

# **Douglas W. Hamilton**

## Curriculum Vitae

### **EDUCATION**

- Ph.D. Agricultural Engineering, Pennsylvania State University. 1992.
- M.S. Agricultural Engineering, Iowa State University. 1985.
- B.S. Agricultural Engineering, University of Arkansas. 1983.

### **PROFESSIONAL EXPERIENCE**

Associate Professor of Biosystems and Agricultural Engineering, and  
Extension Waste Management Specialist.  
Oklahoma State University. 2000-present.

Assistant Professor of Biosystems and Agricultural Engineering, and  
Extension Waste Management Specialist.  
Oklahoma State University. 1995-2000.

Assistant Professor of Agricultural Engineering, and  
Extension Soil and Water Specialist.  
University of Tennessee. 1992-1995.

Graduate Teaching Assistant, Agricultural Engineering Department.  
Pennsylvania State University. 1991.

Graduate Research Assistant, Agricultural Engineering Department.  
Pennsylvania State University. 1988-1991.

Inspection Engineer II, State of Arkansas.  
Department of Pollution Control and Ecology. 1985-1988.

Graduate Research Assistant, Agricultural Engineering Department.  
Iowa State University. 1983-1985.

### **PROFESSIONAL REGISTRATION**

Tennessee: PE # 00101266

### **PROFESSIONAL ASSOCIATIONS**

American Society of Agricultural and Biological Engineers  
Water Environment Federation  
Air and Waste Management Association

## HONOR SOCIETIES

Tau Beta Pi  
Alpha Epsilon  
Gamma Sigma Delta

## AWARDS

Blue Ribbon ASAE Education Aids Competition. 2013. BAE 1760, *Organic Matter Content of Wastewater and Manure*. Publications less than 9 pages.

Blue Ribbon ASAE Education Aids Competition. 2011. *Alternative Manure Technology Video Series*. Electronic Delivery.

Blue Ribbon ASAE Education Aids Competition. 2003. *Oklahoma Poultry Waste Management*. Extension Method.

Secretary of Agriculture Honor Award. 2002. Leadership of Oklahoma Poultry Waste Management Education Team.

Blue Ribbon ASAE Education Aids Competition. 2000. *Movement of Odors Off-Farm*. Fact Sheet or Bulletin.

EMI First Place-Student Branches, Group A. 1999. Branch Advisor.

SW Region ASAE Student Paper Award. 1983.

Eagle Scout. 1978.

## REFEREED PUBLICATIONS

**Hamilton, D.W.** and M.T. Steele. 2014. Operation and performance of a farm-scale anaerobic sequencing batch reactor treating dilute swine manure. *Transactions of ASABE*. 57(5): 1473-1482.

**Hamilton, D.W.** 2010. Sludge accumulation in two anaerobic/facultative lagoons treating swine manure from breeding farms in Oklahoma. *Transactions of ASABE*. 53(2):529-536.

Ndegwa, P.M., **D.W. Hamilton**, J.A. Lalman, and H.J. Cumba. 2007. Effects of cycle frequency and temperature on the performance of anaerobic sequencing batch reactors treating swine waste. *Bioresource Technology*. 99:1972-1980

**Hamilton, D.W.**, I.N. Kourtchev, P.M. Ndegwa, H.J. Cumba, and F.A. Gioelli. 2006. Emissions of methane and carbon dioxide from simulated anaerobic swine waste treatment lagoons under summer conditions. *Transactions of ASAE*. 49(1):157-165

Ndegwa, P.M., **D.W. Hamilton**, J.A. Lalman, and H.J. Cumba. 2005. Optimization of anaerobic sequencing batch reactors treating dilute swine slurries. *Transactions of ASAE*. 48 (4) 1575-1583

Ndegwa, P.M., J. Zhu, A. Luo, **D.W. Hamilton**. 2003. Enhanced phosphorus removal from swine manure in aerated batch reactors. *Transactions of ASAE* 46(3):797-803.

Cumba, H. J. and **D.W. Hamilton**. 2002. Liquid balance model for anaerobic lagoons. *Transactions of ASAE*. 45(4):973-981.

**Hamilton, D.W.** and J. Arogo. 1999. Understanding farmstead odors: an annotated review. *Professional Animal Scientist*. 15(4):203.

#### REVIEWED WEB CONTENT

**Hamilton, D.W.** 2013. *Types of Anaerobic Digesters*, Module 3 in ANDIG An Introduction to Anaerobic Digestion by the National Bioenergy Training Center. <http://fyi.uwex.edu/biotrainingcenter/>

**Hamilton, D.W.** 2013. *Making Sense of Smells – Communicating Odors to Diverse Audiences*. Online Workshop recorded by the Livestock and Poultry Environmental Learning Center. <http://www.extension.org/pages/68670/making-sense-of-smells-communicating-odors-to-diverse-audiences>.

**Hamilton, D.W.** 2013. *What Every Pork Producer Should Know About Anaerobic Digestion*. Factsheet in Pork Information Gateway (PIG) of the US Pork Center for Excellence. <http://www.porkgateway.org/PIGLibraryDetail/PF/2072.aspx>

**Hamilton, D.W.**, and J. Heemstra. 2010. *Environmental Benefits of Anaerobic Digestion*. eXtension Farm Energy. <http://www.extension.org/pages/30308/environmental-benefits-of-anaerobic-digestion#.UyyakahdV0M>

**Hamilton, D.W.** 2010. *Types of Anaerobic Digesters*. eXtension Farm Energy. <http://www.extension.org/pages/30307/types-of-anaerobic-digesters#.Uym3YqhdV0M>

**Hamilton, D.W.**, and D. Ciolcosz. 2010. *Processing Biomass into Biogas*. eXtension Farm Energy. <http://www.extension.org/pages/30313/processing-biomass-into-biogas#.UyyalahdV0M>

**Hamilton, D.W.** 2010. *Solids Separation in Swine Manure Handling Systems*. eXtension Hogs, Pigs, and Pork. <http://www.extension.org/pages/27470/solids-separation-in-swine-manure-handling-systems#.Uyyb7ahdV0M>

#### REVIEWED EXTENSION PUBLICATIONS

**Hamilton, D.W.** and J.A. Ogejo. 2014. *Strategies to Control Farmstead Odors*, BAE 2905. Stillwater, OK: Oklahoma Cooperative Extension Service.

**Hamilton, D.W.** 2014. *The Basics of Vermicomposting*, BAE 1528. Stillwater, OK: Oklahoma Cooperative Extension Service.

**Hamilton, D.W.** 2014. *Particle Size Distribution of Manure and Byproduct Slurries*, BAE-1765. Stillwater, OK: Oklahoma Cooperative Extension Service.

**Hamilton, D.W.** 2014. *Solid State Anaerobic Digestion*, BAE-1764. Stillwater, OK: Oklahoma Cooperative Extension Service.

**Hamilton, D.W.** 2014. *Anaerobic Digestion of Animal Manure: Types of Digesters*, BAE-1750. Stillwater, OK: Oklahoma Cooperative Extension Service.

- Hamilton, D.W.** 2014. *Anaerobic Digestion of Animal Manure: Understanding the Basic Processes*. BAE-1747. Stillwater, OK: Oklahoma Cooperative Extension Service.
- Hamilton, D.W.** 2013. *Anaerobic Digestion of Animal Manure: Inhibitory and Toxic Materials*, BAE 1763. Stillwater, OK: Oklahoma Cooperative Extension Service.
- Hamilton, D.W.** 2012. *Anaerobic Digestion of Animal Manures: Methane Production Potential of Waste Materials*, BAE 1762. Stillwater, OK: Oklahoma Cooperative Extension Service.
- Hawkins, S.A., R.S. Frazier, **D.W. Hamilton**. 2012. *The Oklahoma Agricultural Producers Comprehensive Guide to Federal Oil Pollution Prevention Regulations, E-1029*. Stillwater, OK: Oklahoma Cooperative Extension Service.
- Hamilton, D.W.** 2012. *The Icebox Test, a Simple Method to Determine Autoheating Potential of compost and Manure*, BAE 1761. Stillwater, OK: Oklahoma Cooperative Extension Service.
- Hamilton, D.W.** 2012. *Organic Matter Content of Wastewater and Manure*, BAE 1760. Stillwater, OK: Oklahoma Cooperative Extension Service.
- Hamilton, D.W.**, and H. Zhang. 2011. *Solids Content of Wastewater and Manure*, BAE 1759. Stillwater, OK: Oklahoma Cooperative Extension Service.
- Hamilton, D.W.** 2011. *What is a Waste Management System*, BAE 1734. Stillwater, OK: Oklahoma Cooperative Extension Service.
- Frazier, R.S., **D.W. Hamilton**, and P.M. Ndegwa. 2011. *Anaerobic Digestion: Biogas Utilization and Cleanup*. BAE 1752. Stillwater, OK: Oklahoma Cooperative Extension Service.
- Hamilton D.W.** 2011. *Lagoons for Livestock Waste Treatment*. BAE 1736. Stillwater, OK: Oklahoma Cooperative Extension Service.
- Hamilton D.W.** 2011. *Consistency of Manure/Liquid Mixtures*. BAE 1751. Stillwater, OK: Oklahoma Cooperative Extension Service.
- H. Zhang and **D.W Hamilton**. 2009. *Sampling Animal Manure*. PSS-2248. Stillwater, OK: Oklahoma Cooperative Extension Service.
- H. Zhang, **D.W. Hamilton**, and J. Payne. 2009. *Using Poultry Litter as Fertilizer*. PSS- 2246. Stillwater, OK: Oklahoma Cooperative Extension Service.
- Hamilton, D.W.** 2000. *Composting System for Small Horse Farms*. F-1741. Stillwater, OK: Oklahoma Cooperative Extension Service.
- Hamilton, D.W.** and J. Arogo. 1999. *Measuring Farmstead Odors*. F-1740. Stillwater, OK: Oklahoma Cooperative Extension Service.
- Hamilton, D.W.**, and J.D. Carlson. 1999. *Movement of Odors Off-Farm*. F-1739. Stillwater, OK: Oklahoma Cooperative Extension Service.
- H. Zhang and **D.W. Hamilton**. 1998. *Using Lagoon Effluent as Fertilizer*. F- 2245. Stillwater, OK: Oklahoma Cooperative Extension Service.

- H. Zhang, and **D.W. Hamilton**. 1998. *Using Stockpiled Feedlot Manure as Fertilizer*. F-2250. Stillwater, OK: Oklahoma Cooperative Extension Service.
- Hamilton, D.W.**, W.G. Luce, and A.D. Heald. 1997. *Production and Characteristics of Swine Manure*. F-1735. Stillwater, OK: Oklahoma Cooperative Extension Service.
- Graham, M., P. Bonner, G. Johnson, M. Kizer, and **D.W. Hamilton**. 1997. *Protecting Groundwater Areas through Nutrient Management*. E-950. Oklahoma Department of Environmental Quality and Oklahoma Cooperative Extension Service.
- Hamilton, D.W.**, C.D. Fulhage, J. D. Rickman, R. McLeod, S.K. Sperry, and J.W. Looney. 1996. *Swine Waste Treatment: Odors, Energy and Economics*. D.W. Hamilton, ed. Center for Agriculture and the Environment. Division of Agricultural Sciences and Natural Resources. Stillwater, OK: Oklahoma State University.
- Burnett, J., **D.W. Hamilton**, and G. F. Smith. 1995. *Water Conservation; Conservation and Environment 4-H Member Guide, Grade 6, Unit 2*. PB 1525. Knoxville, TN: The University of Tennessee Agricultural Extension Service.
- Savoy, H.J., and **D.W. Hamilton**. 1994. *Manure Application Management*. PB 1510. Knoxville, TN: The University of Tennessee Agricultural Extension Service.
- Hamilton, D.W.** 1994. *Land Application of Biosolids--Ten Questions Every Landowner Should Ask*. PB 1515. Knoxville, TN: The University of Tennessee Agricultural Extension Service.

#### BOOK SECTIONS

- Hamilton, D.W.**, M. Hubert, M. Kerley, N. Meister, A. Parks, J. Payne, and J.M Sweeten. 2009. Agricultural industries byproduct workgroup results, pp 37-44. *in*, *Feedstocks Workshop Report*. Stillwater, OK: South Central Region Sun Grant Center.
- Hamilton D.W.**, C.D. Fulhage, B.Z. Fathepure, W. D Clarkson, and J.L. Lalman. 2006. Treatment lagoons for animal agriculture. Pp.547-547 *in*, *Animal Agriculture and the Environment: National Center for Manure and Animal Waste Management White Papers, Pub No 913C0306*. St Joseph, MI:ASABE.
- Hamilton, D.W.** 2005. Waste management. Chapter 37 *in* *Beef Cattle Manual, 5<sup>th</sup> ed.* Stillwater, OK:Oklahoma State University.
- Hamilton, D.W.** 1990. Part 2 - Management of water treatment sludges for land application. Pp 41-95 *in*, *Land Application of Water Treatment Sludges: Impact and Management*. Denver, CO: AWWA Research Foundation.

#### EXTENSION AND RESEARCH PAPERS AND ARTICLES

- Lim, T.T., G. Arnold, A. Douridas, K. Erb, T. Bay, C.E. Henry, C.E., R.E. Meinen, and **D.W. Hamilton**. 2013. North American Manure Expo: Creating a permanent, sustainable base for hands-on manure applicator education, final report. Great Lakes Water Quality Program.

- Hamilton, D.W.** 2013. Using glycerol, a byproduct of biodiesel creation from soybeans, to increase the energy recovery from anaerobic digesters, final report. Claremore, OK: Oklahoma Soybean Board.
- Hamilton, D.W.**, M.T. Steele, P.M. Ndegwa. 2012. The Anaerobic sequencing batch reactor (ASBR) an advanced anaerobic digester for dilute live swine production byproducts. In Proceedings of the International Conference on Agricultural Engineering, Valencia, Spain. July 8-12, 2012. CIGR: Hokudai, Japan.
- Steele, M.T., and **D.W. Hamilton**. 2010. Continuous operation of an anaerobic sequencing batch reactor (ASBR) treating low strength swine manure. International Symposium on Air Quality and Manure Management for Agriculture. Dallas, TX. September 13-15, 2010
- Hamilton, D.W.**, M.A. Kizer, M.T. Steele, R.S. Frazier, S.D. Carter, K.S. Brock, R. D. Williamson. 2010. Oklahoma State University Swine Research and Education Center manure handling and utilization. International Symposium on Air Quality and Manure Management for Agriculture. Dallas, TX. September 13-15, 2010
- Steele, M.T., and **D.W. Hamilton**. 2010. Continuous operation of an anaerobic sequencing batch reactor (ASBR) treating low strength swine manure. ASABE paper 10-9787 St. Joseph, MI: ASABE.
- Hamilton, D.W.**, M.A. Kizer, M.T. Steele, R.S. Frazier, S.D. Carter, K.S. Brock. 2009. Oklahoma State University Swine Research and Education Center: waste management system performance and outreach efforts. Texas Manure Management Issues Conference. Round Rock, TX. September 29-30, 2009.
- Steele, M.T., and **D.W. Hamilton**. 2009. Start-up of an anaerobic sequencing batch reactor (ASBR) treating low strength swine manure. ASABE paper 09-6766 St. Joseph, MI: ASABE.
- Hamilton, D.W.**, M.E. Murie, M.A.A. Khan, P.M. Ndegwa. 2008. Vermicomposting of poultry litter: process optimization. ASABE paper 08-4896. St. Joseph, MI: ASABE
- Murie, M.E., and **D.W. Hamilton**. 2008. Further processing of poultry mortality compost by vermicomposting. ASABE paper 08-4908. St. Joseph, MI: ASABE
- Hamilton, D.W.** 2007. A Novel method to describe and discuss odors. *in*, *Proceedings of the International Symposium on Air Quality and Waste Management for Agriculture*. St. Joseph, MI: ASABE
- Hamilton, D.W.** 2007. The Rational design standard for anaerobic lagoons – twenty years later. *in*, *Proceedings of the International Symposium on Air Quality and Waste Management for Agriculture*. St. Joseph, MI: ASABE
- M.A.A. Khan and **Hamilton D.W.** 2007. Vermicomposting of poultry litter: effect of bulking agent and litter pretreatment on worm survivability. ASAE Paper 07-7080. St Joseph, MI: ASABE.
- Hamilton, D.W.** 2004. Methods for determining anaerobic/facultative lagoon operation life using a complex sludge accumulation model. ASAE Paper 04-4026. St. Joseph, MI: ASAE.

- Hamilton, D.W.** 2004. Function of lagoons as treatment components in liquid manure handling systems used on swine farms in temperate climates. *in, Proceedings of the CIGR International Symposium, "New Trends in Farm Buildings"*. Evora, Portugal: Universidade de Evora.
- Hamilton, D.W.**, and E. R. Cook. 2003. The Oklahoma poultry waste management education program. *in, Proceedings of the 9<sup>th</sup> International Symposium on Animal Agricultural, and Food Processing Wastes*. St. Joseph, MI: ASAE.
- Hamilton, D.W.**, P.M. Ndegwa, I.N. Kourchev, H.J. Cumba, and F.A. Gioelli. 2003. Simulation of anaerobic/facultative lagoon performance using a 1,000 liter pilot facility. ASAE Paper 03-4155. St. Joseph, MI:ASAE.
- Hamilton, D.W.** 2003. Treatment lagoons for animal agriculture. *in, Proceedings of 2003 Specialty Conference on Agricultural Hydrology and Water Quality*. Middleburg, VA: American Water Resources Association.
- Hamilton, D.W.** 2002. Verification of standard sludge accumulation rates for swine manure treatment lagoons based on time-sequenced observations. ASAE Paper 02-4133. St. Joseph, MI:ASAE.
- Ndegwa, P.M., J. Zhu, A.Luo, and **D.W. Hamilton**. 2002. Enhanced phosphorus removal in swine manure using batch reactors. ASAE Paper 02-4097. St. Joseph, MI:ASAE.
- Hamilton, D.W.** and H.J. Cumba. 2000. Thermal phenomena in animal waste treatment lagoons. *in, Proceedings of the 8<sup>th</sup> International Symposium on Animal, Agricultural, and Food Processing Wastes*, p 672-678. ASAE: St. Joseph, MI.
- Cumba, H.J. and **D.W. Hamilton**. 2000. Water balance model for livestock waste management. *in, Proceedings of the 8<sup>th</sup> International Symposium on Animal, Agricultural, and Food Processing Wastes*, p 179-186. ASAE: St. Joseph, MI.
- Hamilton, D.W.** 1998. Pilot facility for facultative processing of organic waste. ASAE Paper 98-4112. St. Joseph, MI:ASAE.
- Vogel, J.R., C.T. Haan, and **D.W. Hamilton**. 1998. Generated runoff model for pond systems (GRUMPS): a confined animal waste management tool. ASAE Paper 98-4145. St. Joseph, MI:ASAE.
- Cumba, H.J., and **D.W. Hamilton**. 1998. Computer model for swine lagoon liquid management. ASAE Paper 98-4146. St. Joseph, MI:ASAE.
- Cumba, H.J., and **D.W. Hamilton**. 1998. Anaerobic lagoon liquid balance. ASAE Paper 98-4115. St. Joseph, MI:ASAE..
- Hamilton, D.W.**, and D.W. Freeman. 1997. Simplified composting method for small-scale horse production. *Proceedings of the Fifteenth Equine Nutrition and Physiology Symposium*. Chicago, IL: Equine Nutrition and Physiology Society.
- Hamilton, D.W.**, and K. A. Lewis. 1996. Process performance analysis for small-scale horse manure composers. ASAE Paper 96-4080. St. Joseph, MI:ASAE.

- Hamilton, D.W.** 1996. Seasonal performance of facultative lagoons for reduced odor treatment of swine manure. *Proceedings of the International Conference on Air Pollution from Agricultural Operations*. Ames, IA: Midwest Plan Service. .
- Hamilton, D.W.**, and R. C. Rosser. 1994. The Sidewinder--an improved lagoon sampler. ASAE Paper 94-4064. St. Joseph, MI:ASAE.
- Yoder, D.C., J.B. Wilkerson, R.E. Yoder, and **D.W. Hamilton**. 1993. Open channel mass flow measurement. ASAE Paper 93-3532. St. Joseph, MI:ASAE.
- Hamilton, D.W.**, and H.A. Elliott. 1991. Predicting soil physical damage from high sodium wastes. ASAE Paper 91-2603. St. Joseph, MI:ASAE.
- Hamilton, D.W.**, and H.A. Elliott. 1990. Characterization of reserve pit liquids for land application. ASAE Paper No. 90-2535. St. Joseph, MI:ASAE.
- Hamilton, D.W.**, M. Core, and D. Parks. 1988. Pollution control regulations affecting poultry processing - Arkansas. *in, Proceedings of the National Poultry Waste Management Symposium*, p 169. Columbus, OH: Department of Poultry Science, Ohio State University.
- Hamilton, D.W.**, P.R. Sharp, and R.J. Smith. 1985. The Operational characteristics of a manure digester for 60 beef animals. *in, Proceedings of the 5th International Symposium on Agricultural Wastes*, p 500-508. St. Joseph, MI:ASAE.

## POPULAR PRESS ARTICLES

- So You Spilled Some Swine Manure – Now what do you do?* 2014 *OK Pork Partner* 15(4):5.
- Keep Manure out of the Creek and Thousands of Fish will call you friend.* 2014. *OK Pork Partner* 15(3):5.
- PEDv Session added to North American Pork Expo.* 2014 *e-Pork Partner* June 27, 2014.
- North American Manure Expo July 8 and 9, 2014 Srpingsfield, MO.* 2014. *OK Pork Partner* 15(2):5.
- Particle Size Distribution – Not All that Hits the Fan Sticks to the Screen.* 2014. *OK Pork Partner* 15(1):5.
- How Can a Liquid be Solid? Don't Keep Me in Suspense.* 2013. *OK Pork Partner* 14 (4):5.
- It's Manure Expo Time!* 2013. *OK Pork Partner* 14 (3):4.
- Red, Green, or Black; What Color is Your Lagoon?* 2013. *OK Pork Partner* 14(2):5.
- EPA is Requesting Comments from Farmers on CAFO Regulations.* 2013. *OK Pork Partner* 14(1):5.
- Yes You Can Produce Methane from Swine Manure!* 2012. *OK Pork Partner* 13(3):4
- Energy Flows and Materials Circulate.* 2012. *OK Pork Partner* 13(3):4



*Pollution Prevention Begins on the Farm.* 2012. *OK Pork Partner* 13(2):4

*Green Finisher Barns Reduce Emissions and Improve the Bottom Line.* 2012. *OK Pork Partner* 13(1):4

*Understanding Manure Handling Systems.* 2012. *Engineering Success.* 3(1):2

*Struvite. It's a Blessing, and a Curse.* 2011 *OK Pork Partner* 12(4):4.

*Maintaining Biofilters during Drought.* 2011. *OK Pork Pages.* 15(3):14.

*Revised Lagoon Standard Decreases Sludge Storage Requirement.* 2011. *Pork Pages* 15(2):14.

*Better Data Leads to Revised Lagoon Standard.* 2011. *Engineering Success* 2(2):4.

*Why Do We Add Water to Flush Hog Buildings?* 2011. *Pork Pages* 15(1):9

*Two Essentials to Control Odors in Buildings: Pull Pits and Keep Hogs Clean.* 2010. *Pork Pages* 14(4):8.

*Lagoon Management through the Water Year.* 2010. *Pork Pages* 14(3):4.

*Oklahoma Lagoon Sludge Study Released.* 2010. *Pork Pages* 14(2):4.

*Preparing for Lagoon Turnover.* 2010. *Pork Pages* 14(1):4.

*Energy from Biomass: The Case for Anaerobic Digestion.* 2010. *Engineering Success* 1(1):3.

*On-Farm Energy Production Unlikely to Reduce Manure Fertilizer Value.* 2009. *Pork Pages* 13(4):4

*Manure Has Value as Energy and Fertilizer – Surprise, Surprise, Surprise!* 2009. *EQ&WM Update* 1(2):1.

*Digester at OSU is Up and Running after a Successful “Cold Start”.* 2009. *Pork Pages* 13(3):4.

*The Potential Energy of Oklahoma Hogs.* 2008. *Pork Pages* 12(5):5

*The Scoop on Biofilters.* 1999. *Pork Pages, Oklahoma Pork Producers Newsletter.*

*Odor Control with Pull Plug Systems.* 1999. *Pork Pages, Oklahoma Pork Producers Newsletter.*

*The Electronic Nose.* 1999. *Pork Pages, Oklahoma Pork Producers Newsletter.*

*Lagoon Effluent or Perfume with Negative Hedonic Tone?* 1999. *Pork Pages, Oklahoma Pork Producers Newsletter.*

*Odor Detection and Recognition.* 1999. *Pork Pages, Oklahoma Pork Producers Newsletter.*

*Odor Control Basics.* 1999. *Pork Pages, Oklahoma Pork Producers Newsletter.*

*Why Do People Take Odors Personally?* 1998. *Pork Pages, Oklahoma Pork Producers Newsletter.*

## EXTENSION CURRICULA

- Hamilton, D.W.** 2014. *Successful Home Vermicomposting in Bins with Replaceable Trays*. Index card handout.
- Hamilton D.W** and C.A.Woods. 2014. *Anaerobic Digestion of Poultry Litter*. Video for Poultry Waste Management Training Series: Alternative Uses of Litter.
- Hamilton D.W** and C.A.Woods. 2011. *Vegetative Treatment System: Large Feedlot*. Video. Oklahoma Cooperative Extension and Nebraska Cooperative Extension.
- Hamilton D.W** and C.A.Woods. 2011. *Vegetative Treatment System: Small Feedlot*. Video. Oklahoma Cooperative Extension and Nebraska Cooperative Extension.
- Hamilton D.W** and C.A.Woods. 2011. *Poultry Litter Subsurfer*. Video. Oklahoma Cooperative Extension and USDA Agricultural Research Service.
- Hamilton, D.W.** 2010. *Making Sense of Smells, a Guide to Understanding Farmstead Odors Part 7: OSU Experience with Simulated Olfactometry Exercise*. Annotated Slide Set.
- Hamilton, D.W.** 2010. *Making Sense of Smells, a Guide to Understanding Farmstead Odors Part 6: Simulated Olfactometry Exercise*. Annotated Slide Set.
- Hamilton, D.W.** 2010. *Making Sense of Smells, a Guide to Understanding Farmstead Odors Part 5: Odor Intensity and Offensiveness*. Annotated Slide Set.
- Hamilton, D.W.** 2010. *Making Sense of Smells, a Guide to Understanding Farmstead Odors Part 4: Odor Concentration by Olfactometry*. Annotated Slide Set.
- Hamilton, D.W.** 2010. *Making Sense of Smells, a Guide to Understanding Farmstead Odors Part 3: Odor Measurement - Notes*. Annotated Slide Set.
- Hamilton, D.W.** 2010. *Making Sense of Smells, a Guide to Understanding Farmstead Odors Part 2: Odor Structure*. Annotated Slide Set.
- Hamilton, D.W.** 2010. *Making Sense of Smells, a Guide to Understanding Farmstead Odors Part 1: Physiology of Smell*. Annotated Slide Set.
- Hamilton D.W** and C.A.Woods. 2010. *Alligator Ranch Waste Management*. Video. Oklahoma Cooperative Extension and Louisiana State University Ag Center.
- Hamilton D.W** and C.A.Woods. 2010. *"Biovator" Mortality Composter*. Video. Oklahoma Cooperative Extension
- Hamilton D.W** and C.A.Woods. 2010. *In-House Composting of Poultry Litter*. Video. Oklahoma Cooperative Extension and Louisiana State University Ag Center.
- Hamilton D.W** and C.A.Woods. 2010. *Weeping Wall Solids Separator*. Video. Oklahoma Cooperative Extension and Texas AgriLife Extension.
- Hamilton D.W** and C.A.Woods. 2010. *Mechanical Solids Separator and Compost Reuse*. Video. Oklahoma Cooperative Extension and Texas AgriLife Extension.
- Hamilton D.W** and C.A.Woods. 2010. *Rotating Drum Poultry Mortality Composter*. Video. Oklahoma Cooperative Extension and Texas AgriLife Extension.

- Hamilton D.W** and C.A.Woods. 2010. *Regional Poultry Litter Bailer*. Video. Oklahoma Cooperative Extension and Arkansas Cooperative Extension.
- Hamilton D.W** and C.A.Woods. 2010. *Swine Manure Digester*. Video. Oklahoma Cooperative Extension and Arkansas Cooperative Extension.
- Hamilton, D.W.** 2009. *Odor Control Basics for Poultry Producers*. Slide Set for Poultry Waste Management Update Training.
- Hamilton, D.W.** 2008. *Alternative Energy for Poultry Producers*. Slide Set for Poultry Waste Management Update Training.
- Hamilton, D.W.** 2007. *Handling Manure and Barnyard Waste* in, Tulsa Area Horse Short Course. Stillwater, OK: Oklahoma Cooperative Extension Service.
- Hamilton, D.W.** 2005. *Waste Management in Grazing Herds*. Slide Set and Lesson Plan in, Oklahoma Mater Cattleman Curriculum Series. Stillwater, OK: Oklahoma Cooperative Extension Service.
- Hamilton, D.W.**, C.A. Woods, M. Green, M. Moseley, A. Inman, and S. Swall. 2002. *Understanding the Animal Waste Management Plan*. Video segment. in, Oklahoma Poultry Waste Management Education Video and Curriculum Series. Stillwater, OK: Oklahoma Cooperative Extension Service.
- Hamilton D.W.**, and C.A. Woods. 2002. *Fine Tuning the Animal Waste Management Plan*. Video segment. in, Oklahoma Poultry Waste Management Education Video and Curriculum Series. Stillwater, OK: Oklahoma Cooperative Extension Service.
- Fram, M.J., **D.W. Hamilton**, and C.A. Woods. 2002. *Environmental Background*. Video segment. in, Oklahoma Poultry Waste Management Education Video and Curriculum Series. Stillwater, OK: Oklahoma Cooperative Extension Service.
- Bullard,G.L., **D.W. Hamilton**, M.J. Fram, D.S. Peel, J. Hollandback, and C.A. Woods. 2002. *Litter Marketing*. Video segment. in, Oklahoma Poultry Waste Management Education Video and Curriculum Series. Stillwater, OK: Oklahoma Cooperative Extension Service.
- Hamilton, D.W.**, and C.A. Woods. 2001. *Calibrating the Poultry Litter Spreader*. Video segment. in, Oklahoma Poultry Waste Management Education Video and Curriculum Series. Stillwater, OK: Oklahoma Cooperative Extension Service.
- Hamilton, D.W.**, J. G. Britton. 1999. *Understanding Your Animal Waste Management Plan*. Slide Set. in, Oklahoma Poultry Waste Management Education Curricula. Stillwater, OK: Oklahoma Cooperative Extension Service.
- Hamilton, D.W.**, J.G. Britton, and M.J. Fram. 1999. *Fine Tuning the Animal Waste Management Plan*. Slide Set. in, Oklahoma Poultry Waste Management Education Curricula. Stillwater, OK: Oklahoma Cooperative Extension Service.
- G.L. Bullard, **D.W. Hamilton**, and D.S. Peel. 1999. *Litter Marketing for Better Economics and Environment*. Slide Set. in, Oklahoma Poultry Waste Management Education Curricula. Stillwater, OK: Oklahoma Cooperative Extension Service.

## **COURSES AND PREPARED IN-CLASS MATERIALS**

*Does It Pass the Sniff Test?* Laboratory Exercise for Students and Extension Professionals.

*Odor Intensity and Pleasantness, Related or Not?* Laboratory Exercise for Students and Extension Professionals.

*Why Do We Flush Hog Buildings and Scrape Cattle Barns – a Guide for Understanding Manure Consistency and Its effect on Handling.* Half hour lecture for Extension Professionals.

*Understanding Manure Handling Systems.* Half hour lecture for Extension Professionals.

*Anaerobic Digestion: Biomass to Bioenergy.* One hour lecture for Biosystems Engineering graduate students.

*Lagoons and Digesters for Livestock Waste Treatment.* Two hour lecture for Upper Level Agriculture Students.

*Overview of Waste Management Systems.* Two hour foundation lecture for CNMP Training

*Principles of Lagoon Operation and Sludge Management.* One hour lecture for swine producers.

*Making Sense of Smells – Communicating Odors to Diverse Audiences.* Two hour workshop for Extension Professionals

*Air Quality Assessment for Animal Agriculture –* Half hour lecture and demonstration for extension professionals.

*Biomass for Residential Heating –* Half hour presentation for homeowners

*Biomass for Poultry House Heating –* Half hour presentation for poultry farmers.

*Dairy Manure Handling Systems for Oklahoma.* One hour lecture for Animal Science Students.

*Anaerobic Digestion: Biomass to Bioenergy.* One hour lecture for Biosystems Engineering juniors.

*Nature and Handling of Organic Slurries.* One hour lecture for Biosystems Engineering sophomores.

*Material Handling in Agricultural Waste Management.* Graduate level Biosystems Engineering special problems course. 2-4 hours graduate credit

*Comprehensive Nutrient Management Planning for Animal Agriculture.* Graduate level Biosystems Engineering special problems course. 3 hours graduate credit.

*Animal Waste Lagoon Management.* Three hour workshop for Extension Professionals

*Treatment by Lagoons.* One hour lecture for Biosystems Engineering juniors.

*Mel, Methane and the Other White Meat* three hour lecture for Biosystems Engineering seniors and graduates on energy from animal manure.

*Unraveling the Mystery of Farmstead Odors.* One hour lecture for Animal Science seniors.

*Making Sense of Smells.* Lecture and laboratory exercise for Biosystems Engineering freshmen and sophomores.

*Solids Analysis.* Laboratory exercise for Biosystems Engineering juniors.

*Manure Handling Systems- Ecological Background, Components, Pollution Prevention.* Two or three part lecture for Animal Science seniors or Biosystems Engineering juniors.

## **SCHOLARLY ACTIVITIES**

### ASABE:

Structures and Environment Associate Editor. 2002-2011.  
Committee E-07 Issues Management and Social Action. 2009-present  
Committee BE-21 Applications in Biological Engineering. 2008-2010.  
Committee SE-412 Agricultural Waste Management. 1994-2001, 2002-present.  
Committee SW-263 Land Application of Waste. 1987-1997; Chair 1994-1996  
Committee SW-07 Nomenclature. 1996 - 2003.  
Oklahoma Section ASAE President. 1998-1999

### Water Environment Federation:

National Task Force for Biosolids Acceptance. 1993-1994.

### Elected Scientific and Service Committees:

Board of Directors, North American Manure Expo, Inc. 2014-2017.  
Stakeholders Advisory Group for the Growth Promoters, Wind, and Human Ecological Health USDA-NRI Integrated Project at Texas Tech University. 2010-2013.  
Programming Workshop on Manure and Byproduct Utilization. USDA-ARS/CSREES. St Louis, MO. 2008.  
Water Quality Research Summit. National Pork Board. Des Moines, IA 2008.  
OK Delegation to the First International Forum on Permaculture and Intensive Agriculture. Facultad de Zootecnia, UA Chihuahua, Mexico. 2004.  
Key Research Issues Project. National Pork Board. Ames, IA 2003.  
Assessment of Ammonia Emissions from the Stores of Animal Wastes in Reggio Piemonte. Univerista degli Studi di Torino, Italy. 2003-2004.  
Utah Pasture Workshop. Utah State University. 1997.

### Publication Review:

ASAE Publications. 1993-present.  
Journal of Bioresources Technology. 1996 - present.  
Waste Management. 2011-present  
Pork Industry Handbook. 2000.  
Horse Industry Handbook. 1997.

### Proceedings Review

11<sup>th</sup> International Symposium on Agricultural Wastes 2010  
10<sup>th</sup> International Symposium on Agricultural Wastes 2007  
9<sup>th</sup> International Symposium on Agricultural Wastes. 2003  
8<sup>th</sup> International Symposium on Agricultural Wastes. 2000.  
8<sup>th</sup> National Symposium on On-Site Waste Treatment. 1997.

### Funding Review

Kansas EPSCOR. 2013.  
National Pork Board. 2012, 2013.  
University of Maryland, MIPS Technical Grants. 2010.  
USDA-CSREES/NIFA Small Business Innovative Research Grants. Ad-hoc Reviewer. 2009, 2010, 2011, 2012, 2013.  
US-Israeli Bi-National Research Development Grants. Ad-hoc Reviewer. 2010.  
Louisiana State Board of Regents Support Fund for Research and Development. 2007.  
USDA-NRCS Conservation Innovation Grants Program. 2004.

### **UNIVERSITY AND DEPARTMENTAL SERVICE**

DASNR Faculty Council. 2007-2009, Vice Chair 2007- 2008, Chair 2008-2009  
Oklahoma ASAE Pre-Professionals Branch Advisor. 1998-2000, 2003-2005  
OSU Biosystems and Ag Eng. Departmental Life Committee. Member 2009-present  
OSU Biosystems and Ag Eng. Scholarship Committee. Member 1995-, Chair 2008-present  
OSU Biosystems and Ag Eng. Publicity and Alumni Committee. 2001-2008.  
Deans Task Force for Animal Waste Management. 1997.

### **OKLAHOMA STATE UNIVERSITY GRADUATE COMMITTEES**

Hernan Fernandez-Barilles Lopez, M.S. Biosystems Engineering, Chair.  
Thomas Moore, M.S. Environmental Science.  
Cortney Cowley, Ph.D. Agricultural Economics  
J.K. Evicks, M.S. Biosystems Engineering  
Jeremy Tillmann, M.S. Biosystems Engineering

- Enze Jin, M.S. Biosystems Engineering. 2014. *Life Cycle Assessment of Two Catalysts Used in the Biofuel Syngas Cleaning Process and Analysis of Variability in Gasification.*
- Matthew Steele. Ph.D. Biosystems Engineering, Chair. 2013. *Anaerobic Sequencing Batch Reactor Treatment of Low Strength Sine Manure and Co-Digestion of Energy-Dense Byproducts.*
- Ross Stover, Ph.D. Civil Engineering. 2011. *Anaerobic Digestion Optimization for Enhanced Renewable Biomethane Production.*
- Adelheide West. M.S. Soil Science. 2009. *Accumulation and Capture of Nitrogen and Sulfur in Biofilters Treating Aerial Emissions from Swine Production Facilities.*
- Annushadevi Panneerselvam. M.S. Biosystems Engineering. 2009. *Effect of Glucose and Reducing Agents on Syngas Fermentation by P11<sup>T</sup>*
- Chelsea E. Farris. M.S. Environmental Science. 2008. *Non-thesis internship at the Maschoffs Inc. Carlisle, IL.*
- Mariela Lachmann Sevilla. Ph.D. Animal Science. 2007. *Influence of Dietary Manipulation on Dry Matter, Nitrogen, and Phosphorus Excretion of Pigs during an Entire Finishing Period.*
- M. A. Asad Khan. M.S. Biosystems Engineering 2006, Chair. *Vermicomposting of Poultry Litter using Eisenia Foetida.*
- Julian F. Cacho. M.S. Biosystems Engineering. 2005. *Estimating Sediment Loading using SWAT and Identifying Habitat Differences in Reference and Impaired Streams.*
- Hector J. Cumba. Ph.D. Biosystems Engineering. 2005. *Biodegradation of Cellulosic Spent Casing Waste from the Meat Processing Industry.*
- Kimberly A. Lewis Hornbuckle. M.S. Biosystems Engineering. 2004. *Transport of Swine Effluent Salts when Land Applied in a Semi-Arid Region through a Subsurface Drip Irrigation System.*
- Tesfaye. D Gebirrye. Ph.D. Biosystems Engineering. 2004. *Investigating Scale, Rainfall-Runoff and BMP Effects on Phosphorus, Runoff and Sediment Yield.*
- Maifan R. Silitonga. Ph.D. Environmental Science. 2004. *Framework for Evaluating Impact of a Confined Animal Feeding Operation in a Wellhead Protection Area.*
- Ivan N. Kourtchev. M.S. Biosystems Engineering. 2002, Chair.. *Methane, Carbon dioxide, and Ammonia Emissions from Simulated Anaerobic/Facultative Lagoons.*
- Damon G. Wright. M.S. Soil Science. 2002. *Phosphorus Fractionation on Three Oklahoma Soils Following Swine Effluent Application and Incubation.*
- Jason R. Vogel. Ph.D. Biosystems Engineering. 2001. *Measuring Macropore Flow through Waste Storage Liners.*
- Jason G. Warren. M.S. Soil Science. 2001. *Ammonia Volatilization from Swine Effluent.*
- Alicia D. Gilley. M.S. Biosystems Engineering. 2001, Co-Chair. *Odorant Flux during Land Application of Swine Lagoon Effluents..*

- Shannon L. Ferrell. M.S. Agricultural Economics. 2000. *The Economic Impact of Potential Regulatory Changes on the Swine Industry.*
- Xe Van Do. Ph.D. Agricultural Economics. 2000. *The Economic Impacts of Concentrated Hog Farms in Oklahoma and Public Policy Alternatives to Perceived Problems Related to Concentrated Production.*
- Rebecca A. Chavez. M.S. Biosystems Engineering. 2000. *Aquifer Cleaning using Surfactants.*
- Tina M. Eaton. M.S. Agricultural Economics. 1999. *Factors Affecting the Development of the Broiler Litter Market in Eastern Oklahoma.*
- Hector J. Cumba. M.S. Biosystems Engineering. 1998, Co-Chair. *Development of a Daily-Balance Computer Model for Estimating Hydraulic and Electrical Conductivity Values for Single-Stage Anaerobic Swine Lagoons.*
- Richard Kochenower. M.S. Soil Science. 1998. *Poultry Litter as a Nitrogen Source for Degradation of Hydrocarbons in Contaminated Soils.*
- Shawn Zupancic. M.S. Soil Science. 1998. *Determination of Ammonia Flux from Swine Effluent Applied to Calcareous Soils.*
- Chang Gil Kim. Ph.D. Agricultural Economics. 1997. *An Integrated Decision Model for Evaluating Alternative Swine Waste Management Systems under Environmental Constraints in Oklahoma.*

#### **GRANTS, CONTRACTS AND FUNDED PROJECTS**

- PI. Manure Technologies Expert Panel. USEPA Chesapeake Bay Program. \$30,000. 2015.
- CoPI. Making Climate Change a Functioning Thread in the Baccalaureate Curriculum: Transforming Fiber, Textiles, and Clothing Education. USDA-NIFA Community and Education. \$129,177 2012-2015
- Co-PI. Animal Waste Management for Semiarid Agroecosystems. USDA-AFRI. \$49,468. 2010-2012
- PI. Using Glycerol, a Byproduct of Biodiesel Creation from Soybeans, to Increase the Energy Recovery from Anaerobic Digesters. Oklahoma Soybean Board. \$12,970. 2010-2011
- Co-PI. Alternative Uses for Animal Manures. CSREES Southern Region Water Quality Project Pool Grant. \$15,410. 2009-2010.
- PI. Next Generation Record Keeping System for Confined Animal Feeding Operation Comprehensive Nutrient Management Plans. NRCS EQIP Education. \$25,000 8/2006-10/2007
- Co-PI. Instrumentation for Measurement of Ammonia, Hydrogen Sulfide, and Odor from the OSU Swine Research and Education Center. DASNR TIP program. \$71,000. 2006-2008.



- Co-PI. Emission Rates and Abatement Technologies for Ammonia, Hydrogen Sulfide, and Odor from the OSU Swine Research and Education Center. DASNR TIP program. \$32,000. 2006-2008.
- Co-PI. Whole-Farm Nutrient Balance for the OSU Swine Research Center. National Pork Board. 2005-2007.
- PI. Nitrogen Emission Characterization of Full-Sized and Simulated Swine Waste Treatment Lagoons. National Center for Manure and Animal Waste Management. \$26,634. 2003.
- Co-PI. Reduction of Ammonia, Methane, and Carbon Dioxide Emissions from Swine Waste by Dietary Manipulation. \$24,500. National Pork Board. 2003.
- Co-PI. Implementing Site Specific P Indices. Six-State Consortium for Manure Management Research: Oklahoma State University-University of Missouri. \$17,413. 2003-2004.
- Co-PI. Integrating Anaerobic Sequencing Batch Reactors (ASBRs) in the Treatment and Addition to Value to Swine Manures. DASNR Food and Agricultural Products Research and Technology Center. \$25,000. 2002-2004.
- Co-PI. System Level Analysis of Swine Diet Modifications. National Center for Manure and Animal Waste Management. \$23,000. 2002-2003.
- PI. *Treatment Lagoons for Animal Agriculture, White Paper*. National Center for Manure and Animal Waste Management. \$12,000. 2001-2002.
- Co-PI. Nitrogen Mass Balance for Swine Waste Treatment Facilities. Six-State Consortium for Manure Management Research: Oklahoma State University-Iowa State University-Purdue University. \$52,000. 1999-2002.
- PI. Poultry Operators Waste Management Training. Oklahoma Poultry Federation. \$300,000. 1998-2003.
- Co-PI. Monitoring Detention Ponds Below Confined Animal Facilities. Oklahoma Agricultural Experiment Station TRIP Program. \$18,130. 1998-2000.
- PI. Groundwater and Atmospheric Pollution Potential from Model Facultative Lagoons. OSU Environmental Institute - Water Research Center. \$47,600. 1997-1998.
- PI. Pilot Facility for Facultative Processing of Organic Waste. Oklahoma Food and Agricultural Products Research and Technology Center. \$37,000. 1997-1998.
- Co-PI. Assessing Ammonia Emissions from Swine Lagoons and Effluent Application. Six-State Consortium for Manure Management Research: Oklahoma State University-North Carolina State University. \$20,000. 1997-1998.
- Co-PI. Economics of Environmentally Controlled Swine Production Systems in Oklahoma. Oklahoma Agricultural Experiment Station TRIP Program. \$6,000. 1997-1998.
- Co-PI. Design and Economic Analysis of Swine Production and Waste Management Systems. Six-State Consortium for Manure Management Research: Oklahoma State University-University of Missouri. \$20,000. 1997-1998.
- PI. Anaerobic Digestion Workshop for Oklahoma Livestock Industry. US Department of Energy. \$15,000. 1996.

PI. Small Farms Livestock Pollution Prevention. US Environmental Protection Agency. \$146,000. 1996-2001.

PI. Swine Waste Management Education. US Environmental Protection Agency. \$38,000. 1995-1997.

PI. Facultative Lagoons for Swine Waste Management. Tennessee Department of Agriculture. \$8,000. 1994-1995.

Co-PI. Livestock Waste Management, Tennessee Valley Authority. \$80,000. 1993-1994.

#### **PERSONAL WEBSITE**

<http://osuwastemanage.bae.okstate.edu>

#### **YOUTUBE CHANNEL**

[www.youtube.com/osuwastemanagement](http://www.youtube.com/osuwastemanagement)

#### **LANGUAGES**

English (fluent),

Spanish (semi-fluent)

Norwegian—Bokmål and Nynorsk (reading ability)

Russian (studied)