

In January 2023 the Ontario Soil Network (OSN) hosted a multi-day webinar series entitled *Social Networks for Healthy Soils* which brought together practitioners, researchers, producers, and individuals interested and working in the areas of behavioural change and influencing innovation adoption. The goal of these webinars was to engage in meaningful learning and conversation to create our own community of practice and generate best management practices for adoption. To continue to learn about the impacts of social and behavioural factors and how we can use them more intentionally to develop new partnerships and collaborations. This series featured four speakers: Dr. Damon Centola, Professor of Communication, Sociology, and Engineering at the University of Pennsylvania, Dr. Julia Baird, Associate Professor in Environmental Sustainability Research Centre and the Department of Geography and Tourism Studies at Brock University. Dr. Tongzhe Li, Associate Professor, Director, FARE Laboratory for Experimental and Applied Economics at the University of Guelph and Dr. Erin Nelson, Assistant Professor in the Department of Sociology & Anthropology at the University of Guelph.

The question of how or what changes a person's behaviour has been around forever. Historically, the most common belief has been that change spreads like a virus. With one person getting 'infected' and passing it on to another. Depending on the reach of individuals, and the stickiness of the change, an individual could reach hundreds of others, and this is where 'influencers' have grown in popularity. Generally, when we think about how to change or influence a person's behaviour we talk about incentives, often financial or a threat/punishment. The adage of the carrot and stick approach is often what comes to mind when describing this idea of incentives or threats to alter behaviour. However, Dr. Centola has a different perspective when discussing behavioural change and states that it is important to realize that we are not only looking at one individual but rather a person who is embedded within a larger population. Therefore, understanding an individual's thought process or behaviour does not allow you to predict or understand the behaviours of the many. Likewise seeing a specific set of behaviours in a population does not allow you to get a complete understanding of what factors would alter these collective behaviours. Dr. Centola has taken this approach to his study of social sciences by focusing on understanding populations rather than individuals.

Coming back to the virus metaphor mentioned earlier, the problem with this idea is that significant change requires change to an individual's beliefs and behaviours. When you are exposed to new behaviours, or to a new idea, you don't automatically adopt it. You actually need to make a decision to ignore or adopt the new behaviour. These changes are called *complex contagions*, as compared to the virus-metaphor which is a *simple contagion*. The 'Black Lives Matter' (BLM) movement is an example of a *complex contagion*, gaining traction only in 2015, despite the #BlackLivesMatter having been used since about 2012. It was in 2015 when the numerous groups that were in conversation about BLM really started conversing with each other that we began to see widespread uptake of the BLM movement. This concept is what Dr. Damon Centola calls *wide bridges*. Another key insight that Dr. Centola shared is that meaningful change starts on the periphery, in what he terms 'neighbourhoods'. These changes that take place

in the periphery are not immediately apparent, and it takes time for this change to become mainstream. This strategy is not surprisingly called the *snowball strategy*.

There are seven useful strategies of change that emerged from Dr. Centola's presentation:

1. Don't rely on contagiousness – significant changes do not spread like a virus. Relying on the virus metaphor as it relates to change will not result in changes to behaviours or long-lasting meaningful change.
2. Protect the innovators – innovations that face entrenched opposition can work if the innovators have less exposure to the entire network. Target the clusters in the network periphery, where they can reinforce one another without being overwhelmed by countervailing influencers.
3. Use the network periphery – influencers can be a roadblock to change, being connected to large numbers of people conforming to the status quo. People in the periphery are less connected, and therefore less likely to be impeded or stopped by countervailing influences.
4. Establish wide bridges – redundancy is required between groups to establish trust, credibility, and legitimacy. This is the concept of wide bridges and helps to facilitate behavioural change shifting from one group to another.
5. Create relevance – this relies on understanding the change: if proof is required, then similarities between adopters are key; if excitement needs to be generated, then similarity is again key; when legitimacy is required and the behaviour needs to be widely accepted, then diversity among groups is required.
6. Use the snowball strategy – target those special places in the network where you can create small pockets of legitimacy, where the early adopters can reinforce one another. To be effective, you firstly need to understand the network, and secondly also target groups which can bridge to other groups.

Dr. Julia Baird, Associate Professor in Environmental Sustainability Research Centre and the Department of Geography and Tourism Studies at Brock University shared with us her work in network mapping where we learned how to “see” change. Dr. Baird shared some of her methods in mapping a network as well as some interesting results from studying the Phase 1 approach with the Ontario Soil Network. Dr. Baird's research with the Ontario Soil Network looked at creating a network map based on a community of practice. A community of practice is a “group of people who share a concern, a set of problems, or a passion for a topic and who deepen their knowledge and expertise in this area by interacting on an ongoing basis”<sup>1</sup> (p.4).

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<sup>1</sup> Wenger, E.C., & Snyder, W. (2002). *Cultivating Communities of Practice: A Guide to Managing Knowledge*.

Dr. Baird notes that communities of practice are important because they not only foster cognitive, normative, and relational learning they can also lead to practice change either through expansion of an existing practice or new adoption. Both learning and practice changes are interconnected. Dr. Baird discussed her research examining the Ontario Soil Networks Leadership Challenge and took a network-based lens approach to look at the community of practice within the OSN. Dr. Baird conducted a network analysis which studies how organizations and people are connected and looks at a range of different types of connections. To do this she surveyed OSN Leadership Challenge participants using both pre-Leadership Challenge and post-Leadership Challenge surveys. Some results Dr. Baird shared were that when comparing from pre to post, there was an increase in the number of connections across the network and those connections became more dense over time. This research also saw a shift in practice change over time with density increasing from 0.07 to 0.11 and the centralization score decreasing, which means that the connections between members became more evenly distributed and that these members influenced on one another in a more reciprocal way. Dr. Baird's results also showed a change in people's motivations, with a decrease in personal farm benefits and an increase in societal benefits. Overall, the research showed that pre-OSN there were no associations between communication ties and practice change while post-OSN there were associations between the communication ties and practice change ties, meaning that Leadership Challenge participants were likely influencing one another. The full article of Dr. Baird's research can be found here<sup>2</sup>.

Dr. Tongzhe Li, Associate Professor, Director, FARE Laboratory for Experimental and Applied Economics at the University of Guelph shared her research on behavioural economics and willingness to pay. Dr. Li provided an extensive explanation on her process in experimental behavioural methods and how you can elicit an individual's social norms, barriers, and biases better through experimental models as compared to asking them directly. Dr. Li shared the results from her 2022 field experiment examining how information and messengers affect farmers' cover crop adoption. The study was conducted at Canada's Outdoor Farm and had farmers bid against a computer on four different types of cover crops seeds. The experiment was structured in a way that participants received a message from one of six messengers; scientists, policy makers, non-profit organizations, fellow farmers, and private companies either with a public or private appeal, or a control with no message presented. After seeing this message participants were asked to place a willingness to pay bid on a product and the computer generated a random "market price". If the "market price" is lower than the participants willingness to pay bid then the participant gets the product at the "market price" however, if the "market price" is higher than the participants bid then they do not receive the product, nor do they pay for it. The results from this experiment show that farmers bid higher in both a public and private framing when information was shared from a non-profit messenger, whereas messages from scientists in both a public and private framing resulted in a significant reduction

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<sup>2</sup> [Full article: Longitudinal Network Analysis on a Farmers' Community of Practice and Their Changes in Agricultural Systems Management \(tandfonline.com\)](#)

in farmers willingness to pay for cover crop seeds. Scientists were the only messengers that decreased both farmers likelihood of placing a bid as well as decreased farmers actual bid when they did decide to bid. The main results that emerged from Dr. Li's experiment was that identical messages attributed to non-profit organizations increased farmers' average bid by 4.6% while those attributed to scientists decreased the average bid by 14.2% both compared to the control group.

Finally, we heard from Dr. Erin Nelson, Assistant Professor in the Department of Sociology & Anthropology at the University of Guelph who shared her research on social networks and their impact on soil health. Broadly speaking Dr. Nelson's work focuses on the development of sustainable food systems and she has approached this from multiple angles. For this seminar Dr. Nelson shared with her Social Networks for Healthy Soils project, which was a collaboration with the Ontario Soil Network, Ecological Farmers Association of Ontario (EFO) and Ontario Soil and Crop Improvement Association (OSCIA). This project took a participatory approach to evaluate three Ontario based peer learning programs using tools such as developing a logic model, online surveys, interviews and best practice reviews. During the collaborative planning phase of this project, it was found that there were multiple shared goals across all the programs studied, these were growing and changing social networks, improving best management practice knowledge, increasing confidence/motivation and increasing capacity. Dr. Nelson shared some of her preliminary results of the research she did with the Ontario Soil Network which included data from 49 online surveys and 10 qualitative interviews. The main findings were that the Ontario Soil Network programming allowed participants to increase their confidence, support others in a greater capacity, increased motivation and helped them work towards improving their own soil health. Participants also stated that being a part of the OSN improved their connection with farmers in their area, other farmers across Ontario as well as across the sector.

In the second part of the webinar series, we conducted a group activity to collectively digest and discuss our learnings. The exercise used to facilitate this activity is called Purpose to Practice from Liberating Structures developed through the work of Henri Lipmanowicz and Keith McCandless. The goal of this activity is to design the five essential elements needed to develop a resilient and long-lasting initiative. This activity brings together a group of stakeholders that work together to build and structure the elements that will determine the success of their initiative. To accomplish this, we began with a shared purpose which was to define the best networking practices for soil health. We then broke up the larger group into smaller groups of 2-4 people and had them work on generating the principles, people, structures, and practices needed to accomplish our purpose. Some individuals who participated in this process have given permission for their names and short bio's to be included in this report:

1. Luke Struckman is an independent consultant whose work focuses on environmental and knowledge exchange projects for improving the profitability and sustainability of field crops. His work and expertise are largely situated in the Canadian Prairie provinces and U.S. Plains states. Luke has collaborated on projects with organizations like the International Institute of Sustainable Development, Sustainable Food Lab, the

Saskatchewan Soil Conservation Association, and The Ontario Soil and Crop Improvement Association.

2. Scott Hortop is retired and produces Johnson-Su fungal dominant compost from leaves from the Town of Almonte. He is a facilitator and works with Farm Working Group of Climate Network Lanark, the main project he focuses on is promoting adoption of cover cropping in Lanark County.
3. Heather White is the Knowledge Mobilization and Communications Coordinator at Soils at Guelph. She has 20 years of experience in bringing people together to share knowledge, seek common solutions, and have fun doing it. She has worked in the fields of soil, water and nutrient research, environmental education, and grass-roots community development. With roots in the rural ag-community of Chatham-Kent (ON), Heather's academic background is in Environmental Science, and more recently Capacity Development and Extension. Heather currently lives in Guelph with her spouse, 3 children, and a variety of family of pets.
4. Joséphine Gantois is a current postdoc and incoming assistant professor at the University of British Columbia, across the Institute for Resources, Environment, and Sustainability, and Food and Resource Economics. Through interviews with farmers and quantitative modeling, she currently explores whether retiring unproductive crop field zones and creating semi-natural habitat in its place, could be compatible with achieving both private farmer goals and agriculture sustainability goals in Southern Ontario.

The chart below summarizes the main points brought up for each element during the group discussion.

**Purpose Statement:** Best Networking Practices for Soil Health

This exercise, and resulting key points identified within the chart, provided an amazing experiential opportunity for all involved. The process of brainstorming ideas with a group of diverse and engaged agricultural professionals is challenging, as well as invigorating; just like the development and evolution of networks – those relationships that help to widen the bridge and draw in those from the periphery. This chart may provide a ‘jumping in’ framework for discussions intending to increase or expand social network and social capital activities within individual communities. Utilizing the points noted within each section may help to generate meaningful conversations and provide a foundation from which to intentionally develop new best networking practices to cultivate social networks.

<b>Principles</b>	<b>Participants</b>
<ul style="list-style-type: none"> <li>- Build capacity and latitude for soil health agronomists in the Western Canada.</li> <li>- Need to create a network that is geographically (regional) suited.</li> <li>- The organization needs to appropriately match the demographic it is trying to reach, situationally and geographically appropriate.</li> <li>- The underlying organizations/origins of the network need to be appropriately matched to the project.</li> <li>- Relevance and similarity between network actors and the ties of the organization.</li> <li>- Geography (spatial) – soil health the spatial approach is important and, in the case of Luke’s project agronomists are working in specific areas and translating practices into local contexts.</li> <li>- Importance of developing within a local context or having locally contextual materials.</li> <li>- What is their reach? – still to be determined.</li> <li>- Reach – not easy to succeed as an independent agronomist – if this person is successful farmers will often look to them as trusted sources of advice and it establishes legitimacy. Seen as trusted advisors and as experts.</li> <li>- The independent agronomist is seen as a leverage point – lots of social capital and method of reach would be a ‘fire work’ – they do not work in the periphery – how can we combat or augment this?</li> <li>- Capital – would have to build solid base of information (not a fancy talking influencer but only as good as the advice they have given).</li> <li>- Principle – push the importance of them as a compiler of farmer experiences and representing multiple experiences not just an influencer.</li> <li>- Layered with producers being able to connect with one another not always having to go back to the advisor (connecting people to other farmers).</li> <li>- What other peer-to-peer networks can be used to promote soil health practices?</li> <li>- Retail agronomist – selling and not independent in giving advice.</li> <li>- Principle – transparency.</li> <li>- Know your audience.</li> <li>- Relevant.</li> <li>- Audience guided.</li> <li>- Learner-led.</li> <li>- Inclusive.</li> <li>- Receptive.</li> </ul>	<ul style="list-style-type: none"> <li>- Project dependant.</li> <li>- Local actors.</li> <li>- Farmers showcasing to other farmers.</li> <li>- Local farmers.</li> <li>- Local organizations.</li> <li>- Researchers.</li> <li>- KTT experts.</li> <li>- Advertising – agricultural retailers, farm consults, CCA.</li> <li>- OMAFRA.</li> <li>- Conservation Authorities.</li> <li>- Local media.</li> <li>- Family members involved and invited.</li> <li>- Mennonite communities and reaching out to their leaders.</li> <li>- Periphery and wide bridges – family-friendly events and not always inviting people through an organization but rather because they are in the same county that can enable the peripheral actors to create wide bridges.</li> <li>- Gathering enough to create a wide bridge.</li> <li>- Neighbourhoods.</li> <li>- Players with common objectives.</li> <li>- Farmers themselves – try to understand the crowd and offer different points of entry – inclusion, what speaks to people.</li> <li>- Know your audience.</li> <li>- Tapping into communities defining themselves and how they want to do something based on their needs – this needs to be self-determined based on capacity and their community (natural means of creating accessibility).</li> </ul>

<ul style="list-style-type: none"> <li>- Researcher KTT should be partnered with organizations.</li> <li>- Create Wide bridges</li> <li>- Measure network change</li> </ul>	
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<p><b>Structure</b></p> <ul style="list-style-type: none"> <li>- Structures that enable change and where does control lie and who has the power?</li> <li>- How do we want to see power in our network?</li> <li>- Create a structure that is anchored in our purpose – we know who we are.</li> <li>- The role of the network – facilitative and responsive guidance.</li> <li>- Flexible, nimble, and porous.</li> <li>- Take in information and localize knowledge.</li> <li>- Maintain our purpose but can shift with its participants and network.</li> <li>- Two parts of decision-making – social, technical, information – does the structures allow for information to move in and out?</li> <li>- Belonging and space to act.</li> <li>- Acknowledge what stage people are at and have those different actions captured.</li> <li>- Protect and build your structure but also allow it to be to fed.</li> <li>- Principles laying on to shift and interconnected roles.</li> <li>- Porous - Not top down and it can be responsive to ideas and people.</li> <li>- Not to fixed in own structure and inward facing – able to bring people in and out based on time and role.</li> <li>- Structure needs to be light and not heavy – not too defined and allows for changing context.</li> <li>- The periphery needs to be identified</li> </ul>	<p><b>Practices</b></p> <ul style="list-style-type: none"> <li>- Adult learning – problem centered.</li> <li>- Farmers sometimes have common challenges (erosion, water, soils) – identify a commonality and build the group around the common problem and bring people together to strategize and share, disseminate.</li> <li>- Creating those light atmosphere to the gathering – conversations happen organically – have some structure to start and let it be flexible after.</li> <li>- Not so structured in the events that are planned.</li> <li>- Having people in networks that have the technical ability to share.</li> <li>- Create support structure with knowledgeable people – technical and maybe financial assistance.</li> <li>- Creating events around a niche topic can be great but challenging – may have a very small turnout but also can lead to great conversations as well.</li> <li>- Social.</li> <li>- Learner-led.</li> </ul>
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