



## 2024 SOIL HEALTH CONFERENCE - BACK TO THE BASICS

### CONFERENCE SPEAKERS



**Dr. Dwayne L. Beck** is the former Research Manager at Dakota Lakes Research Farm in Pierre, South Dakota. As a professor in the Plant Science Department at South Dakota State University, he received his B.S. in Chemistry from Northern State University in 1975 and Ph.D. in Agronomy from South Dakota State University in 1983. Before beginning his current position in 1990, he was the Research Manager at James Valley Research Center at SDSU. Dr. Beck's emphasis is on developing no-till systems for irrigated and dryland areas in central South Dakota. His primary achievements deal with development of programs that have allowed producers to profitably adopt no-till techniques in a large portion of central South Dakota. Identification of the extremely important role played by crop rotation in minimizing weed, disease, and insect problems while increasing potential profitability was the key contribution of this project. The Dakota Lakes Research Farm consists of 800 acres of land of which about 250 acres is irrigated. Additional land is rented for research purposes. The entire operation is managed using no-till techniques. Dr. Beck was inducted into the South Dakota Hall of Fame in 2007.

**Presentation Title:** It's All About Natural Cycle

**Summary:** In undisturbed ecosystems, natural water, energy, and nutrient cycles develop that provide resilience and stability to the entire system. Commercial agricultural systems have been based on disrupting the natural cycles. Long-term viability will require mimicking and restoring these natural cycles.

**Presentation Title:** History of the Dakota Lakes Research Farm

**Summary:** The Dakota Lakes Research Farm is a facility created by a not-for-profit organization of local farmers. This group owns the land and most of the fixed facilities and cooperates with South Dakota State University and other research organizations to conduct pertinent applied scientific research.



**Dr. Bobbi Helgason** is a soil microbial ecologist whose research program focusses on how microorganisms affect soil functions and plant growth, particularly in agroecosystems. She received her PhD in Soil Science from the University of Saskatchewan in 2010 and was a Research Scientist with Agriculture and Agri-Food Canada and an Adjunct Professor in Soil Science from 2010 until 2018. Bobbi grew up on a grain farm near St. Gregor, Saskatchewan. She teaches soil microbiology at the undergraduate and graduate levels.

**Presentation Title:** Soil biological nitrogen cycling - why is it so complicated and what do I need to know?

**Summary:** Nitrification, denitrification, nitrogen mineralization, nitrous oxide - these are often considered specialist terms but they increasingly popping up in the media and farm policy. The goal of this presentation is to begin to demystify N cycling by thinking like a microbe.



**John Kempf** is the founder of Advancing Eco Agriculture, a plant nutrition and biostimulants consulting company. A top expert in the field of biological and regenerative farming, John founded AEA in 2006 to help fellow farmers by providing the education, tools, and strategies that will have a global effect on the food supply and those who are growing that supply. John is the host of the Regenerative Agriculture Podcast, where he interviews top scientists and growers about the science and principles of implementing regenerative agriculture on a large scale. Through intense study and the knowledge gleaned from many industry leaders, John is building a comprehensive systems-based approach to plant nutrition - a system solidly based on the sciences of plant physiology, mineral nutrition, and soil microbiology. He has a unique ability to simplify and clearly explain very complex concepts in the areas of soil and plant health. He skillfully discusses the larger social and environmental impacts of food, agriculture, and ecology. John's mission is to provide support to the world's farmers and globally impact our food supply.

**Presentation Title:** Managing Nutrition for Disease and Insect Resistance (Plant Health Pyramid)

**Summary:** Did you know plants can become completely resistant to disease and insects when nutrition is managed to enhance immune function? In this session, John Kempf will use his plant health pyramid to explain how this is possible.

**Presentation Title:** Changing Nitrogen Management to Regenerate Soil Health and Crop Performance

**Summary:** Different forms of nitrogen produce very different crop responses. In this session, John Kempf will describe how to use different forms of nitrogen to produce the greatest crop response while regenerating soil biology at the same time.

**Presentation Title:** Prioritizing Product Applications for the Greatest ROI

**Summary:** In this session, John Kempf will describe different application processes and how to prioritize them to produce the greatest and most economically rewarding crop responses.



**Troy LaForge** began his agricultural career in 2000 in Central Alberta as a consulting agronomist. He is from Swift Current where he has consulted agronomically with growers since 2003. In 2009 he and his wife purchased a farm and began LaForge Farms Ltd in the Cadillac area. He and his family work to integrate a progressive no till commodity crops and seed crops business along side of a cow/calf and farm raised beef business. He has a degree in Agriculture from the U of S. He is the head agronomist for Rack Petroleum's Ultimate Yield Management Institute (a crop consulting service encompassing six factor agronomy). His passion is for seeing success both in productivity and profitability through planning, implementing, analyzing and researching process.

**Presentation Title:** Improving Soil Quality in Semi Arid Conditions for Productivity & Profitability

**Summary:** Troy will discuss how acknowledging productive practices from industry leaders, their research and their practices has helped establish a foundation for LaForge Farms. He will also touch on how to take those foundations and apply the concepts to a low precipitation environment in South West Saskatchewan and how to choose the most efficacious tools to be productive and profitable.



**Dr. Kris Nichols** is a leader in the movement to regenerate soils for healthy crops, food, people and the planet. She is the Lead Soil Scientist with Food Water Wellness Foundation in Olds, Alberta and Research Director at MyLand Company Inc. in Phoenix, Arizona. Recently she founded KRIS (Knowledge for Regeneration and Innovation in Soils) Systems Education & Consultation, and was Senior Science Advisor with COG (Canadian Organic Growers) in Ottawa, Ontario from 2020-2022. Kris participates on the Advisory Board for the Real Organic Project; Scientific Advisory Board with the Savory Institute's – Ecological Outcome Verification (EOV) program; Scientific Advisory Board for McCain's Farms of the Future; and as a Soil Science Advisor with Health First.

Throughout her career, Kris has given over 300 invited presentations to a wide variety of audiences throughout the world, authored or co-authored more than 30 peer-reviewed publications including four book chapters, been cited or interviewed for more than 100 magazine or newspaper articles, highlighted in several books, and has numerous videos on-line. Kris is featured in the *Kiss the Ground* documentary. She was the Chief Scientist at Rodale Institute in Kutztown, PA for over three years, a Research (Soil) Microbiologist with the USDA, Agricultural Research Service (ARS) in North Dakota for 11 years and a Biological Laboratory Technician with ARS in Beltsville, MD for 3 years. Kris received Bachelor of Science degrees in Plant Biology and in Genetics and Cell Biology from the University of Minnesota in 1995, a Master's degree in Environmental Microbiology from West Virginia University in 1999, and a Ph.D. in Soil Science from the University of Maryland in 2003.

**Presentation Title:** Closing The Nutrient Loop with Biology

**Summary:** The standard approach to fertility is to apply the recommended amount to achieve a yield goal. However, in Regenerative Agriculture, producers are obtaining yields above their inputs and building resilience to fertility and climatic issues. In the Regenerative Alberta Living Lab, soil health parameters such as total and organic carbon amounts, macro- and micronutrient concentrations, and microbial community structure to determine how management impacts nutrient, water and carbon cycles to regenerate soil.

## PRODUCER PANEL



**Rob Wunder** is a fourth-generation farmer and rancher on his family farm South of Foam Lake, Saskatchewan. The farm is operated by Rob and his brother Bryce, and their wives, parents and kids all contribute significantly to the farm's success. The farm produces small grains and a cow calf herd. Pigs, laying hens, broilers and turkeys are also raised for the Wunder family's own consumption. While some of the farm is managed organically, the rest is operated regeneratively. Of the total acreage, 50% is dedicated to perennial production, with the remaining half to annuals and a selection of cash crops. Additionally, relay and companion cropping and cover crops are grown, along with biannuals and short-term perennials. To promote a sustainable system, the livestock are integrated onto as many acres as possible and AMP (Adaptive Multi-Paddock) grazing practices have been used for years - stock densities ranging from low to over two million pounds of live weight per acre. Manure from the farm, and in collaboration with a neighbor, is used to produce compost extract and teas to reduce the need for synthetic inputs. These products are used both as a foliar application and in the seed row. Applying the compost and tea has proven to be an easy, cost effective and efficient way to nourish the soil and provide the microbes and mycorrhizal fungi what they need to produce healthy, nutrient dense plants.



**Allison Squires** owns and operates Upland Organics ([www.uplandorganics.ca](http://www.uplandorganics.ca)), a family-run mixed cattle and certified organic grain farm located near Wood Mountain, Saskatchewan, Canada alongside her husband Cody Straza. The farm consists of land made up of annual crops, tame grass and native prairie and produces several high-quality crop types including pulses, cereals, and oilseeds as well as a commercial cattle herd. They have been certified organic since they started farming in 2010 and have been Regenerative Organic Certified since 2021. The focus of the farm is how to improve the health and functionality of the soils through techniques such as reduced tillage, intercropping, cover cropping, pollinator strips, compost, and rotational grazing.



**Paul Kernalleguen** is a dairy producer from Birch Hills, Saskatchewan. He grew up on a mixed farm consisting of dairy, cow/calf, feedlot and grain. He milks 115 Holstein on 2 Lely Robots (with his wife and his parents) and moved to regenerative agriculture practices 9 years ago in both cropping and grazing.