

## MEAGAN ERIN SCHIPANSKI

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### EDUCATION

- 2009      **Ph.D. in Horticulture**  
Minor concentrations: Soil science; International agriculture  
Cornell University, Ithaca, New York
- 1995      **B.A. in Biology**, Minor in Environmental Studies  
Oberlin College, Oberlin, Ohio

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### PROFESSIONAL EXPERIENCE

- 2014-present **Assistant Professor**, Department of Soil and Crop Sciences, Colorado State University
- 2010-2013 **Postdoctoral Scholar**, Department of Plant Science & Department of Ecosystem Science and Management, The Pennsylvania State University, University Park, PA
- 2009-2010 **Postdoctoral Fellow**, Department of Natural Resource Sciences  
McGill University, Montreal, QC
- May 2009 **Consultant**, Natural Resource Defense Council  
San Francisco, CA
- 2003-2009 **Graduate Research Assistant**, Department of Horticulture  
Cornell University, Ithaca, NY
- 2001-2003 **Program Manager**, Environmental Careers Organization  
Seattle, WA
- 1997-2000 **Field Manager**, Angelic Organics CSA Farm  
Caledonia, IL

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### GRANTS AND FELLOWSHIPS

- 2012-2014 **USDA NIFA Postdoctoral Fellowship**. Plant mediation of nitrogen mineralization via shifts in rhizosphere carbon allocation. (\$130,000)
- 2011-2014 **USDA OREI**. Finding the right mix: Multifunctional cover crop cocktails for organic systems. Co-PI with J. Kaye (Lead PI), and co-PI's M. Barbercheck, S. Cornelisse, N.E. Kiernan, D. Luthe, D. Mortensen, C. White, S.T. DuPont, D. Hartman, M. Hautau. (\$2,300,000)
- 2009-2010 **Macdonald Sustainable Agriculture Postdoctoral Fellowship**, McGill University (\$70,000)
- 2006 **NSF IGERT Small Grant**, Cornell University Biogeochemistry Program with J. Maul (co-PI) (\$4,000)
- 2006 **USDA Mini-Grant**, Upper Susquehanna Agricultural Ecology Project  
Cornell University (\$1,000)

- 2004 –2008 **Natural Systems Agriculture Graduate Research Fellowship**, The Land Institute, Salina, KS (\$7,500)  
2004 **NSF IGERT Small Grant**, Cornell University Biogeochemistry Program (\$4,000)
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#### **TEACHING AND TRAINING EXPERIENCE**

- 2014 **Guest instructor**, Topics in Organic Agriculture, Colorado State University  
2014 **Guest instructor**, Global Challenges in Plant & Soil Science, Colorado State University  
2012 **Guest instructor**, Emerging Issues in Agroecology, Penn State University  
2011 **Instructor**, Multifunctional Cover Cropping, Penn State University  
2011 **Guest instructor**, Ecology of Agricultural Systems, Penn State University  
2010 **Guest instructor**, Principles of Ecological Agriculture, McGill University  
2007 **Lead instructor**, Practicing Sustainable Landcare, Cornell University  
2007 **Guest instructor**, Organic Food and Agriculture, Cornell University  
2005 **Teaching Assistant**, Introduction to Biology, Cornell University  
2005 **Curriculum Development Assistant**, Dept of Horticulture, Cornell Univ.

Current graduate student advising  
M.S., Steve Rosenzweig

Current graduate committee memberships  
Ph.D., Carolyn Hoagland, SCS  
Ph.D., Arina Sukor, SCS  
Ph.D., Yao Zhang, SCS  
Ph.D., Mitch Hunter, Pennsylvania State University  
M.S., Lindsay Ringer, BSPM  
M.S., Allison Wickham, SCS

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#### **AWARDS**

- 2008 **Agroecology Section** student presentation competition honorable mention Ecological Society of America  
2007 **Barbara McClintock Award**, Plant Sciences outstanding graduate student Cornell University  
2005 **Outstanding Teaching Assistant Award**, Department of Horticulture Cornell University  
2004 **NSF Travel Scholarship**, North American Nitrogen Fixation Conference Montana State University

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#### **SELECTED LEADERSHIP AND SERVICE ACTIVITIES**

- 2013 **Organizer**, Ignite Session on Food Systems, Ecological Society of America  
2011-2013 **Committee Member**, PA Certified Organic Certification Committee  
2011-2013 **Organizer**, Penn State Sustainable Agriculture Systems Research Symposium  
2010 **Invited Participant**, Graduate Student and Early Career Member Summit, Soil Science Society of America (co-authored summary article published in *CSA News*, October 2010)

2009 **Committee Chair**, Hank Beachell Future Leaders Scholarship, Agron. Society  
 2009 **Symposium Organizer**, Ecological Society of America, Albuquerque, NM  
 2008 **Mentor**, SEEDS Program for Undergraduates, Ecological Society of America  
 2007 **Steering Committee**, National Sustainable Agriculture Education Conference  
 2007 **Invited Participant**, Leadership Development Course, Cornell University  
 2005, 2006 **Instructor**, 4H Environmental Awareness Days, Ithaca, NY  
 2006 **Instructor**, Expanding Your Horizons workshop for middle school girls  
 2006 **President**, New World Agriculture and Ecology Group, Cornell University  
 2005 **Invited Panelist**, President's Council of Women, Cornell University  
 2002-2003 **Volunteer**, Casa Latina Women's Program, Seattle, WA  
 2002-2003 **Committee Member**, West Seattle High School Science Academy  
 1999-2000 **Founding Board Member**, Angelic Organics Learning Center  
 1999-2000 **Director**, Midwest Collaborative Regional Alliance for Farmer Training

*Reviewer for:* Agriculture, Ecosystems & Environment, Ecological Applications, Ecological Economics, Environmental and Experimental Botany, Environmental Science and Technology, Global Biogeochemical Cycles, Journal of Arid Environments, Journal of Environmental Quality, Journal of Geophysical Research – Biogeosciences, Plant and Soil, Nutrient Cycling in Agroecosystems, Soil Science Society of America Journal

*Other invited reviews:* Swiss National Research Programme, Towards Sustainability Foundation, Stewardship Index for Specialty Crops, eOrganic.com, Penn State Extension *Agroecology in Practice* series

*Member:* Agronomy Society of America, Soil Science Society of America, Ecological Society of America, Sustainable Agriculture Education Association

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## SELECTED PRESENTATIONS

### *Invited presentations at scientific meetings*

**Schipanski, M.**, E. Bennett, S. Riskin, and S. Porder. Agricultural trade and the global phosphorus cycle. American Geophysical Union, San Francisco, Dec 3-7, 2012.

**Schipanski, M.** and J. Gardner. Nutrient loss from agricultural systems employing ecological approaches. Ecological Society of America, Austin, TX, Aug 7-12, 2011.

**Schipanski, M.** Phosphorus movement through the transport of food and animal feed. Workshop on the State of the Global Phosphorus Cycle, Aspen Global Change Institute, Aspen, CO, Oct 1-4, 2009.

**Schipanski, M.** Agroecology for a sustainable future: Cross-disciplinary research at multiple scales. Ecology Society of America, Albuquerque, NM, Aug 2-7, 2009.

### *Contributed presentations at scientific meetings*

Calderon, F.J., S. Culman, A. Franzluebbers, **M. Schipanski**, J. Six, S. Snapp. Towards a rapid method of measuring labile soil C using infrared spectroscopy. ASA/CSSA/SSSA Annual Meeting, Long Beach, CA, Nov 2-5, 2014.

Hunter, M., A. Hamilton, M. Schipanski, D. Mortensen. Diverse cover crop mixtures in organic grain crops: ecology and management for winter-annual weed suppression. ASA/CSSA/SSSA Annual Meeting, Long Beach, CA, Nov 2-5, 2014.

**Schipanski, M.E.**, R.G. Smith, T.L. Pisani Gareau, R. Jabbour, D.B. Lewis, M.E. Barbercheck, D.A. Mortensen, J.P. Kaye. The structure of multivariate relationships influencing crop yields during the transition to organic management. Ecological Society of America, Minneapolis, MN, Aug 3-8, 2013.

**Schipanski, M.**, S. Bailey, M. Barbercheck, M. Douglas, D. Finney, K. Haider, J. Kaye, D. Mortensen, J. Tooker and C. White. A conceptual framework for evaluating multifunctionality of cover crops in agroecosystems. ASA/CSSA/SSSA Annual Meeting, San Antonio, TX, Oct. 16-19, 2011.

Hayhoe Riskin, S., S. Porder, **M. Schipanski**, E. Bennett, C. Neill. The role of phosphorus in intensive soybean production. Ecological Society of America, Austin, TX, Aug 7-12, 2011.

Ryan, M., **M. Schipanski**, M. Barbercheck, W. Curran, J. Harper, R. Hoover, G. Hostetter, J. Kaye, N.E. Kiernan, D. Mortensen, T. Pisani Gareau, R. Smith, and D. Voight. Organic cropping systems research at The Pennsylvania State University: Designing reduced-tillage systems for organic feed crop production. USDA Organic Farming Systems Conference, Washington, D.C., March 16-18, 2011.

**Schipanski, M.E.**, E.M. Bennett, and G.K. MacDonald. The influence of agricultural trade and livestock production on the global phosphorus cycle. Ecological Society of America, Pittsburgh, PA, Aug 1-6, 2010.

**Schipanski, M.E.**, L.E. Drinkwater, S.J. Vanek, and S.W. Waterman. Nutrient mass balances and agroecosystem management in New York State. ASA-CSA-SSSA Joint Meetings, Pittsburgh, PA, November 1-5, 2009.

**Schipanski, M.E.** and L.E. Drinkwater. Managing biological nitrogen fixation in cash grain agroecosystems. Ecology Society of America, Milwaukee, WI, Aug 3-8, 2008.

Grossman, J.M., **Schipanski, M.E.**, Patel, M.R., and Drinkwater, L.E. The Sustainable Agriculture Scholars Program: Enhancing students' summer agroecological laboratory employment through structured experiential learning and reflection. Ecological Society of America, Milwaukee, WI, Aug 3-8, 2008.

**Schipanski, M.** and L.E. Drinkwater. Managing biological nitrogen fixation: Plant species and soil fertility interactions. Ecology Society of America, San Jose, CA, Aug 5-10, 2007.

**Schipanski, M.,** L.E. Drinkwater, and S. Vanek. Legume nitrogen fixation as an internal regulator of nitrogen cycling in agroecosystems. ASA-CSA-SSSA Joint Meetings, Indianapolis, IN, Nov 12-16, 2006.

**Cocke (Schipanski), M.** and L.E. Drinkwater. Shifts in soybean nitrogen fixation across a management-induced soil fertility gradient. INTECOL/ Ecology Society of America Conference, Montreal, QC, Aug 7-12, 2005.

**Cocke (Schipanski), M.** and L.E. Drinkwater. Shifts in biological nitrogen fixation of perennial and annual legumes across a fertility gradient. 19th North American Symbiotic Nitrogen Fixation Conference. Bozeman, MT, June 27- July 1, 2005.

### ***Invited seminars and presentations***

Ecosystem services: What they mean to you. NRCS State Soil Quality Training. Salina, KS. May 13, 2014.

Frameworks for evaluating cover crops in cropping systems. No-Till on the Plains Research Symposium, Hays, KS. April 2-3, 2014.

Take cover: Selecting and managing cover crops. Pennsylvania Organic Farm Fest, Centre Hall, PA. 2012.

Soil health indicators: Active carbon and particulate organic matter workshop. Penn State Extension Organic Vegetable Production Intensive, Bethlehem, PA. 2011.

From tweaks to transformations: Approaches to reducing nitrogen losses from agricultural systems. Department of Crop and Soil Sciences Seminar Series, Penn State University, October 7, 2011.

Weed management, environmental quality, and profitability in organic feed and forage production systems. Penn State Sustainable Agriculture Systems Triad Research Symposium. February 25, 2011.

Trading spaces: Redistribution of phosphorus through international agricultural trade. Department of Natural Resource Sciences Seminar Series, McGill University. October 21, 2010.

Better living through mutualisms: Nitrogen fixation on grain farms in New York State. Agroecological Perspectives on Sustainable Development Seminar Series. Cornell International Institute for Food, Agriculture, and Development. April 20, 2008.

The effects of soil fertility on legume nitrogen fixation. Dryden Organic Dairy Discussion Group, Dryden, NY. 2008.

The effects of compost applications on nitrogen fixation. New York Organic Farming Association Conference, Syracuse, NY. 2007.

The effects of nutrient management history on soybean nitrogen fixation. New York Certified Organic meeting, Geneva, NY. 2006.

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## EXTENSION PRODUCTS

**Schipanski, M.**, Sandy, D., Barbercheck, M. 2011. Organic corn yields in a drought year. Organic Matters, PCO Quarterly Newsletter Winter 2011, pp. 11, 22.

Dempsey, M., **M. Schipanski**, and M. Barbercheck. 2011. Penn State organic corn variety trial. Field Crop News Vol.11 (1). Penn State Crop Management Extension Group, University Park, PA; Also printed in Organic Matters, PCO Quarterly Newsletter Winter 2011, pp. 9 – 10.

**Schipanski, M.** and L. Drinkwater. 2007. Legume nitrogen fixation learning module, Organic Cropping Systems Project,  
[http://www.hort.cornell.edu/extension/organic/ocs/tutorial/legume\\_n/index.html](http://www.hort.cornell.edu/extension/organic/ocs/tutorial/legume_n/index.html)

**Schipanski, M.** and L. Drinkwater. 2007. Researching legume nitrogen fixation, Organic Cropping Systems Project,  
[http://www.hort.cornell.edu/extension/organic/ocs/tutorial/legume\\_n\\_research/index.html](http://www.hort.cornell.edu/extension/organic/ocs/tutorial/legume_n_research/index.html)

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## MEDIA COMMUNICATIONS

<https://www.crops.org/story/2014/jun/mon/new-framework-reveals-full-ecological-value-of-cover-crops>

Press releases:

<http://news.psu.edu/story/308073/2014/03/18/research/research-reveals-true-value-cover-crops-farmers-environment>

<http://news.psu.edu/story/154023/2011/11/01/penn-state-receives-23-million-organic-agriculture-research-grant>

<http://news.brown.edu/pressreleases/2012/12/phosphorous>

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## PEER-REVIEWED PUBLICATIONS

**Schipanski, M.E.**, R.G. Smith, T.L. Pisani Gareau, R. Jabbour, D.B. Lewis, M.E. Barbercheck, D.A. Mortensen, J.P. Kaye. 2014. The structure of multivariate relationships influencing crop

yields during the transition to organic management. *Agriculture, Ecosystems, and Environment* 189: 119-126.

**Schipanski, M.E.**, M.E. Barbercheck, M.R. Douglas, D.M. Finney, K. Haider, J.P. Kaye, A.R. Kemanian, D.A. Mortensen, M.R. Ryan, J. Tooker and C. White. 2014. A framework for evaluating multifunctionality of cover crops in agroecosystems. *Agricultural Systems* 125: 12-22.

Riskin, S.H., S. Porder, **M.E. Schipanski**, E.M. Bennett, and C. Neill. 2013. Soils mediate agricultural consequences: the role of phosphorus in soybean agriculture. *BioScience* 63: 49-54.

Bennett, E.M., and **M.E. Schipanski**. 2012. Phosphorus. In K.C. Weathers, D.L. Strayer, G. E. Likens, eds. *Fundamentals of Ecosystem Science*. Elsevier Press. Waltham, MA.

**Schipanski, M. E.**, and L.E. Drinkwater. 2012. Soil fertility effects on nitrogen fixation in annual and perennial legume-grass mixtures. *Plant and Soil* 357: 147-159.

Culman, S., S.S. Snapp, **M.E. Schipanski**, M.A. Freeman, J. Beniston, L.E. Drinkwater, A.J. Franzluebbers, J.D. Glover, A.S. Grandy, R. Lal, J. Lee, J.E. Maul, S.B. Mirsky, J. Six, J.T. Spargo, M.M. Wander. 2012. Permanganate oxidizable carbon reflects a processed soil fraction that is sensitive to management. *Soil Science Society of America Journal* 76: 494-504.

**Schipanski, M.E.** and E.M. Bennett. 2012. The influence of agricultural trade and livestock production on the global phosphorus cycle. *Ecosystems* 15: 256-268.

Grossman, J.M., **M.E. Schipanski**, T. Sooksanguan, S. Seehaver, L.E. Drinkwater. 2011. Diversity of rhizobia nodulating soybean [*Glycine max* (Vinton)] varies under organic and conventional management. *Applied Soil Ecology* 50: 14-20.

**Schipanski, M. E.**, L.E. Drinkwater. 2011. Nitrogen fixation of red clover interseeded with winter cereals across a management-induced fertility gradient. *Nutrient Cycling in Agroecosystems* 90(1): 105-119.

**Schipanski, M. E.**, L.E. Drinkwater, and M.P. Russelle. 2010. Understanding the variability in soybean nitrogen fixation across agroecosystems. *Plant and Soil* 329: 379-397.

Drinkwater, L.E., **M. Schipanski**, S. Snapp, and L.E. Jackson. 2008. Ecologically-based nutrient management, In S. Snapp and B. Pound, eds. *Agricultural systems: Agroecology and rural innovation for development*. Academic Press, San Diego, CA.

Knapp, A.K., **M. Cocke (Schipanski)**, and E.P. Hammerlynck. 1994. Effect of elevated CO<sub>2</sub> on stomatal density and distribution in C<sub>4</sub> grass and a C<sub>3</sub> forb under field conditions. *Annals of Botany*, 74: 595-599.