

Hongwei Xin

Professor, Associate Chair for Research Director of Egg Industry Center

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Education

Ph.D. Interdepartmental Area of Engr., 1989
University of Nebraska-Lincoln

M.S. Agricultural Engineering, 1985
University of Nebraska-Lincoln

B.S. Agricultural Engineering, 1982
Shenyang Agricultural University, China

Honors and Awards

Midwest Poultry Consortium Outstanding
Service Award (2011)

Iowa State University (ISU) Award for
Outstanding Achievement in Research (2010)

ISU College of Agriculture and Life Sciences
Outstanding Achievement in International
Agriculture Award (2010)

Appeared in the History Channel show "The
Modern Marvels: Eggs" (First aired Jan 20,
2010)

ISU College of Agriculture and Life Sciences
Outstanding Research Award (2009)

ISU College of Engineering David R. Boylan
Eminent Faculty Research Award (2008)

Fellow of the American Society of Agricultural
and Biological Engineers (ASABE) (2008)

Appointment to the USDA Agricultural Air
Quality Task Force (2008-11, 2011-2013)

Recent Publications

Chepete*, J.H., H. Xin, and H. Li. 2011.
Ammonia emissions of laying hen manure as
affected by accumulation time. *J. Poul. Sci.*,
48:138-143, 2011.

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. *Applied
Engineering in Agriculture* 27(1):143-150.

Li*, S., H. Li, H. Xin, and R.T. Burns. 2011.
Particulate matter concentration and
emissions of a high-rise layer house in Iowa.
Transactions of the ASABE 54(3):1093-1101.

Li*, H., H. Xin, R. T. B, L. D. Jacobson, S. Noll,
S. J. Hoff, J. D. Harmon, J. A. Koziel, I. Celen,
B. Hetchler. 2011. Air emissions from tom
and hen turkey houses in the U.S. Midwest.
Transactions of the ASABE 54(1):305-314.

Tu*, X. S. Du, L. Tang, H. Xin, and B. Wood.
2011. A real-time automated system for
monitoring individual feed intake and body
weight of group housed turkeys. *Computer
and Electronics in Agriculture* 75:313-320.

(*indicates Dr. Xin was the mentor)

Research and Extension

Dr. Xin's research and extension programs focus on a) air quality issues related to animal feeding operations with emphasis on measurement and mitigation of aerial emissions; b) impacts of environmental and management factors on production performance, behavior, and welfare of livestock and poultry; and c) livestock and poultry housing and environmental control. The missions of his programs are to advance the science and technology in the afore-mentioned areas by conducting fundamental and applied research projects and mentoring graduate students and post-docs; to serve the animal industry and the affected citizens by seeking practical solutions to current and emerging issues through integrated research and outreach educational efforts; and to enhance the visibility and vitality of our programs at ISU through national and global collaborations and leadership.



Current Research Projects

Currently Dr. Xin's research group is working on the following projects:

- Assessing hen response to ammonia and thermal comfort combinations via preference testing
- Characterizing dynamic gaseous emissions of laying hens as affected by feeding and defecation behaviors
- Developing an automated feed intake and body weight monitoring system for individual turkeys housed in groups
- Developing reference procedures to measure aerial emissions from livestock buildings and storage
- Demonstrating dietary manipulations as an economically viable means to reduce ammonia emissions from commercial laying-hen facilities
- Quantifying ammonia and particulate matter emissions from Midwest turkey grow-out buildings
- Quantifying ammonia emissions of pullets and laying hens as affected by stocking density
- Updating heat and moisture production rates of modern swine and their housing systems
- Quantifying greenhouse gas emissions from commercial swine breeding, gestation and farrowing facilities
- A comprehensive assessment of aviary hen housing system for egg production in the Midwest
- Characterizing the carbon footprint of U.S. egg production using life cycle assessment
- Sustainable egg production: animal welfare, human health, environmental and economic aspects

Other Professional Interests

Iowa leads the nation in egg production and processing. In 2008 the Egg Industry Center was established at ISU. The mission of the Center is to add value to the egg industry by conducting and facilitating research, learning and technology transfer for producers, processors, and consumers through national and global collaboration. Dr. Xin serves as the Center director.

Dr. Xin is an active life-time member of the American Society for Agricultural and Biological Engineers (ASABE) and has contributed to the function of ASABE in various roles, such as Associate Editor of Structure & Environment (SE) Division; SE Program Chair, officers of numerous technical committees, and organizing the ASABE International Livestock Environment Symposia. He was inducted into ASABE Fellow in 2008.

Dr. Xin has been actively engaged in international collaborations. He has fruitfully collaborated with leading disciplinary scientists and engineers in Belgium, Botswana, Brazil, China, Canada, Denmark, France, Germany, Japan, Korea, Turkey, the Netherlands, and the United Kingdom.