

# Ranae Dietzel

3403 Agronomy Hall  
Iowa State University

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## Education

- Iowa State University**, Ames, IA 2009-2014  
Doctorate of Philosophy  
Crop Production & Physiology and Sustainable Agriculture
- Cornell University**, Ithaca, NY 2006-2009  
Master of Science  
Soil Science, Minors: Agronomy and Biogeochemistry
- University of Minnesota – Morris**, Morris, MN 2002-2006  
Bachelor of Arts  
Biology

## Research and Teaching Experience

- Iowa State University Department of Agronomy, Ames, IA** Aug 2014-Present  
*Postdoctoral Research Associate, Lecturer*
- Work in a lab group focused on addressing agronomic and environmental problems through field measurements and computer simulations
  - Co-teach graduate course on Data Stewardship
- Iowa State University Department of Agronomy, Ames, IA** Jan 2009-2014  
*Graduate Research Assistant*
- Examined differences in biogeochemical processes in corn- and prairie-based biofuel cropping systems
- Cornell University, Ithaca, NY** Aug 2006-Jan 2009  
*Graduate Research and Teaching Assistant*
- Conducted research on the effect of freeze-thaw cycles on spring nitrous oxide emissions in cornfields with and without a winter rye cover crop, focusing on microbial mechanisms
  - Assisted with teaching introductory soil science and soil ecology classes
- USDA-Agricultural Research Service, Morris, MN** May-Dec 2005  
*Biological Science Aid*
- Assisted with research on trace gas fluxes
  - Collected and processed soil, water, and gas samples
  - Ran field and laboratory equipment
- West Central Research and Outreach Center, University of Minnesota, Morris, MN** 2003-2004  
*Undergraduate Research Assistant*
- Assisted with research on low input dairies
  - Measured various properties of cattle feed

**Agro-Soyuz, Mayskoye, Ukraine**

Summer 2004

***Veterinary Assistant***

- Worked with dairy, swine, and ostrich
- Assisted with breeding, births, and treatments
- Assisted with veterinary research

**Iowa State University, Ames, IA**

Summer 2003

***Undergraduate Research Assistant***

- Assisted with studies on the impact of land use on streams
- Field work included rain simulations, stream and stream bank measurements, and riparian zone measurements
- Lab work included water testing, soil measurements, and dishwashing

**Grants and Awards**

NIFA ELI Postdoctoral Fellowship (\$150,000, PI)	2016-2018
Leopold Center for Sustainable Agriculture Competitive Grant (\$48,000, PI)	2016-2019
Iowa Soybean Association Competitive Grant (\$150,000, co-PI)	2015-2017
Outstanding Graduate Student, Iowa State University Department of Agronomy	2013
NIFA Pre-doctoral Fellowship (\$75,000, PI)	2011-2014
Andrew W. Mellon Student Research Grant	2008
Agricultural Ecology Program Mini-grant	2008
Clinton DeWitt Smith Summer Fellowship	2008
Crop and Soil Sciences Outstanding Teaching Assistant	2008
NSF Biogeochemistry and Environmental Biocomplexity Small Grant	2007
University of Minnesota – Morris Dean's Scholarship	2002-2006
Academic All-Conference Track and Field	2005, 2006
Academic All –Conference Cross Country	2005
All-American Wrestling	2003, 2004

**Publications**

Puntel, L.A., Sawyer, J.E., Barker, D.W., Dietzel, R.N., Poffenbarger, H., Castellano, M., Moore, K.J., Thorburn, P., Archontoulis, S.V. *In press*. Modeling long-term corn yield response to nitrogen rate and crop rotation. *Frontiers in Plant Science*. doi: 10.3389/fpls.2016.01630

Nichols, V., Miguez, F., Sauer, T., and R. Dietzel. *In press*. Field-measured root-growth derived CO<sub>2</sub> respiration in continuous maize and reconstructed prairies. *Crop Science*.

Martinez-Feria, R.A., Dietzel, R., Liebman, M., Helmers, M.J., Archontoulis, S.V. 2016. Rye cover crop effects on maize: A system-level analysis. *Field Crops Research* 96: 145-159

Dietzel, R., Liebman, M., Ewing, R., Helmers, M., Horton, R., Jarchow, M., and S. Archontoulis. 2016. How efficiently do corn- and soybean-based cropping systems use water? A systems modeling analysis. *Global Change Biology* 22: 666-681, DOI: 10.1111/gcb.13101

Dietzel, R. Jarchow, M. and M. Liebman. 2015. Above- and belowground growth, biomass, and nitrogen use in maize and reconstructed prairie cropping systems. *Crop Science* 55:1-14

Jarchow, M., Liebman, M., Dhungel, S., Dietzel, R., Sundberg, D., Anex, R., Thompson, M., and T. Chua. 2015. Tradeoffs among agronomic, energetic, and environmental performance characteristics of corn and prairie bioenergy cropping systems. *Global Change Biology Bioenergy* 7:57-71

Dietzel, R and M. Liebman. 2014. Root inputs drive carbon storage potential differences in corn- and prairie-based cropping systems. Dissertation chapter. Order No. 3641012, Iowa State University, 2014, <http://search.proquest.com.proxy.lib.iastate.edu/docview/1622571419>

Dietzel, R. and M. Liebman. 2014. Predicted changes in soil organic carbon over fifty years in corn- and prairie-based cropping systems. Dissertation Chapter. Order No. 3641012, Iowa State University, 2014, <http://search.proquest.com.proxy.lib.iastate.edu/docview/1622571419>

Jarchow, M., Neal, J., Costanza, R., D'Adamo, S., Damery, P., and R. Dietzel, et al. 2012. The future of food and life: Four visions focused on Iowa. *International Journal of Agricultural Sustainability*. *International Journal of Agricultural Sustainability* 10:76-92

Dietzel, R., Wolfe, D., and J. Thies. 2011. The influence of winter cover crops on spring nitrous oxide emissions from an agricultural soil. *Soil Biology & Biochemistry* 43:1989-1991

### **Service and Membership in Professional Societies**

Iowa State University Science with Practice Undergraduate Mentor 2016  
Agronomy, Crop Science, and Soil Science Societies of America, member 2006-2016  
Graduate Program in Sustainable Agriculture, Coordinating Committee 2010, Curriculum Committee 2011, Admissions Committee 2012  
Agronomy Departmental Seminar Committee 2011, 2012  
Environmental Working Group, Consultant 2011  
Agronomy Graduate Student Club, President 2010  
Reviewer – Plant Biology, *Global Change Biology*, *Agronomy Journal*  
Candor, New York Town Planning Board 2008  
Cornell Soil and Crop Science Graduate Student Association, secretary 2007, co-chair 2008

### **Presentations**

Dietzel, R., Liebman, M., Ewing, R., Horton, R., and Archontoulis, S. 2016. How efficiently do corn- and soybean-based systems use water? A modeling analysis. **Invited lecture:** *University of South Dakota Biology Seminar Series*

Dietzel, R., Liebman, M., Ewing, R., Horton, R., and Archontoulis, S. 2015. How efficiently do corn- and soybean-based systems use water? A modeling analysis. *ASA-CSA-SSA Annual Meeting, Minneapolis, MN*

Dietzel, R., Archontoulis, S., and M. Liebman. 2014. Predicted changes in soil organic carbon over fifty years in corn- and prairie-based cropping systems. *ASA-CSA-SSA Annual Meeting, Long Beach, CA*

Dietzel, R. and M. Liebman. 2014. Root inputs drive C storage differences in corn- and prairie-based cropping systems. *ASA-CSA-SSA Annual Meeting, Long Beach, CA*

Dietzel, R. and M. Liebman. 2012. Root inputs drive C sequestration differences in corn and prairie cropping systems. *ASA-CSA-SSA Annual Meeting, Cincinnati, OH*

Dietzel, R. and M. Liebman. 2011. Root growth in corn- and prairie-based biofuel cropping systems. *ISU Agronomy Research Symposium, Ames, IA.*

Dietzel, R. and M. Liebman. 2010. Root growth in corn- and prairie-based biofuel cropping systems. *ISU Graduate Program in Sustainable Agriculture Symposium, Ames, IA*

Dietzel, R. and M. Liebman. 2010. C sequestration in cornfields and prairies? *Graduate Program in Sustainable Agriculture Colloquium, Ames, IA.*

Dietzel, R., Jarchow, M., Sundberg, D., and M. Liebman. 2009. A comparison of corn- and prairie-based cropping systems. *ASA-CSA-SSSA Annual Meeting, Pittsburgh, PA*

Dietzel, R., Jarchow, M., Sundberg, D., and M. Liebman. 2009. A comparison of biomass production in corn- and prairie – based cropping systems. *Live Green! Sustainability Series Poster Presentation, Ames, IA*

Dietzel, R., Jarchow, M., Sundberg, D., and M. Liebman. 2009. A comparison of biomass production in corn- and prairie – based cropping systems. *BioCentury Research Farm Dedication, Ames, IA*

Dietzel, R., Jarchow, M., Sundberg, D., and M. Liebman. 2009. A comparison of biomass production in corn- and prairie – based cropping systems. *Biofuels Research at ConocoPhillips – Women in STEM Speaker Series, Ames, IA*

Dietzel, R., Jarchow, M., Sundberg, D., and M. Liebman. 2009. A comparison of biomass production in corn- and prairie – based cropping systems. *Iowa State Graduate Student in Sustainable Agriculture Annual Research Symposium, Ames, IA*

Dietzel, R. 2008. The influence of winter field cover on spring nitrous oxide emissions. *Cornell Crop and Soil Sciences Seminar Series, Ithaca, NY*

Dietzel, R. and J. Thies. 2008. Surface insulation leads to higher N<sub>2</sub>O fluxes during soil thawing. *ASA-CSA-SSSA Annual Meeting, Houston, TX*