

# Xiufen (Sophia) Li

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## EDUCATION

- Ph.D. in Soil Science, Oklahoma State University, USA, 2016
- M.S. in Ecology, Chinese Academy of Sciences, China, 2012
- B.S. in Biotechnology, Anhui Normal University, China, 2009

## EXPERIENCE

- 2023 - present: Assistant Professor of Soil Microbiology and Soil Health. Department of Plant and Environmental Sciences, New Mexico State University.
- 2020 - 2023: Postdoctoral Research Associate. Washington State University.
- 2016 - 2020: Postdoctoral Research Associate. Texas A&M AgriLife Research & Extension Center.

## PUBLICATIONS AND PROFESSIONAL OUTPUT

### 1. Recent Peer-Reviewed Articles:

- 2022** Li, X.; Petipas, R.H.; Antoch, A.A.; Liu, Y.; Stel, H.V.; Bell-Dereske, L.; Smercina, D.N.; Bekkering, C.; Evans, S.E.; Tiemann, L.K.; & Friesen, M.L. (2022). Switchgrass cropping systems affect soil carbon and nitrogen and microbial diversity and activity on marginal lands. *GCB Bioenergy*, 14(8), 918-940.
- 2022** Li, X.; Jiang, J.; Guo, J.; McClung, A.; Chen, K.; Velarca, M.V.; Torbert, H.A.; & Dou, F. (2022). Effect of nitrogen application rate under organic and conventional systems on rice (*Oryza sativa* L.) growth, grain yield, soil properties, and greenhouse gas emissions. *Journal of Plant Nutrition*, 46(8), 1627-1649.
- 2022** Wang, X.; Dou, F.; Li, X.; Sun, W.; & Ma, X. (2022). Impact of three copper amendments on arsenic accumulation and speciation in rice (*Oryza sativa* L.) in a life cycle study. *ACS Sustainable Chemistry & Engineering*, 10, 4504-4511.
- 2022** Shi, J.; Lu, J.; Li, X.; Xiang, Z.; Liu, D.; Liao, S.; Yu, H.; Zheng, T.; & Huang, T. (2022). Effects of mulching with *Solanum* spp. straw on phosphorus, iron, and cadmium uptake by rice plants. *Environmental Progress & Sustainable Energy*. e13988  
[doi.org/10.1002/ep.13988](https://doi.org/10.1002/ep.13988).
- 2022** Wang, X.; Jiang, J.; Dou, F.; Li, X.; Sun, W.; & Ma, X. (2022). Zinc fertilizers modified the formation and properties of iron plaque and arsenic accumulation in rice (*Oryza sativa* L.) in a life cycle study. *Environmental Science & Technology*, 56, 8209-8220.

- 2022** Wang, X.; Teng, Y.; Wang, X.; **Li, X.**; & Luo, Y. (2022). Microbial diversity drives pyrene dissipation in soil. *Science of the Total Environment*, 819, 153082. doi.org/10.1016/j.scitotenv.2022.153082.
- 2021** **Li, X.**; Tan, A.; Chen, K.; Pan, Y.; Gentry, T.; & Dou, F. (2021). Effect of cover crop type and application rate on soil nitrogen mineralization and availability in organic rice production. *Sustainability*, 13(5), 2866. doi.org/10.3390/su13052866.
- 2021** Wang, X.; **Li, X.**; Dou, F.; Sun, W.; Chen, K.; Wen, Y.; & Ma, X. (2021). Elucidating the impact of three metallic nanoagrichemicals and their bulk and ionic counterparts on the chemical properties of bulk and rhizosphere soils in rice paddies. *Environmental Pollution*, 290, 118005. doi.org/10.1016/j.envpol.2021.118005.
- 2021** Liu, L.; **Li, X.**; Huang, K.; Zhu, Y.; Li, A.; Ao, Q.; Liao, M.; & Lin, L. (2021). Salicylic acid promotes growth and affects cadmium accumulation of *Cyphomandra betacea* seedlings. *Environmental Progress & Sustainable Energy*, EP13787. doi.org/10.1002/ep.13787.
- 2021** Wang, Y.; **Li, X.**; Tarpley, L.; Peng, S.; & Dou, F. (2021). Effects of nitrogen management on the ratoon crop yield and head rice yield in south USA. *Journal of Integrative Agriculture*, 20(6), 1457-1464.
- 2021** Wang, X.; Teng, Y.; Ren, W.; Han, Y.; Wang, X.; & **Li, X.** (2021). Soil bacterial diversity and functionality are driven by plant species for enhancing polycyclic aromatic hydrocarbons dissipation in soils. *Science of the Total Environment*, 797, 149204. doi: 10.1016/j.scitotenv.2021.149204.
- 2020** **Li, X.**; Dou, F.; Guo, J.; Velarca, M.V.; Chen, K.; Gentry, T.J.; & McNear, D. (2020). Soil microbial community responses to nitrogen application in organic and conventional rice (*Oryza sativa* L.) production. *Soil Science Society of America Journal*, 84, 1885-1897.
- 2020** **Li, X.**; Dou, F.; Watkins, K.B.; Wang, S.; Chen, K.; Zhou, X.; McClung, A.; Storlien, J.O.; & Hons, F.M. (2020). Seeding rate effects on organic rice growth, yield, and economic returns. *Agronomy Journal*, 112, 4104-4119.
- 2020** **Li, X.**; Deng, S.; Raun, W.R.; Wang, Y.; & Teng, Y. (2020). Bacterial community in soils following century-long application of organic or inorganic fertilizers under continuous winter wheat cultivation. *Agronomy*, 10(10):1497. doi.org/10.3390/agronomy10101497.
- 2019** Ma, X.; Sun, K.; Dou, F.; **Li, X.**; Wang, X.; & Sun, W. (2019). Impact of elevated nitrate and perchlorate in irrigation water on the uptake, speciation and accumulation of arsenic in rice (*Oryza sativa* L.). *Water, Air, & Soil Pollution*, 231, 309. doi.org/10.1007/s11270-020-04701-z.
- 2018** Dick, R.P.; Dick, K.; Deng, S.P.; **Li, X.**; Kandeler, E.; Poll, C.; Freeman, C.; Jones, T.G.; Weintraub, M.N.; Esseili, K.A.; & Saxena, J. (2018). Cross-laboratory comparison of

fluorimetric microplate and colorimetric bench-scale soil enzyme assays. *Soil Biology and Biochemistry*, 121, 240-248.

- 2017** Dou, F.; Ping, C.L.; **Li, X.**; Jorgenson, T.; Guo, L.; Chen, K.; & Michaelson, G. (2017). Soil organic carbon reactivity along the eroding coastline of northern Alaska. *Soil Science*, 182, 227-232.
- 2016** Teng, Y.; **Li, X.**; Chen, T.; Zhang, M.Y.; Wang, X.M.; Li, Z.G.; & Luo, Y.M. (2016). Isolation of the PCB-degrading bacteria *Mesorhizobium* sp. ZY1 and its combined remediation with *Astragalus sinicus* L. for contaminated soil. *International Journal of Phytoremediation*, 18, 141-149.

## 2. Patent

- Teng, Y.; **Li, X.**; Luo, Y.M.; & Li, Z.G. 2013. *Mesorhizobium* ZY1 and its application in soil remediation. Issuing Organization: China National Intellectual Property Administration. Assignee: Chinese Academy of Sciences. Patent No. CN102876621B. Accession Number CGMCC No.6622.

## 3. Conference Abstracts and Presentations

- **Li, X.**; Petipas, R.H.; Antoch, A.A.; Liu, Y.; Stel, H.V.; Bell-Dereske, L.; Smercina, D.N.; Evans, S.E.; Tiemann, L.K.; & Friesen, M.L. Switchgrass cropping systems affect soil carbon and nitrogen and microbial diversity and activity on marginal lands. 2022 GLBRC Virtual Sustainability Meeting, Feb 14-16, **2022**. Virtual Zoom Meeting.
- **Li, X.**; Petipas, R.H.; Antoch, A.A.; Liu, Y.; Stel, H.V.; Bell-Dereske, L.; Smercina, D.N.; Evans, S.E.; Tiemann, L.K.; & Friesen, M.L. Effect of switchgrass cultivation and nitrogen fertilization on soil fertility, microbial richness and diversity, enzyme activity, and plant productivity. Annual ASA-SSSA-CSA Meeting, Nov 7-10, **2021**. Salt Lake City, UT.
- Dou, F.; **Li, X.**; Guo, J.; Velarca, M.V.; Chen, K.; Gentry, T.; & McNear, D. Soil microbial community responses to nitrogen application in organic rice production. Symposium of Chemistry and the Rice Field Ecosystem, the International Chemical Congress of Pacific Basin Societies. Dec. 16-21, **2021**. Honolulu, Hawaii.
- Lamichhane, S.; **Li, X.**; Jiang, J.; & Dou, F. Effects of soil moisture on nitrogen loss associated with ammonia volatilization in direct-seeded, delay-flooded rice production. 112<sup>th</sup> ASA-SSSA-CSA International Virtual Annual Meeting, Nov 9-13, **2020**. Virtual Zoom Meeting.
- **Li, X.**; Tan, A.; & Dou, F. Responses of soil N supply to the addition of winter cover crop. 38<sup>th</sup> Rice Technical Working Group Conference, Feb. 24-27, **2020**. Orange Beach, AL.
- Dou, F.; Tu, Q.; **Li, X.**; & Dong, Z. Effect of soil moisture, nitrogen rate, and urease inhibitor on ammonia volatilization. 38<sup>th</sup> Rice Technical Working Group Conference, Feb. 24-27, **2020**. Orange Beach, AL.

- **Li, X.**; Tan, A.; & Dou, F. Effect of cover crop mixing and application rate on soil n mineralization in an incubation study. 111<sup>th</sup> Annual ASA-SSSA-CSA Meeting, Nov. 10-13, **2019**. San Antonio, TX.
- Dou, F.; **Li, X.**; & Deng, Y. Effect of Vermiculite Clays on the Performance of Urease Inhibitors in Soil Ammonia Volatilization. International conference on clay science and technology, Jul. 1-5, **2019**. Paris, France.
- **Li, X.**; Dou, F.; Wang, S.; Chen, K.; Zhou, X.; & McClung, A. Effect of Seeding Rate on Plant Growth, Grain Yield and Yield Components in Organic Rice Production. 37<sup>th</sup> Rice Technical Working Group Conference, Feb. 19-22, **2018**. Long Beach, CA.
- **Li, X.**; Dou, F.; Guo, J.; Velarca, M.V.; Chen, K.; Gentry, T.; & McNear, D. Effect of Nitrogen Source and Rate on Soil Microbial Community Structure during Rice Production. 37<sup>th</sup> Rice Technical Working Group Conference, Feb. 19-22, **2018**. Long Beach, CA.
- **Li, X.**; & Dou, F. Effect of Seeding Rate on Plant Growth, Grain Yield, Yield Components, Milling Quality and Weed Density of Organic Rice. 108<sup>th</sup> Annual ASA-SSSA-CSA Meeting, Nov. 6-9, **2016**. Phoenix, AZ.
- **Li, X.**; Deng, S.; Raun, W.R.; Teng, Y.; & Wang, Y. Dominant Bacterial Phyla in Soils under 18–114 Years of Wheat Cultivation. 107<sup>th</sup> Annual ASA-SSSA-CSA Meeting, Nov. 15-18, **2015**. Minneapolis, MN.
- **Li, X.**; Deng, S.; Raun, W.R.; Wang, Y.; & Teng, Y. Unique Bacterial Phyla in Ecosystems that was under Native Vegetation, Conservation Reserve Program, or Continuous Winter Wheat Cultivation. 106<sup>th</sup> Annual ASA-SSSA-CSA Meeting, Nov. 2-5, **2014**. Long Beach, CA.
- Collins, J.; **Li, X.**; Deng, S.; Wang, Y.; & Raun, W.R. Drivers and Dynamics of Nitrogen Mineralization in Soil. 105<sup>th</sup> Annual ASA-SSSA-CSA Meeting, Nov 3-6, **2013**. Tampa, FL.
- **Li, X.**; Deng, S.; Wang, Y.; Raun, W.R.; & Teng, Y. Unique Bacteria in Century-Old Untreated or Manure Treated Wheat Soil Ecosystems. 105<sup>th</sup> Annual ASA-SSSA-CSA Meeting, Nov 3-6, **2013**. Tampa, FL.

#### **4. Regional/Research-User Presentations**

- **Li, X.**; Mock, C.; Tu, Q.; Zhou, C.; Zhang, H.; Dou, F.; Liu, G.; & Landry, K. 2018 On-farm trials: Effect of phosphorus and potassium fertilization on rice production. Texas A&M AgriLife Beaumont Field Day, July 2019.
- **Li, X.**; Mock, C.; Tu, Q.; Zhou, C.; Zhang, H.; Dou, F.; Liu, G.; & Landry, K. 2018 On-farm trials: Effect of phosphorus and potassium fertilization on rice production. Texas A&M AgriLife Eagle Lake Field Day, June 2019.
- Dou, F.; Liu, G.; Samford, J.; **Li, X.**; & Landry, K. 2017 Varietal evaluation, and N application for rice main and ratoon crop yield potential. Texas A&M AgriLife Beaumont Field Day, July 2018.

- Dou, F.; Liu, G.; Samford, J.; **Li, X.**; & Landry, K. 2017 Varietal evaluation and N application for rice main and ratoon crop yield potential. Texas A&M AgriLife Eagle Lake Field Day, June 2018.
- **Li, X.**; Dou, F.; Liu, G.; & Landry, K. Effect of variety and nitrogen rate on organic rice grain yield and milling quality. Texas A&M AgriLife Beaumont Field Day, July 2017.
- **Li, X.**; Dou, F.; Liu, G.; & Landry, K. Effect of variety and nitrogen rate on organic rice grain yield and milling quality. Texas A&M AgriLife Eagle Lake Field Day, June 2017.
- **Li, X.**; Dou, F.; Liu, G.; & Landry, K. Effect of Seeding Rate on Plant Growth, Grain Yield, Yield Components and Weed Density of Organic Rice. Texas A&M AgriLife Beaumont Field Day, July, 2016.
- **Li, X.**; Dou, F.; Liu, G.; & Landry, K. Effect of Seeding Rate on Plant Growth, Grain Yield, Yield Components and Weed Density of Organic Rice. Texas A&M AgriLife Eagle Lake Field Day, June, 2016.

## 5. Popular Press Articles

- Dou, F.; Samford, J.; Liu, G.; Landry, K.; **Li, X.** 2019. Responses of rice production to nitrogen applied to main crop. Texas Rice (Special Section, Highlighting Research in 2019):28-29.
- Dou, F.; Samford, J.; Liu, G.; Landry, K.; **Li, X.** 2019. Effects of rice variety on main, ratoon, and total crop yields. Texas Rice (Special Section, Highlighting Research in 2019):26-28.
- Dou, F.; Samford, J.; Liu, G.; Landry, K.; **Li, X.** 2018. Responses of rice production to nitrogen applied to main crop. Texas Rice (Special Section, Highlighting Research in 2018):20-22.
- Dou, F.; Samford, J.; Liu, G.; Landry, K.; **Li, X.** 2018. Effects of rice variety on main, ratoon, and total crop yields. Texas Rice (Special Section, Highlighting Research in 2018):17-19.

## GRANTS

- **2022** Friesen, M.L. (PI); Tiemann, L.; White III, R.A.; **Li, X.** Functional biodiversity of soil nitrogen-fixing microbial communities across diverse cropping systems. USDA-NIFA-AFRI Microbiome Program (A1402). 2023-2025. \$849,135. Funded.
- **2022** Friesen, M.L. (PI); Paulitz, T.; **Li, X.** A SmartChip for Pathogenic and Beneficial Microbes Underlying Soil Health. WSU FY-23 BIOAg Project. 2023-2024. \$40,000. Funded.

## SERVICE AND OUTREACH

### 1. Journal Guest Editor

- *Land*, Special Issue: Promoting Soil Health for Sustainable Agricultural and Bioenergy Production, Feb 2023-present.
- *Agronomy*, Special Issue: Soil Nutrient Cycling and Management of Agronomy, Mar 2021-Mar 2022.

## 2. Journal Reviewer

- *Science of the Total Environment*
- *Biology*
- *Scientific Reports*
- *Plants*
- *Ecosystem Health and Sustainability*
- *Agronomy*
- *Land*
- *Sustainability*
- *Life*
- *Applied Sciences*
- *International Journal of Environmental Analytical Chemistry*
- *Processes*
- *Agronomy Journal*
- *Environmental Progress & Sustainable Energy*

## 3. Professional Activities & Services

- **Department Diversity, Equity, and Inclusive (DEI) committee member.** Department of Plant Pathology, Washington State University, 2022 & 2023.
- **Search committee member.** The hiring of a Graduate Research Technician at the WSU Friesen Lab, Jan-Mar 2023.
- **Search committee member.** The hiring of a Postdoctoral Research Associate at the USDA Paulitz Lab, Nov 2021-Feb 2022.
- **Texas A&M AgriLife Research Center Beaumont Field Day tour guide.** Jul 2019. Beaumont, TX.
- **Graduate student poster competition judge.** Soil Fertility, Plant Nutrition, and Soil/Plant Analysis Section. 111<sup>th</sup> Annual ASA-SSSA-CSA Meeting, Nov 10-13, 2019. San Antonio, TX.
- **Graduate student poster competition judge.** 37<sup>th</sup> Rice Technical Working Group Conference, Feb 19-22, 2018. Long Beach, CA.
- **Guest speaker.** Bernard Harris ExxonMobil Lamar University Summer Science Camp. Jun 14, 2019.
- **Guest speaker.** Bernard Harris ExxonMobil Lamar University Summer Science Camp. Jun 14, 2018.
- **Guest speaker.** ExxonMobil Bernard Harris Lamar University Summer Science Camp. Jun 15, 2017.
- **Educational exhibitor.** The 48<sup>th</sup> Texas Rice Festival. Oct 6, 2017. Winnie, TX.
- **Educational exhibitor.** The 47<sup>th</sup> Texas Rice Festival. Oct 1, 2016. Winnie, TX.