

Haiying Tao
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EDUCATION

Ph.D.	2007	Soil/Plant Science	University of Connecticut, CT
M.S.	2002	Agronomy	China Agriculture University, China
B.S.	1998	Crop Physiology	China Agriculture University, China
B.S. Minor	1998	Agricultural Economics	China Agriculture University, China

EMPLOYMENT

2015-present	Assistant Professor	Department of Crop and Soil Sciences, Washington State University
2012-2015	Associate Research Scientist	Department of Plant Science & Landscape Architecture, University of Connecticut
2014	Adjunct Lecturer	Department of Engineering, University of New Haven
2008-2012	Post Doc Fellow	Department of Plant Science & Landscape Architecture, University of Connecticut
2002-2007	Research Assistant	Department of Plant Science & Landscape Architecture, University of Connecticut
1998-2002	Assistant Research Scientist	Beijing Research Center for Information Technology, Beijing Academy of Agriculture & Forestry Sciences, China

RESEARCH

Current Research Interests

I lead Soil Fertility Laboratory. Our goal is to advance soil health management for WA agricultural systems through research and extension programs. The current research programs:

- Soil health assessment for Inland Pacific Northwest agricultural production systems
- Advancing wheat nutrient recommendations using big data collected using precision agricultural technology
- Studying strategies to address soil acidification issues in Inland Pacific Northwest cropping systems

- Sustainable residue management for soil conservation, energy production, feedstock for mushroom and pulp industries.
- Sustainable land application of dairy manure for crop production, environmental conservation, and food safety
- Best fertility management strategies for wheat and canola

Refereed publications

Tao, H., G. Yorgey, D. Huggins, D. Wysocki. 2017. Crop residue management, *Advances in Sustainable Dryland Farming in the Inland Pacific Northwest*. WSU Extension.

Borrelli, K., W.L., Pan, **H. Tao**, C. Paul, T. Maaz. 2017. Soil Fertility Management, *Advances in Sustainable Dryland Farming in the Inland Pacific Northwest*. WSU Extension.

Tao, H., T.F. Morris, B. Bravo-Ureta, R. Meinert. 2016. Analyzing the implementation of nutrient management plans by farmers: implications for extension education. *Journal of Extension*. 54(6).

H. Tao, T. F. Morris, B. Bravo-Ureta, R. Meinert. 2014. Factors affecting manure applications as directed by nutrient management plans at four Connecticut dairy farms. *Agron. J.* 106: 1-7.

H. Tao, T. F. Morris, B. Bravo-Ureta, R. Meinert, J. Neafsey. 2012. Nutrient applications reported by farmers compared with performance-based nutrient management plans for cornfields: A Connecticut case study. *Agron. J.* 104:437-447.

H. Tao, T. F. Morris, B. Bravo-Ureta, R. Meinert, K. Zanger, J. Neafsey. 2010. A partial budget analysis for phosphorus-based nutrient management plans for Connecticut dairy farms. *Agron. J.* 102:231-240.

P. Kyveryga, **H. Tao**, T. F. Morris, T. M. Blackmer. 2010. Identification of nitrogen management categories by corn stalk nitrate sampling guided by aerial imagery. *Agron. J.* 102:858-867.

Scholarly presentations and posters

Tao, H., T.F. Morris, and P.M. Kyveryga. 2014. Predicting probability of corn response to nitrogen rates using Bayesian Hierarchical Models. ASA, CSSA, & SSSA International Annual Meetings. Long Beach, CA. Long Beach, CA.

Kyveryga, P.M., T.F. Morris, **H. Tao**. 2014. Database-driven N decision support: using rainfall and feedback information about corn N status and yield response.

Tao, H. and T.F. Morris. 2013. On-farm strip trials to improve nitrogen recommendations. ASA, CSSA, & SSSA International Annual Meetings. Tampa, FL.

Morris, F.F., **H. Tao**, D. Pettinelli, W. Smith, and R. Meinert. 2013. Adaptive nutrient management: a process for refining nitrogen management. ASA, CSSA, & SSSA International Annual Meetings. Tampa, FL.

Morris, T.F., **H. Tao**, C. Sigmund, and S. Friedman. 2011. Nitrogen fertilizer needs estimated by strip trials, field records and soil and corn stalk nitrate results. ASA, CSSA, & SSSA International Annual Meetings. San Antonio, TX.

Morris, T.F., **H. Tao**, S. Friedman, and R. Meinert. 2011. How adaptive management using field records and corn stalk nitrate results informs farmers about nitrogen availability from manure. ASA, CSSA, & SSSA International Annual Meetings. San Antonio, TX.

Tao, H., T. F. Morris, S. Friedman, D. Pettinelli, M. DeBacco. 2011. Implementation of adaptive nutrient management for nitrogen-case studies from Pennsylvania farms. ASA, CSSA, & SSSA International Annual Meetings. San Antonio, TX.

Tao, H., T. F. Morris, S. Friedman. 2011. Improvement of fertilizer nitrogen use in corn fields from implementation of an adaptive management program. Global Issues in Nutrient Management Science, Technology and Policy. 4th International Symposium. Newark, DE.

Tao, H., T.F. Morris, R. Meinert, M. DeBacco, and D. Pettinelli. 2010. Why adaptive management is needed for nutrient management. ASA, CSSA, & SSSA International Annual Meetings. Long Beach. CA.

Tao, H., Tom Morris, Suzy Friedman, Richard Meinert, Dawn Pettinelli. 2009. Categorizing nitrogen availability from manured corn fields using field history and the cornstalk nitrate test. ASA, CSSA, & SSSA International Annual Meetings. Pittsburgh. PA.

Kyveryga, T., **H. Tao**, T.F. Morris, T. Blackmer. 2009. Identification of nitrogen management categories to reduce uncertainty in estimates of economic optimum rates. ASA, CSSA, & SSSA International Annual Meetings. Pittsburgh. PA.

Morris, T.F., T. Blackmer, S. Friedman, P. Kyveryga, **H. Tao**. 2008. Adaptive Management to Improve Nitrogen Recommendations for Corn. ASA, CSSA, & SSSA International Annual Meetings. Huston. TX.

Tao, H., T.F. Morris, B. Bravo-ureta. 2008. Probit model analysis of farmers' decisions to implement recommendations for manure applications. ASA, CSSA, & SSSA International Annual Meetings. Huston. TX.

Morris, T. F., **H. Tao**, J. Ping, D. Pettinelli, and R. Meinert. 2007. Nitrogen fertilizer recommendations for corn based on a feedback loop. ASA, CSSA, & SSSA International Annual Meetings. New Orleans, LA.

Tao, H., and T.F. Morris. Effectiveness of performance based nutrient management plans. 2008. New England In-Service Conference. Wentworth, NH.

Tao, H., T.F. Morris, B. Bravo-Ureta, R. Meinert, J. Neafsey, and W. Smith. 2006. Comparison of nutrient management plans based on Phosphorus-thresholds. ASA, CSSA, & SSSA International Annual Meetings. Indianapolis, IN.

Tao, H., T.F. Morris, B. Bravo-Ureta, R. Meinert, J. Neafsey, K. Zanger, and W. Smith. 2005. Partial budgeting for implementing nutrient management plans: case study of dairy farms in Connecticut. ASA, CSSA, & SSSA International Annual Meetings. Salt Lake City, UT.

Tao, H., T. F. Morris, R. Meinert, K. Zanger, J. Hyde, W. Smith, and J. Neafsey. 2004. Manure and fertilizer applications by farmers compared with nutrient management recommendations. ASA, CSSA, & SSSA International Annual Meetings. Seattle. WA

EXTENSION

Washington State Farmers Network

Mission

The mission of the Washington State Farmers Network is to advance soil and nutrient management, productivity and sustainability, and profit through participatory research and learning.

Objectives

The Washington State Farmers Network provides farmers and researchers a platform to share information through structured research and education. By conducting large-scale on-farm research trials, researcher can collect large amount of data across different management practices, soils, and climate conditions for developing more robust models. Through many years of on-farm research, the models will be continuous improved, therefore, the uncertainties in our current nutrient management recommendation systems will be continuously reduced. As a result, farmers will receive systematic and continuously improved nutrient management recommendations.

Extension publications and other educational products

Workshops

- H. Tao**, William L. Pan. 2016. Dairy Nutrient Management Workshop, Joint held with Far West Agribusiness Association December Conference. Kennewick, WA.
- H. Tao**, William L. Pan. 2016. Dairy Nutrient Management Workshop. Prosser, WA.
- H. Tao**. 2016. Regional Soil Acidity and Liming Research Symposium. WSU.
- H. Tao**. 2016. Introduction of CropScan. Presented by Triangle Ag-Services. WSU.
- H. Tao**. 2016. Update on nitrogen management from WSDA. Presented by G. Bahr and P. Beale. WSU.

Extension presentations

- H. Tao**. 2016. Soil acidification, liming on western soils. Building Soils for Better Crops 2016 Conference. WSU Extension. 50 minutes presentation, 125 people.
- H. Tao** and Aaron Esser. 2016. Fine-tune nitrogen management using 4R stewardship. Two 1.5-hour presentations with hands-on activities, 75 people.
- H. Tao**. 2016. Nitrogen fertilizer management for optimum yield and protein. Adams Conservation District & WSU Annual Meeting. 50 minutes presentation, ~70 people.
- H. Tao**. Micronutrients. 2016. Asotin County Wheat Growers Meeting. 1 hour informal presentation and discussions ~ 15 people.
- H. Tao**. 2016. Nitrogen fertility management for wheat. Columbia Conservation District Annual Meeting. 50 minutes presentation, ~40 people.
- H. Tao**. 2016. Strategies for maintaining regional soil fertility recommendations. Advanced Topics and Agronomy and Soil Science, Walla Walla, WA. 1 hour presentation, 50 people.
- H. Tao**, 2015. A. Esser. Managing nitrogen for yield and protein in winter wheat. WSU Wheat Academy. Two 1.5-hour presentations with hands-on activities, 75 people.
- H. Tao**. 2015. Merging research and extension programs to improve soil fertility and nutrient management. Far West Agribusiness Association. 50 minutes presentation, ~ 50 people.

Other education media

- Tao, H.** 2017. Adjusting wheat-based management strategies for oilseed production. Timely Topic published on Smallgrains.wsu.edu.
- Tao, H.** 2017. Building soil health. Timely Topic published on Smallgrains.wsu.edu.
- Tao, H.** 2017. Variable rate nitrogen application-a grower's perspective.

Tao, H. 2016. Thinking about reducing nitrogen fertilizer applications? Timely Topic published on Smallgrains.wsu.edu. Available at: <http://smallgrains.wsu.edu/thinking-about-reducing-nitrogen-fertilizer-applications/>.

TEACHING AND ADVISING

Goals

My goals of classroom teaching is to tailor my course materials to meet different categories of needs and interests, to help students master the knowledge by case studies, and to encourage students' critical thinking and analytical mind by providing lab sections or other hands-on activities along with lectures. My goal of mentoring graduate students is to tailor the training program to meet program needs, student's education goals, and student's career goals. The student will be well equipped, independent, and competitive upon graduation.

Instructor

- Soil Fertility. 2012-2014. University of Connecticut
- Applied Engineering Statistics. 2014. University of New Haven
- Agroecology. 2001. China Agriculture University

Guest lectures

- Introduction to soil. Introduction to Cultivated Plants (Hort/Crops 102). 2015
- Soil physical properties. Introduction to Cultivated Plants (Hort/Crops 102). 2015
- Soil fertility and plant nutrition. Introduction to Cultivated Plants (Hort/Crops 102). 2015

Graduate Students

Cameron Gerecke, MS in Ag student, adviser

Eric Bietila, alumni PhD student, adviser

Katherine Naasko, PhD student, adviser

Leslie Michael, MS student, Co-adviser

Marissa Porter, MS student, adviser

Rachel Breslauer, MS student, adviser

Robert Eiichi Butler, MS in Ag student, Co-adviser