of Land Grant University Research, Education, and Public Policy. Published for NCR-189 committee. 112 pages.
- Koelsch, R. K. (editor). 2000. Proceedings for Workshop of Environmental Phosphorus Issues and Animal Production. University of Nebraska. 53 pages.
- Koelsch, R. K. (editor). 1999. Feedlot Manure Management 2000 Conference proceedings. University of Nebraska. 88 pages.
- Koelsch, R. K. (editor). 1999. Air Quality Issues Associated with Animal Facilities: Summary of Land Grant University Research, Education, and Public Policy. Published for NCR-189 committee. 112 pages.
- Koelsch, R. K. (editor). 1998. Livestock and the Environment: A Symposium Proceedings Exploring Planning and Zoning Issues.
- Koelsch, R. K. (editor). 1998. Air Quality Issues Associated with Animal Facilities: Summary of Land Grant University Research, Education, and Public Policy. Published for NCR-189 committee. 110 pages.
- Koelsch, R. K. (editor). 1997. Proceedings of Livestock and the Environment: A Symposium for Advisors to the Livestock and Poultry Industry on Environmental Issues. University of Nebraska. 200 pages.
- Koelsch, R. K. (editor). 1997. Air Quality Issues Associated with Animal Facilities: Summary of Land Grant University Research, Education, and Public Policy. Published for NCR-189 committee. 112 pages.

Proceedings, Papers, and Project Reports (limited or no review)

- Koelsch, R. K. And Q. M. Kettering. 2016. Whole Farm Nutrient Balance: A Systems Approach to Dairy Nutrient Planning. Presented at Large Dairy Herd Management Conference (May 2016). American Society of Dairy Science.
- A.K. Watson, G.E. Erickson, T.J. Klopfenstein, R.K. Koelsch, R.E. Massey, J.H. Harrison, M.K. Luebbe. BFNMP\$: A tool for estimating feedlot manure economics. *J. Anim. Sci.* 90 (Suppl. 2): 236P (Abstr.)
- Kranz, W.L., R.K. Koelsch, C.A. Shapiro. 2010. Application of liquid animal manures using center pivot irrigation systems. *Memorias del X Congreso Nacional de Produccion Porcina*, Mendoza, Argentina p.191-203.
- Koelsch, R., J. Heemstra, J. Harrison, M. Risse. 2009. Livestock and Poultry Environmental Learning Center - Connecting with Clientele Using Web 2.0. 2009 ASABE Annual International Meeting. Reno, Nevada. June 21–24, 2009. 19 pages.
- Liska A.J., Yang H.S., Bremer V., Walters D.T., Erickson G., Klopfenstein T., Kenney D., Tracy P., Koelsch R., Cassman K.G. 2007. User's Guide for the Biofuel Energy Systems Simulator (BESS); a Life-Cycle Energy and Emissions Analysis Model for Corn-Ethanol Biofuel (Version 2007.1.0). <http://www.bess.unl.edu/>. University of Nebraska-Lincoln. (56 pp.)
- Liska, A.J., H.S. Yang, V. Bremer, D.T. Walters, G. Erickson, T. Klopfenstein, D. Kenney, P. Tracy, R. Koelsch, K.G. Cassman. 2007. Biofuel Energy Systems Simulator (BESS) Software; a Life-Cycle Energy and Emissions Analysis Model for Corn-Ethanol Biofuel. <http://www.bess.unl.edu>. University of Nebraska-Lincoln.
- Koelsch, R., M. Risse, J. Harrison, J. Heemstra, and F. Hummenik. 2007. National livestock and poultry environmental learning center. Broomfield, CO. Proceedings to be published, September, 2007 at <http://www.asabe.org>.
- Koelsch, R., R. Massey, G. Erickson, and V. Bremer. 2007. Software Tool for Integrating Feed Management. International Symposium on Air Quality and Waste Management for Agriculture. Broomfield, CO. Proceedings to be published, September, 2007 at <http://www.asabe.org>
- Massey, R., T. Applegate and R. Koelsch. 2007. "Economics Of Land Application Of Laying Hen Manure." [unpaginated CD-ROM]. Proceedings of the Multi-state Poultry Feeding and Nutrition Conference. Indianapolis, IN. May 22-24, 2007.
- Risse, L.M., R.E. Koelsch, W. L. Bland, E.A. Bird and T.M. Bass, 2005. EMS's to improve compliance on livestock and poultry operations. Proceedings of the Seventh International Symposium on Livestock Environments held in Beijing, China May 18-20, 2005. American Society of Agricultural Engineers, St. Joseph, Michigan. pp. 504-514.

- Stowell, R. R., L. Koppolu, D. D. Schulte, and R. K. Koelsch. 2005. Applications of using the odor footprint tool. Proceedings of the Seventh International Symposium on Livestock Environments held in Beijing, China May 18-20, 2005. American Society of Agricultural Engineers, St. Joseph, Michigan. pp. 496-503.
- Koelsch, R., M. Risse, J. Harrison, J. Heemstra, and F. Hummenik. 2006. National livestock and poultry environmental learning center. ASABE Paper No. 068049. Presented at 2006 ASABE Annual International Meeting. 11 pages.
- Kissinger, W., G. Erickson, T. Klopfenstein, R. Koelsch. 2006. Managing phosphorus in beef feedlot operations. 2006 Nebraska Beef Cattle Report. <http://beef.unl.edu/beefreports/200635.shtml>. pages 94-97.
- Kissinger, W., R. Massey, R. Koelsch, G. Erickson. 2006. Economics of manure phosphorus distribution from beef feeding operations. 2006 Nebraska Beef Cattle Report. <http://beef.unl.edu/beefreports/200636.shtml>. pages 98-102.
- Stowell, R., D. Schulte, R. Koelsch C. Henry. 2006. Odor footprint tool progress: regional output resources. . 2006 Nebraska Swine Report. <http://ianrpubs.unl.edu/swine/ec06-219.pdf>. pages 15-21.
- Koelsch, R., W. Powers, A. Sutton. 2005. Integrating animal feeding strategies into CNMP processes: Role of Updated ASAE Standard D384.2ASAE Paper No 054074. Presented at 2005 ASAE Annual International Meeting. 17 pages.
- Koppolu, L., R. Koelsch, D. Schulte, C. Powers, and D. Bundy. 2005. A new application for fine ground rubber in the control of odors from livestock manure storage structures. ASAE Paper No 054052. Presented at 2005 ASAE Annual International Meeting. 9 pages.
- Kissinger, W., R. Koelsch, G. Erickson, T. Klopfenstein. 2005. Managing phosphorus in beef feeding operations. ASAE Paper No 054061. Presented at 2005 ASAE Annual International Meeting. 9 pages.
- Koelsch, R., J. Lorimor and K. Mankin. 2005. Vegetative Treatment Systems for Open Lot Runoff: Review of Literature. The Development of Alternative Technologies for the Processing and Use of Animal Waste. North Carolina State University Poultry and Animal Waste Management Center. 15 pages.
- Henry, C.G., D.D. Schulte, R.K. Koelsch, R.R. Stowell, D.P. Billesbach, L. Koppolu. 2005. Comparing two ambient odor assessment methods for calibrating setback estimation tools for livestock facilities.. North Carolina State University, Raleigh, NC, USA. Pp. 458-469.
- Koelsch, R. K. C. Balvanz, J. George, D. Meyer, J. Nienaber, and G. Tinker. 2005. Applying alternative technologies to CAFOs: A Case Study. Symposium on the State of the Science: Animal Manure and Waste Management. Sponsored by the National Center for Manure and Animal Waste Management, North Carolina State University. http://www.cals.ncsu.edu/waste_mgt/natcenter/sanantonio/proceedings.htm. 11 pages.
- Koelsch, R. K. 2004. Evaluating livestock system environmental performance with whole farm nutrient balance. Journal of Environmental Quality. Presented at Sustainable Land Application Conference, January 2004. Invited Presentation. 13 pages.
- Koelsch, R. K., B. L. Woodbury, D. E. Stenberg, D. Miller, D. D. Schulte. 2004 Hydrogen sulfide concentration in vicinity of beef cattle feedlots. 2004 Nebraska Beef Cattle Report. <http://beef.unl.edu/beefreports/200424.shtml>. Pages 74-78.
- Byler, J, D. Schulte, and R. Koelsch. 2004. Odor, H₂S, and NH₃ emissions from phototrophic and non-phototrophic anaerobic swine lagoons. ASAE Paper No 044159. Presented at 2004 ASAE/CSAE Annual International Meeting. 12 pages.
- Nennich, T., J. Harrison, D. Meyer, W. Weiss, A. Heinrichs, R. Kincaid, W. Powers, R. Koelsch, P. Wright. 2003. Development of Standard Methods to Estimate Manure Production and Nutrient Characteristics from Dairy Cattle. Proceedings of the 9th International Symposium on Animal, Agricultural, and Food Processing Wastes. American Society of Agricultural Engineers. Pages 263-268.
- G. Erickson, R. Koelsch, B. Auvermann, R. Eigenberg, L. Greene, and T. Klopfenstein. 2003. Proposed Beef Cattle Manure Excretion and Characteristics Standard for ASAE. Proceedings of the 9th International Symposium on Animal, Agricultural, and Food Processing Wastes American Society of Agricultural Engineers. Pages 269-276.
- C. Shapiro, R. DeLoughery, R. Koelsch, M. Kucera, C. Wortman. 2003. Use of Computer Spreadsheets and Paper-Based Workbooks to teach Comprehensive Nutrient Management planning. Proceedings of the 9th International Symposium on Animal, Agricultural, and Food Processing Wastes. American Society of Agricultural Engineers. Pages 432-438.
- Koelsch, R. K., C. Shapiro, R. DeLoughery, C. Wortman. 2003. Nebraska's CNMP Educational Programs. 2003 ASAE Mid-Central Meeting Presentation. 13 pages.
- Huntrods, D., R. Koelsch, F. Humenik. 2003. Local Applications of the National Livestock and Poultry Environmental Stewardship Curriculum. 2003 ASAE Meeting Presentation# 038026. Las Vegas, NV. 10 pages.

- Humenik F. J., J. Rice, C. Baird and R. Koelsch. 2003. Environmentally Superior Technologies for Swine Waste Management. Proceedings of International Water Association (IWA) Speciality Symposium on Strong Nitrogenous and Agro-Wastewater, Seoul, Korea. Volume 1 pages 13 – 20.
- Humenik, F. J. and R. K. Koelsch. 2002. Livestock and Poultry Environmental Stewardship: An Educational Program for Producers. Proceedings of 4th International Livestock Waste Management Symposium and Technology Expo. Penang, Malaysia. pp. 289-291.
- Koelsch, R. K.. 2002. National Animal Waste Center Review of Nutrient Management Issues Addressed by CAFO Regulations. Last updated 9/26/02. 10 pages.
- Humenik, F. J. and R. K. Koelsch. 2002. Livestock and Poultry Environmental Stewardship: An Educational Program for Producers. Proceedings of 4th International Livestock Waste Management Symposium and Technology Expo. Penang, Malaysia. pp. 289-291.
- Koelsch, R. K., B. Woodbury, D. Stenberg, D. Miller, and D. Schulte. 2002. Survey of hydrogen sulfide concentrations in vicinity of beef cattle feedlots. Presented at 2002 ASAE International Meeting. ASAE Paper No. 024048. 14 pgs
- Koelsch, R. K. and D. Schulte. 2002. Progress in estimating setback distances for livestock facilities. Proceedings of George A. Young Swine Health and Management Conference. University of Nebraska Department of Veterinary and Biomedical Sciences. Lincoln, NE. pp. 32-40.
- Koelsch, R. K., D. Schulte, and L. Koppolu. 2002. Progress in estimating setback distances for livestock facilities. 2003 Swine Report (submitted but not published). University of Nebraska Department of Animal Science. Lincoln, NE. 19 pages.
- Risse, L. M., R. Koelsch, and F. Humenik. 2001. Livestock and poultry environmental stewardship: A national educational program for producers. Proceedings of the U.S. Poultry and Egg 2001 Environmental Management Seminar. March 7-8. Birmingham AL. Pp. 9-1 to 9-11.
- Koelsch, R. K. and F. Humenik. 2000. National Livestock Environmental Issues Curriculum Project. Eighth International Symposium on Animal, Agriculture, and Food Processing Waste Symposium Proceedings. pages 499-506.
- Gilley, J. E., D. P. Spare, R. K. Koelsch, D. D. Schulte, P. S. Miller, A. M. Parkhurst. 2000. Copper and zinc in swine diets affect on phototrophic anaerobic. Proceedings of for International Animal, Agricultural, and Food Processing Waste Conference. ASAE. St. Joseph, MI. pages 656-663.
- Koelsch, R. K., D. Reese, T. Milton, and R. Grant. 2000. Model for Estimating Manure Nutrient Excretion from Animal Nutrient Balance. Proceedings of for International Animal, Agricultural, and Food Processing Waste Conference. ASAE. St. Joseph, MI. pages 103-110.
- Jackson, G., R. Koelsch, and D. Knox. 2000. Integrating Farm*A*Syst and the livestock environmental stewardship curriculum for livestock and poultry producer education. Innovative Technologies for Planning Animal Feeding Operations Conference. High Plains Pilot Project of USDA Natural Resources Conservation Service. Denver, CO. page 80.
- Jones, D. D., R. K. Koelsch, S. Mukhtar, R. Sheffield, and J. Worley. 2001. Closure of earthen manure structures. International Symposium Addressing Animal Production and Environmental Issues. Research Triangle Park, NC. 15 pages.
- Koelsch, R. K., B. Woodbury, D. Stenberg, D. Miller, and D. Schulte. 2001. Total reduced sulfur concentrations in beef cattle feedlots. International Symposium Addressing Animal Production and Environmental Issues. Research Triangle Park, NC. 10 pages.
- Koelsch, R. K.. 2001. Spreadsheet tools for strategic nutrient planning roles. International Symposium Addressing Animal Production and Environmental Issues. Research Triangle Park, NC. 10 pages.
- Koelsch, R. K.. 2000. Spreadsheet tools for strategic nutrient planning roles. Innovative Technologies for Planning Animal Feeding Operations Conference. High Plains Pilot Project of USDA Natural Resources Conservation Service. Denver, CO. page 117.
- Koelsch, R. K. and F. Humenik. 2000. Livestock and Poultry Environmental Stewardship: A National Educational Program for Producers. National Poultry Waste Management Symposium Proceedings. Pages 54-62.
- C. A. Shapiro, D. R. Speidel, R. K. Koelsch, and M. J. Kucera. 2000. Nutrient Management Program in Nebraska. Abstract for 2000ASA, CSSA, SSSA Annual Meeting. Minneapolis, MN. Nov. 5-9, 2000.
- Koelsch, R. K. and F. Humenik. 1999. A National Curriculum for Addressing Livestock Environmental Issues. Presented at 1999 International ASAE meeting. Paper # 994067 10 pages.
- Koelsch, R. K.. 1999. Feed Program Impact on Land Requirements for Managing Manure Nutrients from a Feedlot. 2000 UNL Beef Cattle Report.

- Koelsch, R. K., K. Glewen, T. Trewhitt, and D. Walters. 1999. Exporting Feedlot Manure to Off-Farm Users. 2000 UNL Beef Cattle Report.
- Koelsch, R. K., K. Glewen, T. Trewhitt, and D. Walters. 1999. Marketing of Livestock Manure. Presented at 1999 International ASAE meeting. Paper # 994066. 10 pages.
- Koelsch, R. K. and G. Lesoing. 1999. Nutrient balance on Nebraska livestock confinement systems. Proceedings of 1999 Annual Meeting of Nebraska Veterinary Medicine Association. Omaha, NE. pg. 102-113.
- Koelsch, R. K.. 1999. Land Requirements for Managing Manure Nutrients on Dairy Operations. 1999-2000 UNL Dairy Report. Pages 25-28.
- B. Bakke, D. Schulte, R. Koelsch, and P. Miller. 1999. The effects of loading rate on purple sulfur bacteria in lagoons. Presented at 1999 International ASAE meeting. Paper #994085 18 pages.
- Koelsch, R. K., L. Howard, S. Pritchard, P. Hay. 1998. Implementation of a Livestock Systems Environmental Assessment Tool. Presented at 1998 ASAE Annual Meeting. Paper No. 98-4144. 10 pages.
- D. D. Schulte and R. K. Koelsch. 1998. Improving Odor Control in Swine Lagoons by Better Understanding of Purple Sulfur Bacteria. Final Report to National Pork Producers Council on NPPC Project # 1614.
- Koelsch, R. K. and G. Lesoing. 1998. Nutrient balance on Nebraska feedlots. 1998 Nebraska Beef Report. Animal Science Department, University of Nebraska. pages 88-90.
- Koelsch, R. K. and G. Lesoing. 1998. Nutrient balance on Nebraska livestock confinement. 1998 Nebraska Swine Report. Animal Science Department, University of Nebraska. pages 48-51.
- G. L. Poe, R. K. Koelsch, N. L. Bills, B. C. Bellows, and P. E. Wright. 1998. Survey of Manure Management on New York Dairy Farms. Cornell University Research Report. <http://www.surveyintelligence.com>. 107 pages.
- Koelsch, R. K. and G. Lesoing. 1997. Nutrient balance on livestock confinement systems. ASAE paper no. 97-2086. 1997 ASAE Annual International Meeting. 13 pages.
- Koelsch, R. K. and G. Lesoing. 1997. Nutrient balance on Nebraska livestock confinement systems. Proceedings of 27th Annual AFIA Liquid Feed Symposium. Arlington, VA. 14 pages.
- Koelsch, R. K. and G. Lesoing. 1997. Nutrient balance on Nebraska livestock confinement systems. Proceedings of 38th George A. Young Swine Conference. University of Nebraska. Lincoln, NE. pg. 100-112.
- G. Lesoing and R. K. Koelsch. 1997. Nutrient balance on Nebraska livestock confinement systems livestock confinement systems. Presented at 1997 International Agronomy Meetings and included within 1997 Agronomy Abstracts.
- T. Chen, D. Schulte, R. K. Koelsch, and A. M. Schulte. 1997. Characteristics of purple and non-purple lagoons for swine manure. ASAE paper no. 97-4116. 1997 ASAE Annual International Meeting. 17 pages.
- Koelsch, R. K., T. Chen, and D. Schulte. 1997. Purple sulfur bacteria in Anaerobic Treatment Lagoons. 1997 Nebraska Swine Report. University of Nebraska, Lincoln, NE. pp. 36-38.
- Koelsch, R. K. 1992. Applications of Activity, Milk Progesterone, and Heart Rate Sensors for Dairy Reproduction Management. A Dissertation in partial fulfillment of the requirements for the Degree of Doctor of Philosophy. Cornell University.
- Koelsch, R. K., D. J. Aneshansley, and W. R. Butler. 1991. Activity Analysis for Estrus Detection in Dairy Cattle. Paper No. 91-7557. 1991 Winter Meeting of the American Society of Agricultural Engineers, Chicago, IL.
- Koelsch, R. K., D. J. Aneshansley, and W. R. Butler. 1990. Potential Approaches for An In-line Milk Progesterone Sensor. Paper No. 90-3551. 1990 Winter Meeting of the American Society of Agricultural Engineers, Chicago, IL.
- Campbell, J. K., R. K. Koelsch, E. E. Fabian, and R. W. Guest. 1989. On-Farm Biogas Systems Information Dissemination Project. Final Report for New York State Energy Research and Development Authority. Department of Agricultural and Biological Engineering, Cornell University.
- Koelsch, R. K., E. E. Fabian, R. W. Guest, and J. K. Campbell. 1989. Experience with Three Anaerobic Digestion Systems on Commercial Dairies. Paper No. 89-6550. 1989 Winter Meeting of the American Society of Agricultural Engineers, New Orleans, LA.
- Koelsch, R. K., W. J. Jewell, and R. J. Cummings. 1986. Cogeneration of Electricity and Heat from Biogas. Applied Engineering in Agriculture, Vol. 2, No. 2. pp. 220-224, 227. American Society of Agricultural Engineers, St. Joseph, MI.
- Koelsch, R. K., L. P. Walter, and R. A. Pellerin. 1985. Design Considerations for Cogeneration System Utilizing Biogas. Paper 85-3566. 1985 Winter Meeting of the American Society of Agricultural Engineers, Chicago, IL.
- Jewell, W. J., R. K. Koelsch, and R. J. Cummings. 1985. Cogeneration of Electricity and Heat from Biogas - Final Report for Science and Education Administration, U.S. Department of Agriculture. Department of Agricultural Engineering, Cornell University.

- Koelsch, R. K., W. J. Jewell, C. E. Harrison, and R. J. Cummings. 1982. Cogeneration of Electricity and Heat from Biogas. Paper No. 82-3621. 1982 ASAE Winter Meeting, Chicago, IL.
- Koelsch, R. K., R. R. Zall, and S. Murphy. 1982. The Use of Tepid Water for Washing a CIP Milking System. A Final Report of Experimentation. Staff Report Publication No. 82-2. Department of Agricultural Engineering, Cornell University.
- Koelsch, R. K. 1979. Heat Recovery in the Dairy Barn: How Much is it Worth? Paper No. 79-3535. 1979 ASAE Winter Meeting. New Orleans, LA.
- Stipanuk, D. M., R. K. Koelsch, and R. C. Roberg. 1979. Energy and Economic Analysis of Heat Recovery vs. Solar Water Heating on Dairy Farms. Paper No. 79-3537. 1979 ASAE Winter Meeting. New Orleans, LA.
- Clark, S. J., R. K. Koelsch, L. R. Whitmer, and W. P. Walender. 1978. Crop Residues: Energy for Irrigation Pumping and Crop Drying. Paper No. 78-2550. 1978 ASAE Winter Meeting, Chicago, IL.
- Koelsch, R. K. 1977. A Comparison of Hydrogen and Propane Fueling on an Agricultural Internal Combustion Engine. Unpublished M.S. Thesis. Kansas State University.

Extension Publications during UNL Employment (Peer Reviewed)

- Regassa, T. H., R. K. Koelsch, C. S. Wortmann, R. F. Randel, A. A. Abunyewa. 2009. Antibiotic Use in Animal Production: Environmental Concerns. UNL Extension RP196 for Heartland Regional Water Coordination Initiative. 9 pages.
- Kranz, W.L., R.K. Koelsch, C.A. Shapiro. 2009. Application of liquid animal manures using center pivot irrigation systems. UNL Extension Publication EC 778. <http://www.ianrpubs.unl.edu/epublic/live/ec778/build/ec778.pdf>. 13 pages.
- Regassa, T., Koelsch, R., Scheideler, S., Masa'deh, M. 2009. Impact of feeding distillers grains on comprehensive nutrient management planning for poultry layer production systems. University of Nebraska-Lincoln Extension RP 194. <http://www.ianrpubs.unl.edu/epublic/live/rp194/build/rp194.pdf>. 6 pages.
- Regassa, T., Koelsch, R., Erickson, G. 2009. Impact of feeding distillers grains on nutrient planning for beef cattle systems. University of Nebraska-Lincoln Extension RP 190. <http://www.ianrpubs.unl.edu/epublic/live/rp190/build/rp190.pdf>. 8 pages.
- Regassa, T., Koelsch, R., DeRouchey, J. 2009. Impact of feeding distillers grains on comprehensive nutrient management planning for swine. University of Nebraska-Lincoln Extension RP 191. <http://www.ianrpubs.unl.edu/epublic/live/rp194/build/rp191.pdf>. 6 pages.
- Regassa, T., Koelsch, R., Kononoff, P. 2009. Impact of feeding distillers grains on nutrient management planning on dairy farms. University of Nebraska-Lincoln Extension RP 193. <http://www.ianrpubs.unl.edu/epublic/live/rp193/build/rp193.pdf>. 8 pages.
- Bremer, Virgil R., Terry J. Klopfenstein, Galen E. Erickson, Richard K. Koelsch, Raymond E. Massey, and Judson Vasconcelos. 2009. "Effects of Feeding Wet Distillers Grains Plus Solubles on Feedlot Manure Value" (MS #1503). Nebraska Beef Cattle Reports. Pg 89-90. <http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1503&context=animalscinbcr>
- Bremer, V. R., R. K. Koelsch, R. E. Massey, and G. E. Erickson. 2008. Effects of distillers grains and manure management on nutrient management plans and economics. Nebraska Beef Rep. MP91:59-61.
- R.B. Ferguson, C.G. Henry, R.K. Koelsch, C.A. Shapiro, and C.S. Wortmann. 2007. Managing Livestock Manure to Protect Environmental Quality. UNL EC02 179, revised.
- Kranz, W., R. Koelsch, C. Shapiro. 2007. Application of Liquid Manures Using Center Pivot Irrigation Systems. University of Nebraska Extension Circular 788. <http://www.ianrpubs.unl.edu/sendIt/ec778.pdf>. 13pp.
- Koelsch, R. K. and J. Benning. 2006. Nutrient Management Plan: Records Checklist and Samples for Animal Feeding Operations. Heartland Regional Water Quality Project Publication No RP 188. <http://www.ianrpubs.unl.edu/sendIt/rp188.pdf>
- C. Henry, R. Koelsch, J. Gross, and J. Harner. 2006. Need a Vegetative Treatment System for Your Barnyard or Lot? LPES Small Farms Fact Sheet Series. 14 pages. http://www.lpes.org/SmallFarms/8_VTS.pdf.
- Koelsch, R. K. 2006. Manure Nutrient and Land Requirement Estimator: Spreadsheet and Instructions, UNL Extension EC190. 20 pages. <http://www.ianrpubs.unl.edu/sendIt/ec190.pdf>
- Koelsch, R. K. and J. Paschold. 2006. Estimating Whole Farm Nutrient Balance: Spreadsheet and Instructions. UNL Extension Publication EC 189. 22 pages. <http://www.ianrpubs.unl.edu/sendIt/ec189.pdf>
- Koelsch, R. K. and J. Paschold. 2006. Manure Use Plan for Nebraska: Spreadsheet and Instructions. UNL Extension Publication EC 191. 22 pages. <http://www.ianrpubs.unl.edu/sendIt/ec191.pdf>

- Heemstra, J., R. Koelsch. 2005. Fact sheets for my EMS workbook. Livestock and Poultry Environmental Stewardship Curriculum, Module G: Environmental Management Systems, Lesson 61. Midwest Plan Service, Ames, Iowa, USA. <http://lpes.org>.
- Heemstra, J., R. Koelsch. 2005. My EMS workbook. Livestock and Poultry Environmental Stewardship Curriculum, Module G: Environmental Management Systems, Lesson 62. Midwest Plan Service, Ames, Iowa, USA. <http://lpes.org>.
- Heemstra, J., J. Lawrence, M. Risse, T. Bass, R. Koelsch. 2005. Example my EMS workbook. Livestock and Poultry Environmental Stewardship Curriculum, Module G: Environmental Management Systems, Lesson 63. Midwest Plan Service, Ames, Iowa, USA. <http://lpes.org>.
- Heemstra, J., R. Koelsch. 2005. EMS Supplement for Educators/Coaches. Livestock and Poultry Environmental Stewardship Curriculum, Module G: Environmental Management Systems, Lesson 64. Midwest Plan Service, Ames, Iowa, USA. <http://lpes.org>.
- Koelsch, R. K., C. Shapiro, R. DeLoughery. 2003. Nebraska's CNMP. University of Nebraska Cooperative Extension:
 Manure Application Workbook. EC02-720. 90 pages.
 Manure Storage Management Workbook. EC02-722. 65 pages.
 Odor Management Plan Workbook. EC02-721. 28 pages.
- Koelsch, R. K.. 2003. CAFO Fact Sheet series. LPES Curriculum. <http://www.lpes.org/cafo.html>:
 Fact Sheet #2: Do I need an NPDES permit for my livestock or poultry operation? 5 pages.
 Fact Sheet #3: How soon must I apply for an NPDES permit? 6 pages.
 Fact Sheet #4: How do I apply for an NPDES permit? 4 pages.
 Fact Sheet #26: What records must I maintain for land application? 7 pages.
- Koelsch, R. K.. 2002. National Animal Waste Center Review of Nutrient Management Issues Addressed by CAFO Regulations. Last updated 9/26/02. 10 pages.
- Wright, P. E., R. E. Graves, R. K. Koelsch. 2001 Guidelines for dairy odor management. NRAES-146. Natural Resources, Agriculture, and Engineering Service. Ithaca, NY. 34 pages.
- Fulhage, C, J. Hoehne, D. Jones, and R. Koelsch. 2001. Manure storages. MWPS-18, Section 2. Midwest Plan Service. Ames, IA. 117 pages.
- Koelsch, R. K.. 2001. Principles of Environmental Stewardship. Lesson 1 of Livestock and Poultry Environmental Stewardship. Midwest Plan Service. Ames, IA. 26 pages.
- Koelsch, R. K.. 2001. Whole Farm Nutrient Planning. Lesson 2 of Livestock and Poultry Environmental Stewardship. Midwest Plan Service. Ames, IA. 34 pages.
- D. Reese and R. Koelsch. 1999. Altering Swine Manure by Diet Modification. UNL NebGuide G99-1390-A. 4 pages.
- Koelsch, R. K.. 1998. Review of NDEQ Requirements for Verification of Acceptable Liner Seepage. Testimony for Governor's Livestock Waste Management Task Force, January 7, 1998. 6 pages.
- Koelsch, R. K.. 1998. Improving Livestock Manure Storage. UNL Cooperative Extension. EC 98-751-S. Fact Sheet 9. 6 pages.
- Koelsch, R. K.. 1998. Livestock Manure Storage. UNL Cooperative Extension. EC 98-752-S. Worksheet 9. 8 pages.
- Koelsch, R. K.. 1998. Improving Livestock Yards Management. UNL Cooperative Extension. EC 98-759-S. Fact Sheet 10. 4 pages.
- Koelsch, R. K.. 1998. Livestock Yards Management. UNL Cooperative Extension. EC 98-761-S. Worksheet 10. 7 pg
- Koelsch, R. K.. 1998. Improving Land Application of Manure. UNL Cooperative Extension. EC 98-757-S. Fact Sheet 11. 7 pages.
- Koelsch, R. K.. 1998. Land Application of Manure. UNL Cooperative Extension. EC 98-758-S. Worksheet 11. 7 pg
- Koelsch, R. K.. 1998. Improving Silage Storage. UNL Cooperative Extension. EC 98-749-S. Fact Sheet 12. 4 pages.
- Koelsch, R. K.. 1998. Silage Storage. UNL Cooperative Extension. EC 98-750-S. Worksheet 12. 5 pages.
- Koelsch, R. K.. 1998. Improving Milking Center Effluent Treatment. UNL Cooperative Extension. EC 98-755-S. Fact Sheet 13. 7 pages.
- Koelsch, R. K.. 1998. Milking Center Effluent Treatment. UNL Cooperative Extension. EC 98-756-S. Worksheet 13. 8 pages.
- Koelsch, R. K.. 1998. Abandonment Planning for Earthen Manure Storages. UNL NebGuide G98-1370-A.
- Koelsch, R. K.. 1998. Sludge Management for Anaerobic Lagoons and Runoff Holding Ponds. UNL NebGuide G98-1371-A.

- Koelsch, R. K. and C. Shapiro. 1997. Determining Crop Available Nutrients from Manure. Neb Guide G97-1335-A.
- Koelsch, R. K. and C. Shapiro. 1997. Estimating Manure Nutrients from Livestock and Poultry. Neb Guide G97 1335-A.
- G. R. Bodman and R. K. Koelsch. 1996. Feedlot Abandonment. G-96-1293-A.
- Koelsch, R. K.. 1995. Manure Spreader Calibration. G95-1267-A.
- Koelsch, R. K.. 1995. Environmental Considerations for Manure Application System Selection. G95-1266A

Extension Publications during UNL Employment (no review)

- Stowell, R. R., C. G. Henry, R. K. Koelsch, and D. D. Schulte. 2008. Association of Odor Measures with Annoyance: Results of an Odor-Monitoring Field Study. 2008 Nebraska Swine Report, EC, Institute of Agriculture and Natural Resources, University of Nebraska - Lincoln.
- Koelsch, R.K. 2003. Nutrient Management Planning Resources for Nebraska's Animal Producers. Nebraska Pork Talk. v.35:5. Winter 2003. (brochure insert)
- Koelsch, R.K. 2004. Sampling Manure to Harvest its Value. Nebraska Pork Talk. v36:1. Spring 2004. (brochure insert)
- Koelsch, R.K. 2004. Preparing Your Manure Storage for Meeting CAFO Regulations. Nebraska Pork Talk. v36:3. Fall 2004. pp 16-19.
- Koelsch, R.K. 2004. Record Checklist for Compliance with CAFO Regulations. Nebraska Pork Talk. to be published
- Koelsch, R. K.. 2003. CAFO Regulations and their impact of feedlot nutrient issues. 2003 Colorado Nutrition Roundtable. Sponsored by American Registry of Professional Animal Scientists, NE, WY, CO chapter. Colorado State University. 9 pages.
- Koelsch, R. K., D. Schulte, L. Koppolu. 2003. Progress in Estimating Setback Distances for Livestock Facilities. 2003 Nebraska Swine Report. <http://www.ianr.unl.edu/pubs/swine/pigpdf03.pdf>. Pages 47-52
- Koelsch, R. K., D. Schulte, and L. Koppolu. 2002. Progress in estimating setback distances for livestock facilities. 2003 Swine Report. EC03-219-A. University of Nebraska Department of Animal Science. Lincoln, NE. pages 47-51.
- Koelsch, R. K.. 2000. Inspection of Manure Storages. Nebraska Pork Talk. March 2000. Pages 16-17.
- Koelsch, R. K.. 2000. Self-Inspection of Manure Storages. Nebraska Cattlemen. March 2000. Page 40.
- Koelsch, R. K.. 2000. Phosphorus Concentration in Nebraska's Livestock Industry. Proceedings for Workshop of Environmental Phosphorus Issues and Animal Production. University of Nebraska. Pages 19-22.
- Koelsch, R. K. and A. Franzen. 2000. Nebraska Wind Summaries for Odor Management Planning. <http://www.ianr.unl.edu/manure/wind/wind.html>
- Koelsch, R. K.. 1999. Managing Manure in a Cropping System. Feedlot Manure Management 2000 Conference proceedings. University of Nebraska. Page 15-23.
- Koelsch, R. K.. 1999. Nutrient Balance on Nebraska Livestock Confinement Systems. Feedlot Manure Management 2000 Conference proceedings. University of Nebraska. Page 3-9.
- Koelsch, R. K.. 1999. Proposed Revisions to Title 130, Rules and Regulations Pertaining to Livestock Waste Control. Testimony for the Environmental Quality Council, March 24-25,1999. 5 pages.
- C. Henry and R. Koelsch. 1998. Manure Matters Web Site. <http://ianrwww.unl.edu/manure>.
- Koelsch, R. K.. 1998. Principles of Odor Production/Control. In Livestock and the Environment: A Symposium Proceedings Exploring Planning and Zoning Issues. 10 pages.
- Koelsch, R. K.. 1998. Sizing of Manure Storages and Lagoons. In Livestock and the Environment: A Symposium Proceedings Exploring Planning and Zoning Issues. 8 pages.
- Koelsch, R. K.. 1998. Implications of Changes in Nebraska Livestock Waste Control Regulations. Proceedings for 39th Annual George Young Swine Conference. University of Nebraska-Lincoln. pages 37-48.
- Koelsch, R. K.. 1997. Using Manure as a Nutrient Resource. Proceedings of Nebraska Corn Expo. 10 pages.
- Koelsch, R. K.. 1997. Nutrient Balance on Nebraska Livestock Systems. Proceedings of George A. Young Swine Conference. 13 pages.
- Koelsch, R. K.. 1997. Equipment Principles of Land Application. Proceedings of Livestock and the Environment: A Symposium for Advisors to the Livestock and Poultry Industry on Environmental Issues. University of Nebraska. 8 pages.
- Koelsch, R. K.. 1997. Managing Livestock Odors. Proceedings of Livestock and the Environment: A Symposium for Advisors to the Livestock and Poultry Industry on Environmental Issues. University of Nebraska. 10 pages.
- Koelsch, R. K.. 1997. Environmental Risk Assessment and Planning Tools. Proceedings of Decisions 2000 Lenders and Veterinarians Conference sponsored by Pork Central. 9 pages
- Koelsch, R. K.. 1997. Managing Livestock Odors. Livestock and the Environment Symposium Proceedings.

- University of Nebraska. 10 pages.
- Koelsch, R. K.. 1996. Don't Forget the Neighbors Nose. Nebraska Farmer. 138:12:64-66,70.
- Koelsch, R. K.. 1996. Environmental Issues Related to Pork Production. Swine Advisor's Conference Proceedings. 9
P
- Koelsch, R. K. 1994. Planning and Managing for Odor Control. Liquid Manure Application Systems Conference Proceedings. Northeast Regional Agricultural Engineering Service. Ithaca, NY.

Sample Extension Publications from Cornell Employment

- Longhouse, H. A., R. K. Koelsch, and G. Webb. 1990. 4-H Electrical Fundamentals. (20 minute 1/2" videotape.) NRAES-46. Northeast Regional Agricultural Engineering Service. Department of Agricultural and Biological Engineering, Cornell University, Ithaca, NY 14853.
- Koelsch, R. K. and H. A. Longhouse. 1989. 4-H Electrical Science Program. NRAES-40. Northeast Regional Agricultural Engineering Service. Department of Agricultural and Biological Engineering, Cornell University, Ithaca, NY 14853.
- Fabian, E. E., J. K. Campbell, R. K. Koelsch, and R. W. Guest. 1989. Anaerobic Digestion: Is It Right For Your Farm? (23 minute 1/2" videotape.) Department of Agricultural and Biological Engineering, Cornell University, Ithaca, NY.
- Koelsch, R. K. Fundamentals & Issues Relative to Anaerobic Digestion on Dairy Farms - Part II or II: Utilization of Biogas. 1989. Proceedings from the Dairy Manure Management Symposium, February 22-24, 1989. NRAES-31. Department of Agricultural and Biological Engineering, Cornell University, Ithaca, NY 14853.
- Koelsch, R. K., E. E. Fabian, R. W. Guest, and J. K. Campbell. 1988. Anaerobic Digesters for Dairy Farms. Extension Bulletin 458. Department of Agricultural and Biological Engineering, Cornell University, Ithaca, NY 14853.
- Guest, R. W. and R. K. Koelsch. 1988. Anaerobic Digestion System and Cogeneration for Dairy Farms. Construction Plan No. 858. Department of Agricultural and Biological Engineering, Cornell University, Ithaca, NY 14853.
- Koelsch, R. K. and R. W. Guest. 1988. Supplement for Plan No. 858, Anaerobic Digestion System and Cogeneration for Dairy Farms. Agricultural and Biological Engineering Staff Report. Agricultural and Biological Engineering Department, Cornell University.
- Guest, R. W., R. K. Koelsch, and L. P. Walter. Anaerobic Digestion Systems: Does it Make Sense For My Dairy? 1987. Agricultural Engineering Facts, EF-12. Department of Agricultural Engineering, Cornell University, Ithaca, NY 14853.

Funded Grants and Contracts:

Title	Amount	Funding Source	My Role
2007			
Development of a National Air Quality Self-Assessment Tool (National AQSAT) for Livestock Producers	\$443,410 (total) \$40,000 (UNL)	USDA NRCS Conservation Innovation Grant	Cooperator Lead by Wendy Powers, Michigan State University
Implementing Mass Nutrient Balance Procedures on Swine Production Facilities (part 2)	\$39,990	National Pork Board	Co-PI with Al Sutton, Purdue University
Heartland Integrated Water Quality Coordination Initiative – Year 4 Continuation	\$88,180	USDA-CSREES	Co-Led Manure Management component with John Lawrence, Iowa State U.
2006			
Heartland Integrated Water Quality Coordination Initiative – Year 3 Continuation	\$58,071	USDA-CSREES	Co-Led Manure Management component with John Lawrence, Iowa State U.
2005			
Heartland Integrated Water Quality Coordination Initiative – Year 2 Continuation	\$83,585	USDA-CSREES	Co-Led Manure Management component with John Lawrence, Iowa State U.
A National Learning Center for Animal Agricultural Water Quality Issues	\$300,000	USDA CSREES National Facilitation grant program for Water Quality	Co-PI with Mark Risse, University of Georgia, and Joe Harrison, Washington State University
Implementing Mass Nutrient Balance Procedures on Air Quality Consent Agreement Farms	\$40,000	National Pork Board	Co-PI with Al Sutton, Purdue University

Development and Integration of a National Feed Management Education Program and Assessment Tool into a CNMP	\$424,600 (total) Approximately \$20,000 UNL share	USDA Natural Resources Conservation Service – Conservation Innovation Grant Program	Cooperator Led by Joe Harrison, Washington State University
2004			
Heartland Integrated Water Quality Coordination Initiative – Year 1	\$76,216	USDA-CSREES	Co-Lead Manure Management component with John Lawrence, Iowa State U.
Laying the Groundwork for Odor Control and Setback Estimation in Nebraska	\$30,600	Nebraska Pork Producers Association	Investigator with Rick Stowell (PI) and Dennis Schulte
Project Planning Proposal for a National Electronic Learning Center for Animal Agriculture Water Quality Issues	\$7,800	USDA-ARS, National Agricultural Library	Co-PI with Ron Roeber and Elaine Nowick
2003			
Livestock and Poultry Environmental Stewardship Curriculum Continuation Project	\$111,000	US EPA Ag. Compliance Assistance Center	Co-PI with Frank Humenik, NCSU
Validation of Odor Footprint Tool for Sighting Livestock Facilities	\$19,632	NE Department of Agriculture	Co-PI with Dennis Schulte
A Planning Tool for Assessing Relative Contribution of Facilities to Air Quality Around Pork Production Sites	\$52,125	National Pork Board	Co-PI with Dennis Schulte, etc.
Application of Finely Ground Rubber in the Control of Odors Emitted from Livestock Manure Storage Structures	\$75,000 total, \$25,000 UNL share	USDA SBIR	Co-PI with Dennis Schulte, etc
Implementation of a Manure Excretion Standard based upon Animal Feeding Program	\$15,000	National Center of Manure and Animal Waste Mgmt.	Co-PI with Wendy Powers, Iowa State University
2002			
Managing Phosphorus in Beef Feedlot Operations	\$29,000	National Center for Manure and Animal Waste Mgmt.	Co-PI with Galen Erickson
Heartland Integrated Water Quality Coordination Initiative	\$149,700	USDA-CSREES	Co-Led Manure Management component with John Lawrence, ISU
Statewide Implementation of Comprehensive Nutrient Management Planning	\$237,000	NE Environmental Trust Fund	Co-PI with Charles Wortmann, Agronomy Department and Charles Shapiro, NE Research & Extension Center
A Nebraska Odor Foot Print for Planning Pork Facilities	\$16,155	NE Pork Producers Association	Co- PI with Dennis Schulte and Rick Stowell
2001			
State Team Travel Grants for LPES Curriculum Workshops	\$69,400	US EPA	Co- PI with Frank Humenik
2000			
A Nebraska Educational Program to Implement Comprehensive Nutrient Management Planning	\$225,000	USDA CSREES Water Quality Program	Co-PI with Rick Wozniak, Lower Elkhorn NRD and Charles Shapiro, NE Research & Extension Center
Partnerships for Livestock Environmental Management Assessment Systems	\$2,066,000	USDA Initiative for Future Agriculture and Food Systems	Co- PI with Gary Jackson, University of Wisconsin
National Training Team for Livestock Curriculum Project	\$75,000	US EPA	Co- PI with Frank Humenik
Multi-Media, Whole-Farm Training Module	\$50,000	US EPA	Cooperator. Don Jones, Purdue University, is PI
Supplemental Funding for Livestock Curriculum Project	\$40,325	US EPA	Co- PI with Frank Humenik
Environmental Air Quality Proposal	Total \$750,000	NSF EPSCOR	Cooperator, PI's are Larry

	UNL \$199,914		Erickson, Kansas State University and Dennis Schulte, UNL
1999			
Hydrogen Sulfide Survey in Vicinity of Commercial Feedlots	\$3,000	Nebraska Beef Cattlemen's Association	PI
Hydrogen Sulfide Measurement	\$12,000	UNL Agricultural Research Division Equipment Grant	Co PI with Dennis Schulte
1998			
Livestock Environmental Issues Curriculum Development and Implementation Project	\$301,033	USDA pass through funds from US EPA	Co- PI
Odor Measurement and Control Technologies Tour	\$3000	Department of Agriculture, Nebraska Pork Producers Association, and Farm Credit Services	Project Leader
1997			
Livestock Environmental Issues Symposium...Planning and Zoning Issues	\$2500	NE Assoc. of County Officials, NE Pork Producers Assoc., NE Cattlemen, UNL Cooperative Extension, NE Dept. of Economic Development	Project Leader
Demonstration Sustainable Nutrient Management Model for Cattle Feedlot	\$10,000	Mead Cattle Company	Co-PI with Keith Glewen, UNL Cooperative Extension, and Dan Walters, Agronomy Dept.
Environmental Impact of Land Application of Feedlot Manure	\$143,500	EPA Region 7 319 Program	Cooperator, Dan Walters (Agronomy Dept.) is PI
Using GIS to Identify Suitable Land Application Sites for Manure	\$30,000	NRCS Watershed Science Institute	Co-PI with Dennis Schulte, BSE Dept.
1996			
Implementing Environmental Risk Assessment Tools Among Livestock Producers	\$9,700	UNL Water Quality Program	PI
Farm*A*Syst Implementation among Agricultural Producers	\$138,000	US EPA Region 7	Cooperator, DeLyn Hay is PI.
1995			
Whole Farm Nutrient Budgeting for Livestock Systems	\$19,950	ARD's Interdisciplinary Research Program	PI
Improving Odor Control in Swine Lagoons by Better Understanding and Management of Purple Sulfur Bacteria	\$42,360	National Pork Producers Council	Co PI with Dennis Schulte
Understanding Purple Sulfur Lagoons	\$2,000	Nebraska Pork Producers Association	Co PI with Dennis Schulte

Graduate Students

Name	Thesis Title (Topic)	Status	My Role
Bill Kissinger	Managing Phosphorus in Beef Feedlot Operations	Graduated	Committee Chair
Dan Spare	Phototrophic anaerobic lagoons as affected by copper and zinc in swine diets	Graduated	Committee Member and Significant Supervision
Brian Bakke	Impact of Loading Rate and Dietary Nutrient Concentration on Purple Lagoons	Graduated	Committee Co-Chair
Tom Trehwhitt	Identifying Suitable Land Application Sites for Manure Using GIS	Did Not Finish	Committee Co-Chair
Mike Kucera	Nebraska P-Index Evaluation	Graduated	Committee Co-Chair
Tong Tong Chen	Characteristics of Purple and Non-Purple	Graduated	Committee Co-Chair

	Lagoons for Swine Manure		
Claudia Obrock	Dietary Protein Options and Their Impact on Odor and Ammonia Generation	Graduated	Committee Member and Significant Supervision
Galen Erickson	Dietary Impacts on Nutrient Excretion in Beef Cattle	Graduate	Committee Member
Janeth Colina	Dietary Impacts on Ammonia Emissions in Swine	Did Not Finish	Committee Member
Jason Byler	Odor, H2s and NH3 Emissions from Phototrophic and Non-Phototrophic Anaerobic Swine Lagoons	Graduated	Committee Co-Chair
Travis Farran	Dietary Impacts on Nutrient Excretion in Beef Cattle	Graduated	Committee Member
Aditya Peri	Assessing the Effectiveness of Zoning Ordinance of Antelope County in Relation to Odor Nuisance from Animal Waste Facilities	Graduated	Committee Member

References for Richard Koelsch, Ph.D.

Individuals most familiar with my national and regional leadership roles:

Richard Hegg, National Program Leader, Institute of Food Production and Sustainability,
USDA NIFA, 1400 Independence Avenue SW., Stop 2201, Washington, DC 20250-2201
rhegg@nifa.usda.gov, (202) 401 – 6550

Wendy Powers-Schilling, Institute Director, MSU Extension
2209G Anthony Hall, East Lansing, MI 48824-1225
wpowers@msu.edu, 517-614-8207

Mark Risse, Associate Professor
Driftmier Engineering Center, Room 617, University of Georgia, Athens, GA 30602
mrisse@engr.uga.edu, 706-542-9067

Dan Cotton, Director, eXtension
University of Nebraska, Agricultural Communications Building, Lincoln NE 68583-0918
dan.cotton@extension.org, (402) 472-8841

Individuals most familiar with my ability to build partnerships:

Glenn Carpenter, National Leader, Animal Husbandry
USDA NRCS, 6175 Agriculture-South; 14th St. and Independence Ave., SW, Washington, DC 20250.
Glenn.Carpenter@USDA.gov, 202.205.7711

Carol Galloway, Program Leader,
US EPA Ag Center/EPA Region 7, 901 N 5th Street, Kansas City, KS 66101
www.epa.gov/agriculture, 913-551-5092

Craig Head, State Director of Governmental Relations and Regulatory Affairs
Nebraska Farm Bureau, 5225 South 16th Street, Lincoln, Nebraska 68512
craigh@nefb.org, (402) 421-4435

References most familiar with my fit within Extension administration:

Gerald A. Miller, Interim Dean and Associate Dean Emeritus
2104 Agronomy Hall, Iowa State University, Ames, IA 50011-1010
soil@iastate.edu, 515-291-3442

David E. Baker, Assistant Dean & Program Director

Extension, 2-28 Ag Building, University of Missouri, Columbia, MO 65211
bakerd@missouri.edu, (573) 882-6385

Bill Umscheid, Director for 4-H, University of Kentucky, Retired
995 Jones Wynd, Wake Forest, NC 27587
sumscheid@nc.rr.com, 919-605-6471
(Cornell University reference familiar with past engagement in 4-H)

John Lawrence, Associate Dean, Agriculture Experiment Station
Iowa State University, 132 Curtiss, Ames, IA 50011-1050
jdlaw@iastate.edu, 515-294-7801

Other References

To avoid conflicts of interest, no UNL faculty or Extension Administration team members were asked to be references. I would welcome your contact with UNL Extension Administrators and faculty members that the Search Committee may identify and will provide suggested faculty names, if requested.