IOWA STATE UNIVERSITY
Agricultural and Biosystems Engineering

Hongwei Xin

Professor and Director of Egg Industry Center

3204 NSRIC
515-294-4240
hxin@iastate.edu
www.abe.iastate.edu

Education

Ph.D. Interdepartmental Area of Engineering, 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

ISU College of Agriculture and Life Sciences (CALS) Outstanding Achievement in International Agriculture Award (2010)
Appeared in "The Modern Marvels: Eggs" (First aired on the History Channel Jan 20, 2010)
American Society of Agricultural and Biological Engineers (ASABE) President's Citation Award (2009)
ISU CALS Outstanding Research Award (2009)
Appointment to the USDA Agricultural Air Quality Task Force (2008 – 2010)
Elected to the Grade of Fellow of the ASABE (2008)
ISU College of Engineering David R. Boylan Eminent Faculty Research Award (2008)
Appointment of Adjunct Professor of China Agricultural University, Beijing, China (2008)
Iowa Poultry Association 2007 Industry Person of the Year Award (2007)
Chair of the United Egg Producers Environmental Scientific Panel on Air Emissions (2004 – present)
Honorary Scientist of the Rural Development Administration of the Republic of Korea (2004-2006)
ASABE Paper Awards (total 10; 1997-2009)
ASABE New Holland Young Researcher Award (2001)

Recent Publications

DeShazer, J.A., G. L. Hahn, and H. Xin. 2009. Chapter 1. Basic Principles of the Thermal Environment and Livestock Energetics. In ASABE Monograph "Livestock Energetics and Thermal Environmental Management" Ed. J.A. DeShazer, ISBN: 1-892769-74-3, St. Joseph, MI: ASABE, pp1-22.
Gates, R.S., K.D. Casey, H. Xin, and R.T. Burns. 2009. Building emissions uncertainty estimates. Transactions of the ASABE 52(4): 1345-1351.
Green, A.R., I. Wesley, D. W. Trampel, and H. Xin. 2009. Air quality and hen health status in three types of commercial laying hen houses. J. App. Poult. Res. 18(3): 605-621.
Green, A.R. and H. Xin. 2009. Effects of stocking density and group size on heat and moisture production of laying hens under thermoneutral and heat challenging conditions. Transactions of the ASABE 52(6): 2027-2032.
Green, A.R. and H. Xin. 2009. Effects of stocking density and group size on thermoregulatory responses of laying hens under heat challenging conditions. Transactions of the ASABE 52(6): 2033-2038.
Li, H., H. Xin, S. Li, and R.T. Burns. 2009. Technical Notes: Upstream vs. downstream placement of FANS to determine fan performance in situ. Transactions of the ASABE 52(6): 2087-2090.
Xin, H., H. Li., Burns, R.S. Gates, D.G. Overhults, and J.W. Earnest. 2009. Use of CO2 concentration or CO2 balance to assess ventilation rate of commercial broiler houses. Transactions of the ASABE 52(4): 1353-1361.

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:

1. Assessing hen response to ammonia and thermal comfort combinations via preference testing *(funded by Iowa Egg Council)*
2. Characterizing dynamic gaseous emissions of laying hens as affected by feeding and defecation behaviors *(funded by USDA National Research Initiative Program, and ISU CALS)*
3. Developing and testing an automated feed intake and body weight monitoring system for individual turkeys raised in flocks *(funded by Hybrid Turkeys)*
4. Determining ammonia and particulate matter emissions from Midwest turkey grow-out buildings *(funded by USDA NRI Program, ISU CALS, and Iowa Turkey Federation)*
5. Demonstrating dietary manipulations as an economically viable means to reduce ammonia emissions from commercial laying-hen facilities *(funded by USDA-NRCS-CIG, AEB, IEC, USPEA, and NCGA)*
6. Developing reference procedures to measure polluting emissions from livestock buildings and storage to air *(funded by French Environment and Energy Agency)*
7. Evaluating the effect of dietary corn dried distiller's grains with solubles *(DDGS)* on microbial populations in the intestine of the laying hen *(funded by Iowa Egg Council)*
8. Quantifying ammonia emissions of pullets and laying hens as affected by stocking density *(funded by Iowa Egg Council)*
9. Updating heat and moisture production rates of modern swine and their housing systems *(funded by ASHRAE)*

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). He 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, Holland, Japan, Korea, Turkey, and the United Kingdom.