

IOWA STATE UNIVERSITY

Agricultural and Biosystems Engineering

Jay D. Harmon, P.E.

Professor

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Education

Ph.D. Agricultural Engineering, 1989
Virginia Tech

M.S. Agricultural Engineering, 1986
University of Minnesota

B.S. Agricultural Engineering, 1984
Purdue University

Honors and Awards

Gunlogson Countryside Engineering Award
(ASABE) (2015)

College of Agriculture and Life Sciences
Dean's Citation for Extraordinary Contributions
to the College (2015)

Outstanding Achievement in Extension and
Outreach Award. (2014)

American Society of Agricultural and Biological
Engineers (ASABE) Fellow (2011)

Recent Publications

Zhao, Y., H. Xin, **J.D. Harmon**, and T.J. Baas.
2015. Mortality Rate of Weaned and Feeder
Pigs as Affected by Ground Transportation
Conditions. *Trans. ASABE*. Submitted.

Liu, Z., W. Powers, **J.D. Harmon**. 2015.
Estimating ventilation rates of animal houses
through CO2 balance. *Trans. ASABE*.
Accepted.

Glanville, T.D., H.K. Ahn, T.L. Richard, **J.D.
Harmon**, D.L. Reynolds and S. Akin. 2013.
Effect of envelope material on bio-security
during emergency bovine mortality
composting. *Bioresource Technology*
130:543-551.

Tyndall, J.C., N. Grudens-Schuck, **J.D.
Harmon** and S.J. Hoff. 2012. Social
Approval of the Use of the Community
Assessment Model for Odor Dispersal:
Results from a Citizen Survey. *Environmental
Management* 50(2): 315-328.

Harmon, J.D., M.C. Brumm, L.D. Jacobson,
S.H. Pohl, D.R. Stender, and R.R. Stowell.
2012. Field Performance Evaluation of a
Ventilation System: A Swine Case Study.
Applied Engineering in Agriculture 28(2):251-
258.

Lammers, P.J., M.D. Kenealy, J.B.
Kliebenstein, **J. D. Harmon**, M.J. Helmers,
and M.S. Honeyman. 2012. Energy use in pig
production: An examination of current Iowa
systems. *J Anim Sci* 90:1056-1068.

Teaching

Dr. Harmon teaches Animal Production
Systems (TSM 327) where he focuses on
teaching students to consider all the aspects of
a system in order to meet an animal's needs in
an economical and sustainable way. He also
teaches wood engineering (ABE 478) with
Dr. Hoff and an online course on ventilation
through the Swine Science Online program.
Dr. Harmon also partners with Dr. Baas (AnS)
to conduct a swine study abroad travel
course.



Extension

Dr. Harmon's area of specialization is livestock production systems. He is involved in outreach activities related to many aspects of livestock production systems, especially those dealing with swine. Outreach programs are conducted for producers, on-farm construction businesses, veterinarians, appraisers, and other agri-business groups. Some of the general topics include ventilation systems, air quality mitigation, siting, heat stress control, building layout, lighting, deep bedding systems, typical construction costs, animal movement, and carcass composting. Ventilation training is an area of large impacts. He conducts day-long workshops on ventilation for swine producers using a 24' ventilation demonstration trailer developed in cooperation with the Iowa Pork Producers. In the last 5 years he has trained over 1000 people which claim to influence the production of over 80 million pigs annually. He also is involved in the Farm Energy Initiative and works with the Coalition to Support Iowa's Farmers in helping swine producer to site new facilities. Dr. Harmon serves as the Plan of Work leader for the Natural Resources and Environmental Stewardship group.

Research

Dr. Harmon focuses on research which compliments his extension programs. Example projects include evaluation of the environment associated with the transport of weaned pigs, investigation of emergency carcass composting procedures, biofilter effectiveness for odor control and evaluation of swine and beef performance while housed in deep-bedded hoop systems. He also is working with Dr. Hoff on projects to evaluate building ventilation leakage and investigation of the performance of a new system positive pressure ventilation system used for filtering air to improve the biosecurity on sow farms.

Other Professional Interests

Dr. Harmon serves as the professor-in-charge of MidWest Plan Service, a cooperative educational publisher based at Iowa State University since 1932. He spends a great deal of time and energy working to develop and promote the Ag Engineering Professional Engineering Exam, while promoting professionalism and licensure. He led the ABE building committee by working with architects in developing the design for the new ABE facilities at Iowa State University. He also has served on the American Society of Agricultural and Biological Engineers Board of Trustees.