



# PRAIRIE STEWARD

FARMING FOR YOUR FUTURE ENVIRONMENT

The Newsletter of the Saskatchewan Soil Conservation Association Issue No. 73—Winter 2019

## Digging Deeper Fall Soils Tour



The SSCA hosted our first annual fall soils tour on October 29, 2019. The day began at the University of

Saskatchewan with a Soil 101 presentation by Angela Bedard-Haughn and a review of the Saskatchewan Soil Information System (SKSIS).

In the afternoon, the group braved  $-21^{\circ}\text{C}$  temperatures heading East of Saskatoon to dig deeper into Solonetzic, Gleysolic and Regosolic soil profiles.

Thank you to those who attended and we look forward to seeing you on next years tour!

## New Office Manager



Tanya Craddock joined the SSCA in August as the Office Manager. She has fifteen years of experience in the Hospitality and Tourism Industry spending time working for Sheraton Hotels and Resorts in Saskatoon, Fairmont Hotels and Resorts in Jasper, AB and Collette Vacations in

Mississauga, ON. Originally from Naicam, Tanya found her way back to Saskatchewan in 2011 and has enjoyed a change of pace working in the Agriculture Industry for the last five years. Tanya lives in Warman with her partner Bryce and three children Emilie, Jayden, and Chloe. She is thrilled to be working with the SSCA and looks forward to seeing everyone at the conference in February.

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Dr. Melissa Arcand. Photo by Gord Waldner.

## Unearthing agricultural land use on First Nations

Researcher to study land use and soil quality change in order to develop a ‘roadmap’ for First Nations agricultural lands going forward.

By Jeff Melchior

To what extent can soil tell a story to fill in gaps in history? This is what a researcher in USask’s College of Agriculture and Bioresources intends to find out.

Dr. Melissa Arcand (PHD) is launching a three-year research project with hopes of finding missing pieces of land use history on two First Nations reserves in Saskatchewan.

Using conventional soil sampling, remote sensing techniques, oral history and recorded data, the transdisciplinary research team she is leading is aiming for a more comprehensive idea of how reserve land was managed in an era when government policy—while never explicitly prohibiting Indigenous people from farming reserve land—used numerous methods to discourage them from doing so.

The ultimate goal of the *miyo mâmawi atoskewin* (“All working together in a good way”) project is to develop a “roadmap” for reserves facing land use decisions today, co-developing the tools to protect their historically based rights in the event of disagreements over how their land should be managed and by who.

“We are going to combine the use of historical soil survey data as well as soil sampling to look at some of the historical and contemporary effects of agricultural land use on agricultural capability and soil quality,” said Arcand, a soil biogeochemist with the Department of Soil Science.

She is also hoping to extend the notion of capability to include Indigenous values of the land, which go beyond strictly economic outcomes of agricultural production.

“But in order to do that we are going to have to talk to community members and access and use oral history methodologies to get the really refined detail required to make sense of the biophysical information we collect.”

Arcand is one of five USask early career researchers who have each been awarded \$250,000 over two years through a new federal fund. The New Frontiers in Research Fund has been designed to promote exploratory research that crosses disciplinary boundaries and enables researchers to take risks and be innovative.

Conflicting values between First Nations residents and non-Indigenous leaseholders have led to disagreements over land use in some communities in recent years, said Arcand.

“There have been concerns about the extent farmers are enacting best practices where it comes to preventing herbicide and pesticide drift, their use of tillage and approach to crop rotations, for example.

“We’re kind of shifting towards agriculture that may not necessarily be farmed by First Nations but is still impacting the sustainability of their land and their ability to ensure they are gaining the full economic benefits of that land.”

One challenge is historical land use arrangements that may have been made between individuals but were not necessarily sanctioned by the band.

**“It's very likely we will find little snippets of information that relate to when land was cleared or the important areas for food harvesting, hunting, and berry and root picking. All of that will be very interesting information to compute together to reconstruct that historical land use piece.”**

**- Melissa Arcand**

“Those historical arrangements can really impact the present-day conflict within a community or identify people in decision-making power. There is a lot of nuance to this and it's very complex. There is a lot of history there so it's very important to not ignore that history,” she said.

The research, which will take place on a First Nation in Treaty 4 and another in Treaty 6, will start with talking to the Chief and Council of both reserves. Both First Nations have a long and dynamic history of agriculture on their reserve lands, said Arcand.

“Our main contacts for both communities are through the lands and resources departments; the on-the-ground people who are doing the day-in and day-out implementation of land management policy.

“Through our contact with those folks we’ll get in touch with anyone who has knowledge of local agricultural land use history. Examples may include any farmers who have a good living memory of the history of the area or elders who may have stories of the time when land may have been broken for agriculture.”

Arcand would like to take the historical research as far back as she can—to the treaty signings if possible.

“Obviously there’s no one with us who would have been there but there certainly would be some elders who would have stories passed down from their predecessors. If we can start linking some of those older stories to what we see in the present day I think that would be really interesting.”

*Continued from pages 6 & 7*

She also has access to audio interviews which could provide insight into land use in both communities. “I’m working with Winona Wheeler with the Department of Indigenous Studies. She has a wealth of old audio transcripts of elders from various locations across the Prairies.

“It’s very likely we will find little snippets of information that relate to when land was cleared or the important areas for food harvesting, hunting, and berry and root picking. All of that will be very interesting information to compute together to reconstruct that historical land use piece.”

This is a subject close to Arcand’s heart. Despite government efforts otherwise, handfuls of Indigenous people have consistently farmed using European techniques ever since settlers introduced them to North America. Arcand’s family was among them.

“My parents farmed for 37 years on a conventional grain farm an hour north of Saskatoon on the Muskeg Lake Cree Nation,” said Arcand.

“Throughout my whole life I have been aware of some of the challenges that First Nations farmers face that are distinct from what the general farm population generally has to contend with.”

First Nations hold as much as four million acres of reserve land under conventional agricultural production in Saskatchewan alone, said Arcand. However, most of this land is farmed by non-Indigenous producers.

“That has been the case since the Indian Act in the late 1800s,” she said. “First Nations people took up agriculture quite quickly, quite readily and quite easily. Thinking back to the late 1800s, there were many Indigenous farmers who competed quite successfully among the broader community.”

However, a strain of policies—such as the pass and permit systems which required an Indian agent or farm instructor to sign off on transactions before Indigenous farmers could sell their produce—hampered their progress. Barriers to market entry remain today, said Arcand. Perhaps the biggest hurdle is lack of access to loans.

“Because we don’t own our own land we just don’t have the capital to use as collateral. That has been a perennial problem.”

Originally published in [Agknowledge](#), University of Saskatchewan College of Agriculture and Bioresources



## TED TALK—SOILS TELL STORIES

Angela Bedard-Haughn is a professor in the Department of Soil Science at the University of Saskatchewan and has been a director on the Saskatchewan Soil Conservation Association board since 2016. In September, she was a speaker in a Ted Talk about soils. Watch it [here](#).

## ***Guardians of the Grasslands Screenings***

By: Shannon McCarton, Saskatchewan Forage Council

*“Sometimes what you thought was the problem, is really the solution.”*

Prairie Conservation Action Plan (PCAP), the Saskatchewan Forage Council (SFC), the Saskatchewan Soil Conservation Association (SSCA) and the Saskatchewan Stock Growers Association (SSGA) partnered to host two public screenings of *Guardians of the Grasslands* in November.

*Guardians of The Grasslands* is a 12-minute documentary exploring the current state of one of the world’s most endangered ecosystems, the Great Plains Grasslands, and the role that cattle play in its survival. Produced by the Canadian Cattlemen’s Association, with Ducks Unlimited Canada and the Nature Conservancy of Canada, the film examines critical questions that society needs to ask about its relationship with the land, and with food.



Our first screening took place on November 14<sup>th</sup> in the Rex Schneider Theatre, Luther College University of Regina campus. More than 80 people attended, including special guests the Honourable Dustin Duncan, Minister for the Environment and SaskPower, who brought greetings. NDP agriculture critic, Yens Pedersen, was also in attendance. Following the screening, a panel discussion was led by moderator Jocelyn Velestuk,

President of SSCA. Panel members included Lake Alma rancher Ross MacDonald, Jodie Horvath from DUCS and Eric Lamb from the University of Saskatchewan.

On November 19<sup>th</sup>, we hosted the second screening at the historic Roxy Theatre in Saskatoon with just over 100 people in attendance. That evening’s panel included Ross MacDonald, Hanley-area bison producer Les Kroeger, Jeremy Brown, Programs Specialist with DUCS and SSCA past president John Bennett, a grain farmer and conservationist from Biggar. This panel was moderated by Clinton Monchuk, Executive Director of Farm & Food Care Saskatchewan.



Audiences at both events included a broad mix of interests, both personal and professional, that included agricultural producers, urban-dwellers, naturalists, conservationists, university students, government and agriculture industry representation. Discussion and audience participation were engaging and thoughtful and panel members continued to take questions from engaged participants well past the official programs’ end, in both locations.

Many thanks to all who took part, including our moderators and panel members, and the sponsors who made the evening possible: Saskatchewan Cattlemen’s Association, Ducks Unlimited Canada and the Saskatchewan Wildlife Federation.



# Operation Pollinator

## Multifunctional Landscapes

Submitted by: Les Henry

The pollinator project encourages planting small areas with species that will provide flowers to encourage bee population. The program is coordinated nationally by the Soil Conservation Council of Canada and in Saskatchewan the lead agency is the Saskatchewan Soil Conservation Association. The company Syngenta is also a partner and Ducks Unlimited assists with local inspections and tours.

### THE SITE

The program is best suited to small parcels of land on a corner of the field where access is difficult with large equipment. The ideal plot size is from 1 to 2 acres. My site was on the south west corner of a quarter section with a 2 acre parcel difficult to access with big equipment particularly in wet years.

### THE PLANTS

The seed is supplied and shipped direct to the farmer in two well sealed bags of 22 pounds each. The species include Timothy, Alsike Clover, Red Clover, Yellow Blossom Sweet Clover, Birdsfoot Trefoil and Phacelia.

The star of the show is Phacelia. It has very rapid germination and emergence even with limited moisture. I broadcast planted on May 31, 2018 with the weatherman suggesting more than 1 inch of rain on June 1. The June 1 rain was only 0.4 inches but the Phacelia came up shortly after even with that small amount of moisture. I planted only one bag of seed and still have one remaining for a possible future planning.



July 22, 2018 - The bees were thick in the Phacelia.

### Year 1

Year one included a good stand of Phacelia, some clovers that came later, some Timothy along with volunteer canola and various weeds. My neighbours took it to be Canada Thistle so I had to explain.

### YEAR 2

The spring of 2019 saw almost no rain in May but the yellow sweet clover had been able to root well in 2018 and produced very well in 2019 with lots of blossoms for bees. In fact, it ended up with quite a rea-

sonable possible crop of yellow sweet clover seed. However, I did not have access to the equipment required to swath and combine that seed so there will be enough there for the biennial to have seeded itself down and potentially establish a new stand in 2020. Yellow Sweet Clover shells out so cannot be straight combined.

Bees did great. A honey bee hive set up by a neighbour also produced very well.



July 6, 2019—Yellow Sweet Clover completely took over.

Continued from page 6

## PAYMENT

They project pays \$100 per acre each year of the project. That is sufficient encouragement to take the time to seed the project and watch it grow. I have found it very interesting and a great learning experience. I would recommend it to anyone with a suitable piece of ground and someone in the operation who is willing to take a bit of time to look after the project. A good job for old men like me that are not tired of a bit of work and like to learn new things.

## UPCOMING EVENTS

Jan 13-16	Crop Production Show, Prairieland Park, Saskatoon
January 13	Canaryseed Development Commission AGM, 8:30 am Hall A, Prairieland Park, Saskatoon
January 13	Saskatchewan Winter Cereals Development Commission AGM, 8:30 am, Hall E, Prairieland Park, Saskatoon
January 13	SaskWheat AGM, 12:00 pm Gallery B, C, D, TCU Place, Saskatoon
January 13	SaskBarley AGM, 2:45 pm Gallery B, C, D, TCU Place, Saskatoon
January 13	SaskFlax AGM, 3:30 pm Gallery B, C, D, TCU Place, Saskatoon
January 13	Saskatchewan Pulse Growers AGM, 4:30 pm Gallery B, C, D, TCU Place, Saskatoon
January 14-15	7th Annual Cropsphere Conference, TCU Place, Saskatoon
January 14	Saskatchewan Forage Seed Development Commission AGM, 8:30 am, Hall A, Prairieland Park, Saskatoon
January 15	Saskatchewan Seed Growers Association AGM, 12:30 pm Saskatoon Inn, Saskatoon
January 15	Saskatchewan Mustard Development Commission AGM, 8:30 am Hall A, Prairieland Park, Saskatoon
January 15	Saskatchewan Seed Growers Association AGM, 7:00 am Saskatoon Inn
January 17	Saskatchewan Alfalfa Seed & Leafcutter Bee Conference, 8:30 am Delta Hotel Downtown, Saskatoon
February 6	Saskatchewan Soil Conservation Association Conference & AGM, 8:00 am Western Development Museum
February 7	Sustainable Grain Regenerative Workshop, 8:00 am Saskatoon

## 2019 SSSA CONFERENCE SPONSOR ACKNOWLEDGEMENT

We would like to acknowledge and thank our 2019 Conference Platinum Sponsor, SaskCanola, without whose support the SSSA would not be able to host this valuable event.





By Glenn Cheater

Zoom in with Google Earth and you can count the roof vents on Angela Bedard-Haughn's office in the Agriculture Building at the U of S. But the view over her hometown of St. Brieux, 150 kilometres northeast, starts getting fuzzy at a height of three kilometres above the land.

That digital disparity is even greater below ground — something that Bedard-Haughn and other Canadian soil scientists are trying to change. Their efforts include the Saskatchewan Soil Information System ([sksis.usask.ca](http://sksis.usask.ca)), a newly launched soil database and digital mapping initiative.

This is precisely the sort of tool that humanity will need as the population heads to 10 billion on a planet undergoing climate change, says Bedard-Haughn.

"We're increasingly hearing about folks talking not just about food security and water security, but about soil security," says the 43-year-old associate dean of research and graduate studies. "Because of the role that soil plays in producing food, because of the role that soil plays in filtering and controlling the flow of water, it is critical for both of those things. Healthy, high-functioning soil is really key to the longevity of the human species."

Students of history know that — soil degradation played a big role in the collapse of ancient civilizations. Early Prairie residents knew it, too. Teams of soil surveyors spent decades methodically categorizing soil types across Western Canada. But their old maps are as lacking in detail as the fuzzy Google Earth view over St. Brieux. A 1940s-era soil survey of that area used catch-all terms (covering three or more different soil categories) to describe entire quarter sections (which cover one-quarter of a square mile).

"The limitations of mapping of that time were based on how much detail you could meaningfully show on a printed map," says Bedard-Haughn. "A lot were done at a rural municipality scale and there were all these rules of thumb in terms of how much detail you could put on there."

Detail matters. A lot.

Instead of making up names to describe different mixes of different soil types, it's now possible to pinpoint the precise location of every different type of soil in a field.

"You can then link that spatial information to hydrology, detailed information on land management, and even bring it into the precision agriculture realm," she says. "Then you can bring together GIS (geographic information system) layers to inform management decisions, do predictive modelling of change, or figure out how water might be distributed based on soil texture."

Such a database would be valuable to prospective buyers of land, priceless to those responding to a chemical spill threatening a water supply, and also help efforts to reduce greenhouse gas emissions.

"For example, you can look at wetter areas that don't produce the best yields," says Bedard-Haughn. "Rather than continue to apply nitrogen fertilizer that gets blown off as greenhouse gases or leaches into groundwater, we could look at alternative uses for those areas, such as for water retention that mitigates downstream flooding risk."

Digital mapping is also a way to leverage the data revolution taking place on today's farms.

GPS-guided tractors and combines equipped with devices such as yield monitors are collecting all sorts of information on a submetre scale. But each farm tends to be an island of data unto itself.



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"We're increasingly hearing about folks talking not just about food security and water security, but about soil security."

**ANGELA BEDARD-HAUGHN**

"You could take all that information the farmer is collecting — what inputs they applied where, their yields, any soil sampling they've done — and combine it with the soil information, and you can really tweak it," says Bedard-Haughn.

In this case, think of Google Maps. They don't just show you locations of businesses or community facilities, they act as portals to all sorts of information contributed by a host of collaborators.

*Continued from pages 8 & 9*

A digital soil database works the same way. Some contributors might tie in the spread of crop diseases or pests while others craft ways to boost carbon sequestration, mitigate flooding from major storms, or boost yields on the most productive land.

“Even if you don’t understand all the information that’s there, there are parts that folks can put into use right away,” says Bedard-Haughn. “In that sense, it’s transformative. You can start from that foundation and begin to understand how the pieces fit together by playing around with that information.”

The technology is there. It’s people who are in short supply.

The federal government once had dozens of soil surveyors but almost all are retired. And there’s no coordinated national effort as in countries like the Netherlands and Australia, world leaders in digital soil mapping. So it has fallen to scientists who volunteer for a working group set up under the auspices of the Canadian Society of Soil Science “to keep things moving forward.”

“It seems a little Wild West sometimes, but we have a loosely affiliated group of soil enthusiasts doing what they can.” The Saskatchewan Soil Information System was created by U of S researchers who started by digitizing old soil survey maps and overlaying them with satellite photos. Data collected with modern digital mapping techniques (which provide 100 times better resolution than old paper maps) and from LiDAR (light detecting and ranging) flights will be added as they become available.

As contributors upload additional data — soil profiles, photos, drone video, and documents — to the searchable database, the tool will become more and more useful. And that will only spur more people to help expand it further.

“There’s been a lot more recognition in recent years of the essential role of soils,” says Bedard-Haughn. “I’m also seeing a lot more interdisciplinary collaboration. There’s the obvious ones, such as plant or rangeland scientists, but there’s also a lot more environmental and economic collaborations.”

Given the challenges ahead, that sort of information will be in high demand.

“We need soil to be in a high-functioning state,” she says. “We need to be looking at innovations. We need to manage our soils to build them up or at least maintain them.”

Originally published in [Agknowledge](#), University of Saskatchewan College of Agriculture and Bioresources

## **SSCA STUDENT MEMBERSHIP**

For a fee of just \$10 the membership encourages students to learn about our organization and its role in Saskatchewan’s history of soil conservation, and perhaps to contribute to its future goals. This membership is available to all students at either undergraduate or graduate levels, and also allows them to attend the annual SSCA conference for the membership price offered to all SSCA members.

If you know any students who may be interested in this offer,  
please have them contact The SSCA office at (306) 371-4213

## **Why agricultural groups fiercely oppose the carbon tax**

By: Tristan Skolrud, Assistant Professor, University of Saskatchewan

When the Pan-Canadian Approach to Pricing Carbon Pollution was announced in October 2016, it was met with passionate responses, from supporters and those in opposition.

Agricultural groups were quick to dismiss the announcement, condemning the federal government for imposing costs on their operations. Farmers in Western Canada were particularly incensed. After investing in zero-tillage practices that sequester massive amounts of carbon into the soil, they were still being forced to pay a tax.

Understanding the likely effect of the tax is of course more nuanced. I've spent a significant amount of time on this issue, informing farmers and interest groups in the agricultural sector on what to expect with the new policy.

### **How much will it cost?**

Amid the cacophony of complaint, common themes have emerged. The loudest complaints are understandably economic.

Farmers produce a homogeneous product and sell into an international market. This is a perfect recipe for having zero control over the price to sell their output. This means that any additional costs incurred by farmers — from a carbon tax, for example — are difficult to pass on in the supply chain.

To make matters worse, we're far from consensus on the extent of those additional costs, especially as the federal backstop (the policy that takes effect when provinces, including Saskatchewan, don't have their own plan) has only just been implemented.

Farmers are exempt from most of the direct costs with the backstop policy, but indirect costs remain. The costs associated with the carbon-intensive transportation required to get the product to market will likely be the largest, followed by increases in heating expenses and, possibly, fertilizer.

Both sides of the debate tend to bolster their arguments by pointing to British Columbia's experience with an agricultural carbon tax. When the tax was implemented in 2008, agricultural energy inputs such as diesel were not exempt.

This naturally prompted concern about the sector's ability to remain competitive with international jurisdictions not subject to the tax — a rational, justified concern. Later, economists Nicholas Rivers and Brandon Schaufele demonstrated that such concerns were likely overblown. Perhaps the study came too late, or perhaps the political power of the farm lobby was too strong to overcome, but in 2014, the sector was permanently exempted from the tax.

*Continued from page 11*

## **Diverging strategies on the Prairies**

The bulk of Canada's agricultural production occurs in the Prairie provinces where carbon tax opposition has been fierce.

Saskatchewan is in the midst of a lawsuit challenging the authority of the federal government to impose such a tax, and several parties throughout the country have taken sides as intervenors in the case.

Alberta, overruling the objections of its farm sector, imposed its own tax in advance of the federal announcement. In designing a custom tax policy, Alberta moved to protect its agricultural sector from the direct costs of the tax while still providing incentives to cut emissions.

This level of flexibility has been removed in the latest iteration of the federal backstop, constraining provinces that have not yet adopted carbon pricing to a much narrower range of choices. Alberta's system is far from perfect, but does more than the federal policy to reduce agricultural emissions.

## **Misplaced focus?**

Neither B.C.'s progressive system, the flexible system of Alberta, nor the default federal backstop tax the largest source of agricultural greenhouse gas emissions. In 2016, agriculture accounted for 8.5 per cent of Canada's emissions, and of that, carbon dioxide only accounted for four per cent.

Nitrous oxide (48 per cent) and methane (48 per cent) make up the rest. Both are potent greenhouse gases. Preventing the emission of one kilogram of nitrous oxide can be much less costly than preventing 300 kilograms of carbon dioxide.

But a well-understood fact from environmental regulation suggests that an optimal policy induces change at the lowest possible cost. Taxpayers benefit more from greenhouse gas reductions that cost \$15 per kilogram compared to those that cost \$30.

The current federal policy does not facilitate this lowest possible cost arrangement, nor was it designed to. The idea was for each province to construct a plan suited to its economy and energy generation sources, not to act as a one-size-fits-all for a country as diverse as Canada.

For provinces with large agricultural sectors, the lowest-cost option for reducing greenhouse gas emissions may very well be in agriculture. But the political strength of the sector makes such policies difficult to envision.

Can Canada reach its climate goals without incentivizing meaningful emissions reductions in agriculture? Perhaps in the first few years of the policy. But for the most cost-effective reductions, we need agriculture to play a role.

Story from [theconversation.com](http://theconversation.com)



## Members in the News

Saskatchewan farmers are doing a tremendous job to reduce greenhouse gas emissions. Our member, John Bennett, was interviewed by CBC about a new report by the International Panel on Climate Change that says the global food system is taking too high a toll on the land. Watch [here](#) to see what John says.

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Check out this [article](#) on 4R Nutrient Management. Jocelyn Velestuk, President of the SSCA, speaks to about fertilizer use on her family farm.

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This [article](#) in The Star about how Saskatchewan farmers are preparing for climate change highlights a few of our members: Tannis & Derek Axten and Garry & Lynn Richards.

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This [article](#) in the Western Producer profiled members Allison Squires and Cody Straza and their farm, Upland Organics.



The SSCA is a collaborator in the Smart Soils program to train people on soil carbon sequestration. Soil is an important carbon sink, especially in Saskatchewan. Check out more about this program at [smartsoils.ca](http://smartsoils.ca)

## 2016 SSCA Board of Directors

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### 2020 SSCA CONFERENCE SPONSOR ACKNOWLEDGEMENT

We would like to acknowledge and thank our 2020 Conference Platinum Sponsor, General Mills. Without their support, the SSCA would not be able to host this valuable event.

[www.ssca.ca](http://www.ssca.ca)

[www.prairiesoilsandcrops.ca](http://www.prairiesoilsandcrops.ca)

[www.reducedtillage.ca](http://www.reducedtillage.ca)

SSCA's mission is "to promote conservation agriculture systems that improve the land and environment for future generations."

SSCA's vision is "to be the recognized driver and facilitator of change that leads to conservation agriculture being practiced on prairie agriculture land."

Disclaimer: The opinions of the authors do not necessarily reflect the position of the Saskatchewan Soil Conservation Association.



# Adaptive Soil Management on Your Farm

The 32<sup>nd</sup> Annual Conference of the  
Saskatchewan Soil Conservation Association

**Thursday, February 6, 2020**

**Western Development Museum – Saskatoon**

## AGENDA

8:00 am	<b>Registration Opens</b>
8:45 am	<b>Welcome and Opening Remarks</b>
9:00 am	<b>Managing the Soil Microbiome</b> Dr. Bobbi Helgason, Associate Professor, University of Saskatchewan, Saskatoon, SK
9:30 am	<b>The Prairie Soil Carbon Balance After 21 Years</b> Dr. Brian McConkey, Chief Scientist, Viresco Solutions, Victoria, BC
10:00 am	<b>Monetizing Regenerative Agriculture</b> Brenda Tjaden, Founder, Sustainable Grain, Oakbank, MB
10:30 am	<b>Refreshment and Networking Break</b>
10:45 am	<b>Keynote Speaker: Integrated Nitrogen Management</b> Joel Williams, Educator/Consultant, Integrated Soils, Toronto, ON
12:05 pm	<b>Luncheon</b>
1:00 pm	<b>Soil Health</b> Yamily Zavala, Soil Health & Crop Management Specialist, Chinook Applied Research Association, Oyen, AB
1:30 pm	<b>Improving the Soil With Polycrops and Bison</b> Avery Shepherd, Producer, Sunset Bison Ranch, Livelong, SK
1:50 pm	<b>Observations &amp; Learning Experiences</b> Lynn & Sherry Grant, Producer, Val Marie, SK
2:10 pm	<b>Trying to Improve Soil On My Farm By Adding A Little Chaos</b> Tyler Wilson, Producer, TPot Farms, Admiral, SK
2:30 pm	<b>Producer Panel</b> Moderated by Cody Straza, SSCA Board Member
3:00 pm	<b>Refreshment and Networking Break</b>
3:15 pm	<b>Carbon Storage and Cycling in Rangelands of the Canadian Prairies</b> Cameron Carlyle, Associate Professor, Rangeland & Ecology, University of Alberta
3:45 pm	<b>Wrap-up</b>
4:00 pm	<b>SSCA AGM</b>

## CONFERENCE HOTEL

Home Inn & Suites—Saskatoon South  
253 Willis Crescent

To book your room, please call the hotel at (306) 657-4663

Classic Room—\$129/night + tax (2 queen bed)

King Room - \$129/night + tax (1 king bed)

All rooms have a fridge, microwave, and free breakfast

Special rates are available for upgraded rooms.

We have a block of rooms held under Saskatchewan Soil Conservation

Association until January 11, 2020

## KEYNOTE SPEAKER

### JOEL WILLIAMS—INTEGRATED SOILS



Joel Williams is an independent plant and soil health educator, a healthy soils advocate and presenter on soil biology, plant nutrition and agroecological farming systems. Joel has a Bachelor of Agricultural Science specialising in plant and soil dynamics and has a keen interest in managing plant diversity, soil microbial ecology and plant & soil nutrition to optimise soil function and crop immunity. He has a passion for teaching and sharing both scientific and practical information and has lectured to farming audiences internationally.

**Integrated Nitrogen Management:** Joel's presentation will explore the opportunities to improve nitrogen use efficiencies via integrating multiple strategies when managing nitrogen fertility for crop production. We will outline the opportunities to use organic-N, foliar-N, N-fixation and N-sharing via intercropping all of which, can help reduce dependency on N inputs. In order to optimize this integrated approach, producers require an understanding of the mechanics of how nitrogen is absorbed and metabolized in the plant, how it behaves in the soil, how it is fixed from the atmosphere and how it is transferred from legumes to non-legumes all of which, will be outlined

## SPEAKERS

### Managing the Soil Microbiome

Dr. Bobbi Helgason – Associate Professor, University of Saskatchewan

Bobbi Helgason is a soil microbiologist 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 from 2010 until 2018 when she joined the University of Saskatchewan. Her research program focusses on how soil microorganisms interact with climate and agricultural management practices to affect soil functioning and crop productivity.



### The Prairie Soil Carbon Balance Project After 21 Years

Dr. Brian McConkey – Chief Scientist, Viresco Solutions

Dr. McConkey is Chief Scientist with Viresco Solutions, consultants in low carbon and sustainable agriculture. Prior to joining Viresco as an associate, Brian was with Agriculture and Agri-Food Canada for 33 years. His work with Agriculture and Agri-Food Canada included research on soil and crop processes, sustainability metrics to support policy and marketing, and development of the national research strategy on agri-environmental research. Dr. McConkey is an expert on methods to quantify carbon sequestration and greenhouse gas emissions at national and international scales and has been lead author on three methodological reports of the Intergovernmental Panel on Climate Change (IPCC). Dr. McConkey has been involved with the Prairie Soil Carbon Balance Project since its inception in 1996.



### Monetizing Regenerative Agriculture

Brenda Tjaden – Founder, Sustainable Grain

Brenda Tjaden has a long history helping western Canadian farms respond to emerging profit opportunities in growing and marketing their crops. In the process of founding Sustainable Grain, Brenda spent the past 3 years researching sustainability protocols and the organic value chain, their opportunities and vulnerabilities. She also pursued an education in soil health and regenerative agriculture and continues to build out her network in this field.



### What is Soil Health in a Nutshell?

Dr. Yamily Zavala – Soil Health & Crop Management Specialist, Chinook Applied Research Association

Dr. Yamily Zavala has managed the Chinook Applied Research Association's crop and soil program for the past six years. Prior to joining the CARA staff, she was a crop production consultant based out of Ottawa where project work took her to Central and South America as well as points in the south and west of Africa. Early in her career, Yamily was a Soil Scientist for the National Agricultural Research Foundation at the Táchira State Research Center in Venezuela. She earned a PhD in Soil and Plant Nutrition from Cornell University.





### **Carbon storage and cycling in rangelands of the Canadian Prairies**

Cameron Carlyle—Assistant Professor, University of Alberta

Cameron Carlyle is an associate professor of rangeland ecology in the Department of Agricultural, Food and Nutritional Science at the University of Alberta. Cameron’s research focuses on ecosystem goods and services in rangelands. The aim of all his research is to support grassland conservation, increase sustainable beef production and improve our understanding of the ecological processes in these systems. Cameron also does research on climate change, native bees, ants, invasive plants, grassland reclamation, and agroforestry. He teaches courses on rangeland conservation and plant ecophysiology.

## **PRODUCER PANEL**



### **Improving the Soil with Polycrops and Bison**

Avery Shepherd—Livelong, SK

Avery runs a small bison cow/calf operation in North West Saskatchewan with his wife and two girls. With the realization of how degraded their farm was, they quickly switched the focus of the farm to restoring the soils, while building a low input, profitable farm. The results are exciting, and the future is looking great.



### **Observations & Experiences**

Lynn & Sherry Grant—Val Marie, SK

Lynn & Sherri Grant operate a mixed grass, hay and cattle operation at Val Marie with their family and Lynn’s brother, Dean. The Grant’s have farmed and ranched in Southwest Saskatchewan for over 40 years and since 1986 have been experimenting with various grass management strategies. These include – intensive planned grazing, rejuvenation of native & old seeded pastures, solar watering systems, and electric fencing. They have converted grain land to forage for both grazing and hay production and is continually working on improvement.



### **Trying to Improve My Soil By Adding a Little Chaos into The Farm**

Tyler Wilson—Admiral, SK

Tyler farms with his wife, their 3 boys, his cousin and his mom. They grow oats, flax, lentils, chickpeas, peas, durum, fall rye, corn and canola. They also grow perennial forages in their rotation for grazing and hay, annual mix’s for summer and fall grazing, green feed and swath grazing and corn for winter grazing. They also have a herd of 100 commercial bred cows. They compost all of their manure and spread it back on cultivated acres. They have used these methods as well as cover crops, companion cropping and intercropping to help build the health of their soil.



# Adaptive Soil Management on Your Farm

The 32nd Annual Conference of the  
Saskatchewan Soil Conservation Association

**Thursday, February 6th, 2020**

**Western Development Museum – Saskatoon**

## REGISTRATION FORM

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Additional Names \_\_\_\_\_

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Early Registration	\$ 40.00	
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Non-Members:		
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<b>Total Payment:</b>		\$

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