

Andrew J. Margenot

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PROFESSIONAL EXPERIENCE

- 2023 – **Associate Professor**, Department of Crop Sciences, University of Illinois Urbana-Champaign
- 2023 – **Director**, Alma Mater Plots, University of Illinois Urbana-Champaign
- 2023 – **Research Fellow**, Soil Biology Group, Wageningen University, Netherlands
- 2021 – **Associate Director**, Agroecosystem Sustainability Center, Institute for Sustainability, Energy, and Environment, University of Illinois
- 2019 – **Technical Leader** (Soil Health), USDA NRCS National Soil Survey Center
- 2019 – **Affiliate Faculty**, Program in Ecology, Evolution and Conservation Biology (PEEC), University of Illinois Urbana-Champaign
- 2019 – **Affiliate Faculty**, Center for Digital Agriculture, University of Illinois Urbana-Champaign
- 2019 – **Affiliate Faculty**, Center for African Studies, University of Illinois Urbana-Champaign
- 2019 – 2022 **Affiliate Graduate Faculty**, Department of Horticulture, Texas A&M University
- 2017 – 2023 **Assistant Professor**, Department of Crop Sciences, University of Illinois Urbana-Champaign
- 2016 – 2017 **Postdoctoral Researcher**, laboratories of Andrew J. McElrone, USDA-ARS, Davis, CA and Sanjai J. Parikh, Department of Land, Air, and Water Resources, UC Davis
- 2016, 2017 **Visiting Researcher**, International Center for Tropical Agriculture (CIAT), Nairobi, Kenya and Cali, Colombia

EDUCATION

- 2011 – 2016 **Ph.D., Soils and Biogeochemistry**. University of California Davis.
- 2006 – 2010 **B.A., Philosophy and Biochemistry and Molecular Biology**. Connecticut College. *Summa cum laude* with Honors and Distinction in Philosophy, Distinction in Biochemistry, Molecular & Cellular Biology

AWARDS & HONORS

- 2024 **Emerging Future Leader in Research**, University of Illinois
- 2023 Wageningen Institute for Environment and Climate Research (**WIMEK**) **Research Fellowship**, Wageningen University, Netherlands
- 2023 **Campus Distinguished Promotion Award**, University of Illinois
- 2023 **Wyffels Award for Faculty Excellence**, University of Illinois
- 2023 Influential Person to Agriculture, *Illinois Farmer Today*

- 2023 **Teachers Ranked as Excellent** by Their Students (CPSC 117)
- 2022 **Faculty Award for Excellence in Research**, College of Agricultural, Consumer and Environmental Sciences, University of Illinois
- 2021 **Teachers Ranked as Excellent** by Their Students (CPSC 117)
- 2021 **Teachers Ranked as Excellent** by Their Students (CPSC 382)
- 2015 **Neal Van Alfen & James MacDonald Graduate Prize in Excellence**, College of Agricultural & Environmental Sciences, UC Davis
- 2015 **Next Generation Delegate**, Chicago Council Global Food Security Symposium
- 2013 **US Borlaug Fellow in Global Food Security**

BOOK CHAPTERS

5. **Margenot, A.J.**, Bal, L., Rao, L., R. Sommer, R. 2016. Chapter 8: Phosphorus Fertilization and Management in Soils of Sub-Saharan Africa. Eds. Lal, R. and Stewart, B.A. *Soil Phosphorus*. CRC Press, Boca Raton, FL. <https://doi.org/10.1201/9781315372327>
4. **Margenot, A.J.**, Calderón, F.J., Goynes, K., Mukome, F.N.D., Parikh, S.J. 2017. Soil analysis, applications of IR and Raman spectroscopies. Ed. G. Tranter. *Encyclopedia of Spectroscopy and Spectrometry*, 3rd Ed. Elsevier, Ltd: Oxford, UK. Vol. 2, pp. 448-454. <https://doi.org/10.1016/B978-0-12-409547-2.12170-5>
3. Calderón, F.J., **Margenot, A.J.**, Murphy, S. 2021. Chapter 16: Advances in NIR spectroscopy to assess soil health. *Advances in Measuring Soil Health*. Ed. Otten, W. Burleigh Dodds Science Publishing, Cambridge, UK. Pp. 1-22. <https://doi.org/10.19103/AS.2020.0079.16>
2. **Margenot, A.J.**, Rao, I. 2022. Chapter 9: Nutrient Deficiencies. In *Soil Constraints on Crop Production*, Ed. Dang, Y. Cambridge Scholars Publishing, Cambridge, UK. pp. 196-217.
1. **Margenot, A.J.**, Calderon, F.J., Parikh, S.J. 2022. Application of Fourier transform infrared spectroscopy (FTIR) for the study of soil organic matter (SOM). *SSSA Methods of Soil Analyses*. In press.

PEER-REVIEWED PUBLICATIONS

(Underline indicates student or post-doctoral researcher advised by Margenot)

115. Serrano-Grijalva, L., van der Putten, W. H., Ochoa-Hueso, R., **Margenot, A. J.**, van Rijssel, S., Koorneef, G., Veen, G. F. 2024. Soil extracellular enzyme activity increases during the transition from conventional to organic farming. *Agriculture, Ecosystems and Ecology*. 375: 109202. <https://doi.org/10.1016/j.agee.2024.109202>
114. Hu, Y., Yu, Z., Yang, W.H., **Margenot, A.J.**, Gentry, L.E., Wander, M.M., Mulvaey, R.L., Mitchell, C.A., Gaucho, C.E.B. 2024. Deciphering the isotopic imprint of nitrate in a tile-drained agroecosystem. *Journal of Geophysical Research - Biogeosciences*. Accepted.
113. Sanchez-Bustamante Bailon, A.P., **Margenot, A.J.**, Cooke, R., Christianson, L.E. 2024. Denitrifying bioreactors and dissolved phosphorus: Net source or sink. *Journal of Environmental Quality*. Accepted. <https://doi.org/10.1002/jeq2.20568>
112. Raza, S., Sommer, R., **Margenot, A.J.** 2024. Do soil enzyme activities explain stimulated carbon mineralization following liming? *Soil Biology and Biochemistry*. 194: 109416. <https://doi.org/10.1016/j.soilbio.2024.109416>
111. **Margenot, A.J.**, Rippner, D.A., Green, P.G., Scow, K.M., Parikh, S.J. 2024. The importance of counterion effects of anion controls of metal nanoparticles for assessing soil biological responses. *Soil & Environmental Health*. 2(3): 100094. <https://doi.org/10.1016/j.seh.2024.100094>

110. **Margenot, A.J.**, Zhou, S., Xu, S., Condron, L.M., Metson, G.S., Haygarth, P.A., Wade, J., Agyeman, P.C. The missing phosphorus legacy of the Anthropocene: quantifying residual phosphorus in the biosphere. *Global Change Biology*. 30(6): e17376. <https://doi.org/10.1111/gcb.17376>
109. Slaton, N., Pearce, A., Gatiboni, L., Osmond, D., Bolster, C., Clark, J., Dhillon, J., Farmaha, B.S., Kaiser, D., Lyons, S., **Margenot, A.J.**, Miguez, F., Moore, A., Ruiz Diaz, D., Sotomayor, D., Spackman, J., Spargo, J., Yost, M. 2024. Models and Sufficiency Interpretation for Estimating Critical Soil Test Values for the Fertilizer Recommendation Support Tool. *Soil Science Society of America Journal*. 88(4): 1419-1437. <https://doi.org/10.1002/saj2.20704>
108. Filippelli, G.M., Dietrich, M.D., Shukle, J. Wood, L., **Margenot, A.J.**, Egendorf, S.P., Mickle, H.W. 2024. One in four US households likely exceed new soil lead guidance levels. *GeoHealth*. 8(6): e2024GH001045. <https://doi.org/10.1029/2024GH001045>
107. Baker, K., Koduru, S., Babaei, S., Adeyemi, O., Williams, G., Armstrong, S. **Margenot, A.J.**, Sadeghpour, A. 2024. Precision planting effect on winter rye yield and quality for biofuel and forage production. *Biomass and Bioenergy*. 184: 107219. <https://doi.org/10.1016/j.biombioe.2024.107219>
106. Liebig, M.A., Calderon, F.J., Clemensen, A.K., Durso, L., Duttonhefner, J.L., Eberly, J.O., Halvorson, J.J., Jin, V.L., Mankin, K., **Margenot, A.J.**, Steward, C.E., Van Pelt, S., Vigil, M. 2024. Long-Term Soil Change in the U.S. Great Plains: An Evaluation of the Haas Soil Archive. *Agrosystems, Geosciences, & Environment*. 7(2): e20502. <https://doi.org/10.1002/agg2.20502>
105. Chae, H.G., **Margenot, A.J.**, Joen, J.R., Sung, K.M., Kyoung-Soon, J., Young, Y.H., Kim, P.J., Lee, J. 2024. Linking the humification of organic amendments with size aggregate distribution: insights into molecular composition using FT-ICR-MS. *Science of the Total Environment*. 927: 172147. <https://doi.org/10.1016/j.scitotenv.2024.172147>
104. **Margenot, A.J.**, Wade, J., Woodings, F. 2024. The misuse of permanganate as a quantitative measure of soil organic carbon. *Agricultural and Environmental Letters*. 9(1): e20124. <https://doi.org/10.1002/ael2.20124>
103. Raza, S., Sommer, R., **Margenot, A.J.** 2024. Do soil enzyme activities explain stimulated carbon mineralization following liming? *Soil Biology and Biochemistry*. 194: 109416. <https://doi.org/10.1016/j.soilbio.2024.109416>
102. Sible, C.N., Kent, A.D., **Margenot, A.J.**, Below, F.E. 2024. Long-term continuous maize: impacts on the soil microbiome and implications for residue management. *Soil Science Society of America Journal*. Accepted. <https://doi.org/10.1002/saj2.20681>
101. Lee, J., Hertzberger, A., Juneja, A., Cusick, R.D., Singh, V., **Margenot, A.J.** 2024. Phytin recovered from grain distillation can be used as a phosphorus fertilizer for maize and soybean. *Soil Science Society of America Journal*. 88(3): 816-829. <https://doi.org/10.1002/saj2.20659>
100. Kasmerchak, C.S., Lovell, S., Douglass, M., Gates, B., Shoaff, S., Gonzalez Delgado, G., **Margenot, A.J.** 2024. Multifunctional woody polycultures preserve agroforestry soil health benefits shortly after establishment: implications for production-based soil conservation practices. *Geoderma Regional*. 37: e00782. <https://doi.org/10.1016/j.geodrs.2024.e00782>
99. Daughtridge, R.C., **Margenot, A.J.** 2024. Examining activity-pH relationships of soil nitrogen hydrolytic enzymes. *Soil Science Society of America Journal*. 88(3): 667-683. <https://doi.org/10.1002/saj2.20663>
98. Xu, S., Gu, C., Rodrigues, J.M., Li, C., Hu, Y., **Margenot, A.J.** 2024. Changes in soil phosphorus cycling across a 100-year deforestation chronosequence in the Amazon rainforest. *Global Change Biology*. 30(1): e17077. <https://doi.org/10.1111/gcb.17077>
97. Yu, Z., Hu, Y., Gentry, L.E., Yang, W.H., **Margenot, A.J.**, Guan, K., Mitchell, C.A., Hu, M. 2023. Linking water age, nitrate export regime, and nitrate isotope biogeochemistry in a tile-drained agricultural field. *Water Resources Research*. 59(12): e2023WR034948. <https://doi.org/10.1029/2023WR034948>
96. Sanderman, J. Bloom, D., Todd-Brown, K., Parente, L.L., Hengl, T., Adam, S., Albinet, F., Ben-Dor,

- E., Boot, C.M., Bridson, J.H., Chabrilat, S., Deiss, L., Demattê, J.A.M., Demyan, M.S., Dercon, G., Doetterl, S., van Egmond, F., Ferguson, R., Garrett, L.G., Haddix, M.L., Haefele, S.M., Heiling, M., Hernandez-Allica, J., Huang, J., Jastrow, J.D., Karyotis, K., Machmuller, M., Malefetsane, K., **Margenot, A.J.**, Matamala, R., Miesel, J.R., Mouazen, A.M., Nagel, P., Sunita Patel, S., Qaswar, M., Ramakhanna, S., Resch, C., Robertson, A.H.J., Roudier, P., Sabetizade, M., Shabtai, I., Sherif, F., Sinha, N., Six, J., Summerauer, L., Thomas, C.L., Toloza, A., Tomczyk, B., Tsakiridis, N.L., van Wesemael, B., Woodings, F.S., Zalidis, G., Żelazny, W.R. An interlaboratory comparison of mid-infrared spectra acquisition: instruments and procedures matter. 2023. *Geoderma*. 440: 116724. <https://doi.org/10.1016/j.geoderma.2023.116724>
95. Zhou, S., **Margenot, A.J.** 2023. Muddied Waters: The Use of “Residual” And “Legacy” Phosphorus. *Environmental Science & Technology*. 57(51): 21535. <https://doi.org/10.1021/acs.est.3c04733>
94. Xu, S., Gu, C., Rodrigues, J.M., Li, C., Hu, Y., **Margenot, A.J.** 2023. Changes in soil phosphorus cycling across a 100-year deforestation chronosequence in the Amazon rainforest. *Global Change Biology*. 30(1): e17077. <https://doi.org/10.1111/gcb.17077>
93. Singh, J., Navas Soto, J., Ibarra López, R.E., **Margenot, A.J.** 2023. Soil aminopeptidase activities under 145-year crop rotation and fertility practices in the North Central US. *Geoderma*. 440: 116703. <https://doi.org/10.1016/j.geoderma.2023.116703>
92. Leon, P., Nakayama, Y., **Margenot, A.J.** 2023. Field-scale evaluation of struvite phosphorus and nitrogen leaching potential relative to monoammonium phosphate. *Journal of Environmental Quality*. Accepted. <https://doi.org/10.1002/jeq2.20522>
91. **Margenot, A.J.**, Lee, J. 2023. The fate of nitrogen of ammonium phosphate fertilizers: a blind spot. *Agricultural & Environmental Letters*. 8(2): e20116. <https://doi.org/10.1002/ael2.20116>
90. Vos, H.M., Zweig, R., **Margenot, A.J.**, Koopmans, G.F., van Groenigen, J.W. Phosphatase activity in the drilosphere and its link to phosphorus uptake of grass. *Geoderma*. 439: 116690. <https://doi.org/10.1016/j.geoderma.2023.116690>
89. **Margenot, A.J.**, Zhou, S., McDowell, R., Hebert, T., Fox, G., Schilling, K., Richmond, S., Kovar, J., Wickramarathne, N., Lemke, D., Boomer, K., Golovay, S. 2023. Streambank erosion and phosphorus loading to surface waters: knowns, unknowns, and implications for nutrient loss reduction research and policy. *Journal of Environmental Quality*. 52(6): 1063-1079. <https://doi.org/10.1002/jeq2.20514>
88. **Margenot, A.J.**, Parikh, S.J., Calderón, F.J. 2023. Fourier-transform infrared (FTIR) spectroscopy for soil organic matter (SOM) analysis. *Soil Science Society of America Journal*. 87(6): 1503-1528. <https://doi.org/10.1002/saj2.20583>
87. Li, N., Bullock, D., Butts-Wilmsmeyer, C., Gentry, L., Goodwin, G., Han, J., Kleczweski, N., Martin, N., Paulausky, P., Pistorius, P., Seiter, N., Schroeder, N., **Margenot, A.J.** 2023. Distinct soil health indicators are associated with on-farm variation in maize yield and tile drain nitrate losses across contrasting nitrogen applications in central Illinois. *Soil Science Society of America Journal*. 87(6): 1332-1347. <https://doi.org/10.1002/saj2.20586>
86. Zhou, H., **Margenot, A.J.**, Zheng, W., Wardropper, C., Cusick, R.D., Bhattarai, R. 2023. Advancing circular nutrient economy to achieve benefits beyond nutrient loss reduction in the Mississippi/Atchafalaya River basin. *Journal of Soil & Water Conservation*. 78(4):82A-84A. <https://doi:10.2489/jswc.2023.0323A>
85. Zhou, S., **Margenot, A.J.** 2023. Phosphorus stocks and pools in eroding streambank soils. *CATENA*. 231: 107305. <https://doi.org/10.1016/j.catena.2023.107305>
84. Chatterjee, N., **Margenot, A.J.** 2023. Crop growth is increased by arbuscular mycorrhizae for both phosphate rock and soluble phosphorus fertilizer, but fertilizer solubility primarily determines crop growth. *Biology and Fertility of Soils*. Accepted. <https://doi.org/10.1007/s00374-023-01751-3>
83. **Margenot, A.J.**, Wade, J. 2023. Getting the basics right on soil enzyme activities: a comment on Sainju et al. (2022). *Agrosystems, Geosciences & Environment*. 6(3): e20405.

- <https://doi.org/10.1002/agg2.20405>
82. Potash, E., **Margenot, A.J.**, Guan, K., Lee, D., Boe, A., Douglass, M., Heaton, E., Jang, C., Jin, V., Li, N., Mitchell, R., Namoi, N., Schmer, M., Wang, S., Zump, C. 2023. Multi-site evaluation of stratified and balanced sampling for estimating soil organic carbon stocks in agricultural fields. *Geoderma*. 438: 116587. <https://doi.org/10.1016/j.geoderma.2023.116587>
81. Guan, K., Jin, Z., Peng, B., Tang, J., DeLucia, E.H., West, P., Jiang, C., Wang, S., Kim, T., Zhou, W., Griffis, T., Liu, L., Yang, W.H., Qin, Z., Yang, Q., **Margenot, A.J.**, Stuchiner, E.R., Kumar, V., Bernacchi, C., Coppess, J., Novick, K.A., Gerber, J., Jahn, M., Khanna, M., Lee, D., Chen, Z., Yang, S. 2023. A scalable framework for quantifying field-level agricultural carbon outcomes. *Earth Science Reviews*. 104462. <https://doi.org/10.1016/j.earscirev.2023.104462>
80. Woodings, F., **Margenot, A.J.** Revisiting the Permanganate Oxidizable Carbon (POXC) Assay Assumptions: POXC is Lignin Sensitive. *Agricultural and Environmental Letters*. 8(1): e20108.
79. Lynch, L., **Margenot, A.J.**, Calderón, F.J., Ernakovich, J. 2023. Greater regulation of permafrost organic matter composition by enzymes and redox than temperature. *Soil Biology and Biochemistry*. 180: 108991. <https://doi.org/10.1016/j.soilbio.2023.108991>
78. Qin, Z., Guan, K., Zhou, W., Peng, B., Tang, J., Jin, Z., Grant, R., Hu, T., Villamil, M.B., DeLucia, E., **Margenot, A.J.**, Umakant, M., Chen, Z., Coppess, J. 2023. Assessing long-term impacts of cover crops on soil organic carbon in the central U.S. Midwestern agroecosystems. *Global Change Biology*. Online. <https://doi.org/10.1111/gcb.16632>
77. Wang, S., Guan, K., Zhang, C., Jiang, C., Zhou, Q., Li, K., Qin, Z., Ainsworth, E.A., He, J., Wu, J., Schaefer, D., Lowell, L.E., **Margenot, A.J.**, Herzberger, L. 2023. Airborne hyperspectral imaging of cover crops through radiative transfer process-guided machine learning. *Remote Sensing of Environment*. 285: 113386. <https://doi.org/10.1016/j.rse.2022.113386>
76. Mori, T., Rosinger, C., **Margenot, A.J.** 2023. Enzymatic C:N:P stoichiometry: Questionable assumptions and inconsistencies to infer soil microbial nutrient limitation. *Geoderma*. 429: 116242. <https://doi.org/10.1016/j.geoderma.2022.116242>
75. Li, N., Zhou, S., **Margenot, A.J.** 2023. From prairie to crop: spatiotemporal dynamics of surface soil organic carbon stocks over 167 years in Illinois, U.S.A. *Science of the Total Environment*. 159038. <https://doi.org/10.1016/j.scitotenv.2022.159038>
74. Zhou, W., Guan, K., Peng, B., **Margenot, A.J.**, Lee, D., Tang, J., Jin, Z., Grant, R., DeLucia, E., Qin, Z., Wander, M.M., Wang, S. 2023. How does uncertainty of soil organic carbon stock affect cropland carbon budget calculation for the U.S. Midwest? *Geoderma*. 429: 116254. <https://doi.org/10.1016/j.geoderma.2022.116254>
73. Nakayama, Y., Wade, J., Li, C., Daughtridge, R., **Margenot, A.J.** 2023. Quantifying the relative importance of controls and assay conditions for reliable measurement of soil enzyme activities with para-nitrophenol substrates. *Geoderma*. 429: 116234. <https://doi.org/10.1016/j.geoderma.2022.116234>
72. Jing, B. Zhang, S., Zhu, Y., Peng, B. Guan, K., **Margenot, A.J.**, Tong, H. 2022. Retrieval Based Time Series Forecasting. *arXiv*. 2209: 13525. <https://doi.org/10.48550/arXiv.2209.13525>
71. Chiartas, J., Jackson, L.E., Long, R.F., **Margenot, A.J.**, O'Geen, A. 2022. Hedgerows on crop field edges increase soil carbon to a depth of 1 meter. *Sustainability*. 14(19), 12901. <https://doi.org/10.3390/su141912901>
70. Zhou, S., Li, N., **Margenot, A.J.** 2022. Soil meets stream: vertical distribution of soil phosphorus in streambanks. *Geoderma*. 424: 115989. <https://doi.org/10.1016/j.geoderma.2022.115989>
69. Ruffatto, K., Emaminejad, A., Juneja, A., Kurambhatti, C., **Margenot, A.J.**, Singh, V., Cusick, R.D. 2022. Mapping the national phosphorus recovery potential from centralized wastewater and corn ethanol infrastructure. *Environmental Science & Technology*. 56(12): 8691-8701. <https://doi.org/10.1021/acs.est.1c07881>
68. **Margenot, A.J.**, Daughtridge, R.C. 2022. Overlooked tools for studying soil nitrogen depolymerization: aminopeptidase assays using nitroanilide substrates. *Agricultural &*

- Environmental Letters*. 7(1): e20079. <https://doi.org/10.1002/acl2.20079>
67. Li, Y., Guan, K., Zhou, W., Peng, B., Jin, Z., Tang, J., Grant, R.F., Nazfiger, E.D., Cai, Y., Qin, Z., Archontoulis, S., Fernandez, F.G., Gentry, L., Yu, Z., **Margenot, A.J.**, Lee, D., Yang, Y. 2022. Assessing the impacts of pre-growing-season weather conditions on soil nitrogen dynamics and crop productivity in the U.S. Midwest. *Field Crops Research*. 284: 108563. <https://doi.org/10.1016/j.fcr.2022.108563>
 66. Wilson, S.G., Dahlgren, R., **Margenot, A.J.**, Rasmussen, C., O'Geen, T.A. 2022. Expanding the Paradigm: The Influence of Climate and Lithology on Soil Phosphorus. *Geoderma*. 421: 115809 <https://doi.org/10.1016/j.geoderma.2022.115809>
 65. Wade, J., Culman, S.W., Gasch, C.K., Lazcano, C., Maltais-Landry, G., **Margenot, A.J.**, Martin, T.K., Potter, T.S., Roper, W.R., Ruark, M.D., Sprunger, C.D., Wallenstein, M.D. 2022. Rigorous, empirical, and quantitative: a proposed pipeline for soil health assessment. *Soil Biology and Biochemistry*. 170: 108710. <https://doi.org/10.1016/j.soilbio.2022.108710>
 64. Sun, W., Villamil, M.B., Behnke, G.D., **Margenot, A.J.** 2022. Long-term effects of crop rotation and nitrogen fertilization on phosphorus cycling and balances in loess-derived Mollisols. *Geoderma*. 420: 115829. <https://doi.org/10.1016/j.geoderma.2022.115829>
 63. Wang, S., Guan, K., Zhang, C., Lee, D., **Margenot, A.J.**, Ge, Y., Peng, J., Zhou, W., Zhou, Q., Huang, Y. 2022. Using soil library hyperspectral reflectance and machine learning to predict soil organic carbon: assessing potential of airborne and spaceborne optical soil sensing. *Remote Sensing of Environment*. 271: 112914. <https://doi.org/10.1016/j.rse.2022.112914>
 62. Watson, G.P., **Margenot, A.J.** 2022. Fruit lead concentrations of tomatoes (*Solanum lycopersicum*) grown in lead-contaminated soils are unaffected by phosphate amendments but remain below risk thresholds. *Science of the Total Environment*. 155076. <https://doi.org/10.1016/j.scitotenv.2022.155076>
 61. Potash, E., Guan, K., **Margenot, A.J.**, Lee, D., DeLucia, E., Wang, S., Jang, C. 2022. How to estimate soil organic carbon stocks of agricultural fields? Perspectives using ex-ante evaluation. *Geoderma*. 411: 115693. <https://doi.org/10.1016/j.geoderma.2021.115693>
 60. Watson, G. P., Martin, N.F., Grant, Z.B., Batka, S.C., **Margenot, A.J.** 2022. Soil lead distribution in Chicago, USA. *Geoderma Regional*. 28: e00480. <https://doi.org/10.1016/j.geodrs.2021.e00480>
 59. Wang, S., Guan, K., Zhang, C., Lee, D., **Margenot, A.J.**, Ge, Y., Peng, J., Zhou, W., Zhou, Q., Huang, Y. 2022. Using soil library hyperspectral reflectance and machine learning to predict soil organic carbon: assessing potential of airborne and spaceborne optical soil sensing. *Remote Sensing of Environment*. 271: 112914. <https://doi.org/10.1016/j.rse.2022.112914>
 58. Wade, J., Ac Pangan, M.A., Favoretto, V., Taylor, A.J., Engeseth, N.E., **Margenot, A.J.** 2022. Drivers of cadmium accumulation in *Theobroma cacao* L. beans: a meta-analysis of soil-plant relationships across the Cacao Belt. *PLOS ONE*. 17(2): e0261989. <https://doi.org/10.1371/journal.pone.0261989>
 57. Bergh, E.L., Calderon, F., Clemensen, A.K., Durso, L., Eberly, J., Halvorson, J.J., Jin, V., **Margenot, A.J.**, Stewart, C.E., Van Pelt, S., Liebig, M.A. 2022. Time in a Bottle: Use of Soil Archives for Understanding Long-term Soil Change. *Soil Society of America Journal*. 86(3): 520-527. <https://doi.org/10.1002/saj2.20372>
 56. Jesmin, T., **Margenot, A.J.**, Mulvaney, R. 2021. A comprehensive method for casein-based assay of soil protease activity. *Communications in Soil and Plant Analyses*. 53(4): 507-520. <https://doi.org/10.1080/00103624.2021.2017954>
 55. Rippner, D.A., **Margenot, A.J.**, Aguilera, A.L., Li, C., Sohng, J., McElroy, N., Wade, J., Green, P.G., Peak, D., McElrone, A.J., Fakra, S.C., Chen, N., Feng, R., Scow, K.M., Parikh, S.J. 2021. Microbial response to copper oxide nanoparticles in soils is controlled by land use rather than copper fate. *Environmental Science: Nano*. 8:3560-3576. <https://doi.org/10.1039/D1EN00656H>
 54. Li, C., **Margenot, A.J.** 2021. Apparent kinetic properties of soil phosphomonoesterase and β -

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GRANTS (Grand Total: \$52,820,384; Total to Margenot: \$10,075,081)

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|-------------|---|
| 2024 – 2028 | Bridging nitrogen budgets from field to watershed scales for region-specific solutions to achieve Illinois nutrient loss reduction targets. University of Illinois Dudley-Smith Initiative. PI: B Peng. Co-PI: AJ Margenot , K Guan. \$399,985. |
| 2024 – 2025 | Reducing nitrous oxide emissions from soybean through early planting and cover crops. US Soybean Board. PI: M Castellano. Co-PI: M Salmeron Cortasa, H Poffenbarger, AJ Margenot , S Naeve, R Venterea. \$480,000. |
| 2024 – 2025 | Growing Green in the City: A Soil and Planting Design Framework for Urban Agriculture and Ecology in East St. Louis. University of Illinois. PI: K Lemmen. Co-PI: AJ Margenot. \$99,915. |
| 2024 | Synthesizing lessons on non-point, non-ag sources of nutrient losses from outside |

- the United States. US Soybean Board. PI: **AJ Margenot. \$19,488.**
- 2023 – 2024 A first step toward updating liming recommendations for Illinois. Illinois Corn Growers, Illinois Soybean Association, Illinois Farm Bureau and Illinois Fertilizer and Chemical Association. PI: **AJ Margenot. \$50,333.**
- 2023 – 2027 Ground-mounted solar and soil-related ecosystem services. US Department of Energy (DOE). PI: HM Hartmann. Co-PI: [11+] **AJ Margenot. \$169,382.**
- 2023 – 2024 Phosphorus sources for Illinois corn. Fertilizer Support & Research Tool (FRST) - OCP. PI: **AJ Margenot. \$15,000.**
- 2023 – 2024 Phosphorus and potassium rates for Illinois corn and soybean. Fertilizer Support & Research Tool (FRST). PI: **AJ Margenot. \$10,000.**
- 2023 – 2024 Gauging risk: the fate of biosolid-based PFAS in Illinois soils and potential uptake by corn and soybean. Illinois Farm Bureau. PI: **AJ Margenot. \$20,000.**
- 2022 – 2026 Struvite as the ‘right source’ for water quality, soil health and climate outcomes in corn-soybean cropping systems. Ostara Nutrient Technologies, Inc. PI: **AJ Margenot. \$266,313.**
- 2022 – 2026 Benchmarking and integrating soil health, water quality, and climate-smart footprints of Illinois soybeans. Illinois Soybean Association. PI: **AJ Margenot. \$772,660.**
- 2022 – 2026 A missing piece of the Illinois phosphorus puzzle: quantifying statewide streambank erosion to inform effective nutrient loss reduction strategy. Illinois NREC. PI: **AJ Margenot. \$851,049**
- 2022 – 2027 Updating Illinois phosphorus and potassium soil test recommendations for the 21st century. Illinois NREC. PI: **AJ Margenot. \$649,207.**
- 2022 – 2023 On-farm and farmer-led: quantifying nutrient use efficiencies and contextualizing nutrient losses in corn-soybean production. Illinois NREC. PI: **AJ Margenot. \$92,011.**
- 2022 – 2026 Evaluation of soil fertility and health in leased cover crop acres. Illinois Department of Natural Resources. PI: **AJ Margenot. \$280,603.**
- 2022 – 2025 Soil sample handling for soil health and enzyme analysis. USDA Natural Resources Conservation Service. PI: **AJ Margenot. \$180,993.**
- 2022 – 2025 I-Farm: Illinois Farming and Regenerative Management Testbed. USDA NIFA. PI: G. Chowdhary. Co-PIs: [8+]... **AJ Margenot. \$3,936,000.**
- 2022 – 2025 Soybean root carbon contributions to soil carbon stocks. Salk Institute for Biological Sciences. PI: **AJ Margenot. \$1,405,000.**
- 2022 – 2023 Assessing on-farm nutrient use efficiency to contextualize off-farm losses. Illinois Farm Bureau. PI: **AJ Margenot. \$86,000.**
- 2022 – 2023 Background losses of nitrogen and phosphorus not due to agriculture. Illinois Farm Bureau. PI: **AJ Margenot. \$25,000.**
- 2022 – 2025 Towards cover crop sustainable management for the U.S. central Corn Belt: An integrated approach to quantify cover crop outcome using airborne-satellite sensing, agroecosystem modeling, and economic analysis at commercial farmlands. USDA NIFA. PI: K Guan Co-PI: S Wang, **AJ Margenot, G Schnitkey. \$749,960.**

- 2021 – 2025 Co-Producing Community - An integrated approach to building smart and connected nutrient management communities in the US Corn Belt. NSF Smart and Connected Communities (SCC). PI: **AJ Margenot**. Co-PI: K Guan, M Johnson, Z Jin, A Omer. **\$2,017,025**.
- 2021 – 2026 #MoreThanCorn: Enhancing rural resilience through landscape diversity in the Midwest. USDA AFRI Sustainable Agricultural Systems (SAS). PI: L Prokopy. Co-PI: (28+)[...] **AJ Margenot**. **\$9,999,890**.
- 2021 – 2025 Double-Dipping P Loss Reductions: Integrating and stacking struvite in phosphorus BMPs. Illinois NREC. PI: **AJ Margenot**. Co-PI: B Gramig, O Oladeji. **\$435,092**.
- 2021 – 2025 Soil fertility testing and carbon stock quantification for the IDNR cover crop lease program. Illinois Department of Natural Resources. PI: **AJ Margenot**. **\$180,000**.
- 2021 – 2025 Advancing regenerative agriculture: An airborne satellite integrative technique to monitor soil organic carbon in the U.S. Corn Belt. FFAR. PI: K Guan. Co-PI: X Lin, E DeLucia, Z Jin, **AJ Margenot**. **\$1,000,000**.
- 2021 – 2024 Soil mineralogy and N synchrony: quantifying contextual linkages between soil health and crop N availability. USDA AFRI Foundational Program. PI: J Wade. Co-PI: **AJ Margenot**. **\$499,982**.
- 2021 – 2026 Spatial and Temporal Patterns of Soil N and P Cycles Quantified by a Sensor-Model Fusion Framework: Implications for Sustainable Nutrient Management. NSF Signals in the Soils. PI: Z Jin. Co-PI: K Guan, **AJ Margenot**. **\$1,200,000**.
- 2021 – 2026 AI Institute: Artificial Intelligence for Future Agricultural Resilience, Management, and Sustainability (AIFARMS). USDA. PI: V Adve. Co-PI: (20+)[...] **AJ Margenot** [...]. **\$19,998,042**.
- 2021 – 2022 Examining Interactions Among N Application Rates and Field Characteristics to Understand Economic and Environmental Tradeoffs in N Fertilizer Management. Illinois Corn Growers Association & UIUC ACES Office of Research. PI: **AJ Margenot**. Co-PI: D Bullock, N Martin. **\$120,060**.
- 2020 – 2024 Resolving spatiotemporal non-point nutrient fluxes from soils to water by continuous in situ N and P monitoring to achieve multistate nutrient loss reduction goals. USDA NRCS. PI: **AJ Margenot**. Co-PI: R Turco, J Asher, S Armstrong, S Shearer. **\$1,999,950**.
- 2020 – 2024 Integrating Tillage, Soil Carbon Dynamics, and Tile Nitrate Loss. Illinois NREC. PI: L Gentry. Co-PI: **AJ Margenot**. **\$602,666**.
- 2020 – 2024 Next Generation Cover Cropping in Corn-Soybean Rotation to Improve Farm Benefits and Decrease Environmental Losses in South and Central Illinois. Illinois NREC. PI: A Sadeghpour. Co-PI: **AJ Margenot**. **\$664,996**.
- 2020 – 2024 Capitalizing on 150 Years of Soil Samples to Determine Legacy P and Improve Water Quality in Illinois. Illinois NREC. PI: **AJ Margenot**. Co-PI: R Christianson, A Sadeghpour. **\$1,087,330**.
- 2020 – 2022 Comprehensive evaluation of phosphorus best management practices for soybean to increase nutrient use efficiency, profitability, and water quality. Illinois Soybean Association. PI: **AJ Margenot**. **\$136,426**.
- 2021 – 2024 Precision winter cereal rye cover cropping for improving farm profitability and

- environmental stewardship. NC SARE. PI: S Armstrong. Co-PI: A Sadeghpour, N Thompson, **AJ Margenot. \$300,000.**
- 2020 – 2022 Developing a phosphorus (P) credit to support Illinois farmer precision management of P. Dudley-Smith Initiative DSynergy. PI: **AJ Margenot.** Co-PI: J Wade, C Li. **\$89,817.**
- 2020 – 2022 Integrating cover crops in grain and beef cattle operations for soil-livestock synergies. Dudley-Smith Initiative DSynergy. PI: D Shike. Co-PI: **AJ Margenot. \$89,798.**
- 2020 – 2021 Valorizing Archived Soils: Changes in the Land, Carbon, and Nutrients in the 20th Century. UIUC Student Sustainability Committee. PI: **AJ Margenot.** Co-PI: R Christianson. **\$75,958.**
- 2019 – 2021 Evaluating triple superphosphate (TSP) for US Midwestern agriculture. The OCP Group, Inc. PI: **AJ Margenot. \$247,966.**
- 2019 – 2021 Signals in the Soils and Signals Through the Soils. ACES FIRE. PI: **AJ Margenot.** Co-PIs: A Singer, G Chowdhary, YMA Hashash, T Baser. **\$60,000.**
- 2019 – 2021 Machine Learning to Detect Fertilizer Adulteration in Developing Countries. Center for Digital Agriculture (CDA). PI: HC Michelson. Co-PI: **AJ Margenot, K Ranjitha. \$52,400.**
- 2019 – 2022 Developing and Integrated Management and Communication Plan for Soybean Sudden Death Syndrome. North Central Soybean Research Program (NCSRP). PI: D Mueller. Co-PIs: Y Kandel, M Chilvers, L Chang, D. Smith, N Kleczewski, **AJ Margenot, D Telenko. \$593,281.**
- 2019 – 2021 Chicago Safe Soils Initiative: Developing and Disseminating Tools to Identify and Mitigate Soil Heavy Metal Risks to Urban Stakeholders. Interdisciplinary Collaborations in Extension, University of Illinois. PI: **AJ Margenot.** Co-PIs: Z Grant, NF Martin. **\$60,000.**
- 2019 – 2021 Elucidating soil-plant interactions to enhance coffee production resilience to climate changes. Office of International Programs, University of Illinois. PI: **AJ Margenot.** Co-PI: EF Chavez Naverrete. **\$20,000.**
- 2019 Enhancing coffee production resilience to climate change by addressing knowledge gaps on soil-plant interactions. CRDF Global Catalyzed Research Partnerships. PI: **AJ Margenot. \$9,975.**
- 2019 – 2020 Relating soil copper accumulation to copper resistant pathogens in high-value Illinois agriculture. ACES Office of Research Future Interdisciplinary Research Explorations (FIRE). Co-PIs: S Refi Hind, **AJ Margenot. \$60,000.**
- 2018 – 2020 An N-sensitive soil health test for Illinois corn. ACES Office of Research & Illinois Corn Growers Association. PI: **AJ Margenot.** Co-PI: N Kleczewski, N Schroeder, N Seiter. **\$84,984.**
- 2018 – 2020 Sustainable copper for Illinois agriculture. ACES FIRE. Co-PIs: **AJ Margenot, S Hind, K Murphy. \$60,000.**
- 2018 – 2021 Reducing P Loss in Southern Illinois: Producers, Practices, and Productivity. Nutrient Research & Education Council. PI: Reid Christianson. Co-PI: Laura Christianson, **AJ Margenot, Talon Becker. \$596,774.**
- 2018 – 2021 Evaluating slow-release P fertilizers to increase crop production and

- environmental quality. Nutrient Research & Education Council. PI: **AJ Margenot**. Co-PI: Roland Cusick. **\$269,912**.
- 2018 – 2021 Multifunctional Woody Polyculture for integrating conservation and production. USDA Foundational Program – Bioenergy, Natural Resources and Environment (BNRE). PI: S Taylor Lovell. Co-PI: **AJ Margenot**, A Harmon-Threat. **\$460,000**.
- 2018 Developing novel approaches to assess and manage soil heavy metal contamination and fertility in Ecuadorian cacao production. CRDF Global Catalyzed Research Partnerships. PI: **AJ Margenot**. **\$7,600**.
- 2018 Developing novel approaches to assess and manage soil heavy metal contamination in Ecuadorian cacao production. International Collaboration Seed Grant. Office of International Programs, University of Illinois. PI: **AJ Margenot**. **\$4,000**.
- 2017 – 2018 Investigation of agricultural uses of nuclear waste heat. Exelon Corporation. PI: C Brooks. Co-PI: **AJ Margenot**, K Huff, University of Illinois Urbana-Champaign. **\$151,257**.
- 2016 Alleviating soil poverty traps in western Kenya by treating soil acidity with lime. PASS Award, Blum Center for Development, UC Davis. PI: **AJ Margenot**. **\$2,964**.
- 2013 – 2016 Soil phosphorus cycling in East Africa. Henry A. Jastro Research Award, UC Davis. PI: **AJ Margenot**. **\$8,031**.
- 2013 – 2014 Integrating soil quality as a function of smallholder management strategies to secure food production in East Africa. US Borlaug Fellow in Global Food Security. PI: **AJ Margenot**. **\$30,000**.

TEACHING

- Sept 2023 External course reviewer, Soil Biology Group course content, **Wageningen University** (the Netherlands).
- Aug 2023 Guest lecturer, Soil Biology Master Course, **Wageningen University** (the Netherlands).
- June 2022 Guest lecturer, Nutrient Cycling in the Circular Economy, **Wageningen University** (the Netherlands).
- Spring 2021, 2023 CPSC 117 Agriculture and Science of Coffee, **UI Urbana-Champaign**
Awarded *“Teachers Ranked As Excellent By Their Students – 2021, 2023”*
- Fall 2019-2022 CPSC 382 Organic Chemistry of Biological Processes, **UI Urbana-Champaign**
Awarded *“Teachers Ranked As Excellent By Their Students – 2021”*
- Fall 2019-2022 CPSC 412 Principles of Crop Production, **UI Urbana-Champaign**
- Spring 2019 CPSC 499: Environmental Enzymology, **UI Urbana-Champaign**

PROFESSIONAL SERVICE

- 2023 – Senior Associate Editor, *Geoderma*

- 2023 – Section Editor, *Plant and Soil*
- 2023 – Associate Editor, *European Journal of Soil Science*
- 2020 – Associate Editor, *Soil Science Society of America Journal*
- 2020 – 2022 Associate Editor, *Geoderma*
- 2020 Steering Committee, Agricultural Scientists for Africa
- 2019 **Chair**, Agronomy for Africa, ASA
- 2018 Illinois state representative, **NCERA-13 Committee** for Soil, Plant and Manure Testing
- 2018 **Vice-Chair**, Agronomy for Africa, ASA
- 2017 **Lead organizer** of special session “Soil Enzymes: Methods of Analyses and Mechanisms” in the Chemistry Division and Soil Biology and Biochemistry Division at the 2017 SSSA Annual Meeting, Tampa, FL, Soil Science Society of America, co-hosted with Profs. Dr. Sanjai Parikh and Deb Jaisi
- 2017 Poster **Judge**, Soil Chemistry Poster I & Soil and Water Management and Conservation Poster II, SSSA Annual Meeting, Tampa, FL, Soil Science Society of America

Grant reviewer (ad-hoc or invited)

- 2024 FFAR Enhanced Efficiency Fertilizers. Invited external reviewer.
- 2024 NSF Geobiology and Low-Temperature Geochemistry Program. Reviewer.
- 2024 The Wageningen Institute for Environment and Climate Research (WIMEK Graduate School). Reviewer.
- 2024 The Iowa Nutrient Research Center. Reviewer.
- 2024 University of Wisconsin-Madison Aquatic Sciences Center, University of Wisconsin Sea Institute.
- 2023 US NSF SBIR/STTR Phase I: Food & Agriculture.
- 2023 NSF SCC, ad hoc reviewer.
- 2023 NSF CAREER, ad hoc reviewer
- 2022 USDA NIFA AFRI BNRE
- 2022 Biotechnology and Biological Sciences Research Council (BBSRC), United Kingdom.
- 2021 US Department of Energy (DOE) Environmental System Science.
- 2021 US NSF SBIR/STTR Phase II: Food & Agriculture.
- 2021 Cluster of Excellence PhenoRob - Robotics and Phenotyping for Sustainable Crop Production, University of Bonn.
- 2018 International Collaboration Awards, The Royal Society, United Kingdom.
- 2018 CONICY, Comisión Nacional de Investigación Científica y Tecnológica, Chile.
- 2018 US DOE Office of Science Graduate Student Research (SCGSR) Program.
- 2018 Biotechnology and Biological Sciences Research Council (BBSRC), United Kingdom.
- 2017 Mercator Research Program, World Food System Center at ETH Zurich.
- 2017 Big Ideas in Systems, UC Berkeley.

PROFESSIONAL AFFILIATIONS

Soil Science Society of America
American Geophysical Union

Illinois Soil Classifiers Association