Ecological Farming in Ontario

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ECOLOGICAL FARMERS ASSOCIATION OF ONTARIO

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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 Summer 2023 issue: Apr. 15, 2023.

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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A Message From the Executive Director

As the days continue to lengthen, I imagine that many of you are busy planning for the coming season, nurturing wee seedlings and finding some time to rest and spend with friends and family. The winter months are always a busy and exciting time at EFAO as the team connects with members and farmers through our various events and programs! I wanted to share some of the highlights from the past few months.

We tested out a new model for our annual conference this year, with three in-person regional gatherings taking place in November and an online program in early December. Around 200 participants attended regional gatherings, which were held in Waterdown, Trenton and Sudbury; and over 300 participants joined the online program. This hybrid conference format felt well-suited to the past year. The regional gatherings were filled with abundant energy, knowledge sharing and gratitude to see each other in person again! You'll find photos from the gatherings on pages 8-9. If you weren't able to join the online program, you can now purchase the conference recordings at https://efao.ca/events.

These winter months have been filled with many other learning opportunities: meet-ups, webinars, the annual Online Farm Planning course, and a series of in-depth online courses listed on page 4. You'll get a taste of the Regenerative Livestock Course from Katrina McQuail on page 24, and Vivian Kaloxilos discusses some of what you can expect from the Living Soils Intensive on page 18.

EFAO's Farmer-led Research Program has been in full swing during this season of planning and knowledge sharing. The Research Symposium was held as part of the online conference and once again brought together participants keen to learn from the research EFAO members conducted last year. Research trials included a wide range of relevant topics such as no-till potatoes, beet row spacing, regeneration of degraded soil, and variety trials including okra, fava beans, peppers, amaranth, quinoa, and more! Read about Jesse Way's research trial that explored nitrogen availability from cover crops on page 12. Keep your eyes peeled for your E-news where we'll share research reports from 2022 along with the line-up of trials for the 2023 season.

This winter we also launched a third intake for the Small Grains Program! This program, which is generously funded by the Weston Family Foundation and delivered in partnership with the Ontario Soil and Crop Improvement Association and the University of Guelph, invites farmers to place bids indicating the funding they require to plant new acres of small grains followed by a legume cover crop. Through this intake, EFAO is supporting 38 farmers to plant over 2000 acres of small grains and cover crops! We're also hosting a series of webinars and meet-ups for small grains enthusiasts throughout the winter and spring.

Lots going on and still many exciting things coming up over the next few months: a variety of online events as part of Member Month in March, and a new member map to help members connect. EFAO's online AGM will also be taking place on April 27th (12:30–2pm), and will be a great opportunity to hear more about some of the highlights, challenges and reflections from EFAO's work over the past year. ■

With much gratitude for your engagement and for all the work you do in support of ecological agriculture,

Ali English, EFAO Executive Director

We Have a Winner!

Congratulations to Scott Sigurdson of Indian Creek Orchard Gardens, 2022 Winner of the $1,000 Carrot Cache Innovation Prize! Scott's Compost Drop Spreader took the most votes by a long shot. Read more about Scott's innovation on the EFAO blog: efao.ca/carrotcache2022.

Late Winter Courses from EFAO

This year EFAO is partnering with respected farmers and educators for four unique courses on various topics dear to the hearts of EFAO members. Visit efao.ca/events to register.

- **Introduction to Regenerative Livestock** with Fran and Katrina McQuail
  Feb. 1 to Mar. 8 – Registration for individual sessions or the whole course.
- **Principles & Practices of Holistic Management** with Tony McQuail
  Feb. 9 to Apr. 13 – Registration is now closed. Contact events@efao.ca to inquire about late registration.
- **Learn to Farm Mushrooms Series** with Steve Gabriel
  Feb. 24 to Mar. 10 – Registration for individual sessions or the whole series.
- **Living Soils Intensive** with Vivian Kaloxilos
  Mar. 1 to Mar. 29 – With optional additional workshops, April 2023.

EFAO Conference Recording Bundle Now Available

If you missed the EFAO Conference Online Program, but wish to access the session recordings, you're in luck! The full recording bundle, featuring video recordings of all the concurrent and plenary sessions, is available now at efao.ca/events. To see the full list of sessions and descriptions, visit conference.efao.ca.

Willsie 3pt hitch PTO driven vegetable digger.
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V2 Compost Spreader – $1,750
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60" King Kutter Rototiller – $1,500
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No-till coulters. Variety of plates. Standard and Crumbler closing wheels for no-till. Quick adjust down pressure.

JGB Water Wheel Transplanter TR7500 – $3,500
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.

PHOTO HIGHLIGHTS

2022 EFAO Conference Regional Gatherings

Northeastern Regional Gathering

1. EFAO Board Member Annette Peltier-Flamand chats with Taryn Bobiwash from the Nimkii Youth Collective and Alex Boulet from Gaagige Zaagibigaa at the Northeastern Regional Gathering.

2. Evalisa McIllfaterick from Root Cellar Gardens near Thunder Bay talks with Johnny Kashama Batabela from Collège Boréal in Sudbury.

Eastern Regional Gathering

3. Clockwise left to right: Shini Ko of BaoBao Farm, Judy and Hans Ning of Paperkite Farm, Angel Beyde of EFAO, Aya Nash of Roots & Culture Landscapes, Tessa Lewis of Merkaba Acres.

4. Robbie Anderman from Morning Glory Farm and Vivian Kaloxilos of Docterre chat at the Eastern Gathering.

5. Mike & Ingrid of Aird Family Farms and Chris Wooding of Ironwood Organics take in the crowd.

6. Left to right: Dave Kranenburg of Kendal Hills Farm, Sarah Bakker of Field Sparrow Farms, Jeremy Delaney, and Dorothy Hector of Brass Point Farm chat at the Eastern Gathering.

Southwestern Regional Gathering

7. Nathan Klassen of Nith Valley Organics and his adorable wee one, enjoy some social time at the Southwestern Regional Gathering.

8. Left to right: Adwoa Toku of Black Creek Community Farm, Rav Singh of Shade of Miti farm, and friends socialize with a view of the farm in the distance.

9. Left to right: Amy Kitchen of Sideroad Farm, Brenda Hsueh of Black Sheep Farm, Jesse Ngau of Zawadi Farm, Chris DeVries of Common Ground Farm, Judith "ZhiiZhii" Prince of the Ubuntu Community Collective discuss how they adapted their farming operations to the changing economic and literal climate of recent years.

10. Clockwise from left: Jesse Njau of Zawadi Farm, Aramide Taiwo of True North Tropical, Jeremy Stojan of Fresh City Farms, Adwoa Toku from Black Creek Community Farm, Amy Oi Ning Cheng, Agricultural Coordinator with Rouge National Urban Park, Arnest Sebbumba of Sarn Farms, Brenda Hsueh of Black Sheep Farm, and Judith "Zhii Zhii" Prince of the Ubuntu Community Collective.

Mno Aki Land Trust: Redefining Conservation on Indigenous Terms

Mno Aki Land Trust (Mno Aki) is an Indigenous and women-led land trust model, federally incorporated in 2021 and a registered charity. In 2022, two of its founders, Becky Big Canoe and Sonia Molodecky, participated in a webinar with EFAO and Local Food and Farm Co-ops, to share about the unique model and approach. This article summarizes what they shared.

In so-called Canada, the land that the 600+ First Nations have access to through the reserve system is a fraction of one percent, and inadequate to meet community needs, says Becky Big Canoe. Historically, many Indigenous people were farmers and food producers, but the Indian Act gave Indian Agents full control over the marketing and profits from that labour. Becky says that the 1960s demarcated a switch from self-sufficiency to an imposed welfare state on Indigenous reserves. Today, a growing youth population combined with a zeitgeist of support for Grandmother leaders is contributing to a strong landback movement, and imagining new ways of accessing land that are aligned with community values.


Becky Big Canoe

Sonia and Becky wanted to create a solution for long-term access to land that incorporates traditional Indigenous governance models and values, including providing sustainable relationships with land for generations to come. "Mno Aki means 'Good Earth' in Ojibwe. It was a combination of a number of grandmothers and women coming together and talking about the land trust model," Sonia explains. "Many land trust models had not been successful for various reasons related to politics, administration, and management. So we looked at those models and tried to come up with something that was going to be strong and have a good foundation for success. We incorporated federally in order to be able to give lots of people access to it."

Mno Aki is a charity that can receive donations or partial donations of lands as well as funds to steward the lands properly. It utilizes a land trust model based on tax incentives to facilitate the gifting of lands for conservation. Sonia elaborates: "Land trusts are ultimately a legal structure that make it easy for people to give or sell land to aligned organizations. It creates a legacy for the donor and continuity for the community, and it gives people ownership and access to land. In return, donors receive a charitable tax receipt that creates significant incentives to do this."

Part of the understanding behind this approach is that Indigenous concepts of conservation differ from those of the dominant culture. Becky explains, "In 2018, the Indigenous Circle of Experts (ICE) report came out and redefined the term 'conservation.' For many years, people across Canada have been donating millions of acres of lands back to conservation, and protecting lands from people. It's a very outdated definition of conservation, but many people were benefiting from these donations and conserving millions of acres of lands to be locked up and protected from human interaction. Elders came together for the ICE report and said that Indigenous people view conservation very differently. . . In Indigenous worldviews, conservation is achieved when the relationships and uses that have conserved the lands and waters for thousands of years remain intact or are reestablished."

Sonia goes on to say, "This blows open the whole definition of conservation. Millions of acres of lands that have been historically donated to protection conservationism are actually open to sustainable land use, such as sustainable farming, training, education, microeconomics, and housing under the Indigenous definition. So we created our land trust based on this definition of conservation."

The Mno Aki governance team consists of Becky, Elizabeth Elson, Dawn Ireland, Mary Boyden, Sonia and Rachel Lachance from Black River Co-op, but in the model, people can donate lands from across the country, and stewardship of the lands takes place at the local level. The model is not governed by one institution, but is instead governed by

local women coming together for the benefit of all. The model encourages local governments, local priorities, and local management. For example, as Sonia shares, "We've created an overarching governance structure in order to align values and vision, to ensure that we're all working with the land and each other respectfully. But we're not here to define local priorities or management systems, because we really believe that the land speaks to what it wants to be at a local level. That's for individual community groups and organizations to decide for themselves, with guidance, structures, and partnerships that we're creating to aid them in stewarding the land."

Becky elaborates on the governance model: "Mno Aki land trust has developed a governance model that is very unique. Donated lands will be made available to local groups via the auspices of a Grandmother Council. Grandmother Councils are encouraged because we believe that grandmothers represent the greatest repository of life experience, cultural knowledge, and skills. Grandmothers recognize the importance of continuity and the importance of reconnecting people to the land. In order to promote cross-cultural relationships, and the growth of bridges across the diversity of individuals, the Grandmother Councils can include non-indigenous members *if* the local councils so decide. It will be recommended that the decision making be reserved to the Indigenous grandmothers, however, so that it will always be Indigenous principles that are adhered to.

If land is donated in a particular area, notice will go out to invite the Indigenous grandmothers there to meet and be introduced to the Mno Aki land trust model. Grandmothers can then decide which way they will organize themselves and how they will assume stewardship of the land. We trust that the Indigenous nations across Turtle Island know their own local land best, and they will be encouraged to revive traditional ecological knowledge practices as much as possible."

When asked about the kinds of stewardship activities that would be allowed on donated lands, Becky returns to the principle of local management: "Whatever you might want to do, you look at the natural systems that exist on the land. What kinds of plants and animals utilize that area? Every land environment is different. We want to reinforce local control. For example I wouldn't know what a Tahltan would do with land, or what a Mi'kmaq would do with land. The land and environment will be the determinant." Mno Aki would provide resources such as GIS mapping and support relationship-building with local knowledge holders in order to determine the kinds of activities that take place, but the local governance structures that are created to support the stewardship of the land will be unique in every context, and can be adjusted to allow for a variety of infrastructure. "We created the purpose [of Mno Aki land trusts] to be for sustainable use, education and awareness, and cultural and spiritual practices," Sonia explains. This includes ecological farming, training, land-based education, farmers' markets, and traditional food harvesting and healing practices. The pair point to examples such as the Toronto Region Conservation Authority's Kortright Centre for Conservation as examples of conservation lands that promote education and stewardship, complete with publicly accessible infrastructure. As Sonia says, "It's community ownership. Rather than one person holding onto 500 acres of lands, what a land trust does is keep lands in the commons."

"The land trust model is a legal vehicle to accomplish your goals, but it's the co-op model that determines whether it is economically viable," Sonia shares, when asked about the long-term economic stability of the land trust model. "[Within a co-op,] you can have lots of things — a marketplace, training & education programs, and the plethora of things that make for a multidimensional community experience. This is what we all used to live in, where everyone was benefitting from and contributing to making the whole work. We're looking more at an ecosystem community rather than an economic system that includes humans." A cooperative structure isn't necessarily required, but many of the goals of Mno Aki and Indigenous conservation can be addressed by cooperative management.

Becky explains that this approach also accounts for the important consideration of succession planning. "The idea . . . is to have the children involved so living on that land is just your way of life. I think we kind of view things as not 'this is my land,' but 'I am of this land.' Like, the land owns me, in a sense."

This profound paradigm shift is what Mno Aki seeks to create and support.

To learn more about the Mno Aki land trust and explore how you might support and encourage their work, visit www.mnoaki.org. ■

Becky Big Canoe *is an accomplished AnishinaabeKwe mother, sustainable housing proponent, writer, artist, activist and powwow dancer. She lives on Georgina Island.*

Sonia Molodecky *is a Canadian-Ukrainian lawyer with more than 15 years' experience working in international business, law, human rights and community building with indigenous nations across the Americas, Africa and Asia. She lives in King Township where she grows her own food, forages and works with the land.*

Raised with Love: Fairside Farm

by Wesley Godden

Hi, my name is Wesley. I was born in Singapore and came to Canada when I was a teenager. My partner James and I are first generation farmers that started Fairside Farm in 2016 as a reaction to all the horror stories of industrial farming and harmful pesticides being used in our food system. We wanted to be part of a new generation of farming that takes into consideration the land, the ecosystem and the cognitive well-being of the animals that we raise. Our farm is located northwest of Ottawa in the town of Eganville within the unceded lands of the Algonquin First Nations. Spanning 200 acres and surrounded by lush forests, wetlands and wildlife, we care for 200 purebred Katahdin hair sheep, 15 laying chickens, 4 vocal Guinea hens, 3 guardian dogs and 2 cats that are very bad at catching mice.

We decided to raise sheep because we love cooking with lamb, but it's so expensive in the store. We also found out that Canada imports more than 60% of its consumer lamb. We wanted to think long term and raise an animal that we could handle when we got much older; after watching BBC's Lambing Live series, and seeing many folks much older than us managing flocks much larger than our goal of 400, we thought to ourselves: "We could do this!" We soon discovered that there were two types of sheep; hair and wool. And that having wool makes for a stronger flavour due to the higher levels of lanolin. Because we preferred a milder flavour and didn't want the hassle of shearing, we opted to raise hair sheep. We chose Katahdins because it is a well rounded sheep. Considered a maternal breed, they are easy lambers and fantastic mothers. They were developed to have a higher resistance to parasites, a winter coat that sheds completely and they are a breed that is polled or scurred (they have no horns or incomplete horns), which makes for easier handling.

The first two years on the farm were the most hectic for us. Although we spent the previous couple of years researching how to raise sheep, nothing beats hands-on learning. After all the number crunching, we purchased our starter flock of 80 Katahdin ewes, fenced our property perimeter and built a barn large enough for 250 sheep. And we did this all in the first three months after we moved in. Then came our first lambing season, right in the heart of winter. For our first time lambing in the freezing cold, tagging, penning them up and trying to determine if it was the front or back feet coming out of the ewe was quite the messy challenge. Let's just say our lambing season is now in the spring. By the end of 2022, we've personally overseen the births of over 1,300 lambs.

However, the real story in our whole adventure really is the acceptance and welcome we received from the farmers in our community. It didn't matter that we were queer, or we were new, or didn't know how to drive a tractor, they were there to give us a helping hand. And truthfully, we wouldn't be here today without their invaluable help. Growing up in a collaborative culture and a sharing economy, we try our best to pay it forward. As registered breeders, we encounter many customers who are also raising sheep for the first time and we know how unsure these new farmers might be feeling. So every year, we have an open house for our customers to experience lambing for the first time. Sometimes we also guide them in grazing strategies, barn set up, handling and birthing their sheep. And through

that, we have become friends with many of them.

One of the biggest questions we get all the time is: "what do you need to start raising sheep?" There really is no 'right' way, as long as all of their basic needs are met. Adequate space and shelter from the elements, the appropriate feed for their stage of production, and fresh water are really all they need. All other options can be tailored to personal taste, operational efficiencies and creativity. Most importantly, we try to stress the importance of pasture management and understanding the behaviour of sheep, how they communicate with us and among themselves. Also how they move as a flock, and how complex their social structures are. Our farm is built in a way where our sheep are able to exercise their cognitive ability, which is in complete opposition to how an industrial farm is structured. This has always been our mission.

Farming is always filled with challenges. With livestock farming in particular, it can take a while to see the results of your labour. It can take up to a year from the time a ewe is bred to when her lamb is big enough to be sold. This poses a host of challenges. For example, last year we found that we needed more consistency in our supply chain because we can go a few months with no freezer lamb for sale. So we have added another breeding cycle this year, which will hopefully get us to our supply goals by 2024. Nevertheless, I would not change a thing. Even with all our trials and tribulations, the joy that this place brings us has been profound. The fresh air and smell of nature, the sounds of our chickens and guinea hens squawking away, the barrage of sheep rubbing up against me for scratches, every day is an experience like no other. The wildlife we see outside our bedroom window and the stars that shine so brightly in the night sky are things that we would never have had if we had stayed in the city. So I hope we can stick around for a while and keep providing our community with good nutritious food that is grown and raised with love.

That's what Fairside Farm is all about. ■

Quantifying Plant Available Nitrogen From Cover Crops

by Sarah Larsen

As an undergraduate, Jesse Way started to get curious about nitrogen availability from cover crops — from a perspective that might strike a chord with his farming family and neighbours back home.

Instead of tackling these questions by entering a graduate program, Jesse chose to return to his family's farm. In 2018, he and his partner, Meghan Brandenburg, along with Jesse's father, downsized and relocated to a smaller farmstead. Milky Way Farm a 1.5 mixed vegetable, 4 season, ecologically focused family farm located just South of Woodstock, Ontario, whose clever name pays homage to six generations of dairy farming in Jesse's family.

Nearly a decade later, Jesse and Meghan are feeling established, and have decided to bring research to the farm to answer some of those nagging questions about nitrogen availability from cover crops.

"We've always used cover crops because, from an academic perspective, we know about their soil health benefits and that they contribute to nitrogen availability," explains Jesse. "But we didn't have a good way of quantifying the nitrogen contribution from the array of cover crops we use."

Ultimately, says Jesse, "we were looking for a tool to inform us how much we can back off of purchased nitrogen fertilizers without reducing yield."

So when Jesse and Meghan read a Research Bulletin by Dan Sullivan, published by Oregon State University (OSU)[1], about on-farm methods for estimating plant available nitrogen (PAN) from cover crops, they were inspired to test these methods on their farm.

In Oregon, researchers developed a PAN prediction calculator that is available for free through the OSU website[2]. It uses the wet weight of a cover crop biomass sample, along with per cent dry matter and per cent nitrogen from lab analysis, as inputs for estimating PAN.

With the OSU studies as a template, Jesse and Meghan received funding from EFAO's Farmer-Led Research Program to run a randomized and replicated trial. Across four replicates, they compared high- and low-legume spring cover crop mixes to controls without cover crops and measured the PAN and soil nitrate available for their fall carrots.

Jesse, Meghan, and family. *Photo credit: Kindil Elisha Photography*

On the choice of cash crop, Jesse notes they chose carrots because carrots "fit into our crop rotation in terms of the number of beds available and that we were already planning to use a spring cover crop ahead of them." And, since they were still relying on the crop for

market, it felt less risky to rely solely on nitrogen from cover crops and soil mineralization for carrots instead of a heavy feeding crop.

What they found from the data was exciting. "We knew our soil was cycling some nitrogen, but this trial showed us that our soil is cycling a larger amount of nitrogen than we had expected!" exclaims Jesse.

Also exciting, was information on the seasonal changes in nitrogen availability as a result of altering the legume content in their cover crop mixes which included hairy vetch, peas and clover.

Soil nitrate values at termination showed that the cover crops acted as an effective catch crop by reducing soil nitrate early in the season. At the time of cover crop termination average soil nitrate without cover crops was 19 ppm versus soil nitrate in beds with cover crops ranged from 2-4 ppm.

As the season progressed and the carrots started to grow, Jesse and Meghan saw PAN estimates and soil nitrate values increase in the cover crop beds, especially from the high-legume cover crop. This result gives them confidence, says Jesse, to "lower the legume content — and therefore seed cost — of their cover crops for carrots and other light-feeding crops".

While it was reassuring to see data showing that the cover crop acts as a catch crop, they were even more encouraged by the applicability of both the pre-plant and mid-season soil nitrate tests for informing cash crop nitrogen requirements, when the results were compared to the research from the OSU team[3].

Overall, Jesse and Meghan were pleased to see that carrot yield from the cover crop beds were within their target yields of 175-200 lbs per 200ft^2 bed, weighing in at an average of 181 lbs per bed from the high-legume cover crop beds and 185 lbs per bed from the low-legume cover crop beds. The control beds yielded an average of 168 lbs per bed, which was statistically similar to the cover crop beds.

They were also pleased to see that the PAN estimates from the cover crop biomass measurements, and soil nitrate testing "backed each other up, and proved useful." Jesse feels this trial shows that these measurement tools are "promising for testing in different scenarios in the future."

Admittedly, taking the biomass samples and having to interpret the results for the first time this year was "a little daunting because doing something for the first time you might think it is more challenging than it really is", reflects Jesse. Nonetheless, they encourage other farmers to take biomass samples because it is a relatively easy way to estimate PAN through the growing season.

"Sending a sample in for per cent moisture and per cent nitrogen is around $40 for so much valuable information", says Jesse. "And if you do that for a few years you can create your own farm-specific database so you can use fresh (wet) weights and don't need to rely on lab analyses (indefinitely)."

This year Jesse will continue the trial looking at the effect of tillage and planting date on a cover crop of overwintered rye and vetch. He will also continue to send in cover crop biomass samples for different cover crops to populate his farm-specific database — and sees potential for other farms to do the same to generate regional-specific databases that can inform a broader community of ecological farmers.

"This trial provides more evidence of the value of cover crops, and helps demonstrate the use of cost-effective tools available to farmers to quantify PAN from cover crops so we can better account for nitrogen in our systems." ■

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.*

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1. Sullivan et al., 2020. Estimating Plant-Available Nitrogen Release from Cover Crops. Oregon State University Extension Service.
2. Sullivan et al. 2019. OSU Organic Fertilizer & Cover Crop Calculator: Predicting Plant-available Nitrogen. Oregon State University Extension Service.
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Finding the Right Fit: A CSA Web Platform Journey

by Heather Coffey

Our community supported agriculture program (CSA) grew slowly in our early years. The majority of our vegetables were sold at farmer's markets. As farmers, we far preferred CSA as a method for distributing our veggies but we could tell there were barriers to more members joining us. At the time, we were still collecting membership forms and payments up front, managing absences with an excel spreadsheet, and delivering the same bag of weekly vegetables to every customer.

It was 2017, or year six of our operation, and we were only selling about 30% of our produce through our summer and winter CSA. With some trepidation, we took a gamble and signed up for an online web "portal" to run our CSA (after meeting the founder at an EFAO conference!). The portal addressed several barriers that small farms were experiencing to distribution through a CSA model:

- keeping veggies that members wouldn't eat out of their pre-filled box
- an option for members to swap out items
- allowing members to buy extra veggies
- online access to their delivery schedule and pick up location changes
- managing payments (credit card) and allowing them to be broken up instead of the pay all at once up-front model
- handling customer support emails
- simple outputs: harvest lists and labels for each order, stop exports for home delivery

We were intimidated about managing an online portal, unsure of the administrative burden, and nervous about the cost. But we also wanted to make it easier to be a customer, keep them happier, and ultimately feed more people through the CSA. This web portal just made sense.

Over the years, new features were added and we adopted those we liked. We offered different share sizes and unlimited "skips". We shifted from cash up front in the spring to a pay as you go system. We auto-renewed members between seasons. As we grew and developed as farmers we were also able to offer better veggies and produce more on our acreage. We worked on our soil quality, seed selection, distribution, weed control, efficiency and irrigation. When the pandemic hit, we were grateful to have an established web portal to offer up our projected market sales to CSA members instead. That allowed us to adapt quickly.

By the end of 2021 the CSA had become 87% of our sales. We had dropped almost all of our markets and doubled our total sales (since 2017). Amidst our success was a concerning trend: a new "monster" growing among our expenses. The portal costs had tripled, as their fee was a percentage of sales.

One day I called out the software provider on their worsening tech support and got some shocking news. We had been working with them for four years, sending them a percentage of all our sales and providing them feedback to help build and improve the portal. They told me they had "refocused" their energy on becoming a distribution company in one region, and were no longer providing technical support to pick-up CSA models like mine. I did a quick check online, and they were no longer accepting new farms to join them[1]. It felt like we were on a sinking ship.

1 In the last month we were with them, they announced that they were going to continue offering a farmer portal to support farmers. I think they were starting to see farmers abandoning them, and I knew why! Sadly, I've seen no updates since we left, but their website is recruiting new farmers again.

I dreaded having to switch platforms. A change in portal is a hassle for customers, and a learning curve for those less comfortable online. I knew how much effort portal setup takes and wasn't looking forward to the administrative learning curve. To make things worse, EFAO had recently done a talk looking at different web platforms, as well as going do-it-yourself, and no options covered met our needs. We had become dependent on a portal: both liberated and constrained.

Eventually I found an established company with longer term potential, and in 2022 we launched. And in the end, it was easy enough to get the hang of it after having used one before. The new platform gave me a lot more control (which I wanted) that came at the cost of increased complexity (kind of unavoidable). We gained the "continuous" subscription model and ability to integrate wholesale. We lost customer support, but turns out that's only 5 – 10 emails a week, which is totally manageable! We also lost the ability for the customer to identify preferences for what is included in their share, but since most people edit the contents of their share anyways, hopefully it wasn't a deal breaker.

Changing portals wasn't a walk in the park. It takes some dedicated office time to transfer over a big system like that, and get it all running smoothly. We took a hit our first season as "guinea pigs" for a pre-filled box model. Had I realized the extent to which web development would take place during the season, I would have waited a few months. Educating members about a changing portal was not fun, but thankfully within a couple months it was running smoothly.

Unfortunately, our *summer* CSA sales were down 30% compared to the prior year. It could have been the "guinea pig" shock of an imperfect system that didn't do what they wanted, the fact that we couldn't promote a system that wasn't working properly for the first couple of months, or just members who decided not to renew with a new platform to learn. Not entirely unexpected. Our portal change also happened at the same time as inflation was pinching everyone's budgets this year and habits were still settling down post-pandemic. Any members we speak with seem to find the new system works just as well. It's a little less slick, but still perfectly functional. The biggest win was the large drop in operational expenses: the new platform is only one third the annual cost! That cost is based on a yearly fee for features used, independent of total sales. So the drop in sales was cushioned by reduced expenses and increased wholesale. We're targeting a 10% increase in membership this year, to cover the gap.

I can do all the portal-related admin tasks in about three hours per week — from posting estimates, updating products, launching, editing, printing reports and labels to processing payments. Add in the time it takes to do my field walk for estimates, write a newsletter, and a few follow up emails for failed payments or portal questions, my day is full. If I'm lucky I can sneak in processing payroll and bill payments too.

Online platforms have the power to really alter small farm businesses.

Choose carefully. Changing is not fun. Unless you're a glutton for punishment, wait for it to work the way you want it to before jumping on board. I'm really glad we made the switch to Local Food Marketplace, and really happy with the tech support team who works with us and sees us as a valuable customer. As an added bonus, their branding is behind the scenes, so our CSA members don't know who they are. For what we do here at Fiddlehead Farm, I think they're a perfect fit for us. A small but established company with a tight knit team that works on the development while you grow and distribute your veggies! ■

Fiddlehead Farm feeds around 300 families year-round with a customizable vegetable CSA. Heather and Stephanie started the farm in 2012 and produce ecologically on 10 acres in Prince Edward County, Ontario.

Greenhouse Snapshot: Materials and Heat Sources

by Sophie Clark

Greenhouses are a popular infrastructure for farmers producing fruits and vegetables, seedlings and potted plants, cut flowers and much more. This short article considers greenhouse design, and the fuels and energy used to heat them.

An inflated double-layer of poly-film from the exterior.

We Keep Building Greenhouses in Ontario

From 2011 to 2016, Statistics Canada reported an increase in greenhouses on Ontario farms for vegetable production[1]. The 2021 Census of Agriculture shows that the products most often grown in greenhouses are (from most to least greenhouse space used): tomatoes, peppers, potted plants, cucumbers, other greenhouse fruits and vegetables, cut flowers, and herbs. Greenhouses built with glass and poly-film continue to increase[2]. Glass is good for light transmission, aesthetics, and durability (if protected from breaking). However, glass can be pricey and heavy, and unless double paned, has poor insulation. Poly-film (polyethylene) is a clear plastic sheet, ideal for curved structures. Thicker sheets cost more, and a double layer of poly-film is ideal for heat capture because an inflator fan forces air between the layers to create a pocket. This is excellent for heated and unheated structures to trap thermal energy during shoulder seasons. Also, less condensation gathers on a double layer. Bear in mind poly-film will require replacement every 5-8 years[3]. For the farmer looking to reduce waste, cut old poly into segments to create greenhouse curtains, or use as tarps.

An unheated greenhouse can effectively trap heat to allow for an extended growing season, which is why so many producers use them. In contrast, the plant nursery I previously operated relied on heating to have seedlings ready for Spring sales. Similarly, for greenhouse production of flowers, there is a huge demand on Mother's Day and for June weddings, which necessitates heating. Market demand for the product you grow will factor heavily in your consideration of greenhouse heating.

Heating The Greenhouse: Fuel Options

For greenhouse vegetable growers in Ontario, electricity and fuel costs make up about 14% of total operating expenses, while for greenhouse flower and plant growers, those costs are about 5.5% of total operating expenses[4]. The financial cost of heating depends on fuel, electricity source, labour to operate, and the installation and maintenance of the heating system. Using myself as an example: let's consider what it took to heat three 20×100ft (10ft peaks) greenhouses, using double layered poly-film (with inflator fans to maintain insulation) in an operation specialized for seedlings. Propane furnaces kept the low temperature between 6 – 12 °C. To grow 64,000+ potted units for sale in May meant moving into the first greenhouse in March (when temperatures can reach –17 °C), then into the other two in April. The 3785 litre tank usually had two fills during the season. In both 2021 and 2022, my propane cost was about $5,000 (with HST). That put my heating costs, combined with the electricity (used for fans, venting and furnaces) in the 5.5% range stated above.

The most common heating fuels are natural gas and propane. Natural gas is more affordable but requires more infrastructure, whereas propane may be more feasible, though at an increased cost and requiring storage. Alternative fuel sources like wood, coal, waste oil, methane, and geothermal heat may be a good option in specific contexts. Heating systems using alternative fuel sources often require more, so it may

be unwise to rely solely on them for cold nights. Wood burning stoves, for example, can be a reasonable option if inexpensive wood (or alternative like chips or sawdust) is available, and if you can pay for someone to stoke the stove overnight (or get up every few hours to do it yourself). When looking at fuel sources to heat your greenhouse, consider transportation, safety, storage, long term availability, pricing, labour to operate, and system maintenance as well as the emissions produced.[5]

Other Resource-Saving Technologies in Greenhouse Growing

Dark ceiling curtains reduce heat loss by way of trapping heat inside the greenhouse when used before dusk. If used during the day, they reduce the cost of cooling the greenhouse by allowing less light in. Don Jianyi grows year-round in his 100% passive solar greenhouse in Alberta, utilizing dark curtains and a thick clay layer on the north wall.[6]

Utilizing principles of thermal mass like Jianyi's clay wall captures heat from the day to release later. Examples can be as simple as tubs of water stacked in the greenhouse.

Automation can optimize systems for venting, heating, air flow, humidity, light and irrigation in greenhouses. Some automation companies suggest that they can save greenhouse operators at least 30% on energy costs annually, which could improve as technology advances.

Getting Off The Grid

If you are interested in using solar power to heat your greenhouse, consider:

- Greenhouse size
- Insulative properties of greenhouse covering (glass, polyethylene etc.)
- Temperature range you aim to maintain (what are you growing?)
- Climate data on your region (where and when are you growing?)
- The heating system itself (electrical furnace, boiler, etc OR a solar heater)
- Additional electrical energy needs of the greenhouse (fans, vents, lights etc.)
- Your financial position (solar systems can be expensive to set up)

Careful consideration of these factors will create a picture of your greenhouse energy needs. The obvious limitation for a solar heated greenhouse is that you need heat most when the sun is not shining. This necessitates batteries for storage, if not a backup generator or on-grid connection.

If you plan to use solar power for an electrical heater, then you will require a PV panel array (photovoltaic cells arranged on panel absorb and transform sunlight to electricity via silicon-based technology) and an inverter for current conversion between solar panels (DC) and the heater (AC). Panels must be south facing, not block light from entering the greenhouse, and be accessible for snow removal[7]. In contrast, a solar furnace is a single unit which converts sunlight into thermal energy for redistribution based on its thermostat. You can learn more by looking at resources like OMAFRA's 'Green Energy Generation' page[8].

A photovoltaic panel array.

The options for heating your greenhouse don't end here, but the article does. This is a huge topic, so I encourage you to keep researching greenhouse heating systems to find what fits your vision and priorities. ■

Sophie Clark *is an entrepreneur and consultant who grew organic seedlings for 8 years. She is also accomplished in design & delivery of education resources on a variety of topics. Reach out and she'd be happy to chat! s.fejes.clark@gmail.com.*

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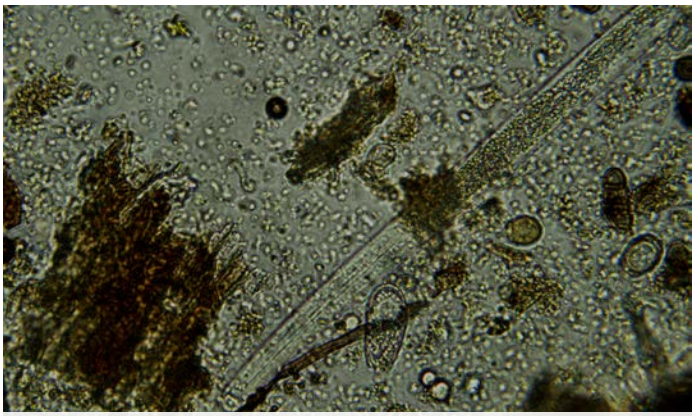
The Importance of Living Soils

Vivian Kaloxilos is offering the Living Soils Intensive, a course that digs deep into the soil and shares some of the valuable – yet nuanced – knowledge that she has acquired in a 5-week online series. Here, she discusses her background, why the course is of value, and gives a sense of what you can expect from this unique educational event!

Tell us a bit about your background — what made you fall in love with soil life?

I studied at the school of environment at McGill, which felt very problem based. During that time, I discovered permaculture, a perspective that focused on solutions. I finished my degree in Panama at the Smithsonian Research Institute doing applied research in ecology, and then joined a project on land that had previously grown GMO corn and was, consequently, desertified and either cracked up and dry or flash flooding. We focused on regenerating the soil, and the ecosystem bounced back really quickly. At first there were just mosquitoes... then frogs came; then beneficial wasps and other insects; then praying mantis and garter snakes; and then butterflies and birds. It was beautiful. Today that land hosts a cooperative farm with productive, healthy fruit trees and vegetables.

During this process I met Elaine Ingham of Soil FoodWeb Inc., and studied with her. She invested hundreds of hours in me and bought me my first microscope. With this training, I mentored Elaine's soil consultants in training all around the world for several years and in 2015 I founded Docterre because I wanted to bring this information home to Québec and Canada. I liked training consultants, but I felt that teaching land stewards and farmers to be the soil experts of their own land would be more impactful, and made more sense to me. Since then I've walked down the path of ecosystem regeneration with farmers.



Compost viewed at the microscopic level, that has a bacterial feeding nematode, an amoebae, fungi, beneficial fungal spores, yeasts, and great bacterial diversity.

Soil ecology helps settle the eco-anxiety: being able to see the "aha!" of all the problems that can be solved by soil ecosystem services and functions. It's amazing to understand that something you can't see matters so much. The only reason plants evolved onto land is because they developed microbial associations — how incredible is that?

Why is soil health and soil life a cornerstone of regenerative agriculture?

We have yet to collectively define "regenerative agriculture." I propose that at least part of the definition involves agroecosystems that build and store more resources, richness, and diversity year after year. It's an accumulation of nutrients, minerals, resources, and life. Only a living being can regenerate itself, that's why living soils are taking a central role in the regenerative agriculture discussions, as a farm becomes a living system from the ground up!

The soil on planet Earth cycles nutrients and resources, purifies water, suppresses

disease and pathogens, and sequesters carbon. We need a certain number *and* a certain diversity of living organisms in the soil in order for these services to be rendered. It's not sand, silt or clay that does that: it's the microbes.

You can't have regenerative agriculture without a functioning, living soil ecosystem. Bringing our farms back to being biodiverse and functioning ecosystems — that's the whole point.

What are some examples that illustrate how learning about soil life has changed a farmer's practices and outcomes for the better?

There were three large scale grain farmers in the EFAO online conference webinar "Perspectives on Living Soils," and they each said that the most important investment they've made in their journey of restoration was their own education. Being equipped with knowledge means farmers are empowered to think for themselves and do what is best for their land.

Jean-Francois is an example of a farmer who empowered himself with knowledge. When I got to his land, he had poor harvests and didn't know what to do. Agronomists told him his soils were fine, but his crops were failing. He was told he must have been doing something wrong, because his soil was supposedly healthy. He was certified organic, using cover crops and doing all the things you are supposed to do. It turned out that nine years prior, on the advice of an expert, he had put paper industry byproducts on his fields to increase organic matter. This upset the soil chemistry and made it inhospitable for soil life. When I looked at his soil at a microbial level there were barely any fungi or predators. I was able to tell him that he wasn't doing anything wrong, but that his soil life was weakened. He learned so much about soil life, what fungi do versus bacteria, what encourages fungal dominance, how to treat his seeds and plants when planting, how to make compost extract, when to do these things, and more. He started with a 10-acre trial, spraying compost extract among other things, and then jumped all in with 2000 acres. His non-organic neighbour actually saw the improvement in his crops and how much he was spraying and called EcoCert on him to investigate! Now JF is seeing his land improve every year. He's trying out different things and can follow the impact. It's never one solution — there is always a synergy of actions that impact soil health.

What do you think folks might not know about the Living Soils course that you want them to be aware of?

We don't say that compost tea is the one and only solution! There are people who teach this stuff who talk a lot about the science, but when it comes to practical implications they say "well, just put out microbes." Compost extracts and teas *are* important — folks taking the course will learn about them and know how to make them — but teas and extracts will also be put into context with other actions that need to happen in a holistic and systemic approach. It depends on your farm and what it needs — if you've got all the permaculture principles in action already and just need to tweak the microbial life, perhaps compost tea will be enough. Otherwise if the only change you make is compost tea, it will help, but you won't be creating resilient systems that gradually take responsibilities off the farmer. It will be a bandaid if you don't have the larger systems view. This is why a lot of folks think compost tea might be snake oil: it is often pushed as the sole solution without a systems-level understanding. This layered and nuanced knowledge is what I teach in my course.

There were three large scale grain farmers in the EFAO online conference webinar "Perspectives on Living Soils," and they each said that the most important investment they've made in their journey of restoration was their own education.

A batch of activated compost extract in progress.

Who do you think should sign up for this course?
Everybody! But farmers are my first priority.

If you're a farmer looking to understand the "why" behind changes you've been seeing on your farm, *this course is for you* — especially if you want to make more detailed adjustments that come from this understanding.

If the whole thing is a blur and you want clarity — *this course is for you*.

If you want to learn how to make liquid microbials and when and how to apply them so you get success and are as efficient as possible — *this course is for you*.

If you want to understand why soil microbial testing is important and what it means, or if you're interested generally in how to support more climate and disease resilience, and in understanding how carbon sequestration and water and nutrient cycling works —*this course is for you*.

If the question "Why is it that the forest doesn't need fertilizer inputs?" really interests you and you're looking to create thriving food ecosystems — *this course is for you*.

What's one piece of advice you want to give farmers to support a thriving soil ecosystem this spring?
This is a bit hard to answer because the best time to work on soil life is actually in the autumn!

If in the spring you have the opportunity to increase the diversity of plants that are in your management, and can transplant using mycorrhizal fungi and compost extract, you will have a huge impact spreading that mycorrhizae. A seed coat when you seed would help kick it up a notch! ■

An expanded version of this article, with more details on what to expect from the Living Soils Intensive, is available on the EFAO blog: efao.ca/news.

The Living Soils Intensive with Vivian Kaloxilos will run from 12:30-4:00 pm every Wednesday, from Mar. 1st to Mar. 29th (online). To register, visit efao.ca/events.

DOCTERRE
SOIL REGENERATION

Participant Perspectives: The Ignatius Farm New Farmer Training Program

Connor Pion (they/he) *is currently a Learning & Development Specialist in the nonprofit sector focusing on 2SLGBTQIA+ inclusion in the workplace. When Con isn't at work, they daydream about farming full-time, read nerdy sci-fi and fantasy novels, and enjoy birding and hiking with their partner.*

Cady *farms with Alvis, and together they run* ***Deeper Roots Farm,*** *a small scale vegetable farm operation in Toronto. While they grow a wide range of familiar crops, they specialize in growing cultural staples of the African Diaspora.*

Jennifer Storey *is an aspiring farmer from Guelph, who participates in the Ignatius Farm Workshare Program. She is filled with awe and wonder about the mysteries contained within each tiny seed.*

What inspired you to join the Ignatius Farm New Farmer Training Program last year?

CONNOR: After two years of living through the COVID-19 pandemic, I was feeling isolated. My mental health was in a bad state and I found myself deeply reflecting on the state of the world and how white supremacy, colonialism, and capitalism continue to wreak havoc on the environment and shape our extractive and destructive relationships to the land. I was shaken by the experience of having seen so many empty shelves at the grocery store, and witnessing the fragility of our food system. Things were feeling real dystopian, so I decided to do something about it. I was determined to figure out how to grow food in ways that can increase food sovereignty and sustain communities, how to care for and give back to the land instead of only taking, and how to shift from a desk job into land-care work. I did a lot of reading and research but knew I needed more practical knowledge — and that's when I found and registered for the Ignatius Farm New Farmer Training Program.

JENNIFER: I have been involved with the Ignatius Farm as a community gardener for about eight years. After occasionally volunteering on the farm, I heard about the Farm Workshare Program and decided to participate by working once a week at the farm in exchange for a CSA vegetable share. Being in the field with the farm team I learned much more about how food is grown and harvested on a farm. I was so inspired by this experience that I decided to participate in the Ignatius New Farmer Training Program.

CADY: I am always interested in learning, and felt that the Ignatius New Farmer Training Program was a great opportunity to learn something new, or provide me with a refresher. I've taken EFAO's Online Farm Planning Course and enjoyed it, especially the interactive aspect. Being able to speak with other farmers and talk about typical troubles is helpful because sometimes someone else may know the solution. There was an opportunity to speak with other farmers in the Ignatius program as well, which I find important.

Describe where you are at in your farming journey. How did the program help you progress on that journey?

CONNOR: I was a true beginner with very little knowledge or appreciation for the depth of expertise, dedication and selfless commitment required to farm. The program was well designed for me, with a full semester dedicated to the

Connor working at Blue Wheelbarrow Farm. Photo Credit: Jamaias DaCosta.

basics — everything from soil science to farm tool identification and crop types. Because I worked from 9 to 5, I was unable to attend any of the sessions live, but excitedly watched the webinars in the evenings or on weekends! The program helped provide me with enough foundational understanding to feel confident applying for a farm internship. After spending two of the most fantastic months of my life living and working with Aaron Armstrong and the crew at Blue Wheelbarrow Farm, my interest in farming grew into a deep love. Since then, my partner and I have moved from Toronto to Prince Edward County and now farming is mostly all I think about, and the only kind of work I really want to do.

What challenges do you face in realizing your farming dreams?

CADY: Urban farming has a lower barrier to entry, but long term there are a lot of recurring costs that I find makes it expensive. I think that educational opportunities are crucial because sometimes there are more cost effective solutions to a problem. For example as an urban farmer, your acreage is limited and your lease is much higher, usually at market value. In my personal experience, I find that you need to be very strategic with your farm operation to ensure that you can pay your operational costs and make enough to generate enough profit to pay yourself.

JENNIFER: When considering how I might do this for myself, I expect the biggest challenge is finding a suitable and affordable piece of land.

CONNOR: Right now my biggest challenge is having to keep my desk job to afford to live while I try to find farm work that I can do around my work schedule. It is far from ideal, but I have faith that with enough determination I can find a way to make it happen.

What were some of the most valuable insights, resources and takeaways that you gained from the program?

CADY: Having access to the courses on finances in the Ignatius Farmer Training Program was great for me. Receiving consultation from accountants is great and very needed however I find the courses provided in the Ignatius Farmer Training program to be much easier applied to my farm operation.

CONNOR: For me, the Term 1 content (establishing a foundation of knowledge and language for basic farm work) combined with the guest speakers from Terms 2 and 3 (applying farm language and knowledge & expanding beyond basics and building skills for a specialized farm) really shed light on the realities of different kinds of farm work and knowledge. I was able to directly apply my knowledge during my internship and found myself referring to course work or lectures during daily activities on the farm. It helped the knowledge sink-in in real-time application and sped up my orientation to farm work. I would have to say, the most memorable of all for me would be Lisa Conroy's fantastic tips for tomato care (specifically when navigating/ avoiding blight), Brenda Hsueh from Black Sheep Farm's incredible lecture on keeping sheep (which helped me discover my love for sheep — and now I want to be a sheep farmer) and Fianna Dirks' super insightful and fantastically nerdy lecture on composting.

JENNIFER: It was such a well-rounded program. It consisted of webinars and field trips with topics such as seeding, managing pests, weeding, healthy soil, equipment, finances, and so much more. I can incorporate what I have learned when in my garden. I understand more of the whole of farming. Now, I more deeply appreciate the joys, sorrows, passion, hard work and commitment needed to run a farm and produce good organic food. I also learned about many creative possibilities for producing food.

Are there any supports that would help you move forward, that don't currently exist or that you aren't aware of?

JENNIFER: I would want to grow and share the experience with community support.

CADY: I would love more support with financial education and training. I don't

ever think you can be too educated on this topic. Especially considering that my urban farming peers, like myself, primarily seek financial support.

What do you plan to do next?

CONNOR: My farming dreams are still in formation but include creating healing spaces for queer and trans folx, communal land-care, Indigenous food sovereignty and #LANDBACK as well as tomatoes, nut trees, sheep and some runner ducks. My current goal however, is to be able to pour my energy and passion into supporting a local farm and gain more experience while earning enough money to pay my bills. I am hoping to gain as much experience on a wide diversity of farms as possible and inch my way closer to farming full-time and having a deeper, more wholistic and complex understanding and relationship to the land and other-than-human beings. If there are any queer friendly farmers in the Prince Edward County region looking for a super geeky and keen intern, please reach out!

JENNIFER: Over the last few years, I have saved seeds and planted more pollinator plants and edible flowers. I love working in the soil and hearing the bees buzzing in the borage beside me. I have also been mixing the biodynamic preparation ingredients and sprinkling them onto my garden with the intention of enlivening the plants and soil.

Would you recommend the program to other farmers like yourself?

CADY: Whether you are an experienced farmer or novice, I would recommend the Ignatius Farmer Training Program. It's a great opportunity to learn something new, or to refresh your memory. Farming is ever evolving with various methods for doing the same routine things. Sometimes, two farmers experiencing the same problem may find different ways of dealing with it. I feel that the Ignatius Farmer Training Program is a great way of exchanging knowledge from Farmer to Farmer. Especially the opportunities for farmers to converse with one another outside of the workshop.

CONNOR: Absolutely! I have already recommended it to most of my friends and would recommend it to anyone who is interested in farming, land-care work, food systems, food sovereignty, and really just anyone who eats food. And I hope that the Ignatius Farm New Farmer Training Program can continue receiving funding to cover tuition costs, because that had a huge role in my being able to access the program!

JENNIFER: Yes! Hearing from so many experienced and specialized farmers was so informative and inspiring. I have already recommended the Ignatius Farmer Training Program to family, friends who garden and aspiring farmers I know. ■

ALL PHOTOS: Jamaias DaCosta

Choosing the Right Livestock for Your Farm

Part 2 – Poultry

by Katrina McQuail

In the first part of this article, which appeared in the Fall 2022 issue, we looked at basic considerations for getting into livestock. Here, we look at the unique needs of different types of poultry.

Poultry, such as **chickens,** are the easiest and most common livestock to add to an operation. Quota is an issue for both laying hens (limit of 100, can only sell ungraded eggs at farm gate) and meat birds. For meat birds, there is a family production limit of 60 to 300. If you are part of the Chicken Farmers of Ontario Artisanal Chicken Program, you can raise between 600 and 3000 birds, which must be processed by a licensed abattoir.

There are many different breeds available, from heirloom to modern, in a wide variety of colors, with different sizes and rates of growth and rate of egg production. You can raise your own from easily available day old chicks (or you can hatch your own). They must be brooded under heat until fully feathered out at 4 to 6 weeks, depending on time of year. Chickens need a 20% protein ration when young. Laying hens can be raised from day-olds or purchased as ready-to-lay pullets at 22 weeks. They need a special grain ration with additional grit and calcium to support egg production.

When choosing a laying hen, you'll want to think about productivity. Different breeds have a different frequency of laying, and can lay different coloured eggs. Visually, do you want a uniform flock, or a mixture of colours?

For housing, chickens need shelter at night. Layers like to roost and will need nest boxes for laying eggs. You'll also want to have predator protection, both from the ground and from the air. Predators include; owls, hawks, foxes, weasels, raccoons and local dogs.

For meat birds, you'll want a movable pasture system, whether it is a hoop house and electronet or 10×12 range pens that you can move daily. You also need to make sure that you are able to secure processing. Recently, small processing plants are booking *up to two years in advance.* Think about what size of finished product you want, and how long it will take you to raise the breed you choose to that size. White Rock is a common breed, and a quick grower with a very efficient feed conversion. However, they have leg and heart attack issues. If raised to 10-11 weeks of age they average about 7 lbs in mixed sex birds. Bonnie's Heavy Red and Frey's Dual Purpose are much easier to raise. In our test, at 11 weeks they averaged 5 lbs for the mixed sex birds and had eaten the same amount of feed as the White Rock.

Ducks and Geese, which are waterfowl, are less common, but recently becoming more popular again. Day old ducks are available from local hatcheries, but geese are not as easily available. With ducks and geese, you'll see similar issues as with chickens when they are raised from day-olds. One concern with mature animals is that they will love to swim in watering troughs and foul them up (but this will also make them very happy!). Ducks and geese are also happy to forage, and will get more feed from foraging on pasture than chickens. They are also more difficult to dress out, as they have pin feathers which are more difficult to remove.

Turkeys are raised similarly to chickens but they aren't nearly as smart! You might experience issues with your turkeys not being able to find their food or water, eating their own bedding, or catching Blackhead disease, which turkeys are especially susceptible to. There is a marketing board limit of 50 turkeys. Turkeys will roam if not contained and are known to roost in trees. In our experience, turkeys are especially good at finding ways to die.

Quail are a "game bird" which is classified differently than domesticated poultry like chickens and turkeys. They are technically part of the pheasant family, and closely related to partridges. There are over 100 breeds of quail. Some of the most popular quail breeds for backyard farmers are the Northern Bobwhite (can not raise these in Ontario without a license), the Cortunix, and the California Quail.

Due to their small size, they take up less space than any other poultry, but because of their activeness and ability to fly, any enclosure needs to take that into account. You'll need one square foot floor space per quail. You can even keep a small number inside your home, in a cage, if you don't have access to outside space, but you'd want to make sure to clean the cage regularly and well to prevent smells and disease issues. Quail are vulnerable to predators due to their size — our barn cats have gotten a few, despite our reinforced pens.

When quail are young they need a lot of protein — a 30% ration. As they get older you can reduce it to 20%. They are susceptible to disease, so good biosecurity is important.

Quail are territorial birds, so there can be issues with introducing new quail to a pre-existing flock, including babies that you've hatched from their eggs. They also need adequate space at feeders (1") and waterers (⅓"). Males will fight (and kill) other males if breeding, so they should be kept separate from females or at a low male to female ratio.

Quail eggs are about ⅛ the size of a chicken egg. They start laying somewhere around six to seven weeks. Hens will lay daily for about eight months, if they have adequate light (14 to 16 hours per day). After eight months, the laying starts to decline. Quails can lay 150 to 300 eggs per year.

If you want to raise quail for meat, you need to know that they are much smaller than chickens and other meat poultry. They are generally between 5 and 13 oz. They mature in seven weeks. People who grow them for meat often grow them in reduced light conditions to limit their movements to help with meat gain and tender muscling. The reduced light is not very compatible with efficient egg laying, though females in low light will lay, just not as frequently.

Other birds you can potentially raise and have commercially processed include pheasants, guinea fowl and peacocks. Some people even raise pigeons (squab) for home consumption or racing.

As you can see, there are benefits and challenges to every type of poultry. You can run some poultry together — like ducks, geese and chickens. Regardless of which species you choose, it's important to do your research. There are numerous resources out there. Whatever you decide, have fun with it. Check back in the next newsletter for more information about larger livestock. ■

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.*

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