Ecological Farming in Ontario

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EFAO
ECOLOGICAL FARMERS ASSOCIATION OF ONTARIO

Envisioning a Canadian Farm Resilience Agency

Perennials for the Dinner Plate

Tillage Reduction for Vegetables & Field Crops

CLASSIFIEDS

Surplus Equipment For Sale from EFAO's Living Labs – Ontario Research Trials

John Deere 2 row vacuum MaxEmerge Plus 3PH planter (wavy) - $3200
No-till coulters. Variety of plates. Standard and Crumbler closing wheels for no-till. Quick adjust down pressure.

JGB Water Wheel Transplanter TR7500 – $3500
3PH. 2 planting wheels. 150 gal water capacity. Extra weights on water wheel for no-till. Nolt no-till attachment for above transplanter. Set up for single row in bed – 2 wavy coulters on hydraulic cylinder – makes 3PH transplanter into trail type. Both new in 2022, used very little.

Contact Ken Laing for more information or to view the equipment: kmlaing@orchardhillfarm.ca or 519-775-2670.

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On the cover
Joshua Noiseux with his daughter, Ida, and their flock of chickens. Josh and his wife Janita Wiersma run Evermeadow Farm in Cobourg.

Photo courtesy of Fair Finance Fund.

EFAO
ECOLOGICAL FARMERS ASSOCIATION OF ONTARIO

What We Do

Established in 1979 by farmers for farmers, the Ecological Farmers Association of Ontario (EFAO) is a membership organization that focuses on farmer-led education, research, and community building. EFAO brings farmers together so they can learn from each other and improve the health of their soils, crops, livestock, and the environment, while running profitable farm businesses.

Vision

We envision an Ontario where thriving ecological farms are the foundation of our food system, and where agriculture protects our resources, increases biodiversity, mitigates climate change, and cultivates resilient, diverse, equitable communities.

Mission

EFAO support farmers to build resilient ecological farms and grow a strong knowledge sharing community.

Ecological Farming In Ontario

Ecological Farming in Ontario is published quarterly by EFAO as a benefit of membership to help keep farmers and supporters informed and in touch with one another through articles on relevant farming topics, current farmer-led research, upcoming events, and other news of interest.

Ecological Farming in Ontario is printed on Rolland Enviro-100 paper, which contains FSC certified 100% post-consumer recycled fibres. Back issues can be found on EFAO's website (efao.ca) or are available upon request. Unless otherwise noted, articles may be reprinted or adapted if credit is given.

For information about advertising please visit efao.ca/sponsorship-ads

Deadline for Fall 2023 issue: July 15th.

Help make *Ecological Farming in Ontario* a farmer's journal! Submit articles, photos, opinions and news to the editor, Laura Northey, at editor@efao.ca. We reserve the right to edit submissions for space and/or clarity.

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Dear Members and Friends,

A big thank you to everyone who attended EFAO's April Annual General Meeting. It was a wonderful opportunity to hear the entire staff team share progress and learning from our various programs and activities over the past year. Below is an excerpt from the 2022 Annual Report. We hope you take a moment to look through the entire report, which is full of program results, beautiful photos, and inspiring stories.

For EFAO 2022 was a year of steady growth and development as we built upon existing programs and activities thanks to leadership and engagement from our members and strong organizational partnerships. Significant milestones included: the return of field days and in-person regional gatherings as part of our annual conference, securing four years of funding from the Weston Family Foundation to continue the Small Grains Program, and welcoming a host of wonderful new board members.

We continued to collaborate with Ignatius Farm, Everdale and National Farmers Union – Ontario on new farmer programming. We were thrilled to launch a Seed Demonstration Garden in partnership with the Bauta Family Initiative on Canadian Seed Security, and to support a series of field days offered through the Toronto Farmers Network. And we were inspired by the work that EFAO farmer-researchers led through the Living Lab – Ontario initiative, in partnership with the Ontario Soil and Crop Improvement Association and a host of other farm groups. This magazine issue includes two articles that summarize the work done by Ken Laing and Brett Israel over the past three years, through this collaboration.

Farmers for Climate Solutions (FCS) continues to be a model for what can be accomplished through partnership and collaboration. Now a coalition of 27 organizations from across Canada, FCS made significant inroads into influencing climate-friendly policy and programs in 2022, with the creation of the federal government's On-Farm Climate Action Fund and the launch of the Farm Resilience Mentorship Program (FaRM). Both Ali and Brent participated on the FCS board of directors over the past year.

Membership continued to grow this year, and with 982 members we have almost reached our 2025 goal of doubling membership to 1000. Particularly notable is the continued growth of the BIPOC Farmer Network, which now has 150 members, and has been a catalyst for new relationships and collaborations, and which constitutes a tangible outcome for Black, Indigenous and other farmers of colour as a result of EFAO's anti-racism, equity and belonging work over the past few years.

The EFAO staff team remained stable with 10 year-round team members and two additional members coming on in the fall to support conference planning. EFAO is very fortunate to have such a dedicated, skilled, and team-oriented group of people facilitating our work.

We are very grateful and proud of all the farmer-led education, research and community building that has taken place this year thanks to your engagement and support.

With much appreciation,

Brent Preston,
Board President

Ali English,
Executive Director

p.s For those who couldn't make it but are interested, the AGM was recorded. Please contact the office (admin@efao.ca) if you would like to view the recording.

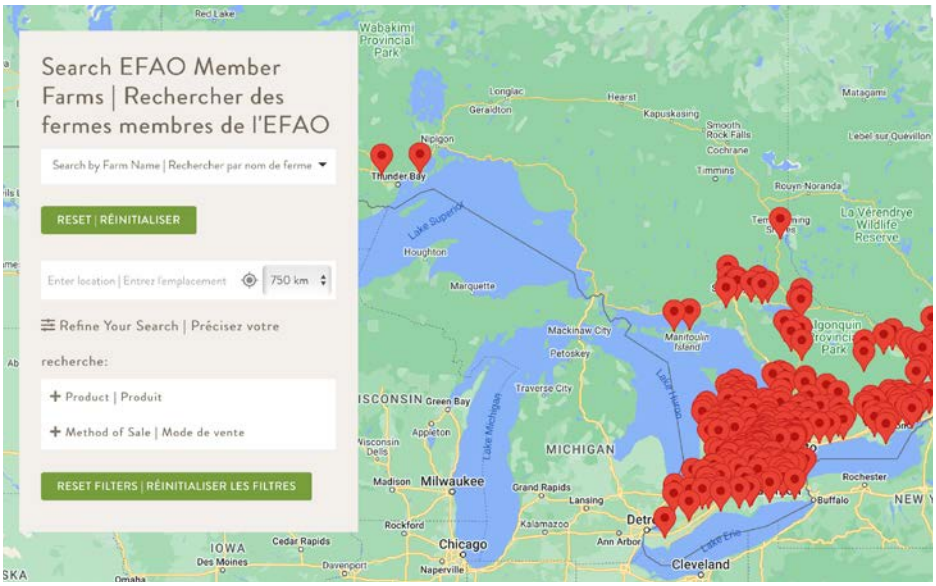
Save the Date: 10th Annual EFAO Conference, Nov. 29 & 30, 2023

2023 marks the 10th year of EFAO's beloved annual conference! To mark this significant milestone, the conference will return to a 100% in-person format. This was not an easy decision for the team to make, as it is clear that the accessibility of online conference sessions is greatly valued by many members. To meet that demand, our hope is to ensure that a wide array of online educational offerings are provided outside of the context of the conference, throughout the calendar year.

We look forward to celebrating 10 years of the EFAO Conference with many of you in person! ■

Member Directory & Map

Active EFAO members can now place a listing in EFAO's brand new member directory! Visit efao.ca/directory to see who your EFAO neighbours are, and make sure you are happy with your listing. To update your listing, you can log in to your EFAO member account and select the option, "Update member map details."



Welcome Saroja!

EFAO is very pleased to welcome the wonderful Saroja Coehlo in the role of Conference & Events Manager! Saroja is joining EFAO for the year, as EFAO's Education Manager, Cassie Wever, is currently on parental leave. Saroja holds a B.A. Hons in Political Science and Biology from the University of Toronto and a diploma from the New York Film School in Broadcast Journalism. She spent ten years reporting for CBC, Deutsche Welle, BBC and NPR on environmental and social issues, particularly food and farming in Europe and Asia. When she isn't connecting with farmers for an exchange of ideas on the future of food, she is a radio host with CBC, in both current events and arts and culture. ■

A Q&A with Judy & Hans of Paper Kite Farm

1. Please introduce us to your farm! How did Paper Kite Farm get started, and where did its name come from?

Paper Kite Farm is a small family Farm in Prince Edward County, on the traditional territory of the Anishnaabeg, Wendat and Haudenosaunee People, adjacent to the Kanien'keha:ka community of Tyendinaga.

The Farm began as a means to an end during the pandemic; and to feel grounded and connected during those uncertain times. We lost a lot in the Pandemic and needed to re-centre and start new again with family being the focus.

The name, Paper Kite, took some time to come up with! We wanted to pay homage to our heritage. Both Paper and Kites originate from Hans' Chinese heritage, and since we're in windy PEC, it resonated with us.

2. Tell us about yourselves. Who is behind Paper Kite Farm? What are you passionate about, and why do you farm the way you do?

Paper Kite is your mom and pop backyard gardening type of small scale farm. Myself (Judy) along with my partner (Hans) run the farm full time from March to November.

I (Judy) grew up on homestead-like property. My parents were Farmers in Laos and fled to Thailand during the Vietnam War. When we arrived in the USA, they began guerrilla gardening in any public green space they found as a way to have access to foods from their home country. That quickly transitioned to growing in community gardens, a friend's backyard, and finally a home of their own.

We are currently cultivating about ¼ acre of our 2-acre rural residential property, on what was once just lawn. We initially intended to create a permaculture oasis, but added on market gardening to our plans, as it was a quicker way to feed and contribute to our community.

Growing and working with the land is about more than sustenance and food security. It was also an identity project exploring our cultures, both Hmong and Chinese. It's about trying to grow from the seeds that have made their way from Laos to North America, and the food that our grandparents loved, and sharing that as well.

We also knew we wanted to farm in a way that would not only work with the land, but to leave it better than we found it. Generations of Indigenous peoples had stewarded the land before us, only to have it clear cut by European and Loyalist settlers, and we wanted to do what we could to honour the land that has sustained so many before us.

3. What are your favourite crops to grow and why?

I love growing every single thing, from flowers, herbs, to all kinds of produce. However, If I had to choose, I'd have to say that my favourite is the Hmong cucumber. The cucumber is deliciously sweet and crispy, but the efforts my mom took to bring it to her new home

will always remind me of the resiliency of my people.

4. How did a decade of running a small family hotel prepare you for farming? What has been most surprising?

Running a small family hotel and farming is quite similar. When we were running a hotel, it was about curating a local experience for visitors in a collective effort with our team. I feel like the kind of attention and care going into curating that experience is the same with caring for seeds, seedlings, and then when they're in the fields.

You've got to listen to the weather, be a couple steps ahead, and get a feel of the land. At the end of the day it's the kind of effort you put into being mindful and human.

I believe that's what it takes in both sectors.

5. Last season, your farm participated in EFAO's Farmer-Led Research program. What was that experience like? Why did you feel compelled to be a part of the program?

We had a great experience! I think as new farmers, our naiveté was both a curse and a blessing. We didn't have years of experience, nor did we have the opportunity to learn from past mistakes. However, this allowed us to make new ones, and ask new questions. The question that we wondered about most was whether we could cut peat out of our

system. We know how important peat bogs are for the environment, and how much carbon they sequester, but there isn't really an obvious replacement for seed starting. We just wanted to try and see if we could replace it with something we can source locally, and BioChar turned out to be a great substitute.

6. What did you learn from the research? What were some of the formal and informal results? What might other farmers want to know about what you saw in your trials?

Not only was BioChar a possible substitute, it appeared as a superior alternative to peat moss. The tomatoes we grew using BioChar were by far the strongest starts we had, and needed the least watering. However, we also learned that homemade soil mixes suffer from other issues, such as possible pathology problems, and weeds within. The control group using ProMix BX did non suffer from any inconsistencies.

7. Would you perform Farmer-Led Research again? Why or why not?

This year was already packed with plans, so we couldn't take it on. However, we still have lots of questions we'd like answered regarding BioChar, so we would like to participate again.

8. Do you have any ideas for future research that other farmers might be interested in doing?

We really think that BioChar has amazing potential, and would love to see more farms trial it. One potential use is to see if we can reduce the amount of inputs needed.

9. What's next for Paper Kite Farm? What new endeavours does 2023 hold?

We are opening a farm stand, and are trying to grow some rice! We have all sorts of other interesting crops that we are trialing, but rice is the most exciting for us.

10. If other EFAO members want to connect with you, how can they get in touch?

The best way would be to reach out to us through Instagram, @paperkite.farm, by email, or by just dropping by. ■

Advancing Reduced Tillage for Organic Vegetable Production: Lessons Learned from a Living Lab

By Sarah Larsen

The Motivation

The motivation behind Ken Laing's Living Lab–Ontario project came from seeing the results of a soil health benchmark study he conducted in cooperation with EFAO in 2019. "It was shocking to see how much more organic matter we have in our undisturbed fence rows compared to our land in production. We've grown organically, with cover crops, for years, and the benchmark results showed me we have to do more if we want to build soil organic matter."

Longtime EFAO member Ken Laing has been farming with his family in St Thomas for over 40 years. As he transitioned into retirement, Ken became determined to figure out how to reduce tillage and increase cover in organic vegetable production systems for mid- to large-scale growers, Ken took on the extensive role managing EFAO's "Horticulture Division," as he calls it.

"Developing a horticultural system for vegetables with no tillage is very challenging because we often use tillage to terminate one crop and get another established, and then we come in again with tillage to control weeds."

For his trials, Ken established the following principles: 1) reduce tillage as much as possible; 2) avoid the use of agricultural plastics; 3) use a 60" bed system; 4) mechanized, tractor-scale system similar to a mid-scale market garden; 5) no hand or mechanical weeding throughout the season.

The Method

With these principles in place, he used an iterative approach: he started with a screening trial to identify promising systems, which he then compared in side-by-side demonstration plots the following year, followed by randomized, replicated trials of the most successful crop-cover combinations in the third season.

In 2020, Ken performed a broad survey of many strategies and crops to narrow down promising combinations. He tried plantings of spinach, peas, beans, sweet corn, tomatoes, sunflowers, squash and garlic in different treatments: winter-killed cover crops, deep compost mulch, and mown and /or roller/crimped cover crops.

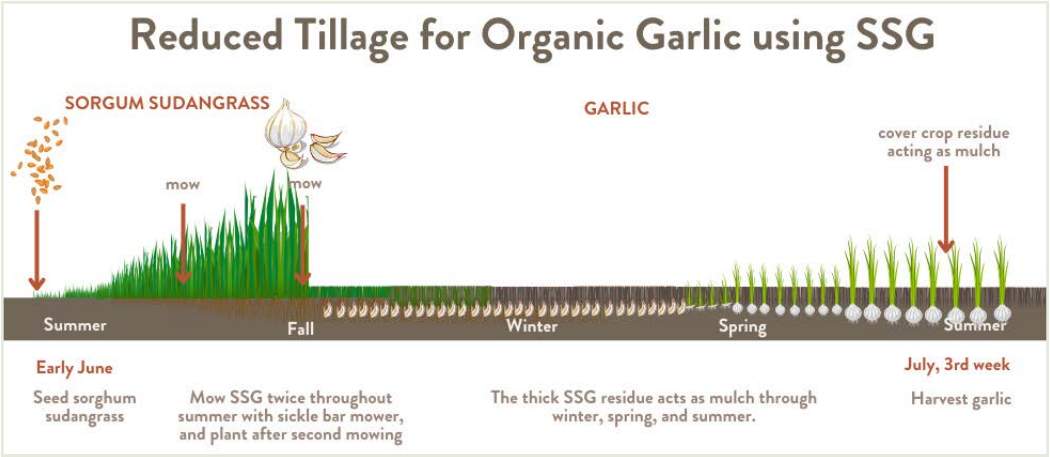
Ken's observations from 2020, included:

- Crops that were transplanted into cover crops were more successful than those seeded directly.
- It is very important to adjust the fertility before the cover crop is planted.

- Winter-killed cover crops have limited weed control. For example: daikon radish leaves very little residue to control weeds the following season and sorghum sudangrass residue breaks down enough for the weed control to start failing by mid-July. Even very early planting of oats/peas to roll before late planted crops makes for very late planting and poor yields.

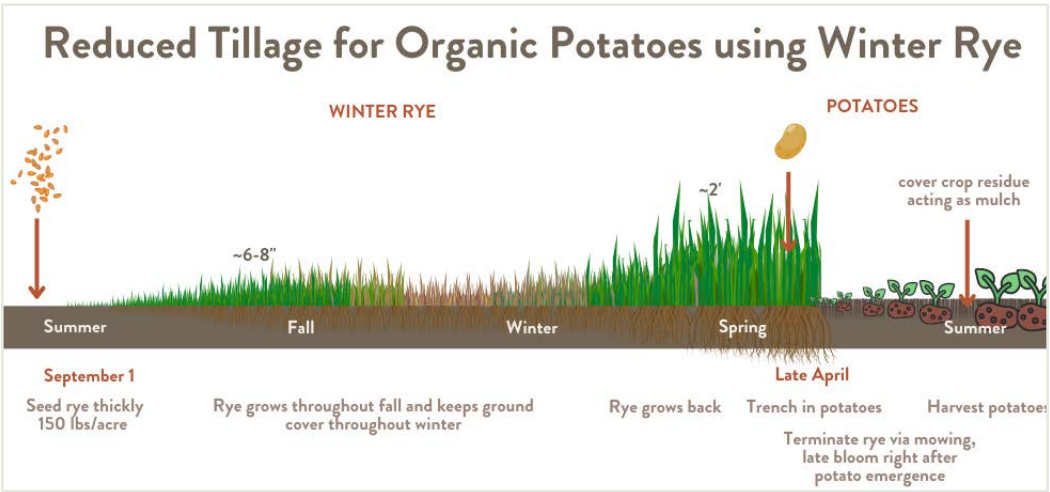
- Having equipment that could cut through lots of residue to allow for planting *and* get the planting trench closed required Ken to modify equipment that was designed for conventional no-till, which does not require so much residue for weed control.

Ken mineral amended a large number of plots in 2020 to prepare for the 2021 trials. In 2021, he planted cover crops of rye/hairy vetch, hairy vetch, crimson clover, pearl millet, pearl millet/cowpeas, sorghum-sudan, sorghum sudan/sunn hemp. He also established plots of deep compost mulch on tilled or rolled covers. The crops grown included garlic, spinach, late broccoli, tomatoes, zucchini, winter squash, potatoes, peas, green beans, sweet corn, and sunflowers. Of these combinations, garlic, potatoes, and winter squash were most successful. Ken measured yields of these crops and also followed up with randomized, replicated trials for garlic and potatoes in 2022.



Garlic

For the reduced-tillage garlic system, Ken seeded sorghum sudangrass (SSG) the summer before garlic harvest (early to mid-July) at 40 lbs/acre, mowed it twice with a sickle bar mower when it reached 3-4 feet to increase biomass, and planted garlic into the mown cover crop in early October with a slightly modified RJ Equipment no-till carousel plug planter. The cover crop then winter kills and leaves a thick residue to control weeds while garlic grows the following summer. Throughout the season, there was no hand or mechanical wedding, and all garlic was harvested by hand with a fork. Yields ranged from 8.358 lbs/ac with 52.6 grams/bulb to 11,223 lbs/ac and 72.5 grams/bulb.



Potatoes

For the reduced tillage potato system, Ken no-till planted potatoes into a winter rye cover crop that he seeded September 1st the year before at 120 lbs/acre. Ken planted the potatoes "green"—into the standing cover crop— in late April or early May and terminated the rye via flail mowing at first potato emergence. Ken notes you could roll the cover crop but mowing gets better termination. Ken did not hill or weed the potatoes (hand nor mechanical) throughout the season. His reduced tillage system resulted in a 58% reduction in field passes associated with tillage, cultivation, weeding, mowing, irrigation, spraying organic pesticide (Entrust), and harvesting. Yields ranged from 25,289 lbs/acre with greening of 9,206 lbs/acre to 37,301 lbs/acre with no significant greening. The five year average for potato yields in Ontario is 21,700 lbs/acre.

Winter squash

For winter squash, Ken set-up demonstration plots of squash no-till planted into rye/hairy vetch, hairy vetch alone, and 2" of deep compost mulch on top of rolled hairy vetch. Overall, he found weed control and yield were very acceptable for organic production in Ontario.

- Squash transplanted into rolled rye had a hard struggle (average yield 13,684 lbs/ac), but when transplanted into the hairy vetch, the results were promising (29,950 lbs/ac)
- Squash transplanted into deep compost mulch was very productive (49,616 lbs/ac), but this method may be less profitable due to the cost of quality deep compost mulch (2" of compost requires 100 tons/ac)

General Findings

After many years of working with cover crops on his farm, and three years of doing so in cooperation with the Living Lab-Ontario project, Ken notes these important considerations when using cover crops for organic vegetable production:

- It is critical to make adjustments in soil fertility the year before the cover crops are planted because the opportunities to amend during the cash crop year are very limited;
- Any persistent and/or perennial weed problems need to be controlled before the cover crop is planted;
- Waiting for cover crops to reach the best termination date can delay planting and harvest dates, so that must be taken into consideration;
- Special equipment is required to deal with the residue and opening and closing a trench in soil fully occupied by roots of the cover crop;
- Flail mowing as a termination strategy for cover crops is more forgiving than rolling, especially when dealing with cover crop combinations.

> ***"A lot of farmers could benefit from having a leg up in using these strategies or knowing where to start."***
>
> **– Ken Laing**

About Living Lab—Ontario

The Living Laboratories Initiative is an integrated approach to agricultural innovation that brings farmers, scientists, and other partners together to co-develop, test, and monitor new practices and technologies in a real-life context.

Funded by Agriculture and Agri-Food Canada (AAFC), the 2020-2023 Living Lab—Ontario project was led by the Ontario Soil and Crop Improvement Association (OSCIA), Living Lab – Ontario project collaborators for the 2020-2023 project also included five farmers; EFAO, Innovative Farmers Association of Ontario, Ontario Soil Network; scientists and researchers from AAFC and Environment and Climate Change Canada; and Essex Region Conservation Authority, Lower Thames Valley Conservation Authority, and Upper Thames River Conservation Authority Conservation Authority. Together, our research focused on reducing the soil and nutrient runoff from agricultural land into Lake Erie, improving water quality, conserving soil health, and increasing biodiversity on agricultural lands in Ontario.

EFAO joined the Living Lab—Ontario project to support on-farm research and innovations to reduce tillage in organic vegetable and field crop production systems. This work focused on two farm sites: one site looking at reduced tillage for organic vegetable production, which was managed by Ken Laing at Orchard Hill Farm near St. Thomas; and a second farm site looking at reduced tillage for organic field crop systems, which was managed by Brett Israel at 3Gen Organics near Wallenstein.

More information about EFAO's involvement with the Ontario Living-Lab initiative, including ongoing updates and results of Ken's trials is available on the EFAO website at efao.ca/living-lab.

Read the final report, which includes additional observations, data, and photos, on Ken's Living Lab – Ontario trial at efao.ca/ken-laing-LLO. ■

Sarah Larsen *is EFAO's Research & Small Grains Program Director and also supports soil health components of EFAO's education programs. She holds a Ph.D. in Soil Microbial Ecology from Iowa State University, and along with her partner and their daughter, tends the land that they call Three Ridges Ecological Farm near Aylmer, Ontario.*

A Curious Farmer

By Jackie Clark

As the name suggests, 3Gen Organics is a multi-generational farm. For the Israel family, their choice of name is a reminder to learn from the generations that came before, and be mindful of the ones that will come after.

The Israels farm 1200 acres of certified organic crops on clay loam soils, and raise farrow to finish swine in Wellington county. They engage in a lot of direct marketing — one of many reasons they are committed to producing high quality food in an ecological way and continual improvement.

"I get to farm with my parents and grandparents every day," explains Brett Israel, the youngest generation of the Israel family. "I'm always reminded that we think today we might know it all, but history has shown us that there's lots of evolution to come in our practices."

This mindset makes Brett an ideal collaborator for research. Since 2020, Brett has been a part of Agriculture and Agri-Food Canada's Living Lab-Ontario project, working alongside EFAO, AAFC and Environment and Climate Change Canada scientists and other farmers towards common goals. Other project partners include the Ontario Soil and Crop Improvement Association, Ontario Soil Network, and several Conservation Authorities. The mission of Living Labs – Ontario is to support on-farm research to reduce tillage in agricultural systems, with the goal of reducing soil and nutrient runoff from agricultural land into Lake Erie, improving water quality, building soil health and increasing biodiversity.

"The farming world continues to evolve. One of the fun parts about being part of a research project is seeing how we can be a part of that," says Israel. His goal in the project was to investigate how organic farmers can grow high yielding corn and soybeans with reduced tillage. Tillage takes time, labour and fuel, and fewer passes would decrease soil disturbance and equipment wear and tear.

Brett got some inspiration from his family's successful use of small grains in crop rotations. They know that, planted early and at high seeding rates, small grains can out-compete weeds and perform well with minimal tillage.

"How do we take the principles of best management practices for our small grains, and utilize the same philosophy to have greater success growing row crops like corn and soybeans?" asks Brett — a question he's been investigating for three years now.

Double-cropped soybeans

Prior to participating in Living Labs – Ontario, Brett and Jake Munroe from OMAFRA had been experimenting with cereal rye, which is known for its weed-suppressing effects. Leading into the Living Labs – Ontario research period, they established cereal rye in the fall, let it overwinter, roller-crimped the rye in spring and then planted soybeans. According to Brett, this technique achieved good weed suppression but unimpressive yield. When he looked at the economics, his standard 30-inch beans were more profitable.

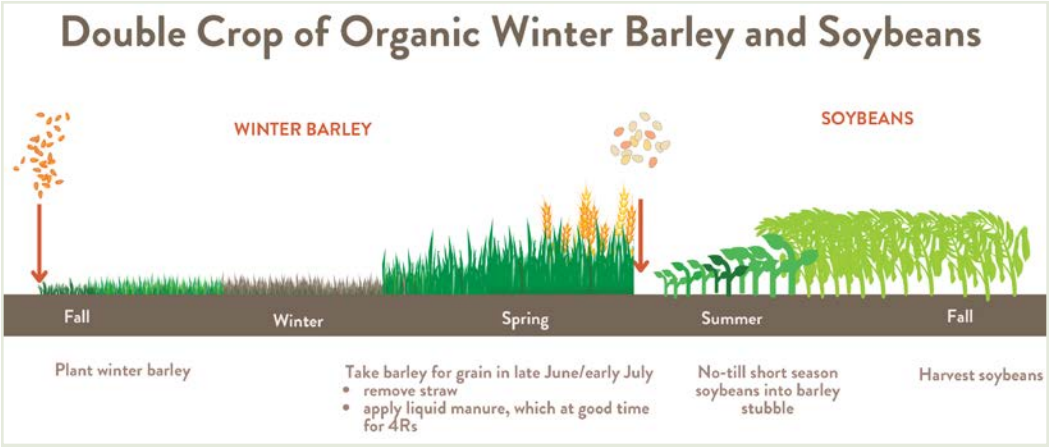
Those results were discouraging, but Brett liked the advantages of cereal rye. He wondered if there was another way to use the crop.

In 2021, Brett planted cereal rye in the fall, let it overwinter, and then cut the rye for forage before heads formed. He then ran a high speed disc over the field and immediately planted soybeans.

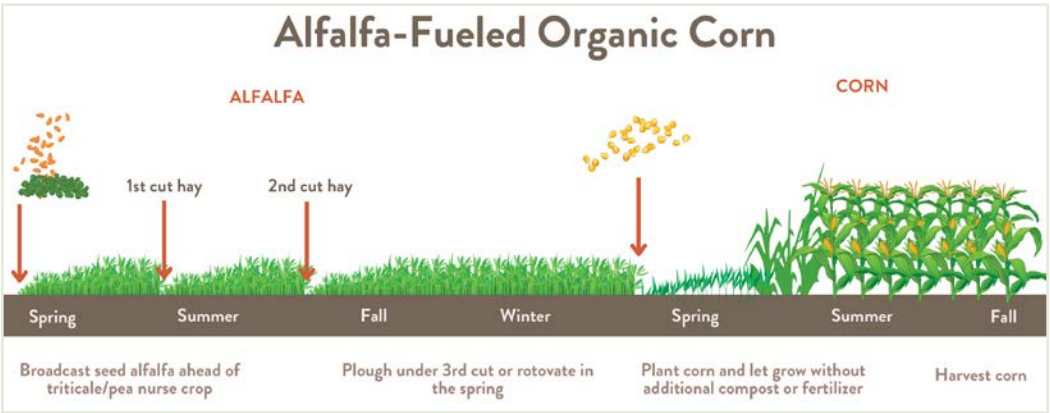
"We couldn't get it to work well until we waited before planting the rye," says Brett. When he cut the rye in May, let it regrow for two weeks, and then disced and planted soybeans in June, he experienced more success. The result was a thick crop of healthy soybean plants, and almost no weeds.

Brett's theory is that waiting two weeks before discing allowed the rye to ramp up its allelopathic effect after cutting, resulting in good weed control. The soybeans yielded over 70 bu/acre in 2021 and 2022. Even in the latter, which was a very dry year, the best parts of the soybean field yielded 80 bu/acre at 43 percent protein.

"We were able to maximize solar interception by having the beans solid-seeded. In a dry year that's important because we're not getting enough



For the double crop of winter barley and soybeans, Brett planted winter barley at 1.6 million seeds/acre in the fall, harvested it for grain in late June/early July; then removed the straw and applied liquid hog manure. After managing the barley crp, he no-till planted short season hybrid soybeans into the barley stubble at 350,000 seeds/acre. 3Gen Organics invested in grain-drying technology that allows them to harvest barley relatively early at higher moisture. Some advantages of this system include that the application timing of manure fits the 4Rs of nutrient stewardship; the clipping action of the combine during barley harvest acts as good weed control before soybeans, and the seeding date for soybeans means they are past the emergence of many broadleaf weeds and weeds were minimal. If needed, Brett used a tine weeder or rotary hoe to weed the soybeans.



For the alfalfa-fueled corn system, Brett broadcast seeded alfalfa at 20-25 lbs/acre in early spring, and then drilled a triticale and pea nurse crop at 100 lbs/acre. The first cut of forage off the nurse crop was fed to dry sows. Feed tests on top growth found crude protein over 35 per cent, estimated to provide 180 lbs/acre available nitrogen to the next crop. Over two years, Brett tried three methods for terminating the alfalfa: moldboard ploughing in the fall, rotovating in the spring, and high-speed discing in the spring. The moldboard plough and rotovator were the better tools, and their use depends on the specific conditions. Spring rotavating will produce better yields when moisture is adequate, and that fall plowing may result in better yields in dry years. In order to maximize soil health, farmers can make thoughtful decisions about when plowing may be appropriate.

precipitation to have more vegetative growth," Brett adds.

Typically, the Israels would fall seed cereal rye after a small grain crop. Now, with Living Labs partners, they're investigating whether cereal rye can be established after a high-moisture grain corn harvest. With shorter-day corn genetics, they could harvest high-moisture corn in late September. Then, it may be possible for the rotation to go from alfalfa-fuelled corn (see below) to rye-based soybean, and then to winter wheat.

In another double-cropping experiment, they planted winter barley in the fall, harvested it the first week in July, then planted super-short season hybrid soybeans.

"We have invested in grain-drying technology that allows us to harvest barley a little earlier at higher moisture, get the straw out of the field, and seed the soybeans sooner," Brett explains.

In 2021 with good precipitation and good harvest conditions in the fall, Brett harvested a barley crop and then grew soybeans that yielded over 30 bu/ac with no additional tillage. However, in 2022's drought, the same system yielded only 12 bu/acre soybeans.

"Because of where the prices have gone for commodities in general and the pressures it's had on the organic space, our break-even yield on the double-cropped beans was 6 bu/acre in 2022," Brett adds, so even this disappointing yield was financially profitable for the farm.

Alfalfa-fuelled corn

Inspired by Gary Zimmer, Wisconsin farmer and author of ***The Biological Farmer,*** the Israel family was also interested in exploring how growing forages could reduce the need for tillage in their field crop production. They use livestock manure for nutrition, but don't want to overload the soil with phosphorus and potash, which can contribute to harmful environmental impacts in runoff, and encourage annual broadleaf weeds. Instead, with the Living Labs – Ontario initiative, they tried using alfalfa to manage weeds and fix nitrogen for a subsequent corn crop.

Brett broadcast seeded alfalfa at 20-25 lbs/acre in early spring, and then drilled a triticale and pea nurse crop at 100 lbs/acre. The first cut of forage off the nurse crop was fed to dry sows.

That year, Brett got one or two cuttings from the alfalfa. Feed tests on top growth found crude protein over 35 per cent, estimated to provide 180 lbs/acre available nitrogen to the next crop. The following spring he used a John Deere high performance disc to work the alfalfa down, and the ground looked prepared for corn planting.

"We thought we had it all figured out," he adds. "I quickly came to realize that alfalfa is very resilient."

The alfalfa stand grew back after the corn had been planted, too thick to allow for a decent corn crop.

"We needed to find a different way to manage the alfalfa," Brett says. That year, he experimented with using a rotavator in some parts of the field in the first week of June, to see if he could salvage some of the corn crop.

"The rotavator did a great job of terminating the alfalfa. The only problem was that the corn planter was already cleaned up and I didn't want to dirty it again," he explains. So he used his sweet corn planter to plant an 80-day corn hybrid in June.

"It was out of the ground like a shot," he said. With no additional tillage or nitrogen, the corn yielded over 240 bu/acre.

These results are "truly game-changing for us," says Brett. "One of those opportunities that allows organic agriculture to be scaled across more acres and provides a really strong competitive business case to get alfalfa and forages into more of our field crop rotations."

Along with this exciting success, there also exists risk, challenges, and learning opportunities. Case in point: in places where the alfalfa was not controlled, corn yields were only 40-50 bu/acre.

Learning from this experience, the Living Labs – Ontario team wanted to replicate this result across 50 acres in 2022, testing two different techniques to control alfalfa: letting it overwinter and using a bigger, improved rotavator in the spring, or moldboard plowing in the fall.

"We've all been told the moldboard plough is a bad thing; that it shouldn't be used. We wanted to test what the impact would be on the soil biology," says Brett. "What was fascinating was that across all of our corn acres, the plowed down alfalfa was the best corn we had in 2022. Even in peak drought conditions it never showed drought stress."

In the plowed treatment, 80 day and 96 day corn hybrids yielded 210 bu/acre and 230 bu/acre, respectively. The spring-rotavated fields suffered more under drought conditions, yielding 170 bu/acre.

"Still a very good corn yield," says Brett, especially in a drought year. "Both systems provided very solid agronomic advantages."

Brett's 2021 results indicate that spring rotavating will produce better yields when moisture is adequate, and that fall plowing may result in better yields in dry years. In order to maximize soil health, farmers can make thoughtful decisions about when plowing may be appropriate.

The future on the farm

Each experiment that Brett has completed leads to dozens more questions to explore, he tells EFAO. He's evaluating interseeding cover crops to corn, taking a first cut off of alfalfa in the second year, and perfecting the timing of planting and harvesting double-cropped soybeans.

"I think there's lots of different ways we can use these tools to reduce tillage in organic systems and produce good crops," he says. The project is "making organic more scalable for us, and really excites us about the future of our farm."

These results from the Living Labs—Ontario research at 3Gen Organics have the potential to create more opportunities for larger-scale field croppers to transition to organic without relying on extensive tillage, and for smaller organic farms to scale up production — a win-win for ecological farmers across the province, and for our soils. ■

Read the final report, which includes additional observations, data, and photos, on Brett's Living Lab – Ontario trial at efao.ca/brett-israel-LLO.

***Jackie Clark** is EFAO's Small Grains Program Manager, helping encourage farmers to realize the benefits of incorporating small grains in field crop rotations. She is also an accomplished writer and former journalist.*

Choosing the Right Livestock for Your Farm

Part 3: Large Livestock and Ruminants

By Katrina McQuail

SHEEP are small, ruminant, herd animals, which means they need company; a single sheep will not do well. When purchasing sheep, it's important to know what you are looking for: sheep are bred either for wool production, or for meat, and there are dual-purpose breeds available. If you're thinking about getting into sheep, it's good to keep in mind that they take a little more capital to get into than some other types of livestock. It can be more cost effective to breed sheep yourself, and build up a flock over time. If breeding, you must keep an unrelated breeding ram or have access to one. Sheep are seasonal breeders: they breed in fall or early winter and have a gestation period of five months. Sheep need sufficient fenced pasture & hay for the size of flock. Internal parasites are an ongoing management issue for sheep – and if your sheep are certified organic, permission is required for the use of chemical wormers.

Predators like coyotes and roaming dogs can be a major problem when it comes to lambs. Most sheep farmers keep livestock guardians such as dogs, donkeys, or llamas, to help protect the flock. Lambs grown for meat are ready for market at 60 to 120 lbs live weight, or 3 to 6 months of age. If you plan to sell the meat, they must be butchered at a licensed abattoir, and it can be a challenge to find abattoirs that butcher sheep. Unless you have a niche market for wool or a specialty wool breed, shearing wool sheep is a cost — it is not income generating.

GOATS are similar to sheep in many ways. You can raise them for meat or dairy.

Like sheep, goats need companions and the expense to start a herd is similar to sheep. Also similarly, the breeding buck must be kept separately and must be unrelated to the rest of the herd. Bucks also have an odor (they urinate on their beards) which can get into the milk if the buck is kept in close proximity to the lactating does. They can be a challenge to house and fence: unlike sheep, they are climbers and jumpers, but you can train them to respect an electric fence. Goats are an ideal-sized dairy animal for a family: they produce from a quart to a gallon of milk a day, but they also require special feed when milking. Dairy animals usually require milking twice a day at regular times. If you have nursing kids, you can use them as your alternate milkers (like if you'll be away). The typical lactation cycle for goats is 10 months of milking, dry for two months, and then they have babies and start over. Goat gestation is 5 months, and like sheep, they are fall breeders. They require appropriate pasture and hay for the number of animals, and they are browsers more than grazers — they will kill young trees and shrubs if allowed access to them. Extra males of dairy breeds usually go for meat when small.

PIGS can grow from a 50 lb weanling to a 240 lb pig ready to butcher in 4 to 5 months. You can often buy weaner piglets from a breeder, but it is harder to find certified organic piglets. If you are keeping your own sow[s], they must have an unrelated boar to breed with (Artificial Insemination [AI] is also

an option). Gestation is 114 days, and females can have 2 litters a year. There are usually 6 to 16 piglets in a litter. Local abattoirs do custom butchering.

There are a number of heritage pig breeds available, and even more modern breeds. Heritage breeds tend to get too fat if on free choice grain feed – they are better-suited to some grazing. Pigs need good penning. They have powerful noses that they can push, dig and prod with, and will dig under fences when motivated. Pigs are smart and have a long memory, so they can be electric-fenced once trained to it. Pigs are rooters, which you can use to your benefit for things like having them eat twitch grass out of an area or, less usefully, they might dig up your flower gardens if they get out.

Pigs are usually fed a straight grain diet, but will forage and enjoy surplus vegetables and weeds from the garden. We really enjoy rotationally grazing ours. Some people pasture their pigs in woodlots or less desirable areas of the farm. Pigs are omnivores and monogastric: they have a single stomach, and will eat chickens and other small animals if they catch them.

CATTLE are large ruminants. They are generally used for either dairy or meat, and there are both specialized and dual-purpose breeds. They are large animals to manage, and need appropriate handling facilities if you have a number of them. Their feed is primarily pasture/dry hay, but dairy animals do require grain, which should be 16% protein. You

can keep a family milk cow, however this usually produces more milk (1 gallon- 5 gallons/day) than a family needs unless you make cheese, yogurt, kefir, butter, etc... or have a large family!

The typical lactation cycle for a cow is the same as a goat's: e.g. 10 months milking, dry for two months. However, the gestation for a cow is 9 months. Cattle breed year round, and can be bred by AI so that you don't have to keep (or rent) a bull. If breeding by AI, you'll need a head stanchion to control them. This is not a simple solution for beef cows on pasture, as pastured cattle will be less willing to be stanchioned.

Beef animals are usually butchered in the 18 to 30 month range. Local abattoirs do cattle on a custom basis. If your animal is over 30 months of age at butchering, you will encounter extra costs at the butcher: for animals over 30 months, they are required to separate out Specific Risk Materials (SRM) – e.g. backbone, which requires extra cleanup.

We keep **HORSES** for draft work or riding, not for meat. Draft horses can be used instead of a tractor for most things (but obviously don't have a bucket or power take off). And, you can grow the food to fuel them, instead of buying it. If you have a mare to breed, you can sell the young or raise it to replace your team. Issues or challenges include maternity leave for the mare, training the young, and dealing with horse marketing. In a long term relationship like this, you are getting to know large animals with personalities. You also want to choose the right size of horse for the work and your own physical body, i.e. you don't want a horse that is so tall you can't harness it. If you're considering draft horses on your farm, you can also consider other animals for draft work, such as oxen (you'd want to raise the team yourself) or mules. ■

Katrina McQuail *(she/her) leads the farming operation at Meeting Place Organic Farm which is on the traditional territory of the Anishinabek, Odawa and Mississauga. She is grateful for the opportunity to steward the land, build community and see the stars in such a beautiful place. Katrina grew up with draft horses, sheep, goats and chickens, and as an adult added cattle, pigs and ducks to her repertoire.*

Envisioning a Canadian Farm Resilience Agency

By Ann Slater

In the 1930s, farmers on the Canadian Prairies were faced with what could be considered a climate emergency: a long, severe and intensifying drought. The weather challenges were further exacerbated by ill-advised farming practices which led to dust storms, drifting soil, crop failures, farm abandonment, the financial collapse of entire municipalities, and more. In 1935, the federal government responded to the environmental and socio-economic crises in the prairie provinces with an Act of Parliament to create the Prairie Farm Rehabilitation Administration (PFRA).

The stated purpose of the PFRA was "to provide for the rehabilitation of drought and soil drifting areas in the provinces of Manitoba, Saskatchewan, and Alberta." Its primary tasks were to halt soil erosion, address the lack of water resources and improve soil and water conservation. Its larger task was to rehabilitate and restore the rural economy in the hardest hit areas, primarily within the Palliser Triangle of southern Saskatchewan and Alberta. In 1935, the Dominion government already had a network of Experimental Farms which had been established in 1886. By drawing upon, and even conscripting, the brightest and best personnel from these Experimental Farms, an administrative path forward for the PFRA was formalized within a dozen weeks of the Act's passage. PFRA would initially have two divisions: cultural practices and water development.

Two aspects in the formation of the PFRA are still significant: through the Experimental Farms the federal government had an existing capacity of willing, committed personnel with proven practical expertise. Second, senior bureaucrats recognized that a monumental task of such complexity would require a multi-disciplinary team, that it needed to work in an integrated manner, and that the new agency needed to be structured and administered accordingly.

Over many decades, the water development branch was responsible for hundreds of major water projects as well as many thousands of smaller-scale irrigation projects, farm dugouts, wells and water-stocking dams.

The primary task of the cultural practices branch was to find ways to stop the widespread drifting of topsoil: often by stopping farm practices which should never have been started in the first place, principally the cultivation of unsuitable lands. Where cropping of annual grains was to continue, methods had to be found to retain soil moisture and fertility while preventing soil erosion. Lands identified as being unsuitable for annual cropping were returned to grazing lands through a Community Pastures

Drifted soil near Cadillac, 1937: a common sight during the Great Depression. Saskatchewan Archives Board R-A3368

The Ontario Agricultural College and Experimental Farm, Guelph, Canada, 1889. Canadian Livestock and Farm Journal. Peter Winkworth Collection. Library and Archives Canada, e001201295

model. These lands were reseeded, had miles of fencing installed and handling and watering facilities constructed. Eighty-five Community Pastures in Saskatchewan alone once encompassed 1.8 million acres. Along with providing grazing land, the Community Pastures helped maintain native plant, insect, bird, reptile and mammal life.

Government researchers at Experimental Farm and PFRA facilities, often assisted by university researchers, worked intensively and collaboratively to help farmers adapt to new cultivation techniques, modify equipment, develop new and alternative grain and forage varieties, plant shelterbelts and trees, explore ways to control weeds and insects, and to adopt summer fallowing. The major and often radical changes to farm practices required could not have been achieved without the cooperation of farmers. The cooperation of farmers would not likely have been obtained without a good deal of trust and respect: trust and respect earned via the prior decades of work by the Experimental Farms network of regional substations, demonstration farms and field personnel. Respect worked both ways. Experimental Farm staff also had a history of being open to learning from the curiosity and ingenuity of farmers.

One constant theme throughout the history of the PFRA, was the trust between PFRA staff and farmers and the reputation the PFRA had of its personnel putting the needs of local farmers first. By the time the PFRA was fully dismantled in 2013, it had provided nearly eight decades of first-rate services to farmers in the Canadian Prairies. The history and existence of the PFRA is less well known in Ontario than in Canada's Prairie provinces, but it is rare for a federal program or agency to be so universally viewed as positive.

The PFRA was the right response to the environmental and socio-economic crises in the 1930s. We are now facing another climate emergency leading to environmental and socio-economic crises. The National Farmers Union (NFU) believes the PFRA is a model of how governments can organize, build capacity, provide coordination and leadership, and intervene effectively to aid in transitions in the face of environmental and socio-economic crises. Therefore, the NFU is advocating for the creation of a national 21st century version of the PFRA called the Canadian Farm Resilience Agency (CFRA).

Over the coming decades, Canadian farmers will need to adapt to growing food in an ever changing climate. At the same time, farmers will need to continually reduce greenhouse gas emissions. The challenge will only intensify over the coming decades, as the easiest reductions will be accomplished first. Reducing emissions from agriculture is particularly complex, as it involves reductions in three gases (carbon dioxide, nitrous oxide and methane) from multiple pathways (e.g. animal digestion, fossil fuel use, fertilizer application) on over 200,000 individual farms across various types, scales and locations.

In the 1930s, the government was able to build upon the personnel and programs within the Experimental Farms to get the PFRA up and running quickly. Agri-Food and Agriculture Canada (AAFC) is at the beginning of decades of intensifying and expanding work to address emissions reductions and climate change adaptation. Its capacity to design and deliver programs is currently low and it has little presence

in the rural countryside. If AAFC does not rapidly expand its capacity, efforts to adapt and reduce emissions will fail. A CFRA can help to build this capacity and to deliver crucial services to reduce emissions, adapt to a changing climate, collect and share data, and deliver outreach and education to farmers. In the NFU's vision, a CFRA could provide an important presence in the countryside by delivering needed services to farmers and building trust and co-operation between and among farmers and governments.

Specifically, the NFU believes these are some of the tasks a proposed CFRA would undertake:

1. Hire, train and deploy industry-independent, public-servant extension agrologists to:
   - Advise on nitrogen fertilizer management;
   - Encourage reduced/optimized use of other inputs and, thus, emissions minimization;
   - Help farmers find alternatives to purchased farm inputs;
   - Spread practices that maximize soil organic matter gains and carbon sequestration;
   - Proliferate best-possible grazing practices and methane-reducing efficiency measures;
   - Support farmers in completing and implementing expanded Environmental Farm Plans, nutrient management plans, and emission-reduction plans;
   - Aid farmers in accessing government programs – in filling out forms and navigating a growing and complex array of programs, incentives and cost-sharing schemes;
   - Help farmers adapt to climate change and maximize resilience; and
   - Support farmers in attaining other sustainability goals.
2. Provide free soil testing to support fertilizer-rate reduction and carbon sequestration;
3. Facilitate research into input optimization/reduction and emissions minimization;
4. Collect and share data, assist in GHG measurement, document farmers' adoptions of Best Management Practices, etc.;
5. Create and staff demonstration farms to refine and showcase low-emission production techniques and serve as regional hubs where farmers and others meet to develop solutions;
6. Work with farmers to protect, restore and expand wetlands, grasslands, woodlots and treed areas and thereby reduce emissions from the destruction of those areas and maximize desequestration in intact ecosystems;
7. Provide tree seedlings and grass seed for the preceding;
8. Manage land set-aside and permanent-cover programs that maximize wildlife habitat and biodiversity but that can also serve as strategic feed reserves; and
9. Re-establish community pastures.

The climate emergency requires bold new steps. A CFRA can provide an important presence in the countryside and lead to long-term, integrated thinking and research to help chart a path for agriculture as we move through the coming decades when the need for ever-larger emissions cuts intensify, as well as the need for ever-stronger adaptation measures. ■

More information on the NFU's work on Climate Change is available at: https://www.nfu.ca/campaigns/climate-change/.

For more information on the NFU's proposed CRFA visit: https://www.nfu.ca/publications/nfu-proposed-cfra/ or reach out to members of the NFU Climate Change Committee CFRA Working Group.

Ann Slater *farms in southwestern Ontario. She is a member of the NFU Climate Change Committee and its CFRA Working Group. She also served as EFAO president in the early 2000s.*

Perennials for the Dinner Plate

by Ben Caesar

The pantry is sadly sparse in the spring. The last of the winter squash has been roasted, the canned goods are dwindling, the bottom of the freezer comes into view, and one wonders how to nourish oneself without killing the neighbour's cow in the dead of night.

Happily, perennial vegetables fill the spring hunger gap brilliantly, with delicious and highly nutritious shoots and leaves. The best time to eat herbaceous perennials is when they first emerge from the ground and the new growth is tender and mild. In Western European cultures, we're not used to thinking of perennials as vegetables, with the exception of asparagus and rhubarb, but in other cultures there's a long history of using perennials as food, for very good reasons. Not only are they delicious and nutritious, but they also add a huge amount of diversity to the diet (not to mention the garden).

For lunch today, for example, I made one of my favourite spring dishes: fried greens with eggs on toast. It's very quick and easy to make, and can include the young leaves from 15 or more plants:

Good King Henry
Egyptian Walking Onion
Seedless Sorrel
Cutleaf Coneflower
Patience Dock
Sweet Cicely
Garlic Chives
Lovage
Dandelion
Caucasian Spinach
Sweet Fennel
Honewort
Virginia Waterleaf
Welsh Onion
Ox-Eye Daisy

I collect all of these in a bowl, chop them up and mix in a few eggs (with salt and pepper), fry them all together until they're cooked, and plop them onto a piece of toast. Sometimes I throw in some feta cheese.

Some of my favourite vegetables are perennials. **HOSTAS,** for example, produce spring shoots that, when tossed in olive oil and roasted in the oven for 15 minutes, come out wonderfully mild and tender, much like asparagus.

Hostas are native to Japan, and the Japanese are no strangers to using them as food. If you visit Japan in the spring you'll find hosta shoots in the grocery stores. Every species of hosta is edible if you harvest it at the right time.

When the leaves of hostas first emerge, they're tightly curled spears. At this stage you can cut them all off the plant, right down to the ground, and the hosta will respond by sending up more shoots. You can only harvest once per plant each season, as the plants need to recuperate. You can eat them raw, but they're a

little tough, so they're better cooked. Otherwise, you can use them any way you would asparagus.

CAUCASIAN SPINACH is another shade-loving perennial; it's a climbing vine from Georgia, Azerbaijan and surrounding areas. It's a long-lived member of the spinach family, and provides one of the earliest spring shoots, coming up about a month before asparagus. The shoots are succulent and quite mild in flavour, similar in flavour and texture to iceberg lettuce.

The edibility doesn't stop in the spring, though; Caucasian Spinach is rare among perennials in that the leaves remain tender and mild throughout the growing season. They make an excellent base for a salad, and can also be cooked and used as you would spinach. The plant will climb into shrubs or up a trellis, and can grow to be more than 10 feet tall. It's an attractive addition to a shady garden, too, having beautiful heart-shaped leaves.

SEEDLESS SORREL is another perennial that remains edible throughout the growing season. It has a distinctive sour flavour, and adds a lemony touch to any salad. It's also great cooked. Sorrel is a popular perennial vegetable in some parts of Europe (many regions have variations on Sorrel Soup, for example).

Most sorrel plants get bitter when they produce seeds, but seedless sorrel never goes to seed, so it never gets bitter; the leaves remain tender through the summer and into fall. It also makes an excellent edible ground cover. Each plant grows to be about a foot tall and wide and no bigger, so if you plant individuals about eight inches apart the leaves will overlap and keep weeds from germinating. It makes for a very productive and low-maintenance patch in the garden.

CUTLEAF CONEFLOWER is a hugely productive leaf crop. The Cherokee know this plant as Sochan, and use it extensively. It's native to Ontario, and spreads to form colonies. The plants produce beautiful yellow flowers on 7- or 8-foot-tall stalks in the fall. And the young leaves have a distinctive flavour, somewhat reminiscent of carrots, and can be used raw in salads or cooked in any dish that would benefit from a bit of greenery. I frequently use them in soups and stews, and they always find their way into my eggs.

SWEET CICELY is a European perennial that was traditionally stewed with rhubarb before cane sugar was widely available. It has a mild anise flavour, and the whole plant is edible: the leaves, flowers, stems & roots can all be used. I throw it in every salad, and cook it in dishes that can use a little sweetener. The unripe seeds are like little licorice candies; they're crunchy and sweet and I have to force myself to stop eating them if I want to collect the seeds for propagation. I often pickle them, too; they make a fine addition to coleslaw. Sweet Cicely is very easy to grow, and prefers a little shade. It self-seeds readily if you can hold yourself back from devouring all of the seeds, but it's easy to control by eating the seedlings.

I try to include nitrogen-fixers in my garden for the fertility they add, so when a plant fixes nitrogen and also produces edible products, it makes a perfect addition to a food forest. Such is the case for our native **GROUNDNUT,** a climbing legume that grows strings of underground tubers that can be compared favourably to potatoes. They're much smaller, but they're produced in abundance. The largest ones are about the size of a chicken egg. Louisiana State University started developing superior varieties in the hopes of developing a commercial crop, but the budget was cut and the varieties are now difficult to obtain. Many Indigenous peoples of North America traditionally used groundnuts extensively for food. I like to roast them in the oven in a little oil and salt and pepper, or use them in soups and stews.

Perennial vegetables are generally nutritional powerhouses, as they have extensive root systems and can access minerals from the subsoils and concentrate them in their leaves. They sequester carbon in their underground tissues and through their relationships with mycorrhizal fungi, and encourage a wide diversity of insect and microbial life in the soil. They're also tremendously easy to grow: plant them once and they'll come back to feed you every spring. A lot of them are shade-tolerant, and can be grown in areas where annual vegetables would suffer, such as under the canopies of productive fruit trees. Many are grown commercially as vegetables in other parts of the world.

Everyone should consider growing a few perennial vegetables outside their kitchen doors, if only for the sake of the neighbour's cow. ■

Ben Caesar *runs Fiddlehead Nursery, a permaculture plant nursery in the Beaver Valley, near Collingwood, Ontario. He specializes in edible, perennial plants, and designing low-maintenance, productive gardens.*

New Farmers in the North: EFAO's Northern Farm Start-Up Grants

This past year, 12 new farmers in northern Ontario received a total of $74,442 in grant funding to support them in purchasing equipment and infrastructure to help them start-up or grow their farm businesses. Farmers could request up to $10,000 in funding, and were required to match that funding with their own capital. As part of the funding arrangement, grant recipients were also matched with an experienced farming mentor who could offer advice and expertise on establishing a similar kind of farm business.

As part of the evaluation process for this pilot program, EFAO asked the participants to share some information about the impact that it had on them and their farms.

Lisa McDonald, Old McDonald's Family Farm

Lisa and Jason run Old McDonald's Family Farm in Lavigne, where they grow a variety of vegetables for a CSA and farm stand, and offer agritourism to schools and families with their Fall Family Fun events.

Marcel Forget, Rubber Boot Farm

Marcel and Karine use regenerative methods to produce farrow-to-finish pork, chicken, turkey, eggs, honey, garlic and limited select vegetables for their customers in Timmins.

Eva Bonjour, Grey Wolf Gardens

Eva and Luke operate Grey Wolf Gardens on the Cultural Grounds of the Ininew Friendship Centre in Cochrane, where they grow vegetables and medicinal plants for a weekly subscription box program, as well as offering farm gate and farmer's market sales.

Gabriella Parsons, Des Isles Homestead

Gabriella and Jeremy grow vegetables and mushrooms on their homestead in Cochrane, and offer outdoor "pick-your-own" mushroom experiences.

What goals were you hoping this funding will help you achieve for your farm?

LISA: In addition to the wash/pack station and cold storage, this investment was intended to help us create retail space to provide us with an additional revenue stream. We also planned to create essential storage space for irrigation and other farm tools. Investing in this essential infrastructure will not only allow us to process more vegetables but will make our operations more efficient.

MARCEL: We sought this grant to help us to properly and permanently fence our pastures that will be used to raise our pigs regeneratively, allowing us to meet our expansion goals of 48-60 pigs per year. The grant will also help us maintain that fencing to ensure longevity and electrical conduction for livestock containment. Having access to hog field drinkers will ensure clean and safe water for the pigs (as they can't tip it or stand in it).

We also requested funding for a BCS tractor with sickle bar mower, power harrow and tiller. In discussions with my mentor Drake, he suggested this tractor to help increase efficiency of tasks while reducing the physical requirements needed to do the tasks. The sickle bar mower will help with fence maintenance to increase longevity and maintain conductivity. The power harrow and tiller will help with pasture management as pigs can make wallows and ruts and this tool will help us rehabilitate pasture.

EVA: This funding will allow us to achieve our short-term goal of acquiring the rest of the necessary equipment we need in order to begin operating successfully as a farm. It allows us to begin operations as a farm with appropriate and efficient systems, giving us the resilient foundation required to grow into a sustainable and profitable farm business. This will ultimately help us grow more food for the Ininew Friendship Centre, which is necessary for the project to continue long-term. It also helps us achieve our goal of increasing food sovereignty for the local Indigenous community. It means we can continue to host workshops, focus on education, and continue to connect people with the gardens.

And it brings us much closer to our goal of having the farm provide our full-time income, which means we can dedicate our absolute all to the farm business and its mission.

GABRIELLA: This start-up grant was intended to help us continue to push forward in achieving our "pick-your-own" mushroom forest and also support its promotion.

What impacts did mentorship meetings with another farmer have on you and/or your farm?

LISA: We had great conversations about the flow and best use of the space. It was a great opportunity to speak to someone with so much experience!

MARCEL: Having the opportunity to speak with someone who has walked in our shoes really helped clarify uncertainties and work out the best approach to achieve our project goals. Having an open dialogue to network with other like-minded industry practitioners is a breath of fresh air and reassurance when we might feel as if we are doing this alone.

EVA: We were able to get a sense of timeline for progress that the other farms had, which was very insightful. We were also provided with some extremely helpful planning documents from a farm that has a somewhat similar growing season to us and that has been invaluable and will help us greatly in the upcoming season, providing us with a tried-and-true crop plan which we have not had in the past, so this is very exciting.

GABRIELLA: The mentor didn't have much impact as our locations are so different from each other. But it was good to speak with someone in the business that we are hoping to join into.

What is the biggest impact that this funding has made on you and/or your farm?

LISA: Having the cold storage was crucial to our ability to harvest and deliver fresh vegetables to our CSA members. The purchase of the seacan is the foundation we need to continue to push our farm business forward. This grant has catapulted our farm to the next stage and we are so grateful!

MARCEL: The funding program has permîted our farm to set up core infrastructure and purchase the necessary equipment to maintain it. In turn allowing us to focus our efforts on other parts of the farm and being more productive.

EVA: This funding allowed us to invest in critical infrastructure and tools that we need to get our farm started. Starting a farm from scratch is extremely expensive and so every bit that can go into the necessary tools puts us one more huge step ahead. Having a caterpillar tunnel as well as a heating system for our nursery greenhouse is absolutely critical in order to make a living growing food in a zone 2b.

GABRIELLA: This grant has started giving us storage location and a shelter out of the weather to work in. It has helped us to have some freedom to make a purchase knowing we won't be completely without funds for other things afterwards.

Read the final report on Brett's Living Lab – Ontario trial, which includes additional observations, data, and photos, at efao.ca/brett-israel-LLO. ■

The funding for this program was generously provided by the Federal Economic Development Agency for Northern Ontario.

Growing the Native Plant Sector

By Sarah Winterton and Siobhan Mullally

Ontario is home to over 3,000 native plants that have evolved within local environmental conditions, such as soils and climate, and in relationship to other native species. These plants participate in the web of life that forms healthy resilient ecosystems. Unfortunately, many native plants have been pushed off the landscape, the process of settlement has brought about significant land use changes through urban and industrial development. Of the over 1,500 native plants found in southern Ontario's Carolinian Zone, for example, 54% are considered rare and nearly 6% are likely extirpated.

In North America, native plants are commonly defined as the species that existed on the land prior to European colonization.

From an ecological perspective, the loss of native plants means the loss of food and habitat for other native species. Consequently, the call to action to protect pollinators and restore habitat for native wildlife is coalescing around the protection and restoration of the diversity of native trees, shrubs, grasses, and forbs on the landscape.

Returning native plants to the landscape is also a step towards reconciliation with Indigenous Peoples. Working respectfully with Indigenous communities to restore native plants on the landscape is an essential part of this process.

For ecological farmers with the interest and potential to integrate native seed and plant propagation into their practices, the demand for more native seeds and plants is accelerating, but the supply is limited. This increased need is also exposing the challenges in the native plant supply chain that are a priority to address.

Common Milkweed

A survey conducted by Carolinian Canada in 2021 gathered data and perspectives from native plant growers and users/distributors in southern Ontario on the opportunities, challenges, and barriers for growth in the native plant sector.

It identified the top three trends driving demand for native seeds and plants as:

- consumer awareness and education,
- NGO-led community-level programs, and
- ecological restoration by large landowners.

It also showed that 38% of growers want to grow more common native plants, 28% more rare native plants, 25% more species at risk, and 9% more food plants.[1]

Across the province, many programs are connecting gardeners and communities with native plants to help pollinators and other native wildlife, such as the Local Enhancement and Appreciation of Forests (LEAF) program in the Greater Toronto Area (GTA), Pollinator Partnership Canada's Bee City program, The Pollinator Paradise Project by Hamilton Naturalists Club and Environment Hamilton, and the Pollinator Pathways Project in London, to name a few.

Carolinian Canada, for example, launched the 'In The Zone' (ITZ) program with WWF-Canada in 2017 to support high quality habitat restoration

1 https://s3.ca-central-1.amazonaws.com/greenbelt.ca/Resources/GB_SONC_technical_report_E-ver.pdf

and healthy landscapes in southern Ontario. ITZ provides resources for gardeners to learn about native plant gardening and track progress online. Results so far show the collective impact of the program, with over 6,000 sites tracked, totaling over 36,000 hectares, 337,000+ native plants added, and nearly 22,000 healthy habitat and/or water conserving features implemented.

Dutchmans Breeches

Wild Lupins

Although the opportunities and markets for native plants are growing, issues within the supply chain affect growers' ability to meet the demand. Of the growers surveyed, over half cannot meet the growing demand due to a range of challenges, including the lack of native seed, insufficient timelines to produce the desired plants, no information to forecast future plant needs, and inconsistent criteria for sourcing genetically appropriate stock.

Regarding long term needs, municipalities are looking for consistent supplies of a diversity of native plants to meet key objectives related to policy goals. These include increasing tree canopy cover to meet climate resilience goals, replacing tens of thousands of diseased ash trees with native trees, and increasing the diversity of native grasses and wildflowers to support native bees, butterflies and other insects. Objectives like these represent a significant potential open-ended market for native plants.

Over the last few years, for example, the City of Toronto has developed mandatory requirements for native plants in new city-owned and private developments, under the Toronto Green Standard. At-grade landscaped sites must be planted with a minimum of 50% native plants (trees, shrubs and herbaceous species). Landscaped areas in new developments within or adjacent to the Natural Heritage System or Ravine and Natural Feature Area, must include 100% native plants. The standard also requires that 50% of these native plants come from regionally appropriate seed sources, i.e., from specific ecodistricts and nurseries that can identify the seed source.[2]

For farmers within these ecodistricts, this new development standard includes the core elements of a supply chain that supports native plant conservation, ensures the integrity of plant sources, and creates reliable market standards.

To ensure the integrity of the supply chain, the system needs to be able to recognize regionally appropriate seeds and plants. The ITZ program, for example, offers growers in the Carolinian Zone the opportunity to obtain a native plant tag that confirms the plant originates from regionally appropriate and ethically sourced seed. Nurseries using this plant tag must also meet other criteria related to Indigenous reconciliation and sustainability practices. This type of labelling needs to be expanded to regions across the province.

Other opportunities for strategic improvement within the sector point to the sustainability of a long-term market. The top five strategies that growers surveyed identified include:

Ecodistricts for Regionally Appropriate Seed Sources for Toronto

Toronto (7E-4); Oak Ridges (6E-7); Essex (7E-1); St Thomas (7E-2); Grimsby (7E-3); and Niagara (7E-5).

2 https://www.toronto.ca/city-government/planning-development/official-plan-guidelines/toronto-green-standard/toronto-green-standard-version-4/low-rise-residential-version-4/ecology-biodiversity/

- Longer-term contracts that include predictable quantities of specific native plant species
- Increased marketing for the industry as a whole
- Grants to support capacity-building and business growth
- Long-term financial investment to support the growth of the industry
- Reliable access to greater quantities and diversity of native seed[3]

As a collective of over 150 groups and individuals, the Southern Ontario Seed Strategy (SOSS), facilitated by Carolinian Canada, is co-creating a strategy that will help coordinate and align efforts in the native plant sector across the region. The SOSS is rooted in partnerships within the native plant sector; no one group can do this work alone. An ethical, holistic native seed strategy must reflect many diverse voices and perspectives including Indigenous communities, native plant growers, conservation groups, land managers, landscapers, horticulture, agriculture, industry, and government.

"Farmers are key allies in seed conservation and sustainable stewardship on this landscape," said Amy Hall, Manager of Ecosystem Recovery with Carolinian Canada. "We see a great opportunity to collaborate and partner with the agriculture community to grow more native seed and habitat."

Guided by diverse perspectives and shared interests, the SOSS aims to prioritize actions to increase capacity to grow more native plants and ensure reliable availability of the diversity of native seed needed to restore and enhance healthy landscapes for all. The SOSS will help to cultivate native plants to heal the land, protect species and ecological relationships, and respect the autonomy of native plants and the essential work they do on the land.

Ecological farmers can join the SOSS, connect with other groups who are helping to shape the future of the native plant sector, grow native plants, and help restore a healthy landscape. ■

Learn More: https://caroliniancanada.ca/seed

Sarah Winterton *and* **Siobhan Mullally** *are working with Carolinian Canada to help grow healthy landscapes in southern Ontario.*

Carolinian Canada connects leaders growing healthy landscapes in the spirit and practice of reconciliation. Together we help communities thrive for a green future.

CLASSIFIEDS

WANTED: Small pull-type combine with PTO, 7'-10'. Needs to be shedded and in excellent condition.
Call Don Hudson - 613 476 7294

AVAILABLE: Ecocert certified organic fields adjacent to Tweed, approx. 16 ac, to plant or for hay. Our goal is to eventually facilitate a small cooperative arrangement: market garden, goats, natural building. In the interim, we're open to propositions. Rotational grazing, market gardening, hay, bees etc. We may be able to support your activities with equipment (BCS, seeder, barrels, cedar stakes) & advice.
Contact Edith: edith@baragar.ca *or 450 602 1942*

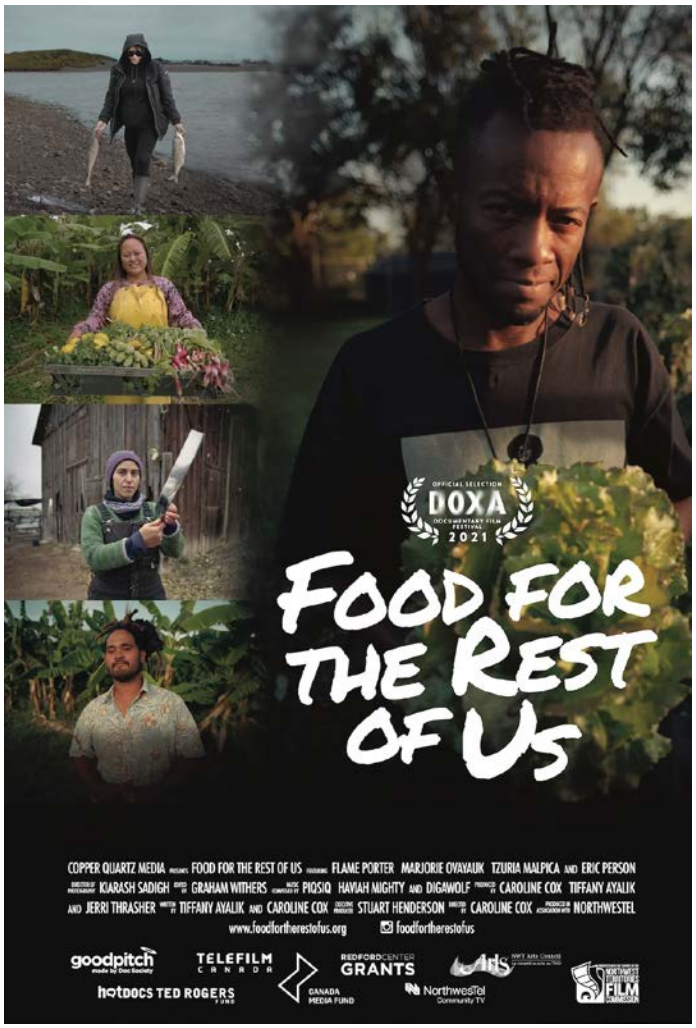
3 https://s3.ca-central-1.amazonaws.com/greenbelt.ca/Resources/GB_SONC_technical_report_E-ver.pdf

Change Starts with Community and Unity

By Shadya Ninahazwe

I really enjoyed the movie Food for the Rest of Us. Watching this movie made me feel heard and seen. It was nice to see other black and brown individuals share their stories and experiences — experiences that are very similar to mine.

The movie helped validate my place in this field. From time to time, I reflect and wonder if there's a place for someone who looks like me in this business and lifestyle. The film highlighted a lot of issues we face, but also gave light to the resilience we possess. The farmers inspired me to keep pushing on, and not let adversity take my spirit and right to be a part of the ecological community. We are all children of the earth and deserve the same opportunities to participate and work with the land.



I still consider myself a new farmer, even with the experiences I have had. The last few years I have been in and out of farming, and doing things that aren't totally related to farming, but I have now made the decision to fully invest in ecological farming. The film has opened my eyes to other sustainable avenues. Seeing what an urban farmer in Kansas City can be for his community really inspires me to continue the mission to help decolonize our minds, especially with the young black and brown youth.

The women in this film are just incredibly inspirational. From the female shocet in Colorado, who showed us that it is possible to have a successful, more humane meat processing farm, reconnecting with her roots, and sharing skillful traditions taught and shared by her ancestors, to the Indigenous men and women adapting to extreme conditions, climate change, and yet building new ways to generate fresh produce for their community; to the self-resiliency in Hawaii, cultivating between two major environmental and social issues. It just shows the power that we have, and the incredible change we can make.

I hope this film reaches more and more people, because we all need to be aware of the triumphs and challenges that farmers go through, especially black and brown farmers. This movie has inspired me to keep persevering, share my culture and continuing to connect with my community. With time we will make the change within the system and start living symbiotically with the earth. I pray this film and many others like it enlighten future farmers as it did me. I hope it brings peace and releases some of the burden that we earth activists carry. ■

Shadya Ninahazwe *was introduced to ecological farming through an internship at Manorun farm in 2018, and has been involved in food and farming in various ways since then, including some experiences in landscaping and cooking. She's passionate about being involved in projects that align with her farming vision and morals.*

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