

CURRICULUM VITAE: MARNEY E. ISAAC

BIOGRAPHICAL INFORMATION

Department of Physical and Environmental Sciences
 Department of Global Development Studies
 University of Toronto Scarborough
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DEGREES

PhD. 2008. University of Toronto, Canada, *Ecological and Social Interactions in Sustainable Agroforestry Management: Cocoa in Ghana*, Advisor: V Timmer
 M.Sc. 2003. University of Guelph, Canada, *A Chronosequence of Soil Carbon and Nitrogen Dynamics in Multi-strata Agroforestry Systems*, Advisor: A Gordon
 B.Sc. 2001. University of Guelph, Canada

ACADEMIC APPOINTMENTS

2020- Full Professor, Department of Physical and Environmental Science and Department of Global Development Studies, U of Toronto Scarborough
 2015-2020 Associate Professor, Department of Physical and Environmental Science and Centre for Critical Development, U of Toronto Scarborough
 2009-2015 Assistant Professor, Department of Physical and Environmental Science and Centre for Critical Development, U of Toronto Scarborough
 2009- Graduate Faculty, School of Graduate Studies, Department of Physical and Environmental Science, Department of Geography, U of Toronto
 2023 Visiting Researcher, CAEC (Agro-Environmental Centre of the Caribbean) Martinique
 2016 Visiting Researcher, CATIE (Center for Tropical Agricultural Research and Education) Costa Rica
 2013- Canada Research Chair in Agroecosystems and Development (Tier 2)
 2008-2009 NSERC Postdoctoral Fellow, CIRAD (Centre de Coopération Internationale en Recherche Agronomique pour le Développement) France

HONOURS

Distinguished Lecturer, Centre for Global Change Science (2023)
 Inaugural Co-Director - Sustainable Food and Farming Futures cluster (2022)
 Celebration of Research Excellence Lecturer (2018)
 Canada Research Chair Tier 2 (2013-2024)
 Deans Merit Awards (2014, 2020, 2022)
 Research Prize, World Agroforestry Congress (2009)
 NSERC Post-Doctoral Fellowship (2008-2009)
 V.J. Nordin Prize, Tropical Forestry (2007)

PROFESSIONAL ACTIVITIES

Associate Editor, *Agroecology and Sustainable Food Systems* (2023-)
 Associate Editor, *Agronomy for Sustainable Development* (2018-)
 Associate Editor, *Journal of Applied Ecology* (2016-)
 Subject Editor, *Biotropica* (2018-2023)
 Invited Member, Diversified Agroecosystems Research Network (2018-2021)
 Scientific Committee, North America Agroforestry Conference, CATIE, Costa Rica (2024)
 Scientific Committee, World Congress on Agroforestry, Quebec, Canada (2022)

RESEARCH FUNDING

(Principal investigator (PI) unless otherwise stated)

- 2023-2024 NSERC-SSHRC Sustainable Agriculture Research Initiative, preparatory fund.
- 2022-2027 NSERC Discovery Grant, Nutrient acquisition strategies and plant-soil interactions in diversified agroecosystems.
- 2021-2024 Cluster of Scholarly Prominence Program, UTSC, Sustainable Food and Farming Futures cluster (Co-Director).
- 2021-2024 International Doctoral Cluster, IITB, Multidisciplinary Approaches for Sustainable Rural Development in India. PI: A. Bilton; Co-applicant: M.E. Isaac).
- 2019-2024 NSERC CREATE, Design of Living Infrastructure for Ecosystem Services (PI J. Drake; Co-applicant: M.E. Isaac).
- 2013-2024 Canada Research Chair (Tier 2) in Agroecosystems and Development.
- 2017-2021 Agriculture and Agri-Food Canada, Agricultural Greenhouse Gases Program, Riparian buffer plantings: An agroforestry land-use for greenhouse gas mitigation (PI: N. Thevathasan, University of Guelph; Co-applicant: M.E. Isaac).
- 2015-2020 NSERC Discovery Grant, Biophysical interactions in agricultural systems across environmental gradients.
- 2017-2018 UTSC Vice-Principal Research - Working Group Grant, The UTSC Agroecology Research Network (Co-PIs: M.E. Isaac & R. Isakson).
- 2016-2017 NSERC Research Tools and Instruments, Real-time, low-cost, field-ready stable isotope analyzer for the study of carbon flux through organisms and ecosystems (PI: K. Welch; Co-applicant: M.E. Isaac).
- 2011-2016 Agriculture and Agri-Food Canada, Agricultural Greenhouse Gases Program, Tree-based intercropping: An agroforestry land-use for greenhouse gas mitigation in Canadian agricultural systems (PI: A. Gordon, University of Guelph; Co-applicant: M.E. Isaac).
- 2010-2015 NSERC Discovery Grant, Linking nutrient acquisition strategies and plant performance to resource gradients for improved agroecology.
- 2013-2015 Canadian Foundation for Innovation Leaders Opportunity Fund, Elemental analyzer for carbon and nitrogen analysis.
- 2014-2015 Ontario Research Fund Infrastructure Grant, Elemental analyzer for carbon and nitrogen analysis.
- 2011-2014 SSHRC Insight Development Grant, Socio-spatial dynamics of agrarian communication networks: the effects of environmental change in the cocoa belt of Ghana.
- 2010-2012 International Development Research Centre, Canada-Africa Research Exchange Grant, Agrarian resilience in a changing climate (Co-PIs M.E. Isaac & L. Anglaere, Forestry Research Institute of Ghana).
- 2010-2011 Canadian Foundation for Innovation Leaders Opportunity Fund, Integrated plant-soil analytical laboratory and experimentation facilities to link ecophysiology and biogeochemistry in agroecology.
- 2010-2011 Ontario Research Fund Infrastructure Grant, Integrated plant-soil analytical laboratory and experimentation facilities to link ecophysiology and biogeochemistry in agroecology.
- 2009-2010 Connaught Grant, University of Toronto, Nutrient acquisition strategies and plant performance along resource gradients in low-input agricultural system.

PUBLICATIONS AND PRESENTATIONS OF RESEARCH

(For first author papers, I follow order of contribution and for supervisee as first author papers, I am last as senior supervising author. Underline denotes primary student or PDF supervisee.)

REFEREED PUBLICATIONS

91. Buchanan, S., M. Sauvadet and M.E. **Isaac**. 2023. Litter mixtures induce non-additive effects on soil priming across a riparian land use gradient. *Soil Biology and Biochemistry*, in press.
89. Nimmo, V., C. Violle, M. Entz, A. Rolhauser and M.E. **Isaac**. 2023. Changes in crop trait plasticity with domestication history: Management practices matter. *Ecology and Evolution* 11: e10690
88. Lemoine, T., C. Violle, G. Montazeaud, M.E. **Isaac**, A. Rocher, H. Freville, F. Fort. 2023. Plant trait relationships are maintained within a major crop species: lack of artificial selection signal and potential for improved agronomic performance. *New Phytologist* 240: 2227-2238.
87. Blesh, J., Z. Mehrabi, H. Wittman; R. Bezner Kerr et al. M.E. **Isaac**... 2023. Against the odds: pathways to agricultural diversification. *One Earth*, 6: 479-491.
86. Gagliardi, S. J. Avelino, A. Martin, M.W. Cadotte, E. de Melo Virginio Filho and M.E. **Isaac**. 2023. Leaf functional traits and pathogens: Linking coffee leaf rust with intraspecific trait variation in diversified agroecosystems. *Plos ONE* 18(4) e0284203
85. Avelino, J., S. Gagliardi, I. Perfecto, M.E. **Isaac**, T. Liebig, J. Vandermeer, I. Merle, Z. Hajian-Forooshani, and N. Motisi. 2023. Tree effects on coffee leaf rust at field and landscape scales. *Plant Disease*, 107: 247-261.
84. Rolhauser, A., S. MacIvor, A. Roberto, S. Ahmed and M.E. **Isaac**. 2023. Stress-gradient framework for green roofs: Applications for urban agriculture and other ecosystem services. *Ecological Solutions and Evidence* 4(2) e12227
83. Blesh, J., M.E. **Isaac**, M. Schipanski and S.J. Vanek. 2023. Ecological nutrient management as a pathway to zero hunger. *Frontiers media*, 16648714.
82. Archibald, S., C. Alline, C.R. Cerdan and M.E. **Isaac**. 2022. From the ground up: patterns and perceptions of herbaceous community diversity in organic agroecosystems. *Ecological Solutions and Evidence* 3(3) e12166.
81. Rolhauser, A., E. Windfeld, S. Hanson, H. Wittman, C. Thoreau, A. Lyon and M.E. **Isaac**. 2022. A trait-environment relationship approach to participatory plant breeding for organic agriculture. *New Phytologist*, 235: 1018-1031.
80. Gill, D.-G. and M.E. **Isaac**. 2022. Nitrogen dynamics in agroforestry systems: A review with data synthesis. *Agronomy for Sustainable Development*, 42:1-18.
79. Betley, E.C., A. Sigouin, P. Pascua, S.H. Cheng, K.I. MacDonald, F. Arengo, Y. Aumeeruddy-Thomas, S. Caillon, M.E. **Isaac**, S.D. Jupiter, A. Mawyer, M. Mejia, A.C. Moore, D. Renard, L. Sebastien, N. Gazit, E.J. Sterling. 2022. Assessing human well-being constructs with environmental and equity aspects: a review of the landscape. *People and Nature*, early view.
78. Schmidt, J.E., A. Duval, M.E. **Isaac** and P. Hohmann. 2022. At the roots of chocolate: understanding and optimizing the cacao root-associated microbiome for ecosystem services. A review. *Agronomy for Sustainable Development*, 42: 1-19.
77. Mafa-Attoye, T.G., K.A. Borden, D. Obregón Alvarez, N.V. Thevathasan, M.E. **Isaac** and K.E. Dunfield. 2022. Roots alter soil microbial diversity and interkingdom interactions in diversified agricultural landscapes. *Oikos*, early view.
76. Gagliardi, S., J. Avelino, R. Fulthorpe, E. de Melo Virginio Filho, M.E. **Isaac**. 2022. No evidence of foliar disease impact on crop root functional strategies and soil microbial communities: what does this mean for organic coffee? *Oikos* e08987
75. Gagliardi, S., J. Avelino, E.M. Virginio Filho and M.E. **Isaac**. 2021. Shade tree traits and microclimate modifications: implications for pathogen management in biodiverse coffee agroforests. *Biotropica* 53: 1356-1367

74. Lin, T., A.P. Ko, M.M. Than, D.C., Catacutan, R.F. Finlayson and M.E. **Isaac**. 2021. Farmer social networks: the role of advice ties and organizational leadership in agroforestry adoption. *Plos One* 16: e0255987
73. Bargaz, J. Nasielski, M.E. **Isaac**, E.S. Jensen, G. Carlsson. 2021. Faba bean variety mixture can modulate faba bean-wheat intercrop performance under water limitation. *Frontiers in Agronomy* 3:35.
72. Mariani, R.O., M.W. Cadotte, M.E. **Isaac**, D. Vile, C. Violle and A.R. Martin. 2021. National-scale changes in crop diversity through the Anthropocene. *Scientific Reports*, 20361
71. Carboni, M., S.W. Livingstone, M.E. **Isaac** and M.W. Cadotte. 2021. Invasion drives plant diversity loss through competition and ecosystem modification. *Journal of Ecology* 109: 3587-3601.
70. Buchanan, S.W., T. Mafa-Attoye, K. Dunfield, N.V. Thevathasan, M.E. Isaac. 2021. The role of plant functional traits and diversity in soil carbon dynamics within riparian agroforests. *Journal of Environmental Quality*, 51:33-43.
69. **Isaac**, M.E., V. Nimmo, A. Gaudin, A. Leptin, J. Schmidt, C. Kallenbach, A. Martin, M. Entz, M. Carkner, I. Rajcan, T.D. Boyle, X. Lu. 2021. Crop domestication, root trait syndromes, and soil nutrient acquisition in organic agroecosystems: a systematic review. *Frontiers in Sustainable Food Systems*, 5:716480.
68. **Isaac**, M.E., H. Nyantakyi-Frimpong, P. Matous, E. Dawoe, and L. Anglaaere. 2021. Farmer networks and agrobiodiversity interventions: the unintended outcomes of intended change. *Ecology and Society*, 26(4).
67. Borden, K.A., T.G. Mafa-Attoye, K.E Dunfield, N.V. Thevathasan, A.M Gordon, M.E. **Isaac**. 2021. Root functional trait and soil microbial coordination: Implications for soil respiration in riparian agroecosystems. *Frontiers in Plant Science*, 12: 1384.
65. Sauvadet, M. A.K Dickinson, E. Somarriba, W. Phillips-Mora, R.H. Cerda, A.R. Martin, M.E. **Isaac**. 2021. Genotype-environment interactions shape leaf functional traits of cacao in agroforests. *Agronomy for Sustainable Development* 41:1-12.
64. Martin, A.R. and M.E. **Isaac**. 2021. The leaf economics spectrum's morning coffee: plant size-dependent changes in leaf traits and reproductive onset in a perennial tree crop. *Annals of Botany* 127: 483–49.
63. Livingstone, S.W., M.E. **Isaac** and M.W. Cadotte. 2020. Invasive dominance and resident diversity: unpacking the impact of plant invasion on biodiversity and ecosystem function. *Ecological monographs*, 90: e01425.
62. Guerrero-Ramirez, N.R., L. Mommer, G. Freschet...M.E. **Isaac** et al. 2020. Global root traits (GRoot) database. *Global Ecology and Biogeography*, 30 (1), 25-37.
61. Sauvadet, M., R. Asare and M.E. **Isaac**. 2020. Evolutionary distance explains shade tree selection in agroforestry systems. *Agriculture, Ecosystems and Environment*, 304: 107125.
60. Coleman, B., A.R. Martin N.V. Thevathasan A.M. Gordon M.E. **Isaac**. 2020. Leaf trait variation and decomposition in short-rotation woody biomass crops under agroforestry management. *Agriculture, Ecosystems and Environment*, 298: 106971.
59. Borden, K.A, L.C.N. Anglaaere, S. Owusu, A.R. Martin, S.W. Buchanan, S. Addo-Danso, M.E. **Isaac**. 2020. Soil texture moderates key root functional traits in agroforestry systems across a climatic gradient. *Agriculture, Ecosystems and Environment*, 295: 106915.
58. Gagliardi, G., J. Avelino, L. Bagny Beilhe and M.E. **Isaac**. 2020. Contribution of shade trees to wind dynamics and pathogen dispersal on the edge of coffee agroforestry systems: a functional traits approach. *Crop Protection*, 130: 105071.
57. Buchanan S.W., M. Baskerville, M. Oelbermann, A.M. Gordon, N. Thevathasan and M.E. **Isaac**. 2020. Plant diversity and agroecosystem function in riparian agroforests: providing ecosystem services and land-use transition. *Sustainability*, 12(2): 568.

56. Fulthorpe, R.R., A.R. Martin and M.E. **Isaac**. 2020. Root endophytes of coffee (*Coffea arabica*): variation across climatic gradients and relationships with functional traits. *Phytobiomes Journal*, 4:27-39.
55. Addo-Danso, S.D., C.E. Defrenne, M.L. McCormack, I. Ostonen, A. Addo-Danso, E.G. Foli, K.A. Borden and M.E. **Isaac** C.E. Prescott. 2020. Fine-root morphological trait variation in tropical forest ecosystems: an evidence synthesis. *Plant Ecology*, 221:1-13.
54. Kattge, J., Bonisch, G., Diaz, S...M.E. **Isaac** et al. 2020. TRY plant trait database – enhanced coverage and open access. *Global Change Biology*, 26: 5343.
53. **Isaac**, M.E. and K.A. Borden. 2019. Nutrient acquisition strategies in agroforestry systems. *Plant and Soil Marschner Review*, 444:1–19.
52. Bukovsky-Reyes, S., M.E. **Isaac**, and J. Blesh. 2019. Effects of intercropping and soil conditions on cover crop functional traits. *Agriculture, Ecosystems & Environment*, 285: 106614.
51. Borden, K.A., S.C. Thomas and M.E. **Isaac**. 2019. Variation in fine root traits reveals nutrient-specific acquisition strategies in agroforestry systems. *Plant and Soil*, on-line first.
50. **Isaac**, M.E. and A.R. Martin. 2019. Accumulating crop functional traits with citizen science. *Scientific Reports*, 9:15715.
49. Mann, C., J.R. Parkins, M.E. **Isaac** and K. Sherren. 2019. Is Holistic Management synonymous with systems thinking? *Ecology and Society*, 24(3):19.
48. Martin, A.R., F.J. Hayes, K.A. Borden, S.W. Buchanan, A.M. Gordon, M.E. **Isaac** and N.V. Thevathasan. 2019. Integrating nitrogen fixing structures into above- and below-ground functional trait spectra in soy (*Glycine max*). *Plant and Soil* 440:53-69.
47. Borden, K.A. and M.E. **Isaac**. 2019. Management strategies differentially affect root functional trait expression in cocoa agroforestry systems. *Agronomy for Sustainable Development*, 39: 21.
46. Martin, A.R., M.W. Cadotte, M.E. **Isaac**, R. Milla, D. Vile and C. Violle. 2019. Regional and global shifts in crop diversity through the Anthropocene. *PLOS ONE*, 14(2): e0209788.
45. Nyantakyi-Frimpong, H., P. Matous and M.E. **Isaac**. 2019. Social networks and resource-conserving agriculture: a multicase comparison using Exponential Random Graph Models. *Ecology and Society*, 25(1):5.
44. Buchanan, S., K. Van den Meersche, A.R. Martin and M.E. **Isaac**. 2019. Functional trait variation along a shade and fertility gradient in coffee agroforestry systems. *Agroforestry Systems*, 93: 1261-1273.
43. Borden, K., L. Anglaaere, S. Adu-Bredu and M.E. **Isaac**. 2019. Root biomass variation of cocoa and implications for carbon stocks in agroforestry systems. *Agroforestry Systems*, on line.
42. **Isaac**, M.E., R. Isakson, B. Dale, C.Z. Levkoe, S.K. Hargreaves, V.E. Méndez, H. Wittman, C. Hammelman, J.C. Langill, A.R. Martin, E. Nelson, M. Ekers, K.A. Borden, S. Gagliardi, S. Buchanan, S. Archibald and A. Gálvez Ciani. 2018. Agroecology in Canada: Towards an integration of agroecological practice, movement and science. *Sustainability*, 10: 3299.
41. Livingstone, S., M.W. Cadotte and M.E. **Isaac**. 2018. Ecological engagement determines ecosystem service valuation: A case study from Rouge National Urban Park in Toronto, Canada. *Ecosystem Services*, 30: 86-97.
40. Martin, A.R. and M.E. **Isaac**. 2018. Functional traits in agroecology: advancing description and prediction in agroecosystems. *Journal of Applied Ecology*, 55: 5-11.
39. **Isaac**, M.E., R. Cerda, B. Rapidel, A.R. Martin, A.K. Dickinson and N. Sibelet 2018. Farmer perception and utilization of leaf functional traits in agroecosystems. *Journal of Applied Ecology*, 55: 69-80.
38. Bugiel, L., S. Livingstone, M.E. **Isaac**, R. Fulthorpe and A.R. Martin. 2018. Impacts of invasive plant species on soil biodiversity: a case study of dog-strangling vine (*Vincetoxicum rossicum*) in a Canadian national park. *Canadian Journal of Soil Science* 98(4): 716-723.

37. **Isaac**, M.E., A.R. Martin, E. de M. Virginio Filho, B. Rapidel, O. Roupsard and K. Van den Meersche. 2017. Intraspecific trait variation and coordination: root and leaf economics spectra in coffee across environmental gradients. *Frontiers in Plant Science* 8: 1196.
36. **Bargaz**, A., G.L. Noyce, R. Fulthorpe, G. Carlsson, J.R. **Furze**, E.S. Jensen and M.E. **Isaac**. 2017. Species interactions enhance root allocation, microbial diversity and P acquisition in intercropped wheat and soybean. *Applied Soil Ecology*, 120: 179:188.
35. **Isaac**, M.E. and P. Matous. 2017. Social network ties predict land use diversity and land use change: a case study in Ghana. *Regional Environmental Change*, 17: 1823-1833.
34. **Furze**, J.R., A.R. Martin, J. **Nasielski**, N.V. Thevathasan, A.M. Gordon and M.E. **Isaac**. 2017. Resiliency of arbuscular mycorrhizal fungi to water limitation in a temperate agroecosystem. *Ecology and Evolution*, 7(10): 3443-3454. DOI: 10.1002/ece3.2900.
33. **Martin**, A.R., B. Rapidel, O. Roupsard, K. Van den Meersche, E. de M. Virginio Filho, M. Barrios, and M.E. **Isaac**. 2017. Intraspecific trait variation across multiple scales: the leaf economics spectrum in coffee. *Functional Ecology*, 31: 604-612.
32. **Borden**, K.A., S.C. Thomas and M.E. **Isaac**. 2017. Interspecific variation of tree root architecture in a temperate agroforestry system characterized using ground-penetrating radar. *Plant and Soil*, 410: 323-334.
31. **Cadger**, K., A.K. Quaicoo, E. Dawoe and M.E. **Isaac**. 2016. Development interventions and agriculture adaptation: A social network analysis of farmer knowledge transfer in Ghana. *Agriculture*, 6:32
30. **Martin**, A.R. and M.E. **Isaac**. 2015. Plant functional traits in agroecosystems: a blueprint for research. *Journal of Applied Ecology*, 52:1425-1435.
29. **Nasielski**, J., J. **Furze**, J. **Tan**, A. **Bargaz**, N.V. Thevathasan and M.E. **Isaac**. 2015. Agroforestry promotes soybean yield stability and N₂-fixation under water stress. *Agronomy for Sustainable Development*, 35: 1541-1549.
28. Fitzpatrick, C.R., A.A. Agrawal, N. Basiliko, A.P. Hastings, M.E. **Isaac**, M. Preston and M.T.J. Johnson. 2015. The importance of plant genotype and contemporary evolution for terrestrial ecosystem processes. *Ecology* 96: 2632–2642.
27. **Munroe**, J.W., G. Soto, E. de M. Virginio Filho, R. Fulthorpe and M.E. **Isaac**. 2015. Soil microbial and nutrient properties in the rhizosphere of coffee under agroforestry management. *Applied Soil Ecology*, 93: 40-46.
26. **Link**, C., N.V. Thevathasan, A.M. Gordon and M.E. **Isaac**. 2015. Determining tree water acquisition zones with stable isotopes in a temperate tree-based intercropping system. *Agroforestry Systems*, 89: 611-620.
25. **Gagliardi**, S., A.R. **Martin**, E. de M. Virginio Filho, B. Rapidel and M.E. **Isaac**. 2015. Intraspecific leaf economic trait variation partially explains coffee performance across agroforestry management regimes. *Agriculture, Ecosystems and Environment*, 200: 151–160.
24. **Borden**, K.A., M.E. **Isaac**, N.V. Thevathasan, A.M. Gordon and S.C. Thomas. 2014. Estimating coarse root biomass with ground penetrating radar in a tree-based intercropping system. *Agroforestry Systems*, 88: 657-669.
23. **Makhani**, M. and M.E. **Isaac**. 2014. Rhizosphere soil dynamics under nitrogen-induced root modification: the interaction of phosphorus and calcium. *Journal of Plant Nutrition and Soil Science*, 177: 624-632.
22. **Isaac**, M.E., L.C.N. Anglaaere, K. **Borden** and S. Adu-Bredu. 2014. Intraspecific root plasticity in agroforestry systems across edaphic conditions. *Agriculture, Ecosystems and Environment*, 185: 16-23.
21. **Isaac**, M.E., L.C.N. Anglaaere, D.S, Akoto and E. Dawoe. 2014. Migrant farmers as information brokers: agroecosystem management in the transition zone of Ghana. *Ecology and Society*, 19(2): 56.

20. Munroe, J.W. and M.E. **Isaac**. 2014. Rates and transfer of fixed N in woody perennial agroforestry systems: a review, *Agronomy for Sustainable Development*, 34: 417–427.
19. **Isaac**, M.E., G. Carlsson, C. Ghoulam, M. Makhani, N.V. Thevathasan and A. Gordon. 2014. Legume performance and nitrogen acquisition strategies in a tree-based agroecosystem. *Agroecology and Sustainable Food Systems*, 38: 686–703.
18. **Isaac**, M.E. and L.C.N Anglaaere. 2013. An in-situ approach to detect tree root ecology: Linking ground penetrating radar imaging to isotope derived water acquisition zones. *Ecology and Evolution* 3: 1330-1339.
17. **Isaac**, M.E., P. Hinsinger and J.M. Harmand. 2012. Nitrogen and phosphorus economy of a legume tree-cereal intercropping system under controlled conditions. *Science of the Total Environment*, 434: 71-78.
16. **Isaac**, M.E. 2012. Agricultural information exchange and organizational ties: the effect of network topology on managing agrodiversity. *Agricultural Systems*, 109: 9-15.
15. Dawoe, E., S.J. Quashie-Sam, M.E. **Isaac**, and S.K. Oppong. 2012. Exploring farmers local knowledge and perceptions of soil fertility and management in the Ashanti Region of Ghana. *Geoderma*, 179-180: 96-103.
14. Whitehead, M. and M.E. **Isaac**. 2012. Effects of shade on nitrogen and phosphorus acquisition in cereal-legume intercropping systems. Special Issue: Soil biology and its importance to soil fertility. *Agriculture*, 2: 12-24.
13. **Isaac**, M.E. and Kimaro, A.A. 2011. Diagnosis of nutrient imbalances with vector analysis in agroforestry systems. *Journal of Environmental Quality*, 40: 1-7.
12. **Isaac**, M.E., Harmand, J.M., Lesueur, D. and Lelon, J. 2011. Tree age and soil phosphorus conditions influence N₂-fixation rates and soil N dynamics in natural populations of *Acacia senegal*. *Forest Ecology and Management*, 261: 582-588.
11. **Isaac**, M.E., J.M. Harmand and J.J. Drevon. 2011. Growth and nitrogen response of *Acacia senegal* to exponential phosphorus additions. *Journal of Plant Physiology*, 168: 776-781.
10. **Isaac**, M.E., E. Adjei, R. Issaka and V.R. Timmer. 2011. Strategies for improved tree-perennial crop productivity: exponential nutrient loading and cocoa-shade interactions *Agroforestry Systems*, 81: 147-155.
9. **Isaac**, M.E, A.A. Kimaro, Y. Teng and V.R. Timmer. 2010. Increasing Agricultural Complexity: An Approach for Integration of Trees in Crop Landscapes. *The Open Agricultural Journal*, 4: 64-71.
8. Dawoe, E., M.E. **Isaac** and S.J. Quashie-Sam. 2010. Litterfall dynamics in cocoa-agroforestry systems of lowland Ghana. *Plant and Soil*, 330: 55-64.
7. **Isaac**, M.E., E. Dawoe and K. Sieciechowicz. 2009. Assessing localized knowledge use in agroforestry management with cognitive maps. *Environmental Management*, 43: 1321-1329.
6. **Isaac**, M.E. and E. Dawoe. 2009. Promoting long-term farm diversity: Integrative management of agroforestry systems in Ghana. *Journal of Science and Technology*, 26: 26-33.
5. **Isaac**, M.E., B. Erickson, S.J. Quashie-Sam and V.R. Timmer. 2007c. Transfer of knowledge on agroforestry management practices: the structure of informal advice networks. *Ecology and Society*, 12(2): 32.
4. **Isaac**, M.E., F. Ulzen-Appiah, V.R. Timmer and S.J. Quashie-Sam. 2007b. Early Growth and nutritional response to resource competition in cocoa-shade intercropped systems. *Plant and Soil*, 298: 243-254.
3. **Isaac**, M.E., V.R. Timmer and S.J. Quashie-Sam. 2007a. Shade tree effects in an 8-year-old cocoa agroforestry system: Biomass and nutrient diagnosis of *Theobroma cacao* by vector analysis. *Nutrient Cycling in Agroecosystems*, 78: 155-165.
2. **Isaac**, M.E. and V.R. Timmer. 2007. Comparing *in situ* methods for measuring nitrogen mineralization under mock precipitation regimes. *Canadian Journal of Soil Science*, 87: 39-42.
1. **Isaac**, M.E., A.M. Gordon, N. Thevathasan, S.K. Oppong and S.J. Quashie-Sam. 2005. Temporal

changes in soil carbon and nitrogen dynamics in tropical multistrata agroforestry systems: a chronosequence of pools and fluxes. *Agroforestry Systems*, 65: 23-31.

PAPERS PRESENTED AT MEETINGS

63. Sauvadet, M., Dickinson, A., Somarriba, E., Philips-Mora, W., Cerda, R., Martin, A., **Isaac**, M.E. (2022). Using functional traits to assess crop-environment interactions in agroforestry systems. 5th World Congress on Agroforestry. Quebec City, Canada [oral presentation]
62. Buchanan, S.W., Sauvadet, M., **Isaac**, M.E. (2022). Riparian agroforestry systems - the role of biodiversity in soil carbon sequestration. 5th World Congress on Agroforestry. Quebec City, Canada. [oral presentation]
61. Mafa-Attoye, T., Buchanan, S.W., Obregón, D., Tosi, M., Thevathasan, N., **Isaac**, M.E., Dunfield, K. (2022). Unraveling the root microbiomes of understory plant species across multiple riparian systems. Canadian Society of Microbiologists. Guelph, Ontario, Canada [oral presentation]
60. Nimmo, V., **Isaac**, M., Brar, G. (2022). Impacts of domestication on fine root trait variation and effects on rhizospheric conditions. World Congress of Soil Science. Glasgow, UK. [poster presentation]
59. Lee, H., He, Y., **Isaac**, M.E., Roberto, A. (2022). Detecting the impact of drought and intercropping using leaf-level hyperspectral data. Canadian Symposium on Remote Sensing, Quebec City, Quebec, Canada [oral presentation]
58. Gagliardi, S., J. Avelino, E. de Melo Virginio-Filho, R. Fulthorpe and M.E. **Isaac**. (2021) Root functional traits and microbial variations across a gradient of foliar disease incidence in agroforestry systems Ecological Society of America. Online conference [oral presentation]
57. Buchanan, S and M.E. **Isaac**. (2021) Litter functional trait diversity impacts decomposition dynamics: understanding riparian agroforest land transformation. Ecological Society of America. Online conference [poster]
56. Nimmo, V and M.E. **Isaac** (2021) Crop functional trait response to organic amendments and intercropping. Canadian Society of Soil Science Annual Meeting, Virtual. [Poster presentation].
55. Buchanan, S.W., Mafa-Attoye, T., Dunfield, K., Thevathasan, N.V., **Isaac**, M.E. (2020). Abiotic and biotic drivers of soil C cycling change throughout the lifespan of riparian agroforests. Perennial Farm Gathering, online conference. [oral presentation]
54. Buchanan, S.W., Mafa-Attoye, T., Dunfield, K., Thevathasan, N.V., **Isaac**, M.E. (2020). Drivers of soil functioning within riparian agroforestry buffers: a structural equation modelling approach. Ecological Society of America, online conference. [poster presentation]
53. Gagliardi, S., J. Avelino, A.R Martin and M.E. **Isaac**. (2020) Intraspecific leaf functional trait variation and foliar disease in agroecosystems. Ecological Society of America, online conference. [oral presentation]
52. **Isaac**, M.E., L. Anglaaere, E. Dawoe P. Matous and H. Nyantakyi-Frimpong. 2019. Informal agrarian networks and agroecosystem diversification. International Network of Social Network Analysis (Sunbelt) conference, Montreal, Canada [Oral presentation]
51. Windfeld, E, A, Lyon, H. Wittman, M.E. **Isaac**. 2019. A functional trait approach to Agroecosystem functioning on Canadian organic farms. Harlan III International Symposium on the Origins of Agriculture and the Domestication, Evolution, and Utilization of Genetic Resources. Montpellier, France [Oral presentation]
50. Borden, K.A., T. Mafa-Attoye, K.E. Dunfield K and M.E. **Isaac**. 2019. Coordination of soil microbes with root functional traits and implications for soil respiration in riparian agroecosystems. Rhizosphere5, Saskatchewan, Canada [Oral presentation]

49. Borden, K.A., A.R. Martin, L.C.N. Anglaaere, S. Owusu, S.W. Buchanan, S. Addo-Danso and M.E. **Isaac**. 2019. Shade trees affect soil resource acquisition strategies of cocoa in suboptimal climates. World Congress on Agroforestry. Montpellier, France [Oral presentation]
48. Martin, A.R., M.E. **Isaac**, M.W. Cadotte, C. Violle, D. Vile and R. Milla. 2017. Global shifts in crop diversity: Taxonomic, functional and phylogenetic composition over the past half century. Ecological Society of America Conference, Portland, Oregon, USA [Oral presentation]
47. Buchanan, S.W., K. Van Den Meersche, A.R. Martin and M.E. **Isaac**. 2017. Functional traits along a shade and fertility gradient in coffee agroforestry systems. Association of Tropical Biology and Conservation meeting, Merida, Mexico [Oral presentation]
46. Dickinson, A., A.R. Martin, W.P. Mora, E. Somarriba Chavez, M. Turmel and M.E. **Isaac**. 2017. Functional trait variation in cacao agroecosystems: influence of local conditions and cultivars. Association of Tropical Biology and Conservation meeting, Merida, Mexico [Poster presentation]
45. Borden, K and M.E. **Isaac**. 2017. Root trait response to fertilization and interspecific interactions in an agroforest. Association of Tropical Biology and Conservation meeting, Merida, Mexico [Oral presentation]
44. **Isaac**, M.E., A.R. Martin, S. Gagliardi, S. Buchanan, K. Van den Meersche and B. Rapidel. 2016. Intraspecific leaf trait variation in tropical agroforestry systems: a case study of shade-grown coffee. Association of Tropical Biology and Conservation meeting, Montpellier, France [Poster presentation]
43. Martin, A.R. and M.E. **Isaac**. 2016. Functional trait-based research in agroecology: Progress and prospects. Association of Tropical Biology and Conservation meeting, Montpellier, France [Oral presentation]
42. Borden, K., L.C.N. Anglaaere and M.E. **Isaac**. 2015. Tree root ecology in multi-species agroecosystems: detection and biomass estimation with ground penetrating radar. Ecological Society of America Conference, Baltimore, USA [Oral presentation]
41. Martin, A.R. and M.E. **Isaac**. 2015. Functional trait-based research in agroecology: Progress and prospects. Ecological Society of America Conference, Baltimore, USA [Oral presentation]
40. Livingstone, S., M. Cadotte and M.E. **Isaac**. 2015. Effects of the invasive vine *Vincetoxicum rossicum* on ecosystem multi-functionality. Ecological Society of America Conference, Baltimore, USA [Oral presentation]
39. Nasielski, J., J.R., Wong, J.D. Tan and M.E. **Isaac**. 2014. Legumes and water stress: soybean performance under rainfall reduction in a tree-based intercropping system. Soil Science Society of America meeting, California, USA [Oral presentation]
38. **Isaac**, M.E and J.M. Harmand. 2014. Soil phosphorus and N₂ fixation of leguminous trees: consequences for rates and transfer in agroforestry systems. Phosphorus in Soils and Plants – PSP5 2014, Montpellier, France [Oral presentation]
37. **Isaac**, M.E., C. Link and K. Borden. 2014. Belowground processes in a temperate tree-based agroecosystem: applying ground penetrating radar and isotopic techniques. Canadian Society of Soil Science, Banff, Alberta [Oral presentation]
36. **Isaac**, M.E. 2014. Informal network structures and land use change: a case study from the transition zone of Ghana. Global Land Project meeting, Berlin, Germany [Oral presentation]
35. Cadger, K. and M.E. **Isaac**. 2014. Development interventions and agricultural adaptation in a changing environment: A social network analysis of farmer knowledge transfer in Ghana. Association of American Geographers, Tampa, Florida, USA [Oral presentation]
34. Gagliardi, S. and M.E. **Isaac**. 2014. Intraspecific trait plasticity in coffee agroforestry systems across geographical regions in Costa Rica. Association of American Geographers, Tampa, Florida, USA [Oral presentation]
33. **Isaac**, M.E. 2014. The role of informal social networks in agroforestry adoption and management. 3rd World Congress on Agroforestry, India [Oral presentation]

32. Borden, K.A. and M.E. **Isaac**. 2014. Using Ground Penetrating Radar in agroforestry systems: Detection and quantification of tree root distribution and biomass. 3rd World Congress on Agroforestry, India [Oral presentation]
31. **Isaac**, M.E. 2013. Agrarian information networks and socio-spatial dynamics: linking network structure to land use change in Ghana. International Network for Social Network Analysis, SUNBELT conference, Hamburg, Germany [Oral presentation]
30. Munroe, J.W., G. Soto, E. de M Virginio Filho, M.E. **Isaac**. 2013. Nutrient availability and microbial dynamics in the rhizosphere of coffee: Shade tree and fertilization effects. Association of Tropical Biology and Conservation meeting, San Jose, Costa Rica [Oral presentation]
29. Gagliardi, S. and M.E. **Isaac**. 2013. The role of stress in coffee agroforestry systems in Costa Rica. Association of Tropical Biology and Conservation meeting, San Jose, Costa Rica [Poster presentation]
28. Borden, K, M.E. **Isaac** and S. Thomas. 2013. Evaluating tree root distribution in a tree- based intercropping system with use of ground penetrating radar. 13th North American Agroforestry conference, PEI, Canada [Oral presentation]
27. Link, C. and M.E. **Isaac**. 2013. Studying water uptake zones in agroforestry with stable isotope analysis. 13th North American Agroforestry conference, PEI, Canada [Poster presentation]
26. **Isaac**, M.E., P. Hinsinger, and J.M. Harmand. 2012. Nitrogen and phosphorus economy of a legume tree-cereal intercropping system under controlled conditions. Soil Science Society of America meeting, Ohio, USA [Oral presentation]
25. Borden, K, M.E. **Isaac** and S. Thomas. 2012. Ground penetrating radar to assess belowground tree-crop competition. Soil Science Society of American meeting, Ohio, USA [Poster presentation]
24. Munroe, J.W., M.E. **Isaac** and G. Soto. 2012. Nitrogen and phosphorus availability in rhizosphere and bulk soil for *Coffea arabica*: shade tree and management effects. Soil Science Society of America meeting, Ohio, USA [Poster presentation]
23. Makhani, M and M.E. **Isaac**. 2012. Sugar Maple (*Acer saccharum*) biochar as a soil amendment for soybean (*Glycine max* L. Merr.) crops and its effect on biological nitrogen fixation (BNF) and nodulation. Soil Science Society of American meeting, Ohio, USA [Poster presentation]
22. Borden, K, M.E. **Isaac** and S. Thomas. 2012. Ground penetrating radar to assess belowground tree-crop competition. International Society of Root Research conference, Dundee, Scotland [Poster presentation]
21. Campbell, L., G. Soto and M.E. **Isaac**. 2012. Management effects on photosynthetic capacity and leaf level nutrition in tropical shade agroforestry systems: The case of coffee in Costa Rica. International Conference on Coffee Science, San Jose, Costa Rica [Poster presentation]
20. Borden, K, M.E. **Isaac**, S. Thomas. 2012. Mapping tree root distribution in agroforestry systems with the use of ground penetrating radar. Canadian Association of Geographers, Ontario Division, Scarborough, Ontario [Oral presentation]
19. **Isaac**, M.E. and L. Anglaaere. 2012. The effects of environmental change and migration on the socio-spatial dynamics of agrarian information networks in Ghana. International Network for Social Network Analysis, SUNBELT conference, LA, USA [Oral presentation]
18. Borden, K., M.E. **Isaac** and S. Thomas. 2011. Ground penetrating radar to assess belowground tree-crop competition. The Society of American Foresters 91st National Convention, Honolulu, Hawaii [Poster presentation]
17. **Isaac**, M.E. 2011. Ecological and social interactions in agroforestry systems. Association of Tropical Biology and Conservation, Arusha, Tanzania, June 13th, 2011 [Oral presentation]
16. **Isaac**, M.E. and E. Dawoe. 2011. Linking social networks and agroecology management for information diffusion International Network for Social Network Analysis, SUNBELT conference, St. Petes Florida, USA [Oral presentation]
15. **Isaac**, M.E. 2010. Agrarian communication networks: consequences for agroforestry. International Network for Social Network Analysis, SUNBELT conference, Riva del Garda, Italy [Oral presentation]

14. **Isaac**, M.E., J.M. Harmand and P. Hinsinger. 2010. Crop growth and nutrient acquisition under phosphorus gradients in a model legume tree-cereal intercropping systems. AGRO2010, Montpellier, France [Poster presentation]
13. **Campbell**, L. and M.E. **Isaac**. 2010. Learning from the present and past: a review of organic agriculture on soil fertility. Canadian Soil Science Society conference, Saskatchewan, Canada [Poster presentation]
12. **Isaac**, M.E. 2009. Ecological and social interactions in sustainable agroforestry management: Cocoa in Ghana. Association of Tropical Biology and Conservation meeting. Marburg, Germany [Oral presentation]
11. **Isaac**, M.E., J.M. Harmand, D. Lesueur and J. Lelon. 2009. Age-related changes in nutrient fluxes under natural populations of *Acacia senegal*: applications for agroforestry management. Association of Tropical Biology and Conservation. Marburg, Germany [Poster presentation]
10. **Isaac**, M.E. and E. Dawoe. 2009. Agrarian communication and resource networks: Consequences for agroforestry. 2nd World Agroforestry Congress, Kenya [Poster presentation]
9. Kimaro, A.A and M.E. **Isaac**. 2009. Nutrient and non-nutrient resource interactions in agroforestry systems: developing a management support system with vector analysis. 2nd World Agroforestry Congress, Nairobi, Kenya [Poster presentation]
8. **Isaac**, M.E., E. Adjei, R. Issaka and V.R. Timmer. 2009. Effects of exponential fertilization on shade seedling interactions with target crop species in agroforestry systems. 2nd World Agroforestry Congress, Nairobi, Kenya [Oral presentation]
7. **Isaac**, M.E. 2007. The function of trees in the agricultural landscape: from Ghana to southern Ontario. Forests in Settled Landscapes, University of Toronto, Canada [Poster presentation]
6. **Isaac**, M.E, B. Erickson, J. Quashie-Sam and V.R. Timmer. 2007. Informal advice networks of cocoa farmers: Development and transfer of agroforestry practices. Social Networks and Institutional Change: Pathways and Limits of State Intervention in Rural Societies, University of Muenster, Germany [Oral presentation]
5. **Isaac**, M.E., V.R. Timmer, F. Ulzen-Appiah and S.J. Quashie-Sam. 2007. Advancing productivity and diversity in agroforestry: Biomass and nutrition in cocoa-shade systems. International Congress: A Global Vision of Forestry for the 21st Century, Toronto, Ontario, Canada [Poster presentation]
4. **Isaac**, M.E., F. Ulzen-Appiah, V.R. Timmer and S.J. Quashie-Sam. 2007. Cocoa-shade intercropped systems: Biomass and nutritional response to resource competition. International Symposium on Multi-strata Agroforestry Systems, CATIE, Costa Rica [Poster presentation]
3. **Isaac**, M.E., V.R. Timmer and J. Quashie-Sam. 2006. Resource availability for *Theobroma cacao* L.: species interactions in an 8-year-old cocoa-shade agroforestry system. Ecological Society of America Annual Conference, Memphis TN, USA [Oral presentation]
2. **Isaac**, M.E., V.R. Timmer, J. Quashie-Sam and A.M. Gordon. 2005. Development and maintenance of complex agroforestry systems after forest conversion. Working Forests in the Tropics, University of Florida, Gainesville, USA [Poster presentation]
1. **Isaac**, M.E., A.M. Gordon, N. Thevathasan, S.K. Oppong and J. Quashie-Sam. 2004. Temporal changes in soil carbon and nitrogen dynamics in tropical multistrata agroforestry systems: a chronosequence of pools and fluxes. 1st World Congress on Agroforestry, Florida, USA [Poster presentation]

INVITED LECTURES

- 2024 North American Agroforestry Congress, Costa Rica
- 2023 Great Explorations Lecture Series, U of Toronto, Canada
- 2023 Centre for Global Change Science Distinguished Lecture Series, Ontario, Canada
- 2023 World Green Infrastructure Congress, Berlin, Germany
- 2022 Ontario Agriculture Conference, Ontario, Canada

- 2022 Berkeley Food Institute, UC Berkeley, USA
- 2022 Indian Institute of Technology Mumbai, India
- 2022 Environmental Sustainability Research Centre, Brock U, Ontario, Canada
- 2022 World Agroforestry Congress, Quebec, Canada
- 2022 Ontario Fruit and Vegetable Convention, Niagara, Canada
- 2021 Latin American Scientific Congress on Cocoa, Costa Rica
- 2021 Plant and Soil Science Raymond Seminar Series, U of Vermont, USA
- 2020 iSPEAC, University of Toronto Scarborough, Ontario, Canada .
- 2020 Department of Plant Agriculture Speaker Series, U of Guelph, Ontario, Canada
- 2019 Interactions of Humans with their Environments in a Changing World. Toronto Metropolitan University, Ontario, Canada
- 2019 Centre for Functional and Evolutionary Ecology, National Centre for Scientific Research (CNRS), Montpellier, France
- 2019 Agricultural Campus Speaker Series, Dalhousie U, Nova Scotia, Canada
- 2018 Celebration of Research Excellence series, U of Toronto Scarborough, Ontario, Canada
- 2018 School of Environmental Science speaker series. U of Guelph, Ontario, Canada
- 2018 Agroecology: Integrating Science, Practice and Social Justice. Food Secure Canada Webinar series, Canada
- 2017 Geography Speaker Series, Western University, Ontario, Canada
- 2017 Soil Seminar Series, U of British Columbia, British Columbia, Canada
- 2016 Agroecology Knowledge Exchange and Capacity-Building Workshop: Building a South-North Partnership. Balsillie School Of International Affairs, Ontario, Canada
- 2016 Sem Sem Speaker Series, Centro Agronómico Tropical de Investigación y Enseñanza (CATIE), Turrialba, Costa Rica
- 2015 Biology Seminar Series, Wilfred Laurier University, Ontario, Canada
- 2015 Conservation Ecology seminar series, University of Michigan, Ann Arbor, USA
- 2014 Centre Seve meeting, Canada
- 2014 World Food Days, University of Toronto, Ontario, Canada
- 2012 Crossroads for Food Studies: A Fork in the Road? Canadian Association for Food Studies
- 2012 New Frontiers Speaker Series, U of Toronto Scarborough, Ontario, Canada
- 2012 Department of Civil Engineering, University of Tokyo, Tokyo, Japan
- 2011 Department of Agrosystems, Swedish Agricultural University, Alnarp, Sweden
- 2011 Forestry Research Institute of Ghana, Kumasi, Ghana
- 2011 Centro Agronómico Tropical de Investigación y Enseñanza, Turrialba, Costa Rica

MEDIA COVERAGE OF RESEARCH

- 2024 Career profiled on Bioenterprise Blog “Autonomy through Agroecology: Bringing change to Canada’s farming systems”
- 2023 Research profiled in Serviette Magazine “Building a better carrot”.
- 2022 Research profiled in U of Toronto Magazine “The future of urban agriculture”.
- 2022 Research profiled on CBCs Quirks and Quarks “Feeding the future”.
- 2022 Career profiled on Emerging Environments Podcast “Roots of change”.
- 2020 Research findings profiled in “Researchers explore effects of bacteria and fungi in coffee plant roots” Daily Coffee News by Roast Magazine.
- 2019 Research finding reviewed in the Toronto Star “Crop diversity declining as world’s large, industrial farms look more alike, researcher find”.
- 2019 Research profiled in the Anthropocene Magazine “Global crops are growing more diverse, but just a few still dominate our food system”.

- 2018 Research profiled on the Applied Ecologist's Blog "Functional traits represent a key nexus between scientific and local knowledge".
- 2017 Research profiled on UTSC news "Agroecology reconciles food production with environmentalism and social justice".
- 2015 Review paper listed on "Science on the pulse: Top 10 Ecosystem Services and Resilience reads of 2015" on CGIAR Research Program on Water, Land and Ecosystems.
- 2015 Research profiled on Science Daily, Physorg, EurekAlert, "Plants with Jobs".
- 2015 Radio interview on 88.3 WCBN FM Ann Arbor "It's hot in here".
- 2012 Interview in UniWorld (Association of Universities and Colleges of Canada) "Farmers in Ghana to benefit from social-ecological study".
- 2011 Research findings profiled on Science Daily "Analyzing Agroforestry Management".
- 2011 Research findings profiled on Farming Online "Analysis reveals agroforestry can improve yields while reducing environmental costs".
- 2010 Featured on UTSC blog-Geological journal-'Studying the soil'.
- 2010 Featured in "Tomorrow is Created Here", University of Toronto Scarborough Annual Report, "Outstanding in her Field".
- 2009 Research findings profiled in GRO-cocoa (CABI International) "How farmers learn from each other".
- 2006 Featured in The Toronto Star, "Deep Thoughts: Sustainable Crops".
- 2005 Featured on CBC, aired on The Noon Edition, Regina and the Wild Rose County, Calgary. "The Cocoa Story".
- 2005 Research findings profiled in The Western Producer. "Cocoa Sweetens Life in Ghana".
- 2002 Featured in Research Magazine, U of Guelph "Where Forest Meets Field".

LIST OF COURSES AND SUPERVISION

Undergraduate courses

- EESB05 Principles of Soil Science, Department of Physical and Environmental Sciences, University of Toronto Scarborough
- IDSB02 Development and Environment, Department of Global Development Studies, University of Toronto Scarborough
- EESD09 Research Project in Environmental Science, Department of Physical and Environmental Sciences, University of Toronto Scarborough

Graduate courses

- EES1128 Biophysical Interactions in Managed Environments, Department of Physical and Environmental Sciences, University of Toronto Scarborough
- ENV1114 Directed readings course, Department of Physical and Environmental Sciences, University of Toronto Scarborough
- GGR1149 Readings in Selected Topics, Department of Geography, University of Toronto

Theses supervised

Master Students

22. Leah Ritcey-Thorpe, Master of Science, Department of Geography "Nutrient dynamics in biologically complex organic cocoa systems", (Sept 2019-Jan 2022).
21. Andrew Nichols, Master of Science, Department of Ecology and Evolutionary Biology (co-supervised with S MacIvor) "Plant and soil dynamics in extensive green roofs", (Sept 2019-Jan 2022).
20. Tian Lin, Master of Arts, Department of Geography, "Adoption of agroforestry practices and the role of social networks", (Sept 2019 – Sept 2020) *awarded SSHRC CGS-M 2019

19. Emma Windfeld, Master of Science, Department of Geography “Functional traits and regional adaptation in organic agricultural systems”, (Sept 2018-Jan 2020). *awarded NSERC CGS-M 2019
18. Jenna LeBlanc, Master of Environmental Science, Department of Physical and Environmental Sciences “Patterns of plant invasion in agricultural riparian buffers” (Sept 2018-Sept 2019).
17. Sarah Archibald, Master of Science, Department of Geography “From the ground up: herbaceous community diversity and management in coffee agroforestry systems” (Sept 2017-April 2019). *awarded NSERC CGS-M 2017 and OGS 2018.
16. Adam Kabir Dickinson, Master of Science, Department of Geography “Functional trait variation in cacao agroecosystems: Influence of local conditions and cultivars” (Sept 2015- May 2017) *awarded NSERC CGS-M 2015 and OGS 2016.
15. Laura Bugiel, Master of Environmental Science, Department of Physical and Environmental Sciences (Co-supervised with A. Martin) “Impacts of invasive plant species on soil biodiversity: a case study of dog-strangling vine (*Vincetoxicum rossicum*) in a Canadian national park” (Sept 2015-Sept 2016).
14. Brent Coleman, Master of Science, Department of Geography “Shade tree effects on intraspecific leaf trait plasticity and decomposition in a willow agroforestry system” (Sept 2014-May 2016) *awarded OGS 2015.
13. Serra Buchanan, Master of Science, Department of Geography (Co-supervised with A. Martin) “Intraspecific variation in leaf and root traits across nutrient and light gradients in coffee agroforestry systems” (Sept 2014- March 2016)
12. Joshua Nasielski, Master of Science, Department of Geography “Soybean N₂-fixation rates and yield in tree-based intercropping systems: effects of water limitations and environmental modifications” (Sept 2013-Jan 2015) *awarded NSERC CGS-M 2013.
11. Jun Tan, Master of Environmental Science, Department of Physical and Environmental Sciences “The effect of reduced rainfall on the root plasticity of soybeans in an intercropping system” (Sept 2013-Sept 2014)
10. Surbhi Jain, Master of Environmental Science, Department of Physical and Environmental Sciences (Co-supervised with N. Klenk) “Stakeholder perceptions of the social and ecological functionality of Rouge National Urban Park” (Sept 2013-Sept 2014)
9. Stephanie Gagliardi, Master of Science. Department of Geography “Intraspecific trait plasticity along a shade tree biodiversity gradient in a coffee agroforestry system of Costa Rica” (Sept 2012-Jan 2014) *awarded NSERC CGS-M 2012
8. Kirstie Cadger, Master of Arts, Department of Geography “Development interventions and agricultural adaptation in a changing environment: A social network analysis of farmer knowledge transfer in Ghana” (Sept 2012-April 2014) *awarded SSHRC CGS-M 2013
7. Kira Borden, Master of Science, Faculty of Forestry (Co-supervised with S. Thomas) “Tree roots in agroforestry: Evaluating biomass and distribution with ground penetrating radar” (Sept 2011- August 2013) *awarded Centre for Global Change Science graduate student award
6. Candice Link, Master of Science, Department of Geography “Determining tree water acquisition with stable isotope analysis in a temperate agroforestry system” (Sept 2012 – Nov 2013)
5. Jake Munroe, Master of Science, Department of Geography, "Nutrient Availability in the Rhizosphere of Coffee: Shade-Tree and Fertilization Effects " (Sept 2011-April 2013) *awarded OGS 2012
4. Mitalie Makhani, Master of Environmental Science, Department of Physical and Environmental Sciences “A mechanistic model for understanding phosphate bioavailability in the rhizosphere of Durum wheat (*Triticum durum turigidum*) under two nitrate conditions” (Sept 2011-Sept 2012)
3. Leslie Campbell, Master of Science, Department of Geography “Biophysical drivers of tree crop performance in shade agroforestry systems: The case of coffee in Costa Rica” (Sept 2010-Jan 2012)
2. Katie Tulk. Master of Environmental Science, Department of Physical and Environmental Sciences

“I heard it through the grapevine: linking social networks and sustainable wine production in the Niagara Region, Ontario” (Jan 2010-April 2011)

1. Meighen Whitehead, Master of Environmental Science, Department of Physical and Environmental Sciences “Nutrient transfer on phosphorus deficient soils under a wheat (*Triticum turgidum durum*)-legume intercropping system” (Jan 2010-Sept 2010)

PhD Students

9. Khushi Farhana, PhD, Department of Physical and Environmental Sciences, “Agrobiodiversity and soil carbon in urban and peri-urban agriculture”, in progress.

8. Hwang Lee, PhD. Department of Geography, “Remote sensing crop traits on green roofs” (co-supervised with Y. He), in progress.

7. Adarshana Thapa, Ph.D. Department of Physical and Environmental Sciences, “Agroecological transitions in Central India” in progress.

6. Adriano Roberto, Ph.D. Department of Physical and Environmental Sciences “Plant diversity, resource facilitation, and food productivity on green roofs” (co-supervised with S. MacIvor) in progress.

5. Victoria Nimmo, Ph.D. Department of Geography “Plant functional trait syndromes and soil resource acquisition strategies in agroecosystems” (2019-2023). *awarded OGS

4. Serra Buchanan, Ph.D. Department of Physical and Environmental Sciences “Plant diversity and agroecosystem processes in riparian agroforestry systems” (2017-2022). *awarded OGS

3. Stephanie Gagliardi, Ph.D. Department of Physical and Environmental Sciences “Trait variation and ecological function in diseased agroforestry systems” (2016-2022). *awarded OGS, NSERC CGS-D

2. Kira Borden, Ph.D. Department of Geography “Root ecology for sustainable agroecosystems: Intraspecific variation in a pan-tropical tree crop” (2013-2018) *awarded NSERC PGS-D

1. Stuart Livingston, Ph.D. Department of Physical and Environmental Sciences “Ecosystem services and ecological rarity in Rouge Park” (2012-2017) (Co-supervised with M. Cadotte)

Post-Doctoral Fellows

11. Dr. Lutchmee Sujeeun, Sustainable Food and Farming Futures Cluster Post-doctoral Fellow (2023-)

10. Dr. Siera Vercillo, Sustainable Food and Farming Futures Cluster Post-doctoral Fellow (2022-2023)

9. Dr. Andres Rolhauser, Department of Physical and Environmental Science (2021-2023) Canada Research Chair funded Post-doctoral Fellowship

8. Dr. Shalom Addo-Danso, Department of Physical and Environmental Science (2022) Canada Research Chair funded Post-doctoral Fellowship

7. Dr. Marie Sauvadet, Department of Physical and Environmental Science (2019-2020) Canada Research Chair funded Post-doctoral Fellowship.

6. Dr. Stuart Livingstone, Department of Physical and Environmental Science (2019) Agricultural Greenhouse Gases Program funded Post-doctoral Fellowship.

5. Dr. Karabi Pathak, Department of Physical and Environmental Science (2019) Shastri Research Fellowship – Post-doctoral Fellow.

4. Dr. Kira Borden, Department of Physical and Environmental Science (2018) Agricultural Greenhouse Gases Program funded Post-doctoral Fellowship.

3. Dr. Hanson Nyantakyi-Frimpong, Department of Physical and Environmental Science (2015-2016) Canada Research Chair funded Post-doctoral Fellowship.

2. Dr. Adam Martin, Department of Physical and Environment Science (2014) Canada Research Chair funded Post-doctoral Fellowship.

1. Dr. Adnane Bargaz, Department of Physical and Environmental Science (2013- 2016) FORMAS Post-doctoral Fellowship (co-supervised with Dr. G Carlsson, SLU, Sweden)

Undergraduate Thesis

Indraneel Bhattacharjee, BA International Development Studies. (Sept 2022-April 2023)
Sorcha Taylor. BA International Development Studies. (Sept 2019-April 2021)
Candace Kumar. BA International Development Studies. (Sept 2018-April 2020)
Sylwia Pucek. BA International Development Studies. (Sept 2018-April 2020)
Szu-Ping Cheng. BA International Development Studies. (Sept 2018-April 2019)
Tashi Lhamo. B.Sc. International Development Studies. (Sept 2016-April 2017)
Luzianne Reid. B.Sc. International Development Studies. (Sept 2013-April 2015)
Lakshya Dhungana. BA International Development Studies. (Sept 2012-April 2013)
Brandon MacDonald. B.Sc. International Development Studies. (Sept 2011-April 2012)

EXTERNAL SERVICE**Conference organization**

Conference organizing committee, Chair of Technical Sessions, Canadian Society of Soil Science
Annual meeting, Trent University (2017)
Symposium organizer “Plant functional traits in tropical agroecology” Association of Tropical Biology
and Conservation, France (2016)
Symposium organizer “Role of agroforestry in resilient landscapes: yields, services, livelihoods”
Association of Tropical Biology and Conservation, Tanzania, June 2011 (Co-Chair A. Kimaro)

External examiner/ Tenure reviews

Trent U (2011); McGill U (2013); U of Waterloo (2013); U of Cape Town (2014); U of British
Columbia (2018); U of California, Davis (2019); U of Guelph (2020); U of Alberta (2021); University
of Pretoria (2023)

Circumstance affecting productivity:

I was on maternity leave from April to November 2015 and from July 2017 to January 2018.