Andrew J. Margenot

Department of Crop Sciences • University of Illinois Urbana-Champaign
margenot@illinois.edu • 217.300.7059

PROFESSIONAL EXPERIENCE

2023 –	**Associate Professor**, Department of Crop Sciences, 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

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., Goyne, 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)

99. Daughtridge, R.C., **Margenot, A.J.** 2024.Examining activity-pH relationships of soil nitrogen hydrolytic enzymes. *Soil Science Society of America Journal*. Accepted.
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., Chabrillat, 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/ael2.20079
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-glucosidase are disparately influenced by pH. *Soil Science Society of America Journal*. 85(6): 2007-2018. https://doi.org/10.1002/saj2.20332
53. Qin, Z., Guan, K., Zhou, W., Peng, B., Villamil, M.B., Jin, Z., Tang, J., Grant, R., Gentry, L., **Margenot, A.J.**, Bollero, G., Li, Z. 2021. Assessing the impacts of cover crops on maize and soybean yield in the U.S. Midwestern agroecosystems. *Field Crops Research*. 273: 108264 https://doi.org/10.1016/j.fcr.2021.108264
52. Wade, J., Trankina, G., Li, C., Pulleman, M.M., Wills, S., **Margenot, A.J.** 2021. To standardize by mass of soil or organic carbon? A comparison of permanganate oxidizable carbon (POXC) assay methods. *Geoderma*. 404: 115392. https://doi.org/10.1016/j.geoderma.2021.115392
51. Sanchez Bustamante Bailon, A.P., **Margenot, A.J.**, Cooke, R.A.C., Christianson, L.E. 2021.

Batch test evaluation of woodchip bioreactor phosphorus removal. *Environmental Science and Pollution Research*. 29(5):6733-6743. https://doi.org/10.1007/s11356-021-15835-w

50. Li, C., Wade, J., **Margenot, A.J.** 2021. Modified universal buffer does not necessarily maintain soil enzyme assay pH. *Biology and Fertility of Soils*. 57, 869–872. https://doi.org/10.1007/s00374-021-01570-4.
49. Yoon, B.K., Tae, H., Jackman, J.A., Guha, S., Kagan, C.R., **Margenot, A.J.**, Weiss, P.S., Cho, N.J. 2021. Entrepreneurial Talent Building for 21st Century Agricultural Innovation. *ACS Nano*. 5(7): 10748–10758. https://doi.org/10.1021/acsnano.1c05980
48. Nakayama, Y., Wade, J., **Margenot, A.J**. 2021. Does soil phosphomonoesterase activity reflect phosphorus pools estimated by Hedley phosphorus fractionation? *Geoderma*. 401: 115279. https://doi.org/10.1016/j.geoderma.2021.115279
47. Wade, J., Beetstra, M.A., Hamilton, M.A., Culman, S.W., **Margenot, A.J.** 2021. Soil health conceptualization differs across key stakeholder groups in the Midwest. *Journal of Soil and Water Conservation*. 02158. https://doi.org/10.2489/jswc.2021.02158
46. Ibarra Lopez, R.E., Chavez Navarrete, F.J., Pico Rosado, J., Subía García, C., **Margenot, A.J.** 2021. Soil nitrogen cycling under contrasting management systems in Amazon *Coffea canephora* agroecosystems. *Soil Science Society of America Journal*. 85(5): 1634-1648. https://doi.org/10.1002/saj2.20255
45. Chávez, F.J., Wade, J., Miernicki, E.A., Torres, M., Stanek, E., Subía García, C., Caicedo, C., Ticono, L., **Margenot, A.J.** 2021. Apparent nitrogen limitation of Robusta coffee yields in young agroforestry systems. *Agronomy Journal*. 113(6): 5398-5411. https://doi.org/10.1002/agj2.20725
44. Daughtridge, R.C., Nakayama, Y., **Margenot, A.J.** 2021. Sources of abiotic hydrolysis of chromogenic substrates in soil enzyme assays: storage, termination, and incubation. *Soil Biology and Biochemistry*. 158: 108245. https://doi.org/10.1016/j.soilbio.2021.108245
43. Di Tomassi, I., Chatterjee, N., Barrios Masias, F., Zhou, Q., Gu, C., **Margenot, A.J.** 2021. Arbuscular mycorrhizae increase biomass and nutrient uptake of tomato fertilized with struvite compared to monoammonium phosphate. *Plant and Soil*. https://doi.org/10.1007/s11104-021-04957-2
42. Wade, J., Li, C., Vollbracht, K., Hopper, D., Wills, S., **Margenot, A.J**. 2021. Prescribed pH for soil β-glucosidase and phosphomonoesterase do not reflect pH optima. *Geoderma*. 401: 115161. https://doi.org/10.1016/j.geoderma.2021.115161
41. Waring, B.G., DeGuzman, M., Du, D., Dupuy, J.M., Gutknecht, J., Hulshof, C., Jelinski, N.A., **Margenot, A.J.**, Medvigy, D., Pizano, C., Salgado-Negret, B., Trierweiler, A., Van Bloem, S.J., Vargas, G.G., Powers, J.S. 2021. Soil biogeochemistry across Neotropical dry forests: climatic, edaphic, and biotic drivers of variation across spatial scales. *Ecological Monographs*. e01453. https://doi.org/10.1002/ecm.1453
40. Nyawira, S.S., Hartman, M.D., Nguyen, H.T., **Margenot, A.J.**, Kihara, J., Paul, B., Williams, S., Bolo, P., Sommer, R. 2021. Stimulating soil organic carbon in maize-based systems under improved agronomic management in Western Kenya. *Soil and Tillage Research*. 211: 105000 https://doi.org/10.1016/j.still.2021.105000
39. Gu, C., Zhou, Q., Cusick, R.S., **Margenot, A.J.** 2021. Evaluating agronomic soil phosphorus Tests for soils amended with struvite. *Geoderma*. 399: 115093. https://doi.org/10.1016/j.geoderma.2021.115093
38. Durrer, A., **Margenot, A.J.**, Silva, L.C.R., Bohannan, B.J.M., Nusslein, K., Meredith, L., Saleska, S., Tsai, S.M., Andreote, F., Parikh, S.J., Rodrigues, J. 2021. Beyond total carbon: long-term effect of deforestation on Amazonian soils alters soil C cycling. *Biogeochemistry*. 152: 179–194. https://doi.org/10.1007/s10533-020-00743-x
37. Bhattarai, R., Zhou, H., **Margenot, AJ**. 2021. Phosphorus pollution control using waste-based adsorbents: Material synthesis, modification and sustainability. *Critical Reviews in Environmental Science and Technology*. Online. https://doi.org/10.1080/10643389.2020.1866414

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9. **Margenot, A.J.**, Calderón, F.J., Magrini, K.A., Evans, R. 2017. Evaluating effects of soil science oxidation assays on SOM composition in a Mollic Xerofluvent. *Applied Spectroscopy*

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

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 Illinoi 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	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