

Curriculum Vitae

Michael L. Thompson

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Professional Preparation

- Ohio State University, Columbus, Ph.D., Agronomy (Soil Genesis) (1980)
- University of Illinois, Urbana-Champaign, B.S., with High Honors, Agricultural Sciences (1974)

Employment

- Professor, Agronomy Department, Iowa State University, Ames (2005-present)
- Visiting Professor, School of Natural Resources and Environment, Shandong Agricultural University, Tai'an, China (2018 – present)
- Visiting Professor, School of Natural Resources and Environment, Anhui Agricultural University, Hefei, China (2016 – present)
- Pioneer Hi-Bred Professor of Agronomy, Agronomy Department, Iowa State University, Ames (2007 – 2010)
- Associate Professor, Agronomy Department, Iowa State University, Ames (1989-2005)
- Fulbright Junior Lecturer, Institut National Agronomique, Paris, France (October 1985 - June 1986)
- Assistant Professor, Agronomy Department, Iowa State University, Ames (1980-1989)

Recent Teaching Program

- *Environmental Soil and Water Chemistry* (with laboratory) (2003 – present)
- *Organic Compounds in Plants and Soils* (2011 – present)
- *Soil – Plant Relationships* (2015, 2016)

Current Research Program

My research program centers on environmental applications of soil chemistry and mineralogy. These studies seek to identify chemical and physical conditions that favor stability, transformations, and movement of nutrients, soil organic matter, and anthropogenic contaminants in soils. Current research projects include quantification of the impacts of biofuel cropping systems on plant nutrients in soil, the mechanisms of colloid-mediated transport of hormones derived from municipal biosolids, and the composition of organic matter preserved in Quaternary paleosols.

Awards and Honors

- **Fellow**, American Association for the Advancement of Science (2010)
- **Fellow**, Soil Science Society of America (2008)
- **Fellow**, American Society of Agronomy (2008)
- **Outstanding Associate Editor**, Journal of Environmental Quality (2008)

Professional Associations

- Soil Science Society of America
- American Society of Agronomy
- The Clay Minerals Society
- Iowa Water Environment Foundation
- American Association for the Advancement of Science

Recent Publications

Book

Schaetzl, R.J., and M.L. Thompson. 2015. **Soils: Genesis and Geomorphology**. Cambridge Press, New York.

Recent Refereed Journal Articles (2012-present)

- Chen, X., M. Jin, Y. Zhang, J. Hu, H. Gao, W. Chu, J. Mao, and M.L. Thompson. 2019. Nitrogen application increases abundance of recalcitrant compounds of soil organic matter: A six-year case study. *Soil Sci.* In press.
- Forsythe, N.A., P.G. Spry, and M.L. Thompson. 2019. Low-sulfidation Au- and porphyry Cu-style mineralization, Navilawa Caldera, Fiji. *Geosciences* 9:42; doi:10.3390/geosciences9010042.
- Rahutomo, S., J.L. Kovar, and M.L. Thompson. 2019. Phosphorus transformations in stream bank sediments in Iowa, USA, at varying redox potentials. *J. Soils Sediments*. 19:1029–1039. <https://rdcu.be/6PKv>; DOI:10.1007/s11368-018-2139-4.
- Rahutomo, S., Kovar, J.L., and Thompson, M.L. 2018. Varying redox potential affects P release from stream bank sediments. *PLoS ONE* 13(12):e0209208. <https://doi.org/10.1371/journal.pone.0209208>.
- Ibrahim, M.A., Chua-Ona, T., Liebman, M., and M.L. Thompson. 2018. Soil organic carbon storage under biofuel cropping systems in a humid, continental climate. *Agron. J.* 110:1748-1753.

- Chen, X., Y. Xu, H. Gao, J. Mao, W. Chu, and M.L. Thompson. 2018. Biochemical stabilization of soil organic matter in straw-amended, anaerobic and aerobic soils. *Science of The Total Environment* 625:1065-1073.
- Rahutomo, S., J.L. Kovar, and M.L. Thompson. 2018. Inorganic and organic phosphorus in sediments in the Walnut Creek Watershed of Central Iowa, USA. *Water, Air, & Soil Pollution* 229:72. 10.1007/s11270-018-3721-5.
- Chen, X., A. Mao, Y. Zhang, L. Zhang, J. Chang, H. Gao, and M.L. Thompson. 2017. Carbon and nitrogen forms in soil organic matter influenced by incorporated wheat and corn residues. *Soil Science and Plant Nutrition* 63:377-387.
- Liang, X., Liao, C., Soupir, M.L., Jarboe, L.R., Thompson, M.L., Dixon, P.M. 2017. *Escherichia coli* attachment to model particulates: The effects of bacterial cell characteristics and particulate properties. *PLOS ONE*. 12: e0184664. DOI: 10.1371/journal.pone.0184664.
- Liao, C., Liang, X., Yang, F., Soupir, M.L., Howe, A.C., Thompson, M.L., Jarboe, L.R. 2017. Allelic Variation in Outer Membrane Protein A and Its Influence on Attachment of *Escherichia coli* to Corn Stover. *Frontiers in Microbiology* 8:708.
- Fidel, R.B., D.A. Laird, M.L. Thompson, and M. Lawrinenko. 2017. Characterization and quantification of biochar alkalinity. *Chemosphere* 167:367–373.
- Meng, Y., T. Chua-Ona, and M.L. Thompson. 2016. Short-term nitrogen mineralization potential in soils of biofuel cropping systems. *Soil Sci.* 181. *Soil Sci.* 181:503–512.
- Liang X., Liao C., M.L. Thompson, M.L. Soupir, L.R. Jarboe, and P.M. Dixon. 2016. *E. coli* surface properties differ between stream water and sediment environments. *Front. Microbiol.* 7:1732. doi: 10.3389/fmicb.2016.01732.
- Prater J.R., R. Horton, and M.L. Thompson. 2016. Impacts of environmental colloids on the transport of 17 β -estradiol in intact soil cores. *Soil and Sediment Contamination: An International Journal* 25:164-180. DOI: 10.1080/15320383.2016.1112360.
- Gao, H., X. Chen, J. Wei, Y. Zhang, L. Zhang, J. Chang, and M.L. Thompson. 2016. Decomposition dynamics and changes in chemical composition of wheat straw residue under anaerobic and aerobic conditions. *PLOS ONE* 11:e0158172. DOI: 10.1371/journal.pone.0158172.
- Hongthanat, N., J.L. Kovar, M.L. Thompson, J.R. Russell, and T.M. Isenhardt. 2016. Phosphorus source—sink relationships of stream sediments in the Rathbun Lake watershed in southern Iowa, USA. *Environ. Monit. Assess.* 188:453-467. doi:10.1007/s10661-016-5437-6.
- Prater, J.R., R. Horton, and M.L. Thompson. 2015. Reduction of estrone to 17 β -estradiol in the presence of swine manure colloids. *Chemosphere* 119:642–645.
- Zhou, Z., N. Chen, X. Cao, T. Chua, J. Mao, R.D. Mandel, E.A Bettis III, and M.L. Thompson. 2014. Composition of clay-fraction organic matter in Holocene paleosols revealed by advanced solid-state NMR spectroscopy. *Geoderma* 223:54-61.
- Jarchow, M.E., M. Liebman, S. Dhungel, R. Dietzel, D. Sundberg, R.P. Anex, M.L. Thompson, and T. Chua. 2014. Trade-offs among agronomic, energetic, and environmental performance characteristics of corn and prairie bioenergy cropping systems. *GCB Bioenergy* 7:57-71. DOI:10.1111/gcbb.12096.
- Rivas, F.A., M.A. Tabatabai, D.C. Olk, M.L. Thompson. 2013. Kinetics of short-term carbon mineralization in roots of biofuel crops in soils. *Biology and Fertility of Soils* 50:527-535.
- Fidel, R.B., D.A. Laird, M.L. Thompson. 2013. Evaluation of modified Boehm titration methods for use with biochars. *Journal of Environmental Quality* 42:1771-1778.
- Mao, J.-D., R.L. Johnson, J. Lehmann, D.C. Olk, E.G. Neves, M.L. Thompson, and K. Schmidt-Rohr. 2012. Abundant and stable char residues in soils: Implications for soil fertility and carbon sequestration. *Environ. Sci. Technol.* 46: 9571–9576.

Recent Research Funding (2012 – present)

- Limiting **Nitrogen Immobilization** in Cover Crop Systems. Iowa Nutrient Research Center. \$14,300, 2017 – 2019
- Soil Health** in Biofuel Cropping Systems. Leopold Center for Sustainable Agriculture. M.L. Thompson, M. Liebman, M. Helmers. \$203,841, 2016 – 2019
- Improving the Reliability of **Soil Potassium Testing and Recommendations** for Crops through Improved Knowledge of Relationships between Exchangeable and Non-Exchangeable Soil Potassium Pools, A. Mallarino and M. Thompson, International Plant Nutrition Institute, \$249,000, 2013 – 2017
- Processes Controlling the **Source, Movement, and Release of Soil Phosphorus** in Midwestern Streams from Pasture and Crop Land, R. Schultz et al., USDA – National Institute for Food and Agriculture, \$498,007 (shared among 7 PIs), 10/1/2013 – 9/2017
- Environmental Fate of **Endocrine-Disrupting Chemicals**: Association with Biosolids-Derived Dissolved Organic Matter, M. Thompson, B. Chefetz, R. Horton, and J. Prater. Binational Agric. Res. and Dev. Fund, \$300,000 (\$70,000 to Thompson’s group), 11/2013 – 12/2016
- Investigation of **Bacteria Transport** and Resistance Mechanisms and Implications for Water Quality from Confinement Swine and Beef Grazing Production Systems in Iowa. M. Soupir et al., Leopold Center for Sustainable Agriculture, \$162,100 (shared among 5 PIs), 3/2012 – 2/2015