



DAY 1

Tuesday, November 16 - 12:00 P.M. – 3:20 P.M. CST

SOILS ARE THE SOLUTION



Dr. Wayne Honeycutt, Soil Health Institute

Dr. Honeycutt is President and CEO of the Soil Health Institute, where he leads the Institute's programs to safeguard and enhance the vitality and productivity of soils. He previously served for 5 years as Deputy Chief for Science and Technology with USDA's Natural Resources Conservation Service in Washington, DC; and for 10 years as a Research Leader and 14 years as a Research Soil Scientist with the USDA-Agricultural Research Service New England Plant, Soil, and Water Laboratory. He was the 2018 recipient of the Hugh Hammond Bennett Award, the highest honor bestowed on an individual by the Soil and Water Conservation Society.

Environmental Benefits of Soil Health



Paul Smith

Paul is a sustainable agriculture consultant working on the Power of Soils project with Greenbelt Foundation and Équiterre. He retired from a 30-year career in the Ontario government, including 20 years at the Ministry of Agriculture, Food and Rural Affairs. He worked on many agri-environmental topics including soil health, Environmental Farm Plan, nutrient management and on-farm biodiversity. He helped develop Ontario's soil health and conservation strategy and holds degrees from the Universities of Guelph and Waterloo.



Dr. Aaron DeLaporte

Aaron's research examines the environmental and economic tradeoffs of innovative agricultural practice adoption using spatial bioeconomic and transportation modelling. He received his Ph.D. from the University of Guelph. He has examined wetland management throughout Canada and biomass-based bioenergy in Ontario and North Dakota. His current research focuses on 4R nitrogen management, precision agriculture, cover crops, and genomic technologies to improve soil health and mitigate climate change.

The Power of Soil: Increasing Practice Adoption with Learning, Incentives and Economics

The Power of Soil project is building evidence to support increased adoption of soil health practices. The presentation highlights environmental benefits of soil health practices in Canada, the social science of adoption, economic analysis of soil health practices (for Ontario), and recommendations for policy change.



Dr Bonnie Kaplan, University of Calgary

Bonnie J Kaplan, PhD, is a semi-retired Professor in the Cumming School of Medicine at the University of Calgary (BonnieJKaplan.com). She has published widely on the biological basis of developmental disorders and mental health – particularly, the *contribution of nutrition to mental health*. Her efforts to include nutrition knowledge in the care of people

with mental health challenges has earned her a variety of awards, including the the Dr. Rogers Prize for Excellence in Complementary and Alternative Medicine in September 2019 (DrRogersPrize.org); and in 2017 she was selected as one of 150 Canadian Difference Makers in Mental Health, in honour of Canada's 150th birthday. Her book THE BETTER BRAIN written with Professor Julia Rucklidge (University of Canterbury, Christchurch, New Zealand) was published by Houghton Mifflin Harcourt.

Our soil influences society's brain health

Mental health problems are epidemic, diagnosed now in 20% of the public. Healthy soil and nutrient availability together play a large role in determining our brain function. This talk will review some brain functions dependent on micronutrients (minerals and vitamins), with research examples relating nutrient intake to mental health.



Lise LeBlanc, LP Consulting

Lise LeBlanc, President of LP Consulting (@LPConsultingLtd) has partnered with Industry and Agriculture for over 30 years to offer solutions for successful waste-to-resource programs. LP Consulting has an extensive agricultural clientele in Atlantic Canada, Ontario and Alberta of over 600 farmers; developing crop/nutrient management programs, conducting on-farm agricultural research and implementing amendment programs.

Lise has incorporated organic amendments in her farm client crop management strategies for the past 20 years. She has worked with manure, biosolids, wood ash, compost, anaerobic digestate, offshore drilling waste, rendering plant effluents, fishery waste, paper mill sludge, cement kiln dust, lime kiln dust, grits and dregs and construction and demolition waste. LP programs have diverted almost 2 million tonnes of waste material into value-added economic agricultural resources. Lise won the 2019 Mobius Award of Environmental Excellence in Innovation in Waste Reduction for her work in partnering agriculture and industry on waste-to-resource amendments and was inducted into the Mobius Award of Excellence's Hall of Fame.

Making Cents from Amendments

Although agriculture has been using soil amendments for as long as agriculture has been in existence, they are a topic that have not received much attention. Changes in agriculture such as reduction in livestock farms, decreases in perennial crop acreage, tillage practices, reduced soil health and the negative impact of climate change has brought amendments to the attention of the agricultural community as an important component of crop and soil management.

Over the past decade more soil amendment options have become available. Hundreds of thousands of tonnes of amendments are applied on farmland but still not at the scale that is required to increase, let alone maintain, soil health for optimal crop yields.

Other than organic matter, the total value of amendments for farm production has not been well demonstrated to the agricultural community in terms of fertilizer,

microbial community, soil structure, carbon input and in some cases, increasing soil pH as a lime amendment.

We will discuss the benefits of amendments and calculate their \$ values in comparison to traditional Ag inputs to provide the ABC's of choosing the right amendment for specific crop production programs.

Maximizing soil health is not just about feeding the current crop, its also about ensuring the following crop rotations are successful. Are there costs associated with maximizing soil health?

The future of agriculture is in partnerships. Cooperation and collaboration will be essential between industry, agriculture, government, academia, crop consultants and farmers to address soil health issues and maximize crop yields using local sustainable amendments, new technology fertilizers, crop genetics and "farming" for soil health.

DAY 2

WEDNESDAY, November 17 - 12:00 P.M. – 3:20 P.M. CST

BUILDING EXCELLENCE IN SOIL HEALTH



Dr. Claudia Wagner-Riddell University of Guelph School of Environmental Sciences, Guelph, ON

Dr. Claudia Wagner-Riddell is a Professor in the School of Environmental Sciences (SES), University of Guelph, Canada. Originally from Brazil, Claudia has degrees from the University of Sao Paulo and Guelph. Claudia leads an internationally-renowned research program utilizing the measurement of greenhouse gas emissions to determine the carbon footprint of food, feed, and fuel produced by agriculture. Claudia currently leads several projects focused on evaluating how soil health impacts ecosystem services, including a new \$2 million infrastructure using large scale soil weighing lysimeter. Claudia is a fellow of the Soil Science Society of America, the American Meteorological Society and of the Canadian Society of Agricultural and Forest Meteorology. She is the Editor-in-Chief of the international journal Agricultural and Forest Meteorology and leads a nation-wide training program on Climate-Smart Soils. Claudia was recently appointed Director of the North American regional chapter of the International Nitrogen Initiative and was awarded the 2020 IFA Borlaug Award of Excellence in Crop Nutrition. Wagner-Riddell has published >160 papers and has an h-index of 43 (Google Scholar).

Climate Smart Soils Training and Education

Climate-smart soil (CSS) practices improve soil health, reduce greenhouse gas emissions and sequester carbon. Highly trained CSS personnel are needed to devise solutions that make CSS implementation a reality. Here I describe a soil-centered program to address the need for training in CSS for the Canadian agri-food sector.



Kelsey Hill, Fertilizer Canada

Kelsey Hill is the Manager of Nutrient Stewardship at Fertilizer Canada, where she is responsible for supporting the continued development and implementation of 4R Nutrient Stewardship initiatives and programs across Canada.

In her role, Kelsey works to support and promote the 4R's of Nutrient Stewardship in Canada. She supports the Policy and Programs team through coordinating the 4R Designation and Certification programs. She provides support on Provincial working groups and the Fertilizer Use Survey.

Kelsey grew up on her family's dairy, beef, and cash crop farm in the Ottawa Valley, where her passion for agriculture started. She holds a Bachelor of Agriculture Science with a major in Crop, Horticulture, and Turfgrass Science from the University of Guelph (2019) and is a CCA.

How 4R Nutrient Stewardship Programs Support Soil Health

Nutrient Stewardship (Right Source @ the Right Rate, Right Time, and Right Place®) was developed to help growers optimize crop yields and reduce nutrient losses. This presentation will provide a brief overview of the 4R Nutrient Stewardship framework but will focus on 4R agronomy programming in Canada and its impact on soil health.



Emily Robb, Manitoba, 4-H Canada

Emily resides near Brandon, Manitoba, and is pursuing Bachelor of Science in Agroecology degree at the University of Manitoba in hope of becoming a professional agrologist. She is a member of the University of Manitoba Future Leaders 4-H Club and the Westman 4-H Poultry Club, becoming the head club leader in 2022. Her dual interest for science and agriculture has been a staple in her life for as long as she can remember, primarily due to influence from her parents and grandparents. What began as a science fair project, regarding the sustainable formulation of hydroponic fertilizers which optimize biomass production, has developed into a life-long passion for strengthening food security and improving environmental integrity. This has let her develop networks domestically and internationally through the Youth Ag Summit, the Global Youth Institute, Expo-Sciences International, the Canada-Wide Science Fair, and beyond. She is a firm believer that agriculture is the backbone of society, and that crops must be utilized to grow the soil just as soil is used to grow our crops.



Brett Rumpel, Saskatchewan, 4-H Canada

Brett is from Craven, Saskatchewan and has been a member of the Longlaketon Multiple 4-H for 14 years. In addition to her many 4-H project achievements, Brett has also participated in national programs including a Going Global Exchange to Taiwan in 2018 and the Committee on World Food Security Conference in 2019. Not only does Brett have a passion for 4-H, but she is also enthusiastic about agriculture and working with children, leading her to pursue a degree in Plant Ecology from the University of Saskatchewan.



George Meggison, Manitoba, 4-H Canada

Growing up on a beef and grain farm in southwest Manitoba, George has been involved in agriculture from a young age. George is in his tenth year as a 4-H member and is currently the treasurer for the Future Leaders 4-H Club at the University of Manitoba, where he is studying agriculture. During his time with 4-H, George has had the opportunity to attend the Western Regional Leadership Summit, 4-H Canada Citizenship Congress, the York Benimaru Foundation Homestay program in Japan and much more.



Ryan Barrett, Prince Edward Island Potato Board

Ryan Barrett is the Research & Agronomy Specialist with the Prince Edward Island Potato Board in Charlottetown, Prince Edward Island. In this role, he coordinates local and national research projects with a number of different partners as well as conducting on-farm research trials with a number of PEI potato growers. Recent areas of research focus have included cover crops, use of soil building and disease suppressive crops in potato rotations, managing potato early dying complex, and management of physiological age of seed.

Ryan graduated with a B.Sc. (Agr) from the Dalhousie Faculty of Agriculture and an M.Sc. from the University of Guelph. He has worked with the PEI Potato Board since 2012 after previously working in the purebred dairy cattle industry. He continues to be involved in his family's dairy farm. Ryan is Professional Agrologist and serves as the Vice President of the PEI Institute of Agrologists. He is also a Certified Crop Advisor for the Atlantic Provinces.

Improving Soil Health on Prince Edward Island Potato Farms

Exploring producer-driven efforts to optimize crop rotations and improve soil health on Prince Edward Island potato farms. Includes on-farm research into fall cover cropping, using of soil-building and disease-suppressive rotation crops, and changes in tillage and compaction mitigation.

DAY 3

THURSDAY, NOVEMBER 18 - 12:00 P.M. – 3:00 P.M. CST

SHOWING THE PROOF



Dr. Mervin St Luce AAFC Swift Current

Dr. Mervin St. Luce is a Research Scientist in Soil Fertility and Cropping Systems at the Swift Current Research and Development Centre of Agriculture and Agri-Food Canada since 2017. His research focuses on enhancing agricultural productivity through the development of sustainable and resilient cropping systems, development of best management practices to improve soil health and resource use efficiency, and the development of science-based decision support tools. He has expertise in soil nitrogen and carbon cycling, nutrient use efficiency and the use of near infrared reflectance spectroscopy for rapid measurement of soil properties. St. Luce is the author/co-author of 30 peer reviewed scientific articles, one book chapter, and several conference abstracts and proceedings. He is also an Adjunct Professor at the Department of Soil Science of the University of Saskatchewan, and Associate Editor for the Canadian Journal of Soil Science.

Soil organic carbon: Nature, Importance, Management Impacts & Monitoring

There is great interest in increasing soil organic carbon (SOC) due to its importance for soil health, biodiversity, and climate change mitigation. This presentation will focus on the importance of SOC for healthy soils, the impact of management practices, and will highlight high-throughput non-destructive techniques for rapid and accurate measurements.



Susie Miller, Canadian Roundtable on Sustainable Crops

Susie Miller is the Executive Director of the Canadian Roundtable for Sustainable Crops (CRSC). The CRSC is a member-based organization that facilitates cross-commodity collaboration on sustainable agriculture issues and opportunities facing grains sector participants. Susie has worked extensively with the Canadian agriculture and food industry, with over 30 years of experience with Agriculture and Agri-Food Canada, government of Saskatchewan and industry associations.

How Soil Health Matters to the Market

Soil health is not top of mind when the public talk about what matters in how their food is produced. But soil health **does** matter in the marketplace: within international standards that are used for sustainability certification, as an essential contributor to GHG sequestration and within those promoting "regenerative" agriculture.

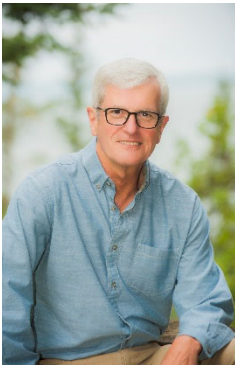


Glenn Munroe, Compost Council of Canada

Glenn is the Manager of Special Projects at the Compost Council of Canada. His work focuses on soil health and the relationship between soil and climate. Before joining the Council five years ago, Glenn was a Senior Policy Advisor to Ontario's Environmental Commissioner, where he managed the soil and agriculture file. He has an academic background in biology and environmental science and has almost 40 years experience in government, consulting, and the not-for-profit sector.

Jim Tokarchuk , Soil Conservation Council of Canada

Jim has work in the agriculture and agri-food industry in Canada for nearly 40 years, mostly in the public service with the province of Manitoba and Agriculture and Agri-food Canada, where he gained broad experience across Canada and the privilege of working with many ag professionals in all areas of the industry.



He completed a Master's Degree in Soil Science at the University of Manitoba in 1982 and since then work on many rural issues related to rural infrastructure and soil conservation to agri-environmental programs.

After retiring from AAFC in 2015 he became the Executive Director of the Soil Conservation Council of Canada (SCCC).

A Soil Carbon Roadmap