

**Kelly D. Zering**  
Department of Agricultural and Resource Economics  
North Carolina State University

**Professional Preparation**

University of Manitoba, Winnipeg, Canada	Agricultural Economics	B.Sc.Ag., 1977
University of Manitoba, Winnipeg, Canada	Agricultural Economics	M.Sc., 1980
University of California, Davis	Agricultural Economics	Ph.D., 1984

**Experience**

2016-present, Professor and Extension Specialist, Agricultural and Resource Economics, North Carolina State University, Raleigh, North Carolina  
1990-2016, Associate Professor and Extension Specialist, Agricultural and Resource Economics, North Carolina State University  
2000-present, Full member of the Economics Graduate faculty, North Carolina State University  
1992-93, Visiting Scholar, Fuqua School of Business, Duke University, Durham, North Carolina  
1984-90, Assistant Professor and Extension Specialist, Agricultural and Resource Economics, North Carolina State University

**Synergistic Activities**

Dr. Zering was a co-PI on an ARPA-E PETRO program project lead by Dr. Heike Sederoff titled “Jet Fuel from Camelina Sativa: a Systems Approach”. Dr. Zering leads the economic modeling and analysis team in that project and collaborated with a diverse team of biologists. The project was completed in December 2015 and is a model for collaboration across several fields of science. A relevant area of work in this project has been the development of crop yield prediction models based on statistical analysis of yields, weather data, soils data, and farm management data across space and time. A limitation of this work is the lack of data on biotic stressors and related control efforts. Zering looks forward to developing new insights on the biological and economic effects of plant disease through this proposed project.

Dr. Zering has served on USDA multi-state committees and served in officers roles including chairman for both the Biofuels Southern Extension and Research (SERA-38) and Sustainable Livestock and Poultry Systems multi-state research committee (S-1032). The latter won a National Excellence in Multi-State Research Award, from ESCOP in Zering’s year as chairman, 2011.

Dr. Zering has studied, taught and published regarding the occurrence of risk in agriculture and the effectiveness of strategies to reduce or mitigate risk.

All of the above activities demonstrate substantial experience working with diverse teams of engineers and biological scientists to develop economic models of agricultural and engineered systems. Work ranges from very pragmatic farm level production decisions to contracts between various parties in the supply chain to study of markets and to study of laws and policy related to environmental and resource effects of technology and production systems.

**Selected Publications and Presentations**

1. Natelson, R., Wang, W.-C., Roberts, W.L., and Zering, K.D., Technoeconomic Analysis of Jet Fuel Production from Hydrolysis, Decarboxylation, and Reforming of Camelina Oil, Biomass and Bioenergy 75(2015): 23-34. Elsevier.

2. Zering, Kelly. "Economic Sustainability of Cellulosic Energy Cropping Systems," chapter 15 in "Cellulosic Energy Cropping Systems," editor Douglas Karlen. John Wiley and Sons. 2014. Pages 281 – 297.
3. K. Zering, Global Trends and Grand Challenges for Systems Biology, presentation at Plant Systems and Synthetic Biology: Solutions to Global Food Security, an International Symposium, Dept. of Plant and Microbial Biology, North Carolina State University. Raleigh, 10/17-18/2014.
4. Kotsiri, Sofia, Kelly Zering, and Michelle Mayer. "Stochastic Frontier Yield Function Analysis to Predict Returns to a New Crop: An Example of Camelina Sativa Yields Conditional on Local Factor Levels." Selected Paper, Agricultural and Applied Economics Association, Annual Meeting. Minneapolis. July, 2014. 22 pages. <http://purl.umn.edu/170232>
5. Zering, K., "Trade and Policy Issues of Animal Feeds: Global Perspectives," Invited Paper, pages 220 – 226, in Proceedings of Global Animal Nutrition Conference, editors A.K. Samanta, R.Bhatta, V.Sejian, A.P.Kolte, P.K. Malik, S.Sirohi, and C.S.Prasad. Animal Nutrition Society of India. April 2014.
6. K. Zering, Livestock Waste Management Policies and Practices in the United States, ppt in proceedings, The First U.S. – China Hog Summit: China Swine Industry Transition and Policies, US Meat Export Federation, China Animal Agriculture Association, and USDA. Beijing China, Sept. 22, 2012. pp.93-103.
7. Zering, Kelly, T.J. Centner, D. Meyer, G.L. Newton, J.M. Sweeten, and S. Woodruff, Water and Land Issues Associated with Animal Agriculture: A U.S. Perspective. Issue Paper 50, Council for Agricultural Science and Technology. Ames, Iowa. August, 2012. Available at: [http://www.cast-science.org/publications/?water\\_and\\_land\\_issues\\_associated\\_with\\_animal\\_agriculture\\_a\\_us\\_perspective&show=product&productID=261302](http://www.cast-science.org/publications/?water_and_land_issues_associated_with_animal_agriculture_a_us_perspective&show=product&productID=261302)
8. Chen, Al, Gil Zuckerman, and Kelly Zering. "Applying Target Costing in the Development of Marketable and Environmentally Friendly Products from Swine Waste," The Engineering Economist 53(2) April-June, 2008. pp. 156-170.
9. Chvosta, Jan, Kelly Zering, and Bailey Norwood, "Blame It on the Weather: Cost and Design of Manure Management Systems Under Extreme Weather Conditions on North Carolina Swine Farms," selected paper abstract, Journal of Agricultural and Applied Economics, 36(2):524. August, 2004.
10. Zering, Kelly (one of sixteen authors chaired by P.R. Hagenstein), "Air Emissions from Animal Feeding Operations: Current Knowledge, Future Needs", National Research Council, National Academy Press, Washington, D.C. April, 2003. 263 pages.
11. Feitshans, Theodore, and Kelly Zering. "Federal Regulation of Animal and Poultry Production Under the Clean Water Act: Opportunities for Employing Economic Analysis to Improve Societal Results" Penn State Environmental Law Review, Dickinson School of Law, Pennsylvania State University. 10(2):193-215. Summer, 2002.
12. Zering, K., contributing author, Commodity Costs and Returns Handbook, American Agricultural Economics Association, Task Force on Commodity Costs and Returns, Ames, Iowa. July, 1998. 496 pages. This report provides standardized methods for estimating farm costs and returns. Available on-line at: [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/econ/costs/?cid=nrcs143\\_009751](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/econ/costs/?cid=nrcs143_009751)