

# **MARTÍN LEONARDO BATTAGLIA**

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## **RESEARCH STATEMENT**

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My research focuses on the impacts of different tillage management practices on corn silage quality, yield, and environmental outcomes. Also, I am interested in the assessment of the impact that different beneficial management practices (BMPs) have on dissolved, particulate and total phosphorus losses from agricultural fields through on-farm assessments and simulated rainfall studies, and at the watershed level through the use of models like the Soil and Water Assessment Tool (SWAT).

## **EDUCATION**

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- B.S. 2007. College of Agriculture. University of Buenos Aires. Argentina (Honor Diploma).
- MSc. 2014. Crop and Soil Sciences. University of Kentucky (GPA: 4.0)

Research topics: a) corn yield response to defoliation at different row widths, and b) testing drought-tolerance hybrids in different environments, row widths and plant populations.

- Ph.D. 2018. Crop & Soil Environmental Sciences. Virginia Tech (GPA: 3.94)

Research topics: Miscanthus, Switchgrass, bioenergy from annual cropping systems, and biochar; yield gaps and potential yields in corn, cover crops and soil health.

## **PEER-REVIEWED PUBLICATIONS**

### **Published**

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- 1) **Battaglia, M.L.** 2018. Crop residue management effects on crop production, greenhouse gases emissions, and soil quality in the Mid-Atlantic USA. Virginia Tech. Blacksburg, VA. At: <https://vtechworks.lib.vt.edu/handle/10919/86483>.
- 2) **Battaglia, M.L.**, Lee, C., and Thomason, W. 2018. Corn yield components and yield responses to defoliation at different row widths. *Agron. J.* 110: 1-16. doi:10.2134/agronj2017.06.0322
- 3) **Battaglia, M.**, Fike, J., Fike, W., Sadeghpour, A., and Diatta, A. 2019. Miscanthus × giganteus biomass yield and quality in the Virginia Piedmont. *Grassl Sci.* 1–10. doi:10.1111/grs.12237
- 4) Farsad, A., Sadeghpour, A., Hashemi, M., **Battaglia, M.**, and Herbert, S.J. 2019. A review on controlled vacuum lysimeter design for soil water sampling. *Environmental Technology & Innovation*, 100355, ISSN 2352-1864. doi:10.1016/j.eti.2019.100355.
- 5) **Battaglia, M.L.**, Lee, C., Thomason, W., and Van Mullekom, J. 2019. Effects of corn row width and defoliation timing and intensity on canopy light interception. *Crop Sci.* 59: 1718-1731. doi:10.2135/cropsci2018.05.0337

- 6) Kumar, P., Lai, L., **Battaglia, M.L.**, Kumar, S., Owens, V., Fike, J., Galbraith, J., Hong, C.O., Faris, R., Crawford, R., Crawford, J., Hansen, J., Mayton, H., and Viands, D. 2019. Impacts of nitrogen fertilization rate and landscape position on select soil properties in switchgrass field at four sites in the USA. *CATENA* 180: 183-193.
- 7) Kumar, S., Lai, L., Kumar, P., Feliciano, Y.M.V., **Battaglia, M.L.**, Hong, C.O., Owens, V.N., Fike, J., Farris, R., and Galbraith, J. 2019. Impacts of nitrogen rate and landscape position on soils and switchgrass root growth parameters. *Agron. J.* 111(3): 1046-1059.
- 8) **Battaglia, M.**, Lee, C., Thomason, W., Fike, J., and Sadeghpour, A. 2019. Hail damage impacts on corn productivity: a review. *Crop Sci.* 59: 1-14. doi:10.2135/cropsci2018.04.0285
- 9) Weidhuner, A., Keshavarz Afshar, R., Luo, Y., **Battaglia, M.**, and Sadeghpour, A. 2019. Sample grinding size affects nitrogen and carbon estimate of a wheat cover crop. *Agron. J.* 111: 3398-3402. doi:10.2134/agronj2019.03.0164
- 10) Diatta, A.A., Fike, J.H., **Battaglia, M.L.**, Galbraith, J., Baig, M.B. 2020. Effects of biochar on soil fertility and crop productivity in arid regions: a review. *Arab. J. Geosci.* 13: 595. doi:10.1007/s12517-020-05586-2
- 11) Diatta, A.A., Thomason, W.E., Abaye, O., Thompson, T.L., **Battaglia, M.L.**, Vaughan, L.J., Lo, M., Leme, J.F.D.C., 2020. Assessment of nitrogen fixation by mungbean genotypes in different soil textures using <sup>15</sup>N natural abundance method. *J. Soil Sci. Plant Nut.* doi:10.1007/s42729-020-00290-2
- 12) Adnan, M., Fahad, S., Zamin, M., Shah, S., Mian, I.A., Danish, S., Zafar-ul-Hye, M., **Battaglia, M.L.**, Naz, R.M.M., Saeed, B., Saud, S., Ahmad, I., Yue, Z., Brtnicky, M., Holatko, J., Datta, R. 2020. Coupling Phosphate-Solubilizing Bacteria with Phosphorus Supplements Improve Maize Phosphorus Acquisition and Growth under Lime Induced Salinity Stress. *Plants* 9, 900. doi:10.3390/plants9070900
- 13) **Battaglia, M.L.**, Thomason, W.E., Fike, J.H., Evanylo, G., von Cossel, M., Babur, E., Iqbal, Y., and Diatta, A. 2020. The broad impacts of corn stover and wheat straw removal on crop productivity, soil health and greenhouse gases emissions: A review. *GCB Bioenergy* 00: 1-13. doi:10.1111/gcbb.12774
- 14) Adeyemi, O., Keshavarz-Afshar, R., Jahanzad, E., **Battaglia, M.L.**, Luo, Y., and A. Sadeghpour. 2020. Effect of wheat cover crop and split nitrogen application on corn yield and nitrogen use efficiency. *Agronomy* 10, 1081. doi:10.3390/agronomy10081081
- 15) Rafiullah, Tariq, M., Khan, F., Shah, A.H., Fahad, S., Wahid, F., Ali, J., Adnan, M., Ahmad, M., Irfan, M., Zafar-ul-Hye, M., **Battaglia, M.L.**, Tayebbeh Zarei, Datta, R., Saleem, I.A., Hafeez-u-Rehman, Danish, S. 2020. Effect of micronutrients foliar supplementation on the production and eminence of plum (*Prunus domestica* L.). *Qual. Assur. Saf. Crop* 12: 32-40.
- 16) Thomason, W.E., and **Battaglia, M.L.** 2020. Early defoliation effects on corn plant stands and grain yield. *Agron. J.* 1– 9. doi:10.1002/agj2.20402

## Submitted / In preparation

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- 17) **Battaglia, M.L.**, Ketterings, Q.M., Godwin, G., and Czymmek, K.J. 2020. Conservation tillage is compatible with manure injection in corn silage system. *Agron. J.* (submitted).
- 18) Babur, E., Uslu, Ö.S., **Battaglia, M.L.**, et al. 2020. Determination of Some Physico-chemical Properties and Erodibility indices of Soils under Different Land Use Types. *Soil Systems* (submitted).
- 19) Rezaei-Chiyaneh, E., Mahdaviab, H., **Battaglia, M.L.**, Thomason, W.E., and Caruso, G. 2020. Intercropping and fertilizer type impact seed productivity and secondary metabolites of dragon's head (*Lallemantia iberica* L.) and fenugreek (*Trigonella foenum-graecum* L.). *Scientia Horticulturae* (submitted).
- 20) Janusch, C., **Battaglia, M.**, and Von Cossel, M. 2020. Flower-power in the bioenergy sector – A review on second generation biofuel from perennial wild plant mixtures. *Renew. Sustain. Energy Rev.* (submitted).
- 21) Babur, E., Uslu, Ö.S., **Battaglia, M.L.**, et al. 2020. First-time anthropogenic nitrogen fertilization in a grassland ecosystem radically change physical, chemical and biological parameters of soil quality in less than a year. *Soils* (submitted).
- 22) **Battaglia, M.L.**, Ros, M., Easton, Z., Collick, A., Faulkner, J., Wagena, M., Twombly, C., Czymmek, K., and Ketterings, Q. Watershed Modeling of best management practices for Regional P Index Evaluation (in preparation).
- 23) **Battaglia, M.**, Thomason, W., Chim, B.K., Czymmek, K., and Ketterings, Q, et al. Effect of management intensification of corn production in the Coastal Plain Region of Virginia. *Plants* (in preparation).
- 24) Al-Amery, M., **Battaglia, M.L.**, Serson, W.L., Sadeghpour, A., Downie, B., Egli, D., Lee, C., Swiggart, E., and Hildebrand, D. Yield and growth characteristics of a high oil/protein soybean with enhanced DGAT. *Agron. J.* (in preparation).
- 25) Abaye, O., Thomason, W.E., Vaughan, L.J., **Battaglia, M.L.**, Leme, J.F.D.C., Thompson, T.L., Lo, M., Mbow, C., Gueye, M., Diatta, J., and Diagne, N. Potential of mungbean [*Vigna radiata* (L.) Wilczek] in Sub-Saharan Africa. A review. *Agron. Sustain. Dev.* (in preparation).
- 26) **Battaglia, M.L.**, Thomason, W.E., Fike, J.H., Evanylo, G., Stewart, R., Czymmek, K., and Ketterings, Q, et al. Crop residue removal effects on greenhouse gas emissions in grain crop rotations systems in mid-Atlantic USA. *Sci. Soil Systems* (in preparation).

## EXTENSION PUBLICATIONS

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- 1) **Battaglia, M.L.**, Groover, G., and Thomason, W.E. 2017. Value and implications of corn stover removal from Virginia fields. Virginia Cooperative Extension Publication CSES-180.
- 2) **Battaglia, M.L.**, Groover, G., and Thomason, W.E. 2018. Harvesting and nutrient replacement costs associated with corn stover removal in Virginia. Virginia Cooperative Extension Publication. CSES-229NP.

- 3) Ketterings, Q., Czymmek, K., and **Battaglia, M.** 2007. Revised 2020. Removal of Phosphorus by Field Crops. Agronomy Fact Sheet Series. Fact Sheet #28. Cornell University Cooperative Extension.
- 4) Czymmek, K., Ketterings, Q., Ros, M., **Battaglia, M.**, Cela, S., Crittenden, S., Gates, D., Walter, T., Latessa, S., Klaiber, L., and Albrecht, G. 2020. The New York Phosphorus Index 2.0. Agronomy Fact Sheet Series. Fact Sheet #110. Cornell University Cooperative Extension.
- 5) Adeyemi, O., Keshavarz-Afshar, R., Jahanzad, E., **Battaglia, M.L.**, Luo, Y., and Sadeghpour, A. 2020. Effect of wheat cover crop and split nitrogen application on corn yield and nitrogen use efficiency. North Central Soil Fertility Conference in De Moines, IA, 2020.