

## ***Mark Sperow***

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### **EDUCATION**

PhD, Agricultural and Resource Economics, Colorado State University (1998)  
MS, Agricultural and Resource Economics, Colorado State University (1994)  
MA, History, Duquesne University  
Specialization in Archival Museum and Editing Studies. (1980)  
BA, History, West Virginia University (1979)

### **PROFESSIONAL POSITIONS**

<i>2008 – present</i>	Associate Professor – West Virginia University, Morgantown, WV
<i>2002 – 2008</i>	Assistant Professor – West Virginia University, Morgantown, WV
<i>2006 – 2010</i>	Resident Institute Faculty Fellow – Institute for Advanced Energy Solutions, a consortium of selected faculty from Carnegie Mellon Univ., Univ. of Pittsburgh, and WVU.
<i>2000 – 2002</i>	Instructor – Front Range Community College, Fort Collins, CO
<i>1998 – 2002</i>	Post-Doctoral Research Associate - Natural Resource Ecology Laboratory, Colorado State University, Fort Collins, CO
<i>1997 – 1998</i>	Assistant Coordinator – Department of Agricultural and Resource Economics, Colorado State University, Fort Collins, CO
<i>1993 – 1997</i>	Graduate Research Assistant – Department of Agricultural and Resource Economics, Colorado State University, Fort Collins, CO
<i>1989 – 1990</i>	Technical Writer – ITT Antarctic Services, McMurdo Station, Antarctica
<i>1981 – 1989</i>	Senior Engineer – Martin Marietta Corporation, Denver, CO
<i>1979 – 1980</i>	Teaching Assistant, History Department, Duquesne University, Pittsburgh, PA

### **PEER REVIEWED PUBLICATIONS**

Sperow, M., Costantini, E.A., and Davino, L. *In preparation*. Land management to offset GHG emissions: A study of potential soil organic carbon increases from cropland use and management in Italy

Sperow, M. 2020. What might it cost to increase soil organic carbon using no-till on U.S. cropland? Carbon Balance and Management 15, 26. <https://doi.org/10.1186/s13021-020-00162-3>.

Sperow, M. 2020. Updated potential carbon sequestration rates on U.S. agricultural land based on the 2019 IPCC Guidelines. Soil & Tillage Research, 204: <https://doi.org/10.1016/j.still.2020.104719>.

Sperow, M. 2019. Marginal cost to increase soil organic carbon using no-till on U.S. cropland. Mitigation and Adaptation Strategies for Global Change, 24:93-112. <https://link.springer.com/article/10.1007%2Fs11027-018-9799-7>.

- Sperow, M. 2016. Estimating soil carbon sequestration potential on U.S. agricultural topsoils. *Soil & Tillage Research*, 155: 390-400.
- Sperow, M. 2014. An enhanced method for using the IPCC approach to estimate soil carbon storage potential on U.S. agricultural soils. *Agriculture, Ecosystems and Environment*, 193: 96-107.
- Chaudhuri, S., E.M. Pena-Yewtukhiw, L.M. McDonald, J. Skousen, and M. Sperow. 2012. Early C Sequestration Rate Changes for Reclaimed Minesoils. *Soil Science*, 177(7): 443 – 450.
- Evans, J., G. D’Souza, A. Collins, C. Brown and M. Sperow. 2011. Determining consumer perceptions of and willingness to pay for Appalachian grass-fed beef: An experimental economics approach. *Agricultural and Resource Economics Review* 40(2): 233 – 250.
- Lilly, K.G.S., C.K. Gehring, K.R. Beaman, P.J. Turk, M. Sperow, and J.S. Moritz, 2011. Examining the Relationship between Pellet Quality, Broiler Performance, and Bird Sex. *Journal of Applied Poultry Research*, 20: 231 – 239.
- Chaudhuri, S., E.M. Pena-Yewtukhiw, L.M. McDonald, J. Skousen, and M. Sperow. 2011. Land Use Effects on Sample Size Requirements for Soil Organic Carbon Stock Estimations. *Soil Science*, 176(2): 110 – 114.
- Wu, J., M. Sperow, and J. Wang. 2010. Economic Feasibility of a Woody Biomass-Based Ethanol Plant in Central Appalachia, USA. *J. Agric. Res. Econ* .35(3): 522 – 544.
- Rosenberger, R.S., M. Sperow, and D.B.K. English. 2008. Economies in Transition and Public Land Use Policy: Duration Models of Eastern Wilderness Designation. *Land Economics*, 84(2): 267 – 281.
- Sperow, M. 2007. The Marginal Costs of Carbon Sequestration: Implications of One Greenhouse Gas Mitigation Activity. *J. Soil and Water Conserv.* 62(6): 367 – 375.
- Evans, J. R., M. Sperow, G. D’Souza, and E. Rayburn. 2007. Stochastic Simulation of Pasture-Raised Beef Production Systems and Implications for the Appalachian Cow-Calf Sector. *J. of Sustainable Agriculture*, 30(4): 27 – 51.
- Sperow, M. 2006. Carbon Sequestration Potential in Reclaimed Mine Sites in Seven East-Central States. *J. Environ. Qual.* 35: 1428 – 1438.
- Lewandowski, J., M. Peters, C. Jones, R. House, M. Sperow, M. Eve, and K. Paustian. 2004. Economics of Sequestering Carbon in the U.S. Agricultural Sector. USDA-ERS Technical Bulletin Number 1909, Washington, D.C.
- Sperow, M., M. Eve and K. Paustian. 2003. Potential Soil C Sequestration on U.S. Agricultural Soils. *Climatic Change* 57:319-339.

- Eve, M. D., M. Sperow, K. Howerton, K. Paustian, and R. F. Follett. 2002. Predicted Impact of Management Changes on Soil Carbon Stocks for each Agricultural Region of the Conterminous U.S. *J. Soil Water Conserv.* 57(4) 196 – 204.
- Sperow, M., R. M. House, K. Paustian, and M. Peters. 2002. Economic Feasibility of Soil C Sequestration in U.S Agricultural Soils. Pp. 337-348. In: J. Kimble, R. Lal, and R. Follett (eds.) *Agriculture Practices and Policies for Carbon Sequestration in Soil*. Lewis Publishers, Boca Raton, FL.
- Eve, M.D., M. Sperow, K. Paustian, and R. Follett. 2002. National-Scale Estimation of Changes in Soil Carbon Stocks on Agricultural Lands. *Environmental Pollution* 116: 431 – 438.
- Sperow, M. and D. Lybecker. 1998. Modeling the Alfalfa Stem Nematode in Irrigated Alfalfa, *Agricultural Systems*. 58:4 555 – 570.

## **PUBLISHED PROCEEDINGS PAPERS**

- Brown, C. and M. Sperow. 2005. Examining the Cost of an All-Organic Diet. *Journal of Food Distribution Research* 36(1): 20-26.
- Rosenberger, R.S., D.B.K. English and M. Sperow. 2005. Rural economies in transition: Duration models of eastern wilderness designation. In S.D. Shultz (comp.), 2005, *Western Regional Research Publication, W-1133 Benefits and Costs of Resource Policies Affecting Public and Private Land*. Eighteenth Interim Report. Fargo, ND: North Dakota State University. Pp.108-129.
- Sperow, M., M. Eve, and K. Paustian. 2001. Estimating Soil C Sequestration Potential in U.S. Agricultural Soils Using the IPCC Approach. Proceedings paper for the U.S. DOE National Energy Technology Laboratory (NETL) First National Conference on Carbon Sequestration, Washington, D.C. May 14-17 2001, also available at [http://www.netl.doe.gov/publications/proceedings/01/carbon\\_seq/4c4.pdf](http://www.netl.doe.gov/publications/proceedings/01/carbon_seq/4c4.pdf)
- Eve, M.D., K. Paustian, R. Follett, and M. Sperow. 2000. A U.S. Inventory of Agricultural Soil Carbon at Local to National Scales. In: Parks, BO, Clarke KM, Crane MP, editors. *Proceedings of the 4th international conference on integrating geographic information systems and environmental modeling: problems, prospects, and needs for research*; 2000 Sep 2-8; Boulder, CO. Boulder: University of Colorado, Cooperative Institute for Research in Environmental Science.

## **PUBLISHED ABSTRACTS**

- Sperow, M. 2010. There's Water, But Can We Use It? *Agricultural and Resource Economics Review*, 39(3): 590.
- Jayaraman, P. and M. Sperow. 2010. Analyzing the Economic Impacts of CO2 Intrusion into Freshwater Aquifers. *Agricultural and Resource Economics Review*, 39(3): 587.

- Sperow, Mark. 2007. A Policy Analysis of How Increased Ethanol Production May Influence Soil Carbon Sequestration. *Agricultural and Resource Economics Review*, 36(2): 350.
- Sperow, Mark. 2006. The Economic Potential for Carbon Sequestration in Seven Central and Eastern States. *Agricultural and Resource Economics Review*, 35(2): 390.
- Bouquot, Christopher and Mark Sperow. 2006. Regional Analysis of Potential Carbon Sequestration and Revenue for Owners of Abandoned Mine Lands. *Agricultural and Resource Economics Review*, 35(2): 390.
- Chaudhuri, S., L.M. McDonald, and M. Sperow. 2006. Zero Year Carbon Contents in Reclaimed Mine Soils. In International Annual Meeting Abstracts [CD-ROM]. ASA, CSSA, SSSA. Madison, WI. November 12 - 16. Indianapolis, IN.
- Bouquot, Christopher and Mark Sperow, 2006. Potential Carbon Sequestration and Revenue from Timber and Carbon Credits for Landowners of West Virginia Abandoned Mine Lands. *Journal of Agricultural and Applied Economics*, 38(2): 465.
- Sperow, Mark and Christopher Bouquot, 2005. The Potential for Mineland Reclamation to Offset Greenhouse Gas Emissions and Provide Landowner Income. *Agricultural and Resource Economics Review*, 34(2): 286.
- Bouquot, Christopher and Mark Sperow, 2005. Analysis of Potential Carbon Sequestration and Revenue for Landowners of Abandoned Mine Lands. *Agricultural and Resource Economics Review*, 34(2): 286.
- Evans, Jason R., Mark Sperow, and Edward Rayburn, 2005. An Economic Analysis of Pasture-Raised Beef Systems in Appalachia. *Agricultural and Resource Economics Review*, 34(2): 280.
- Sperow, Mark, 2005. Estimating the Economic Value of Temporary and Permanent Carbon Sequestration Activities on Agricultural Land. *Journal of Agricultural and Applied Economics*, 37(2): 510.
- Sperow, Mark, 2004. From Growing Crops to Growing Carbon: Some Economic Implications of a Greenhouse Gas Mitigation Activity. *Agricultural and Resource Economics Review*, 33(2): 300.

## PRESENTATIONS

### 2019

- \*D'Avino, L., G. L'Abate, M. Sperow, and E. A. Costantini. Assessing soil carbon trends in Italy through land use and management changes. First Joint Meeting on Soil and Plant System Sciences, International Center for Advanced Mediterranean Agronomic Studies, Valenzano Bari, Italy, 23 September 2019.
- Sperow, M., L. D'Avino, G. L'Abate, and E. Costantini. Soil carbon changes on agricultural soils in Italy. Poster presentation at the Northeastern Agricultural and Resource Economics Annual Conference, Portsmouth, NH, 12 June 2019.

Sperow, M. Updated estimates of potential soil carbon sequestration on U.S. agricultural soils. Presentation at the Northeastern Agricultural and Resource Economics Annual Conference, Portsmouth, NH, 11 June 2019.

**2017**

Sperow, M. Potential soil organic carbon changes from land use and management in Italy. Presentation at the Division of Resource Management Graduate Seminar, West Virginia University, Morgantown, WV, 4 October 2017.

Sperow, M., D'Avino, Pellegrini, S., and Costantini, E. Land management and restoration to offset GHG emissions: A study of potential soil organic carbon changes from land use and management in Italy. Presentation for the 2017 NAREA Workshop: Climate Change and Land Conservation and Restoration: Advances in Economics Methods and Policies for Adaptation and Mitigation. 14 June 2017

**2016**

Sperow, M. Estimating the biophysical and economic potential of soil carbon sequestration on U.S. agricultural land: A new approach using IPCC coefficients. Presentation at the CRA-ABP Agrobiology and Pedology Research Centre, Florence, Italy, 6 July 2016.

**2015**

Sperow, M. Could no-till crop production cost effectively help meet CO<sub>2</sub> emission reduction goals? Selected paper for presentation at the Northeastern Agricultural and Resource Economics and Canadian Agricultural Economics Society Joint Annual Conference, Newport, RI, 30 June 2015.

**2014**

Sperow, M. A Modified IPCC Approach for Estimating SOC Storage and Implications for CO<sub>2</sub> Offsets. Presentation at the Division of Resource Management Graduate Seminar, West Virginia University, Morgantown, WV, 29 October 2014.

**2013**

Jones\*, C.A., C. Nickerson, and M. Sperow. Greenhouse gas mitigation from the Conservation Reserve Program: Accounting for post-contract land use change. Selected paper for presentation at the American Applied Economics Association Annual Conference, Washington D.C., 6 August 2013.

Sperow, M. Potential Greenhouse Gas Emissions from Post-Contract Land Use Changes in the Conservation Reserve Program. Selected paper for presentation at the Northeastern Agricultural and Resource Economics Annual Conference, Ithaca, NY, 25 June 2013.

Sperow, M. Estimating Marginal Cost Curves for Greenhouse Gas Emission Offsets from No-till Crop Production. Selected paper for presentation at the Northeastern Agricultural and Resource Economics Annual Conference, Ithaca, NY, 24 June 2013.

**2012**

Sperow, M. The Economics of Low Emission Production Systems. Presentation for the EC-LEDS Livestock Sector in Costa Rica Multi-Stakeholder Meeting. CATIE (Center for Tropical Research and Education), Cartago, Turrialba, Costa Rica, 7 August 2012.

Sperow\*, M. and E. Ruth. Estimating Soil Carbon Supply Curves from Activities on U.S. Agricultural Land. Invited seminar to USDA-ERS, Washington, D.C., 21 May 2012.

**2011**

Sperow, M. Carbon Supply Curve Estimates for U.S. Agricultural Land. Selected paper for presentation at the joint Western Agricultural Economics Association and Canadian Agricultural Economics Society Annual Conference, Banff, Canada, 1 July 2011.

Sperow, M. The Biophysical Potential and Economic Value of Terrestrial Carbon Sequestration on U.S. Agricultural Lands. Selected paper for presentation at the Tenth Annual Carbon Capture and Sequestration Conference, Pittsburgh, PA, 2 – 5 May 2011.

**2010**

Sperow, M. Estimating Carbon Supply Curves from Management and Land-Use Change on U.S. Agricultural Lands. Invited presentation for the USDA-ERS EMAGG Workshop, Washington, D.C., 22 October 2010.

Sperow, M. Can organic growers profit from soil carbon sequestration? Presentation to the West Virginia University Organic Research Farm Field Day, Morgantown, WV, 29 July 2010.

Sperow, M. There's Water, But Can We Use It? Selected paper for presentation at the Northeastern Agricultural and Resource Economics Association Annual Meetings, Atlantic City, NJ, 13 – 15 June 2010.

Jayaraman\*, P. and M. Sperow. Analyzing the Economic Impacts of CO<sub>2</sub> Intrusion into Freshwater Aquifers. Selected paper for presentation at the Northeastern Agricultural and Resource Economics Association Annual Meetings, Atlantic City, NJ, 13 – 15 June 2010.

**2009**

Sperow, M. Climate Change Legislation: Impact and Opportunities for Agriculture. Presentation to the West Virginia University Collegiate Farm Bureau, Morgantown, WV, 6 October 2009.

Sperow, M. Can organic growers profit from soil carbon sequestration? Presentation to the West Virginia University Organic Research Farm Field Day, Morgantown, WV, 5 August 2009.

Sperow, M. Model Estimates of the Potential for Soil Carbon Sequestration on Northeastern Agricultural Land. *Invited* poster for the 2009 Northeast Pasture Consortium Annual Meeting, Morgantown, WV, 4 March 2009.

**2008**

Chaudhuri\*, S., Pena, E.Y., McDonald, L., and Sperow, M. Importance of Bulk Density Measurements to Estimate Carbon Sequestration Potential on a Minesoil Chronosequence. American Society of Agronomy. Houston. October 5-9, 2008 (Poster).

Evans\*, J., C. Brown, A. Collins, G. D'Souza, E. Rayburn and M. Sperow. Determining Consumer Perceptions of and Willingness to Pay for Appalachian Grass-fed Beef: An Experimental Approach. Selected paper, AAEE Annual Meetings, July 27-29, 2008, Orlando, FL.

Sperow, M., Mechanisms for Off-Setting and Reducing Carbon Dioxide Emissions – Terrestrial and Geologic Sequestration. Invited presentation for Focus the Nation, West Virginia University, Morgantown, WV, 31 January 2008.

**2007**

Bouquot\*, Chris and Mark Sperow. "Potential Profit and Carbon Sequestration from Appalachian Regional Reforestation Initiative (ARRI)." Selected paper for presentation at the Association of Resource and Environmental Economist Annual Meetings, Portland, OR, 30 – 31 July 2007.

Sperow, M. "A Policy Analysis of How Increased Ethanol Production May Influence Soil Carbon Sequestration." Selected paper for presentation at the Northeastern Agricultural and Resource Economics Association Annual Meetings, Rehoboth Beach, DE, 10 – 12 June 2007.

Sperow, Mark. "Terrestrial Carbon Sequestration Potential in Seven Eastern and Central U.S. States." Presentation to the American Institute of Chemical Engineers – West Virginia University Chapter, Morgantown, WV, 1 March 2007.

**2006**

Sperow\*, M. and L.M. McDonald. Carbon Sequestration on Reclaimed Mine Land in the MRCSP. Midwest Region Carbon Sequestration Partnership (MRCSP) Partners Meeting, 13 December 2006, Columbus, Ohio.

Chaudhuri\*, S., L.M. McDonald, and M. Sperow. 2006. Zero Year Carbon Contents in Reclaimed Mine Soils. American Society of Agronomy, November 12 - 16. Indianapolis, IN.

Sperow, Mark. "The Economic Potential for Carbon Sequestration in Seven Central and Eastern States." Selected paper for presentation at the Northeastern Agricultural and Resource Economics Association Annual Meeting, Mystic, CT, 11 – 14 June 2006.

Bouquot\*, Christopher and Mark Sperow. "Regional Analysis of the Potential Carbon Sequestration and Revenue for Owners of Abandoned Mine Lands." Selected paper for presentation at the Northeastern Agricultural and Resource Economics Association Annual Meeting, Mystic, CT, 11 – 14 June 2006.

Sperow\*, M., L. Biehl, J. Dooley, S. Duiker, P. Grace, R. Lal, W. McFee, and B. Needelman. "Carbon Dioxide Emission Offset Costs: Economic Consequences of Terrestrial Carbon Sequestration in a Seven-State Region of the U.S." Selected paper for presentation at the Fifth Annual Conference on Carbon Capture & Sequestration, 8-11 May 2006, Alexandria, VA.

Lal\*, R., S. Christopher, U. Mishra, M. Sperow, B. Needleman, and S. Wills. "Terrestrial Sequestration in the MRCSP Region." Presentation at the MRCSP Partners Meeting, 25 April 2006, Columbus, Ohio.

Bouquot\*, Christopher and Mark Sperow. "Potential Carbon Sequestration and Revenue from Timber and Carbon Credits for Landowners of West Virginia Abandoned Mine Lands." Selected paper for presentation at the Southern Agricultural Economics Association Annual Meeting, Orlando, Florida, 5 – 8 February 2006.

**2005**

Sperow\*, Mark and Christopher Bouquot, "The Potential for Mineland Reclamation to Offset Greenhouse Gas Emissions and Provide Landowner Income", selected paper for presentation at the Northeastern Agricultural and Resource Economics Association Meetings, 12 – 15 June 2005, Annapolis, MD.

Bouquot\*, Christopher and Mark Sperow, “Analysis of Potential Carbon Sequestration and Revenue from Landowners of Abandoned Mine Lands”, selected paper for presentation at the Northeastern Agricultural and Resource Economics Association Meetings, 12 – 15 June 2005, Annapolis, MD.

Evans\*, Jason, Mark Sperow, and Edward Rayburn, “An Economic Analysis of Pasture-Raised Beef Systems in Appalachia”, selected paper for presentation at the Northeastern Agricultural and Resource Economics Association Meetings, 12 – 15 June 2005, Annapolis, MD.

Lal\*, R. L. Biehl, S. Duiker, P. Grace, W. McFee, B. Needleman, X. Niu, P. Robertson, M. Sperow, Z. Tan, “Opportunities and Challenges of Sequestering Carbon in the Terrestrial Ecosystems of the Midwestern Region”, Abstract and presentation for the U.S. DOE's National Energy Technology Laboratory (NETL) Fourth Annual Conference on Carbon Capture and Sequestration, Alexandria, Virginia, May 2 – 5 2005.

Sperow\*, Mark and Christopher Bouquot, “Assessing the Effectiveness of Mine Land Reclamation to off-Set GHG Emissions”. Presentation at the 2005 USDA Symposium on Greenhouse Gases and Carbon Sequestration in Agriculture and Forestry 21 – 24 March 2005, Baltimore, MD

Rosenberger\*, Randall S., Donald B.K. English, and Mark Sperow, “Rural Economies in Transition: Duration Models of Wilderness Designation”. Presentation at the W-1133, Western Regional Research Group, Salt Lake City, UT, February 13 – 15, 2005.

Sperow, Mark, “Estimating the Economic Value of Temporary and Permanent Carbon Sequestration on Agricultural Land”. Presentation at the Southern Agricultural Economics Association Annual Meeting, Little Rock, Arkansas, 5 – 9 February 2005.

## 2004

Sperow, Mark, “Terrestrial Sequestration”, Regional Carbon Sequestration Partnerships Annual Program Review Meeting, Pittsburgh, PA, November 16-17, 2004.

Brown\*, C. and M. Sperow, “Examining the cost of an all-organic diet”, presented at the Food Distribution Research Society Conference, Morro Bay, CA, 10 – 13 October 2004.

Sperow\*, Mark and Bouquot, Christopher, “Midwest Region Carbon Sequestration Partnership: Reclaimed Minelands”, presented to the Midwest Region Carbon Sequestration Project team, Columbus, OH, September 10, 2004.

Sperow, Mark, “An Analysis of the Economic Impact of Water Transfers from Agricultural to Urban Uses”. Selected paper for presentation at the American Agricultural Economics Association, Denver, Colorado, August 1– 4, 2004.

Evans\*, J., G. D’Souza, M. Sperow, and E. Rayburn. “An Economic Analysis of Pasture-Raised Beef Systems in Appalachia.” Selected paper, accepted for presentation at the American Agricultural Economics Association annual meeting, Denver, CO, August 1-4, 2004.

Sperow\*, Mark and Bouquot, Christopher, “Midwest Region Carbon Sequestration Partnership: Reclaimed Minelands”, presented to the Midwest Region Carbon Sequestration Project team, Columbus, OH, July 14, 2004.



Sperow, Mark, "From Growing Crops to Growing Carbon". Selected paper, abstract and presentation at the Northeastern Agricultural and Resource Economics Annual Meeting, Halifax, Nova Scotia, June 20 – 23 2004.

Sperow\*, Mark and Bouquot, Christopher, "Midwest Region Carbon Sequestration Partnership: Reclaimed Minelands", progress report presented to the Midwest Region Carbon Sequestration Project team (representatives from the Battelle Memorial Institute, Indiana, Maryland, Michigan, Ohio, and Pennsylvania), Columbus, OH, March 24, 2004.

## 2002

Lewandrowski\*, J., M. Peters, C. Jones, R. House, M. Sperow, M. Eve, and K. Paustian. "Economics of Mitigation of Greenhouse Gas Emissions in the U.S. Agricultural Sector". Abstract and presentation at the Forestry and Agriculture Greenhouse Gas Modeling Forum, Shepherdstown, WV, October 10 – 11, 2002.

Sperow, Mark, "The Potential of Agricultural Soils to Sequester C and Economic Consequences". Abstract and presentation for the Western Soil Science Society Conference, Fort Collins, CO, June 3-5 2002.

## 2001

Sperow, Mark, "Estimating Soil C Sequestration Potential in U.S. Agricultural Soils Using the IPCC Approach". Abstract and presentation for the U.S. DOE's National Energy Technology Laboratory (NETL) First National Conference on Carbon Sequestration, Washington, D.C. May 14 – 17 2001.

Paustian\*, Keith, Marlen Eve, Mark Sperow, John Brenner, Kendrick Killian, Mark Easter and Steve Williams, "Quantification and assessment of soil carbon sequestration at national and regional scales" Presentation at Harvesting New Technology 2001 Wheat Industry Conference and Expedition, New Orleans, LA, January 29 – February 2 2001.

## 2000

Eve\*, M. D., K. Paustian, M. Sperow, and R. Follett, "Carbon in U.S. Agricultural Soils: Recent Changes and Biophysical Potentials Presentation and abstract for the American Geophysical Union Conference. San Francisco, California, December 2000."

Eve\*, M. D., K. Paustian, M. Sperow, and R. Follett, "National-Scale Estimation of Changes in Soil Carbon Stocks on Agricultural Lands." Invited presentation to Advances in Terrestrial Ecosystem Carbon Inventory, Measurements and Monitoring. Raleigh, North Carolina. October 3 – 5, 2000.

Eve, M., K. Paustian, R. Follett, and M. Sperow\*, "A U.S. Inventory of Agricultural Soil Carbon at Local to National Scales". Poster and abstract for the conference: 4th International Conference on Integrating GIS and Environmental Modeling (GIS/EM4): Problems, Prospects and Research Needs. Banff, Alberta, Canada, September 2 – 8, 2000.

Sperow\*, M., M. Eve, K. Paustian, and R. House, "Estimating Soil Carbon Supply Curves from U.S. Agricultural Soils". Poster and abstract for the conference: Carbon: Exploring the Benefits to Farmers and Society, Des Moines, Iowa, 29 – 31 August 2000.

Sperow, Mark, “Estimating the Value of Soil Carbon in Agricultural Soils”. Colorado State University, Natural Resources Seminar Series, 29 March 2000.

#### **Prior to 2000**

Sperow, Mark, “Using the Century Model to Simulate Carbon Sequestration in U.S. Agricultural Soils”. Invited seminar to USDA-ERS research scientists and staff, 4 October 1999.

Sperow, Mark, “Economic Impacts of C Sequestration Policy Scenarios in the U.S.”. Presentation and abstract for “*Agricultural Practices and Policies for Carbon Sequestration in Soil – An International Symposium*”, with R.M. House. Ohio State University, Columbus, Ohio, July 19 – 23, 1999.

Sperow, Mark, “Analysis of Soil Carbon Sequestration as an Agricultural Commodity”. Presentation at the Center for Analysis of Carbon in Terrestrial Ecosystems (C-ACTE) orientation meeting, Fort Collins, Colorado, 2 February 1999.

Sperow, Mark, “Agricultural Producer Response to Water Reduction in the San Luis Valley of Colorado”. Colorado State University, Natural Resources Seminar Series, 18 March 1998.

Sperow, Mark, “Drought Response in the San Luis Valley”. Colorado State University, Natural Resources Seminar Series, 5 November 1997.

\* Denotes presenting author.

#### **PROJECT REPORTS**

Sperow, M. Estimating Carbon Supply Curves from Changes in Crop and Land Management Activities on U.S. Agricultural Land. Final Report for Cooperative Agreement Number 58-6000-0-0100 submitted to the Economic Research Service, U.S. Department of Agriculture, 23 June 2015.

Sperow, M. (2011-2014) Quarterly and annual reports to the United States Department of Agriculture-Economic Research Service documenting progress on the grant to develop soil carbon supply curves.

Sperow, M., L. McDonald, S. Chaudhuri, and C. Bouquot, Carbon Storage on Mineland Reclamation Sites. Final Report for the Midwest Regional Carbon Sequestration Partnership, submitted to the Department of Energy through Battelle, DE-FC26-05NT42589, 30 September 2009.

Sperow, M. (2007 – 2009) Monthly and quarterly reports to the National Energy Technology Laboratory, Department of Energy documenting progress on the grant to assess risks associated with geologic storage of carbon dioxide.

Sperow, M. (2004 – September 2009) Monthly reports to Battelle Memorial Institute documenting progress on the MRCSP (Midwest Regional Carbon Sequestration Partnership) Phase II grant to WVU addressing the soil carbon content of reclaimed mine soils.

- Sperow, M. 2006. CASGMS (Consortium for Agricultural Soils Mitigation of Greenhouse Gases) Task 2 Sub-Objective 5: Economic Impact of implementing activities to maximize C sequestration potential on agricultural soils. Final report to USDA.
- Sperow, M. and R. S. Rosenberger. Empirical Estimates of Recreation Values of the National Forests. Research Joint Venture Agreement between USDA Forest Service, Rocky Mountain Research Station and West Virginia University, 19 December, 2006. Final Report to the USDA Forest Service.
- Rosenberger, R.S. and M. Sperow. Final Report to the US-Forest Service, Southern Research Station for project "Impacts and Role of Wilderness Designation on Rural Communities in the Appalachian Region and National Wilderness Assessment", 30 December 2005.
- Sperow, M. Estimating Carbon Sequestration Rates on U.S. Cropland when All No-tillage is used, or all Cropland is Placed into a Set-Aside Program, or All Cropland is Planted to Forest. Final Report to Augusta Systems for the project, "Economic Feasibility Study of Agricultural Coops as Catalysts in GHG Markets, 14 December 2005.
- Rosenberger, R.S. and M. Sperow. A Spatial Growth Equilibrium Model of Wilderness Designation and Growth in the Appalachian Region. 2005 Third Quarterly Report to the US-Forest Service, Southern Research Station for project "Impacts and Role of Wilderness Designation on Rural Communities in the Appalachian Region and National Wilderness Assessment", 30 September 2005.
- Rosenberger, R.S. and M. Sperow. Spatial Analysis of Wilderness Designation Models. 2005 Second Quarterly Report to the US-Forest Service, Southern Research Station for project "Impacts and Role of Wilderness Designation on Rural Communities in the Appalachian Region and National Wilderness Assessment", 30 June 2005.
- Rosenberger, R.S. and M. Sperow. Disseminating Research Through Presentations. 2005 First Quarterly Report to the US-Forest Service, Southern Research Station for project "Impacts and Role of Wilderness Designation on Rural Communities in the Appalachian Region and National Wilderness Assessment", 31 March 2005.
- Sperow, Mark and Christopher Bouquot, 2004. Analysis of Opportunities for Carbon Sequestration in Degraded Mine Lands. Project final report to Battelle Memorial Institute and the U.S. Department of Energy. Division of Resource Management, West Virginia University, Morgantown, WV.
- Sperow, Mark and Christopher Bouquot, 2004. Analysis of Opportunities for Carbon Sequestration in Degraded Mine Lands. Project Report. Division of Resource Management, West Virginia University, Morgantown, WV.
- Sperow, M., D. W. Lybecker. 1996. Modification of an Alfalfa Growth Simulation Model for Analysis of IPM Tactics for Control of the Alfalfa Stem Nematode and Sample Economic Analysis. Project Report. Department of Agricultural and Resource Economics, Colorado State University, Fort Collins CO.

## EXTERNAL FUNDING

Principal Investigator – Estimating Carbon Supply Curves from Changes in Crop and Land Management Activities on U.S. Agricultural Land, funded through the United States Department of Agriculture – Economic Research Service (USDA-ERS), \$102,000 (1 January 2011 – 30 June 2015).

Principal Investigator – Economic Contribution to a Meeting on Low Emission Development Strategies in the Livestock Sector of Costa Rica. Funded by the United States Department of Agriculture – Foreign Agricultural Service (USDA-FAS), \$5,729 (30 July 2012 – 30 September 2012)

Co-Investigator, with T. Basden (PI) and E. Rayburn (Co-PI) – Multi Species Grazing System using Sheep and Cattle for Improved Ecological Soil Conditions, through the United States Department of Agriculture – Natural Resource Conservation Service (USDA-NRCS), \$206,000 (30 September 2008 – 1 October 2011).

Principal Investigator – CO<sub>2</sub> Risk Assessment. From the National Energy Technology Laboratory (NETL) as part of the Institute for Advanced Energy Solutions (IAES) efforts to enhance collaboration between Carnegie Mellon University, University of Pittsburgh, and West Virginia University, \$328,599 (1 August 2007 – 30 September 2009).

Principal Investigator – Midwest Regional Carbon Sequestration Partnership, Phase II, with Battelle Memorial Institute and The Ohio State University through the U.S. Department of Energy: Four year \$4 million interdisciplinary and interstate project: \$424,318 to West Virginia University (1 October 2005 – 30 September 2009).

Principal Investigator – Grain Consuming Animal Unit Index Update and Revision, Cooperative Agreement with the USDA-Economic Research Service, Washington, D.C.: \$17,000 (1 September 2005 – 30 September 2006).

Principal Investigator – Midwest Regional Carbon Sequestration Partnership, Phase I, with Battelle Memorial Institute, The Ohio State University, Pennsylvania State University, University of Maryland, Michigan State University, and Purdue University through the U.S. Department of Energy: \$1.6 million : \$80,000 to West Virginia University (1 January 2004 – 30 September 2005).

Principal Investigator – Impacts and Role of Wilderness Designation on Rural Communities in the Appalachian Region and National Wilderness Assessment, Cooperative Agreement with the USDA-Southern Research Station, and subcontract with Oregon State University: \$51,150 (12 December 2004 – 31 December 2005).

Principal Investigator – Empirical Estimates of Recreation Values of the National Forests, Cooperative Agreement with the USDA-Rocky Mountain Research Station and subcontract with Oregon State University: \$6,650 (12 December 2004 – 31 December 2005).

Principal Investigator – Economic Impact of Implementing Activities to Maximize C Sequestration Potential on U.S. Agricultural Soils. Consortium for Agricultural Soils Mitigation of Greenhouse Gases (CASMGS) Task 2 Sub-Objective 5: \$56,795 (2001 – 2006).

Principal Investigator – Analyzing Debt Structure as a Barrier to No-Till Adoption. Consortium for Agricultural Soils Mitigation of Greenhouse Gases (CASMGS) Task 2 Sub-Objective 6: \$62,261 (2001 – 2006).

## **INTERNAL FUNDING**

Open Access Author Fund, West Virginia University Libraries. Support for open access publishing: \$1,000 (awarded 23 November 2020).

Principal Investigator - Evaluation of Strategies to Mitigate and Adapt to a Changing Climate that Ensure the Long-Term Health of the Environment, Food, and Energy Production. Hatch Funding from the West Virginia University Agricultural Experiment Station 1 May 2017 – 30 April 2022.

International Faculty Development Grant, West Virginia University Office of International Programs, to support coursework at the San Gemini International Institute for Restoration and Preservation Studies in San Gemini, Italy: \$1,500 (Summer 2016).

Awarded funds from the Margaret Tavener Rajam endowment to support international travel for the San Gemini International Institute for Restoration and Preservation Studies program in San Gemini, Italy: \$2,000 (Summer 2016).

Principal Investigator – Economic and Biophysical Implications of Energy and Climate Change Policies on Carbon Dioxide Emissions, Terrestrial Carbon Sequestration, and Land Use. Hatch Funding from the West Virginia University Agricultural Experiment Station 1 October 2010 – 30 September 2015.

Principal Investigator (with nine other scientists) – Productivity, pest management and soil quality in organic farming systems with reduced energy and environmental impacts. Hatch Funding from the West Virginia University Agricultural Experiment Station 1 October 2009 – 30 September 2014.

Co-Investigator – “Reducing the Environmental Impact of the Poultry Industry through Efficient Waste Management Strategies” (Alan Collins, Principal Investigator), Hatch funding (H-437) from the West Virginia University Agricultural Experiment Station 1 October 2003 – 30 September 2008.

## **UNIVERSITY AND DEPARTMENT ACTIVITIES**

Senator, West Virginia University Faculty Senate, 2011 – 2016.

Chair, Division of Resource Economics and Management P&T Committee (2020)

Chair, Division of Resource Management Awards Committee, 2016.

Chair, West Virginia University Faculty Senate Research and Scholarship Committee, 2013 – 2014.

Chair-Elect, West Virginia University Faculty Senate Research and Scholarship Committee, 2012 – 2013.  
Member, West Virginia University Faculty Senate Research and Scholarship Committee, 2012 – 2015.  
Member, Environmental and Natural Resource Economics Curriculum Committee, Division of Resource Management, 2011 – present.  
Chair, Outstanding Graduate Student Research Symposium Committee, Davis College of Agriculture, Natural Resources and Design, 2008 and 2009  
Chair, PhD Preliminary Examination Committee, Natural Resource Economics, 2007, 2017  
Chair, Academic Standards Committee, Davis College of Agriculture, Natural Resources and Design, 2005 – 2006  
Chair, Outstanding Thesis Committee, Division of Resource Management, 2004  
Chair, Technology Committee, Division of Resource Management, 2003 – 2005  
Member, West Virginia Agricultural and Forestry Experiment Station Publication Committee, Davis College of Agriculture, Natural Resources and Design, 2011 – present.  
Member, Faculty Search Committee, Division of Resource Management, 2014 – 2015, 2018-2019.  
Member, Davis College of Agriculture, Natural Resources and Design Graduate Council, 2011 – 2014.  
Member, Outstanding Graduate Student Research Symposium Committee, Davis College of Agriculture, Natural Resources and Design, 2007, 2010, 2011  
Member, PhD Preliminary Examination Committee, Natural Resource Economics, 2005 – 2008; 2010 – 2011, 2016-2020  
Member, Peer Review (Promotion and Tenure) Committee, Division of Resource Economics and Management, 2005, 2009, 2015, 2017-2020  
Member, Outstanding PhD Research Paper Competition, Division of Resource Management, 2004, 2008, 2010  
Member, Academic Standards Committee, Davis College of Agriculture, Natural Resources and Design, 2003 - 2005  
Member, Graduate Committee, Agricultural and Resource Economics, 2002 – 2005, 2011-2013, 2018-2020  
Member, Graduate Faculty, Davis College of Agriculture, Natural Resources and Design, 2002 – present  
Member, Agricultural and Resource Economics Thesis/Dissertation Awards Committee, 2002

### **Courses Taught**

- ARE 601 (4 credit hours to combine microeconomics and production economics) – Applied Microeconomics (Fall 2014 – 2015)
- ARE 601 (3 credit hours) – Graduate Applied Microeconomics (Fall 2008 – 2011, 2013)
- ARE 693J/RESM 693K – Graduate Applied Microeconomics (Fall 2008, 2009 – 2011, 2013)
- ARE 530 (ARE 602) – Graduate Production Economics (Spring 2003 – 2005, 2007)
- ARE 493E/593E - Adaptation and Mitigation Strategies for Addressing Climate Change (Fall 2017, 2018, 2020)
- ARE 401 – Applied Demand Analysis (Fall 2003; Fall 2006)
- ARE 220 – Introductory Environmental and Natural Resource Economics (Spring 2003, Spring 2005 – 2007, Spring 2009 – 2011; Fall 2012 – 2015; Summer 2017; Fall 2017; Summer 2018; Fall 2018, Spring 2019; Fall 2019; Summer 2020, Fall 2020)

- ECON 201 – Principles of Microeconomics (Fall 2005 – 2015; Fall 2017 - 2019)

### **Academic Activities**

- PhD Proposal Reviewer (2013) for Christine A. Etiegni at the UNESCO-IHE (Institute for Water Education in Delft, the Netherlands) for the dissertation titled “Towards Participatory Fisheries Governance: A Case of Lake Victoria Fisheries (Kenya)”.
- M.S. Advisee graduates:  
Praveena Jayaraman (2011); Christopher Bouquot (2012); Emma Ruth (2013)
- PhD Committee Member graduates –  
Daniel Dlamini (2005); Jason Evans (2007); Jinzhuo Wu (Forestry, 2010); Sheila Kazar (Geography, 2010); Sriroop Chaudhuri (Plant and Soil Science, 2011); Arun, KC (2012); Yiming He (2019)
- M.S. Committee Member graduates –  
Jason Evans (2003); Alex Baer (2006); Huan Mei (2006); Ahadu Tekle (2006); Olubusola Kehinde (2015, non-thesis, wrote and evaluated written and oral exams); Bolarinwa Ajanaku (2016, non-thesis, evaluated written and oral exams)
- Served on graduate committee for the one year M.S. program – graduated three students after administering a written and oral exam (2003).
- Undergraduate advisor – 2005 (5), 2014 (10), 2015 (10), 2016 (6), 2017 (13), 2018 (13), 2019 (15), 2020 (19).

### **SPECIAL ACTIVITIES**

- Invited “Expert Reviewer” for the “First Order Draft of the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories (2019 Refinement)” by the IPCC Task Force on National Greenhouse Gas Inventories. 4 December 2017.
- Invited “Expert Reviewer” for the “2013 Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol”, 12 December 2012.
- Invited “Expert Reviewer” for the “2013 Supplement to the IPCC Guidelines on National Greenhouse Gas Inventories: Wetlands”. 13 April 2012.
- Invited Panelist, “Carbon Sequestration and Marketing Carbon Credits”, Northeast Pasture Consortium Annual Meeting, Morgantown, WV, 4 March 2009.
- Invited participant to the “Forestry and Agriculture Greenhouse Gas Modeling Forum” sponsored by USEPA, USDA-ERS, The Farm Foundation, and Agriculture and Agri-Food Canada at the National Conservation Training Center, Shepherdstown, WV (2002, 2004, and 2007).

- Expert Reviewer for the “Draft 2006 IPCC (Intergovernmental Panel on Climate Change) Guidelines for National Greenhouse Gas Inventories” (2004 and 2005).
- Invited reviewer for the Intergovernmental Panel on Climate Change (IPCC) “Good Practice Guidance for LULUCF (Task 1)” document (2003).

## PROFESSIONAL ORGANIZATIONS

American Agricultural Economics Association  
Association of Environmental and Resource Economists  
Northeastern Agricultural Economics Association  
Southern Agricultural Economics Association  
Western Agricultural Economics Association

## REVIEWER FOR

(Number in parentheses indicates number of original manuscripts reviewed for the journal. Total of 107 manuscripts reviewed for 31 different journals.)

*Agribusiness: An International Journal*  
*Agriculture, Ecosystems and Environment* (63)  
*Applied Economic Perspectives and Policy* (3)  
*Archives of Agronomy and Soil Science* (2)  
*Arid Land Research and Management*  
*Biomass & Bioenergy*  
*Canadian Journal of Soil Science*  
*Choices*  
*Climatic Change* (3)  
*Ecological Engineering*  
*Ecological Indicators*  
*Economics Bulletin* (2)  
*Ecosphere*  
*Environmental Modeling and Assessment*  
*Environmental Science and Technology Journal*  
*Forest Ecology and Management*  
*International Journal of Forestry Research*  
*Journal of Agricultural and Applied Economics*  
*Journal of Cleaner Production*  
*Journal of Environmental Quality*  
*Journal of Food and Agribusiness Marketing*  
*Journal of Food Distribution Research*  
*Journal of Land Use Science*  
*Journal of Mountain Science*  
*Journal of Soil and Water Conservation* (5)  
*Mitigation and Adaptation Strategies for Global Change* (3)  
*Regional Environmental Change*  
*Science of the Total Environment*  
*Soil & Tillage Research*



*Soil Science Society of America Journal (3)*  
*Wetlands Ecology and Management*

## PROFESSIONAL SERVICE

Judge, Masters' Oral paper presentations, Twenty-second Annual DCANRD Graduate Student Research and Creative Scholarship Conference, 26 March 2019, Morgantown, WV.

Selected paper reviewer for the 2019 Agricultural and Applied Economics Association (AAEA) Annual Meeting, Atlanta, GA.

Judge, Masters' Oral paper presentations, Twenty-First Annual DCANRD Graduate Student Research and Creative Scholarship Conference, 11 April 2018, Morgantown, WV.

Selected paper reviewer for the 2018 Agricultural and Applied Economics Association (AAEA) Annual Meeting, Washington, DC.

Judge, Masters Oral paper presentations, Twentieth Annual DCANRD Graduate Student Research and Creative Scholarship Conference, 5 April 2016, Morgantown, WV.

Moderator, Economics of Cropping Practices selected papers session for the Northeastern Agricultural and Resource Economics and Canadian Agricultural Economics Society Joint Annual Conference, Newport, RI, 30 June 2015.

Judge, Masters Oral paper presentations, Nineteenth Annual DCANRD Graduate Student Research and Creative Scholarship Conference, 7 April 2015, Morgantown, WV.

Chair, Nominating Committee, Gamma Sigma Delta, Agricultural Honor Society, West Virginia Chapter, West Virginia University, 2015..

President, Gamma Sigma Delta, Agricultural Honor Society, West Virginia Chapter, West Virginia University, 2013 – 2014.

Host Institution Representative, 2014 Annual Meeting Program Committee, Northeastern Agricultural and Resource Economics (NAREA) Annual Conference.

Mentor, 2013 Career Advancement and Mentorship Program instituted by the Northeastern Agricultural and Resource Economics, 2013 – 2014.

Member, Local Arrangements Committee for the Northeastern Agricultural and Resource Economics (NAREA) Annual Conference in Morgantown, WV (1 -3 June 2014).

Moderator, Greenhouse Gas Emissions and Policy selected paper session for the Northeastern Agricultural and Resource Economics Annual Conference, Ithaca, NY, 24 June 2013.

Judge, PhD Oral paper presentations, Seventeenth Annual DCANRD Graduate Student Research Conference, 9 April 2013, Morgantown, WV.

- Vice President, Gamma Sigma Delta, Agricultural Honor Society, West Virginia Chapter, West Virginia University, 2012 – 2013.
- Selected paper reviewer for the 2012 Agricultural and Applied Economics Association (AAEA) Annual Meeting, Seattle Washington.
- Secretary, Gamma Sigma Delta, Agricultural Honor Society, West Virginia University, 2011 – 2012.
- Reviewer for paper presentations at the Department of Energy's Tenth Annual Conference on Carbon Capture and Sequestration, 2011
- Treasurer, Gamma Sigma Delta, Agricultural Honor Society, West Virginia University, 2010 – 2011.
- Member, Outstanding Master's Thesis Committee, Northeastern Agricultural and Resource Economics Association, 2010, 2011.
- Reviewer for paper presentations at the Department of Energy's Ninth Annual Conference on Carbon Capture and Sequestration, 2010.
- Reviewer for the Economic Research Service's Peer Review Coordinating Council. Reviewed manuscript for possible publication in the ERS's Economic Brief Series, 2009.
- Chair, Outstanding Master's Thesis Committee, Northeastern Agricultural and Resource Economics Association, 2009.
- Historian, Gamma Sigma Delta, Agricultural Honor Society, West Virginia University, 2009 – 2010.
- Member, Editorial Board of the journal *Agriculture, Ecosystems & Environment*, published by Elsevier, 2008 – present.
- Selected paper reviewer for the American Agricultural Economics Association (AAEA) Selected Papers Sessions for the AAEA and American Council on Consumer Interest (ACCI) Joint Annual Meeting, Orlando FL, 27 – 29 July 2008.
- Member, peer review panel for proposals submitted for funding to address carbon cycle research, National Aeronautics and Space Administration (NASA) and U.S. Department of Agriculture (USDA) Cooperative State Research, Education, and Extension Services (CSREES) National Research Initiative (NRI) Competitive Grants Program, Washington, D.C., 5 – 7 September 2007.
- Moderator, Energy Production and Consumption in Agriculture Organized Symposium for the American Agricultural Economics Association Annual Meeting, Long Beach, CA, 23 – 26 June 2006.
- Co-organizer, with Walter Labys (West Virginia University, Division of Resource Management), of the Energy Production and Consumption in Agriculture Organized Symposium for the American Agricultural Economics Association Annual Meeting, Long Beach, CA, 23 – 26 June 2006.

Moderator, The Impacts of Climate Change and Carbon Sequestration selected paper session of the Northeastern Agricultural and Resource Economics Association Annual Meeting, Mystic, CT, 11 – 14 June 2006.

Moderator, Production Agriculture selected paper session of the Northeastern Agricultural and Resource Economics Association Annual Meeting, Annapolis, MD, 12 – 14 June 2005.

Selected paper reviewer, American Agricultural Economics Association, 2005.

Selected paper reviewer, Northeastern Agricultural and Resource Economics Association, 2005.

Chair, Audit Committee. Gamma Sigma Delta, the Agricultural Honor Society, West Virginia University Chapter, 2004 – 2009.

Coordinator for the Agribusiness portion of the Annual *State Agriculture Career Development Events* competition (2003 – 2017), Morgantown, WV.

Administered tests for the Agribusiness portion of the Annual *State Agriculture Career Development Events* competition (2002 – 2017), Morgantown, WV.

Judge, Discussion Meet for the American Farm Bureau Federation Contest, 24 October 2003, Morgantown, WV.

Referee for the *Food and Agricultural Marketing* undergraduate research manuscripts in the *Selected Papers* session of the American Agricultural Economics Association National Meetings August 2002.

## HONORS

Gamma Sigma Delta, Agricultural Honor Society, West Virginia University (Inducted 2004)  
Omicron Delta Epsilon, Economics Honor Society, Colorado State University (Inducted 1993)  
Phi Alpha Theta, History Honor Society, Duquesne University (Inducted 1980)

## AWARDS AND RECOGNITION

April 2016 – “Outstanding Teacher Award” for 2015 from the Division of Resource Management, Davis College of Agriculture, Natural Resources and Design, West Virginia University.

October 2015 – Nominated by the Scientific Secretariat for the Eni 2016 Award sponsored by a major integrated energy company based in Italy.

April 2015 – “Gamma Sigma Delta Service to WV Chapter Award of Merit” Gamma Sigma Delta, The Honor Society of Agriculture, presented by the West Virginia Chapter.

March 2015 – “Outstanding Service Award” for 2014 from the Division of Resource Management, Davis College of Agriculture, Natural Resources and Design, West Virginia University.

June 2008 – Selected for biography inclusion in the 2009 Edition of Marquis Who’s Who in America.

April 2007 – “Junior Faculty Award of Merit”, presented by Gamma Sigma Delta, The Honor Society of Agriculture, presented by the West Virginia University Chapter.

January 2007 – “Outstanding Researcher Award” for 2006 from the Division of Resource Management, Davis College of Agriculture, Forestry, and Consumer Sciences, West Virginia University.

December 2006 – Selected as one of eight Resident Institute Faculty Fellows from West Virginia University (and sole representative from the Davis College of Agriculture, Forestry, and Consumer Sciences) for the *Institute for Advanced Energy Solutions* (IAES). The IAES is a multi-university (Carnegie Mellon University, University of Pittsburgh, and West Virginia University), multi-disciplinary consortium established to analyze energy issues working with the National Energy Technology Laboratory (NETL).

May 2006 – “2005 Editors’ Citation for Excellence” in Manuscript Review. Presented by the Soil Science Society of America, Ames, IA.

August 1990 - Antarctica Service Medal. Presented by the Department of the Navy and the National Science Foundation for service in Antarctica, McMurdo Station, Antarctica.

April 1989 - Employee Commendation from the Martin Marietta Astronautics Group Director of Administration for staffing the Corporate Operating Review Library and assisting government auditors, Denver, CO.

May 1988 - Letter of Commendation from the Martin Marietta Astronautics Group Manager of Government Affairs for outstanding effort in developing and writing a particularly complex Standard Procedure, Denver, CO.

May 1988 - Employee Commendation from the Martin Marietta Astronautics Group Manager of Command Media for outstanding effort in developing a new Standard Procedure, Denver, CO.

September 1987 - Letter of Commendation from the Martin Marietta Vice President and Peacekeeper Program Director for contributions to the successful Peacekeeper program, Denver, CO.

July 1987 - Letter of Commendation from Lt. Col. Rees W. Padfield, USAF for "steadfast and conscientious performance" on the Peacekeeper program, Denver, CO.

April 1986 - Letter of Appreciation from the Martin Marietta Manager of Peacekeeper Logistics Engineering for outstanding support in the development of Logistics Support Analysis data, Denver, CO.

March 1985 - Outstanding Engineer Award presented by the Director of Peacekeeper Engineering for "Outstanding NH&S contributions to the BMO Logistics Support Analysis activity including direct support to related associate contractor outputs", Denver, CO. First person to receive this award.