

## Steven J. Hoff

Professor

Registered Professional Engineer

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### Education

Ph.D. Agricultural Engineering, 1990  
University of Minnesota

M.S. Agricultural Engineering, 1987  
University of Minnesota

B.S. Agricultural Engineering, 1985  
University of Minnesota

B.S. Agricultural Engineering Technology, 1983  
University of Wisconsin-River Falls

### Honors and Awards

Young Member of the Year Award, Mid-Central  
Conference of the ASAE, 1999

SE Chairman's Citation, International ASAE, 1997

Young Engineer of the Year Award, Iowa Section  
ASAE, 1997

Newcomer Engineer of the Year Award, Iowa  
Section ASAE, 1995

### Recent Publications

Hoff, S.J. 2002. Assessing Air Infiltration Rates of  
Agricultural Use Ventilation Curtains. *Applied  
Engineering in Agriculture*, 17(4): 527-531.

Van Utrecht, D.M., S.J. Hoff, and J.D. Harmon.  
2002. Variable Rate Heater Control for Livestock  
Space Heating. *Applied Engineering in  
Agriculture*, 18(2): 245-253.

Yu, H., and S.J. Hoff. 2002. Air Mixing Criteria for  
Ceiling Slot-Ventilated Agricultural Enclosures:  
Non-Isothermal. *Transactions of the ASAE*, 45(1):  
201-214.

Hoff, S.J. 2000. The Environment in Swine Housing.  
In *Pork Industry Handbook*, PIH-54. Purdue  
University Extension Service, West Lafayette, IN.

Hoff, S.J., D.M. Van Utrecht, J.D. Harmon, and D.W.  
Mangold. 2000. A General Purpose Laboratory for  
Evaluating Livestock Ventilation Systems. *Applied  
Engineering in Agriculture* 16(6):701-714.

Hoff, S.J., and C.G. Wu. 2000. Establishing  
Criteria for Sidewall Air Inlet Performance and  
Evaluation of Four Commercial Inlets on this  
Criteria. *Transactions of the ASAE* 43(3):735-743.

Oberreuter, M.E., and S.J. Hoff. 2000. Quantifying  
Factors Affecting Sidewall Air Inlet Performance.  
*Transactions of the ASAE* 43(3):707-716.

Hoff, S.J., and P. Sundberg. 1999. Breakage and  
Deformation Characteristics of Hypodermic Devices  
Under Static and Dynamic Loading. *American  
Journal of Veterinary Research* 60(3):292-298.

Yu, H., and S.J. Hoff. 1999. Airflow Pattern Similarity  
Criteria for Ceiling Slot-Ventilated Agricultural  
Enclosures Under Isothermal Conditions.  
*Transactions of the ASAE* 42(2):459-469.



### Teaching

Dr. Hoff's areas of teaching include environmental climate control for animal housing, sensor development, controller development, and air emission measurement and control technologies for animal production systems.

### Research

Dr. Hoff's areas of research include evaluation of and design conditions for efficient and sustainable animal production systems.

#### *Air emission quantification*

Dr. Hoff is currently working on the evaluation of emissions from animal housing systems using real-time continuous monitoring techniques. In addition, Dr. Hoff is developing a method for determining the ventilation rate in naturally ventilated animal facilities. This method could be used to quantify emissions of odor, gases, and particulates from animal housing systems.

#### *Odor dispersion*

Dr. Hoff is also currently working on the development of an odor dispersion model and subsequent calibration data for use as a siting and odor management tool for animal production systems.

#### *Environmental climate control*

Additionally, Dr. Hoff is working on methods to automatically and continuously control both space and radiant heating systems in a proportional, variable manner for swine and poultry production systems.

### Other Professional Interests

Putting "Science into Practice" is a motto that has guided Dr. Hoff's research. In the past six years, five patents and two copyrighted software routines have been received on research projects that Dr. Hoff has directed. One of these patents has been commercialized into a livestock and poultry control system that is used in several countries. Example patents received are listed below.

- Method and Means for Automated Variable Heater Control for Agricultural Unit Heaters, *U.S. Patent* 6,360,955; March 26, 2002
- Automated Controller for Naturally Ventilated Livestock and Poultry Facilities, *U.S. Patent* 5,813,599; September 29, 1998
- Automated Forced-Choice Dynamic-Dilution Olfactometer and Method of Operating the Same, *U.S. Patent* 5,767,385; June 16, 1998