

2024 NORTHEAST POTATO TECHNOLOGY FORUM

March 20 - 21, 2024

Rodd Royalty Hotel

Charlottetown, PE Canada

Wednesday, March 20, 2024

1:00 pm Welcome

Session A: Agronomy/Environment

Moderator: Judith Nyiraneza, AAFC Charlottetown

1:15 A study on the impact of climate change on eleven potato varieties

Ziwei Chen*, Lord Abbey, Mason MacDonald, Suqi Liu, and Gefu Wang-Pruski

1:30 Cost-benefit analysis of supplemental irrigation for potato production in Prince Edward Island

Yefang Jiang*, Tobin Stetson, John Philips, and Ana Kostic

1:45 Use of constructed wetlands and mini-wetlands for remediation of agricultural runoff from potato fields

Audrey Murray*, Tobias Laengle, Jennifer Klaus, Mary Finch, Jake Mackinnon, Keilla Miller, and Virginia Everett

2:00 Winter cover crops before and after potato crop: environmental and economic benefits

Judith Nyiraneza*, Yefang Jiang, Mohammad Khakbazan, Danielle Murnaghan, Jessica Matheson, Ana Kostić, and Ryan Barrett

2:15 Response of new processing potato varieties to different nitrogen rates

Newton Yorinori*, William Hardy, Rory MacLellan, and Sandra Yorinori

2:30 Short term effects of rotation length and plant diversity in potato production systems on the abundance of nitrogen cycling communities

Leah MacIntyre*, Claudia Goyer, David Burton, Ikechukwu Agomoh, and Louis-Pierre Comeau

2:45 Does size really matter – what's in your planter?

Steve Watts*

3:00 BREAK AND POSTER SESSION

Session B: Pest Management

Moderator: Steve Watts, Genesis Crop Systems Inc.

3:30 Effects of cultural practices on weed community and seedbank dynamics in a potato rotation

Andrew McKenzie-Gopsill*, Judith Nyiraneza, and Sherry Fillmore

3:45 Effect of in-furrow application of Minuet biopesticide for control of common scab in PEI

Ryan Barrett*, Humna Khan, and Rick Peters

- 4:00 Phenotypic characterization of *Phytophthora infestans* populations on potato and tomato in Canada reveals high diversity and metalaxyl-m insensitivity**
Segun Babarinde*, Rick Peters, Khalil Al-Mughrabi, Rishi Burlakoti, Anne MacPhail, Amy Novinscak, Sanjib Sapkota, Fouad Daayf, and Balakrishnan Prithiviraj
- 4:15 Development and application of simultaneous qPCR for *Verticillium* and Root Lesion Nematode in greenhouse and field studies**
Tyler MacKenzie*, Khalil Al-Mughrabi, Dahu Chen, and Mathuresh Singh
- 4:30 Preliminary survey of wireworms in potato fields adopting regenerative agricultural practices and examination of wireworm life-stage markers**
Rachel R. Rix*, Gefu Wang Pruski, G. Christopher Cutler, Yves LeClerc, and Manphool Fageria
- 4:45 Does russetting and silver patch affect bacterial and fungal communities associated with potato tubers?**
Claudia Goyer* and Tracy Shinnars-Carnelley
- 5:30 HOSPITALITY SUITE** courtesy of Syngenta
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Thursday, March 21, 2024

7:30 – 8:00 Breakfast

Session C: Modeling and Breeding/Genetics

Moderator: Newton Yorinori, Cavendish Farms

- 8:15 A model-based approach for determining potato ecophysiological nitrogen requirements and recommending optimal rates for specific soil and climate conditions**
Morteza Mesbah*, Kristen Murchison, and Mariaelisa Polsinelli
- 8:30 Crop disease modelling using machine learning and artificial intelligence**
Avneet Kaur*, Aitazaz Farooque, Ryan Barrett, and Gurjit Randhawa
- 8:45 Quantifying and predicting carbon dioxide emissions using advanced modeling techniques for sustainable potato production in Prince Edward Island, Canada**
Muhammad Hassan*, Aitazaz Farooque, Khabat Khosravi, Evan Macdonald, and Ryan Barrett
- 9:00 Forecasting of SPEI (Standardized Precipitation Evapotranspiration Index) meteorological drought over Atlantic Canada using machine learning algorithms**
Chukwuemeka Eneh*, Aitazaz Farooque, Masoud Karbasi, Mumtaz Ali, and Gurjit Randhawa
- 9:15 Genome-wide association studies revealed diploid potatoes with climate-resilient traits**
Bourlaye Fofana*, David Main, Mohsin Zaidi, and Benoit Bizimungu
- 9:30 Case study: fresh tablestock intercepted in CFIA regulatory action**
Xiang Li*, Jingbai Nie, Desmond Hammill, Jiacheng Chuan, Qifan Yang, Huimin Xu, Phillip Maxwell, and Pamela Ross
- 9:45 Preliminary analysis of potato wart genomic datasets**
Jiacheng Chuan* and Sean Li

10:00 BREAK AND POSTER SESSION

Session D: Precision Agriculture

Moderator: Andrew McKenzie-Gopsill, AAFC Charlottetown

10:30 Influential factors for estimating Pan Coefficient using machine learning and deep learning models
Saad Javed Cheema*, Aitazaz Farooque, and Mehdi Jamei

10:45 AgriScout: An autonomous robotic system for detecting and classifying healthy and PVY virus-infected potato plants
Charanpreet Singh*, Aitazaz Farooque, Gurjit Randhawa, Ryan Barrett, and Mathuresh Singh

11:00 Optimizing crop soil moisture estimation: A fusion of satellite thermal infrared bands and vegetation indices using Google Earth engine
Fatima Imtiaz*, Aitazaz Farooque, and Ryan Barrett

11:15 Assessing soil organic carbon using soil color captured with mobile phones
Fangzhou Zheng*, Sheng Li, Yulia Kupriyanovich, and Ray Carmichael

11:30 Satellite-derived bare soil mapping in Prince Edward Island – a potential tool for site specific field management
Evan MacDonald* and Aitazaz Farooque

11:45 Investigating soil compaction in potato fields using advanced technologies
Andrew Fraser*, Aitazaz Farooque, Evan Macdonald, Ryan Barrett, and Travis Esau

12:00 BUFFET LUNCH

POSTER SESSION

Variation in the Efficacy of Commonly Used and Novel Fungicides for the Control of the Late Blight Pathogen *Phytophthora infestans* in Canada

Babarinde, Segun O., Khalil I. Al-Mughrabi, Rick D. Peters, Samuel K. Asiedu, Rishi R. Burlakoti, Fouad Daayf, and Balakrishnan Prithiviraj.

Transcriptome and Gene Expression Analyses of Different Developmental Stages of Wireworm (*Agriotes sputator*)

Joshi, Jyoti and Gefu Wang-Pruski.

Effect of Sugar Kelp (*Saccharina latissimi*) on Potato (*Solanum tuberosum*) Yield, Soil Health, and Greenhouse Gas Emissions

Khan, Arishma, Travis Esau, Kuljeet Grewal, and Gurpreet Selopal.

Water and Tillage Erosion under Conventional and Conservation Tillage

Li, Sheng, Fangzhou Zheng, Yulia Kupriyanovich, and Sylvie Lavoie.

Fall Greenhouse Gas Emissions in Relation to Cover Crops and Soil Health

Shim, So Yeon, Aitazaz A. Farooque, David Burton, Ryan Barrett, and Xiuquan Wang.

Effects of Shrub Willow Chips on Microbial Communities under Potato Cropping Systems

Uwituze, Yvonne, Tandra D. Fraser, Judith Nyiraneza, Jacynthe Dessureault-Rompré, and Yefang Jiang.