Emma Grace Matcham

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Current Position

University of Florida: Assistant Professor, Agronomy Department, *2022-present*
Nutrient Cycling and Agroecology; Research and Extension

Education

University of Wisconsin— Madison, *2019-2022*
Ph.D. in Agronomy; Graduate Minor in Soil Science

The Ohio State University, *2017– 2019*
M.S. in Crop Science

The Ohio State University, *2012-2016*
B.S. in Forest Ecosystems Management; Minor in Mathematics

Previous Professional Experience

Ohio State Extension: Student Assistant, *2015-2017*
Supervisors: Harold Watters and Greg LaBarge

Department of Entomology at The Ohio State University: Student Research Assistant, *2015*
Supervisors: Dr. Reed Johnson and Harold Watters

Personal Statement

The primary goal of my research and Extension program is to improve the resiliency of agronomic crop production systems while reducing environmental risk as the climate changes. By working at the intersection of agronomic crop management, soil fertility, and big data, my research works across landscape scales to improve fertilizer management at the sub-field scale and protect water quality at the watershed scale and beyond. I take a systems approach to nutrient management research, which accounts for the series of interacting management decisions farmers make within a growing season.

My experience processing yield maps and other machinery-generated data sets facilitates participatory on-farm trials and can accelerate the rate of agronomic research. Working directly with farmers can improve stakeholder confidence in new management recommendations and help identify which precision agricultural technologies may improve nutrient use efficiency and reduce fertilizer movement.

This is my first year at the University of Florida, and I am learning more about the state so that my research and Extension programming can meet the diverse needs of Floridians. I recently established trials to answer micronutrient deficiency questions from Florida peanut growers, and I am developing in-service training materials to help county extension agents address precision agriculture and geospatial data concerns from our community.

Professional Activities

- Co-wrote R package, cleanRfield, for processing yield maps in 2021
    - Download link and full user tutorial available at https://github.com/filipematias23/cleanRfield

- Certified Crop Advisor since 2019
- Active member of ASA-CSSA-SSSA since 2017
  - Committee member for the Graduate Student Committee and Warner Nelson Award Committee
  - Session co-chair and moderator in 2021; moderator for the upcoming 2022 meeting
  - Presented 7 posters or talks at previous ASA-CSSA-SSSA annual meetings
- Lead author on 4 multistate Extension publications since 2020
  - Co-authored 9 newsletter articles and blog posts for Extension audiences since 2019
- Presenter at 5 field days, 4 in-service trainings, and 7 other Extension events since 2017
  - Moderated an 8-week Extension webinar series in 2020, establishing new best practices for virtual educational events
  - Recorded 4 videos since 2020 for multi-state Extension audiences and Certified Crop Advisors
- Maintained a blog for GIS applications in agronomy and soil sciences since 2018
  - Blog available at https://spatiallychallenged.com/
  - Averaged 161 monthly readers in 2021

Relevant Publications (since 2020)

Matcham, E. G., Matias, F.I., Luck, B., and Conley, S. P. (2022). Filtering, editing, and cropping yield maps in R environment with the package cleanRfield. *Agronomy Journal*. Early View. https://doi.org/10.1002/agj2.21055

Matcham, E. G., Subburayalu, S., Culman, S., and Lindsey, L. E. (2021). Implications of choosing different interpolation methods for phosphorous fertilizer recommendations. *Crop, Forage, & Turfgrass Management* 7(2). https://doi.org/10.1002/cft2.20126

Matcham, E. G., Vann, R., Lindsey, L. E., Gaska, J. M., Lilley, D. T., Ross, J., Wright, D. L., Knott, C., Lee, C. D., Mosely, D., Singh, M., Naeve, S., Irby, T., Weibold, W., Kandel, H., Lofton, J., Inman, M., Kleinjan, J., Holshouser, D. L., and Conley, S. P. (2021). Foliar Fertilizers Rarely Increase Yield in US Soybean. *Agronomy Journal 113*(6): 5246-5253. https://doi.org/10.1002/agj2.20889

Hamman, W. P., **Matcham, E. G.,** Singh, M. P., and Lindsey, L. E. (2021). Comparison of Variable Rate Prescriptions and Optimum Seeding Rate in Soybean. *Crop, Forage, & Turfgrass Management 7*(2). https://doi.org/10.1002/cft2.20130

Matcham, E. G., Mourtzinis, S., Conley, S. P., Rattalino Edreira, J. I., Grassini, P., Roth, A. C., Casteel, S. N., Ciampitti, I. A., Kandel, H. J., Kyveryga, P. M., Licht, M. A., Mueller, D. S., Nafziger, E. D., Naeve, S. L., Stanley, J., Staton, M. J., and Lindsey, L. E. (2020). Management strategies for early and late-planted soybean in the North Central US. *Agronomy Journal 112(*4): 2928-2943*.* https://doi.org/10.1002/agj2.20289

Gaspar, A. P., Mourtzinis, S., Kyle, D., Galdi, E., Lindsey, L. E., Hamman, W. P., **Matcham, E. G.,** Kandel, H. J., Schmitz, P., Stanley, J. D., Mueller, D. S., Nafziter, E. D., Ross, J., Carter, P. R., Varenhorst, A. J., Wise, K. A., Ciampitti, I. A., Carciochi., W. D., Chilvers, M. I., Hauswedell, B., Tenuta, A. U. and Conley, S. P. (2020). Defining optimal soybean seeding rates and associated risk across North America. *Agronomy Journal 112*(3): 2103-2114. https://doi.org/10.1002/agj2.20203

Matcham, E. G., Hamman, W. P., Hawkins, E. M., Fulton, J. P., Subburayalu, S., and Lindsey, L. E. (2020). Soil and terrain properties that predict differences in local ideal seeding rate. *Agronomy Journal 112*(3): 1981-1991. https://doi.org/10.1002/agj2.20179

Additional publications and citation indices are available on Google Scholar: https://scholar.google.com/citations?user=hyJ_v8AAAAAJ&hl=en&oi=ao