

Research Projects and Funding

1. Precision Irrigation Management in Potatoes Production, *NSERC*, from 2018-01-01 to 2023-01-31.
2. Integrated Water Management in Cranberry Production, *NSERC*, from 2016-01-01 to 2021-01-31.
3. Mechanics of water-driven soil erosion: Mathematical modelling and laboratory experimentation, *NSERC*, from 2020-04-01 to 2025-03-31.
4. Gestion de précision de l'eau et du sol des Agrosystèmes, Partenariat, Fondation Canadienne pour l'innovation (La), *Fonds des leaders John-R.-Evans (FLJR)*, du 2017-05-01 au 2018-12-31.

Publications in Peer Reviewed Journals

1. Matteau, J.P., Cécicourt, P., Létourneau, G., Gumiere, T., Walter, C., Gumiere, S.J., Association between irrigation thresholds and promotion of soil organic carbon decomposition in sandy soil, *Scientific Reports* 11 (1), 1-10, 2021.
2. Camporese, M., Gumiere, S.J., Putti, M., Botter, G., Efficient irrigation of maize through soil moisture monitoring and modeling, *Frontiers in Water* 3, 23, 2021.
3. Matteau, J.P., Cécicourt, P., Létourneau, G., Gumiere, T., Gumiere, S.J., Potato Varieties Response to Soil Matric Potential Based Irrigation, *Agronomy* 11 (2), 352, 2021.
4. Cécicourt, P., Rousseau, A.N., Gumiere, S.J., M Camporese, M., Agricultural hydroinformatics: A blueprint for an emerging framework to foster water management-centric sustainability transitions in farming systems, *Frontiers in Water* 2, 65, 2021.
5. Cécicourt, P., Gumiere, S.J., Lafond, J.A., Gumiere, T., Gallichand, J., Automated Mapping of Water Table for Cranberry Subirrigation Management: Comparison of Three Spatial Interpolation Methods *Water* 12 (12), 3322, 2020.
6. Dabney, S.M., Gumiere, S.J., Erosion by water: vegetative control, *Managing Soils and Terrestrial Systems*, 395-406, 2020.
7. Jacques, M.M., Gumiere, S.J., Gallichand, J., Cécicourt, P., Gumiere, T., Impacts of water stress severity and duration on potato photosynthetic activity and yields *Frontiers in Agronomy* 2, 2020.
8. Gumiere, S.J., Camporese M., Botto A., Lafond J. A., Paniconi C., Gallichand J., Rousseau A.N., Machine Learning vs. Physics-Based Modeling for Real-Time Irrigation Management, *Frontiers: Water*, DOI 10.3389/frwa.2020.00008, 2020.
9. Lafond, J.A., Gumiere, S.J., Mbodj, A., Dupuis, C., Evaluating the GRP method for internal drainage diagnosis in cranberry fields. In press. DOI 10.19080. *Environmental Sciences & Natural Resources*, 2020.
10. J.-P. Matteau et al., Coupling of a nitrate production model with HYDRUS to predict nitrate leaching, *Agric. water Manag.*, vol. 213, pp. 616–626, 2019.
11. Y. Bigah, A. N. Rousseau, and S. J. Gumiere, "Development of a steady-state model to predict daily water table depth and root zone soil matric potential of a cranberry field with a subirrigation system," *Agric. water Manag.*, vol. 213, pp. 1016–1027, 2019.
12. T. Gumiere et al., "Phosphorus source driving the soil microbial interactions and improving sugarcane development," *Sci. Rep.*, vol. 9, no. 1, p. 4400, 2019.
13. T. Gumiere, S. Gumiere, J.-P. Matteau, P. Constant, G. Létourneau, and R. Alain, "Soil bacterial community associated with high potato production and minimal water use," 2019.
14. T. Gumiere, K. Meyer, A. R. Burns, S. J. Gumiere, B. J. M. Bohannan, and F. D. Andreote, "A probabilistic model to identify the core microbial community," *bioRxiv*, p. 491183, 2018.
15. D. Bengora, L. Khiari, J. Gallichand, N. Dechemi, and S. J. Gumiere, "Optimizing the dataset size of a topo-bathymetric survey for Hammam Debagh Dam, Algeria," *Int. J. Sediment Res.*, vol. 33, no. 4, pp. 518–524, 2018.
16. M. Muma, A. N. Rousseau, and S. J. Gumiere, "Modeling of subsurface agricultural drainage using two hydrological models with different conceptual approaches as well as dimensions and spatial scales," *Can. Water Resour. J.*, vol. 42, no. 1, 2017.
17. J. Caron et al., "Guidelines of irrigation and drainage management strategies to enhance cranberry production and optimize water use in North America," *Can. J. soil Sci.*, vol. 97, no. 1, pp. 82–91, 2017.
18. V. Pelletier, S. J. Gumiere, S. Pepin, J. Gallichand, and J. Caron, "Positioning Temperature Sensors for Frost Protection in Northern Cranberry Production," *Agric. Sci.*, vol. 8, no. 09, p. 960, 2017.
19. S. J. Gumiere, S. Pepin, C. D. Kennedy, and W. Bland, "Precision agriculture and soil and water management in cranberry production," *Can. J. Soil Sci.*, vol. 97, no. 1, 2017.
20. G. Hould-Gosselin et al., "Modeling the sediment yield and the impact of vegetated filters using an event-based soil erosion model: a case study of a small Canadian watershed," *Hydrol. Process.*, vol. 30, no. 16, 2016.
21. Y. Périard, S. J. Gumiere, A. N. Rousseau, M. Caillier, J. Gallichand, and J. Caron, "Assessment of the drainage capacity of cranberry fields: Problem identification using soil clustering and development of a new drainage criterion," *Can. J. Soil Sci.*, vol. 97, no. 1, 2016.
22. M. Muma, A. N. Rousseau, and S. J. Gumiere, "Assessment of the impact of subsurface agricultural drainage on soilwater storage and flows of a small watershed," *Water (Switzerland)*, vol. 8, no. 8, 2016.
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