Ecological Farming in Ontario

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EFAO
ECOLOGICAL FARMERS ASSOCIATION OF ONTARIO

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Contents

Features

In Each Issue

On the cover

Isabelle Rodé of Vintage Soil Farm working in the field with her ponies, Abby and Kenny. Find about more about Isabelle's draft-powered farm on page 7.

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 2022 issue: July 15, 2022.

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

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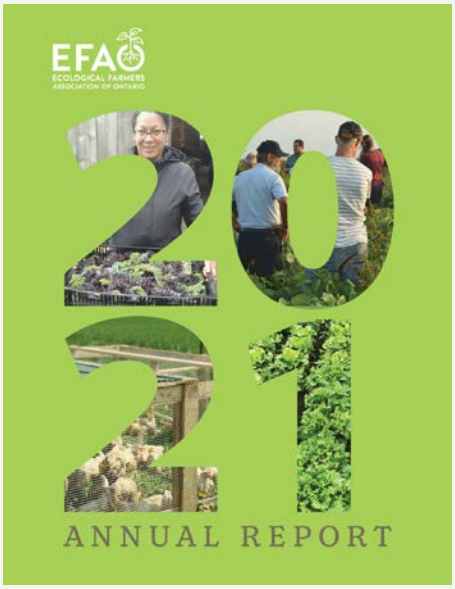
A Message from the Executive Director

Dear members and friends,

Thank you to everyone who attended EFAO's Annual General Meeting in April. It was a wonderful opportunity to review EFAO's work and achievements, and celebrate member engagement and leadership in the organizations' various initiatives over the past year.



Highlights from the past year include:

- 245 new members joined EFAO!
- 2113 people attended 113 events, mostly online.
- 463 participants attended EFAO's 8th Annual Conference, making it the best attended EFAO conference to date.
- 33 farmers participated in 29 on-farm research trials, with lots of interest in variety trials and reduced-tillage vegetables trials.
- 195 participants joined EFAO's Small Grains Network.

We were thrilled to elect five new members to the Board of Directors: Denise Miller, Celeste Lopreiato, Anan Lololi, Annette Peltier-Flamand, and Jennifer Forde. A big thank you to Crista Thor and Annie Richard for all their contributions as board members over the past several years. To read more about our new board members please visit efao.ca/team.

As we look ahead to the coming months, the EFAO staff team is extremely excited to be hosting a wide range of field days that will highlight member farms, research trials, program developments, and offer an opportunity to walk each other's fields once again.

With much anticipation,

Ali English

p.s If you missed the AGM but would like to view the recording, please contact martina@efao.ca.


Denise Miller


Celeste Lopreiato


Anan Lololi


Annette Peltier-Flamand


Jennifer Forde

2021 Member Survey Report

We are pleased to share findings from the 2021 Member Survey, the first comprehensive member survey in many years. See the recent post on our website to learn more about EFAO's membership and read some of the valuable feedback that will inform our work over the coming years. A big thank you to everyone who took the time to participate. You can find the Member Survey Report on our website.

Summer Field Days are Back

We've got a full slate of summer field days in the works across Ontario, for a wide variety of farming interests! Get ready for some exciting events on the following topics — and keep an eye on your mailbox for a postcard with more field day details very soon!

2022 Field Day Topics:

- Seedling Production
- Permaculture
- New Farmers
- Urban Agriculture
- No-Till Garlic
- Rotational Grazing
- No-Till Field Crops
- Seed Cleaning
- Culturally Diverse Vegetables
- Silvopasture

New Resource: EFAO Member Video Library

During EFAO's annual Member Month celebration, we piloted a new resource to enrich your member experience: an online video library chock full of past event videos, webinars, and informative content! To access the member video library, log in to your EFAO member account and click on "Member Special Offers" to find the link and a members-only password that will allow you to access these special resources.

Please note that not all EFAO events will be recorded or included in the Member Video Library. Content will be reviewed and updated on a semi-annual basis.

Thank-You, Laura Cozzi

EFAO wants to extend a heartfelt thank you to Laura Cozzi, a student of Centennial College's Professional Writing and Communications program, who volunteered with EFAO in March and April. You will find Laura's work in some of the upcoming issues of this publication. We were so grateful to have her support with publication content and social media this spring!

Isabelle Rodé: Vintage Soil Farm

Vintage Soil Farm is an ultra-low emissions, regenerative vegetable CSA and market garden serving the Ottawa region.

How did you get started in farming?
I am lucky to say that before my family moved to Kingston I spent a significant part of my childhood in Grey County, where we had a hobby farm. The thought of being a farmer never occurred to me while we lived there but I grew up loving the outdoors and all the perks that come with rural living.

I didn't start farming until after I finished university. I had completed an environmental degree and tried my hand at a variety of jobs during my co-op terms and I found I didn't particularly enjoy working at a desk. I had spent a number of years working in conservation areas so I knew I enjoyed working outside. A lot of farms were hiring so I decided to get a job at a farm for the season and that I would figure out my next step after the summer. Fast forward almost eight years, and I'm still farming!

Who have your mentors and role models been along the way? What lessons did they teach you?
Farming is a really hard industry to work in. A lot of people try their hand at farming for a season or two and then decide to leave because of negative work experiences. It's really important for farmworkers to be deliberate about who they choose to work for and why, because it could mean all the difference in their farming career. I had an amazing first season of farming and then over the next two years slowly became more burnt out. I almost left farming completely.

Without a doubt the reason I am still farming today is because I left that business where I was overworked and underpaid and happened to land at a farm that helped me find my love of farming again.

I am very fortunate because in my farming career I worked for some amazing female farmers. I just lucked out. These farmers (Emily at Root Radical, & Lydia at Cropthorne Farm in particular) have been sources of

mentorship for me at different stages of my farming career. They both demonstrated the importance of planning, organization, record-keeping and valuing staff.

An invaluable lesson I learned is that tracking, communicating, and understanding where processes can be improved leads to a dynamic work environment that keeps things running smoothly and keeps staff engaged.

The value of staff was another great lesson that I learned. Setting expectations from day one for how you both want the relationship to go combined with proper communication channels leads to overall success and staff who feel heard and appreciated. Your staff is an extension of your farm and what you're portraying to your community. I hope that my farm can help contribute positively to our industry and to the up and coming farmers of tomorrow.

What has the journey of land access looked like for you, so far?

My journey echoes that of many other first-generation farmers I know. I planned on starting my farm in 2021 and had a number of wheels in motion to make that happen on land that I owned. I had spent the majority of my farming career around Vancouver but I always knew I wanted to start my own farm in Ontario closer to my family. In the years before moving back, I researched affordable land in Ontario that was close enough to a populated city. But by the time I moved, unfortunately the land was no longer affordable due to the sharp increase in real estate prices throughout the covid pandemic.

When it became evident that buying a farm may not happen I set out to find land to rent which led to me where I am now, going into my second season on rented land south of Ottawa.

I continue to be vigilant and I am exhausting all options, but I'm trying to avoid uprooting and moving to another new location further away from my family.

Has farming with draft horses had an impact on how you've built relationships in your new community?

The draft community in eastern Ontario consists of mainly pleasure drivers. Nonetheless, it is a small community, and after buying Abby and Kenny someone in the area was able to connect me to others who had extra equipment that has been useful for a new farm. I'm hopeful over time the draft community will expand and a younger generation will learn and enjoy the connection you can have with the animals.

Tell us about Kenny and Abby! How did you decide to farm with draft ponies? What was your experience with draft horses prior to bringing them on to your team?

Kenny and Abby are my team of draft ponies. Kenny is slightly older than Abby and he grows the best moustache in the winter! In a previous life, he used to do logging so he loves it when there's heavy work to be done. Abby is a little more reserved than Kenny and constantly has to remind him that walking is just as practical as prancing. She was ridden in a past life so I enjoy an occasional ride with her. Both of them were living a pre-retirement life of pleasure driving and camping trips before me. We're all learning and growing as a farm team.

I grew up riding horses and after meeting my now very good friend, Naomi at Four Beat Farm I became really excited about the idea of incorporating a team into my own farm.

I didn't have any experience working on a draft-powered farm prior to starting one, but having a background in riding horses definitely made a huge difference for me.

What has it been like to bond with them and make them a part of what you do? What challenges have you faced?

There was a steep learning curve at first. Farming was/is new to them (they had been a driving pair but pulled wagons, sleds and some basic farm equipment), so we are definitely on a journey of re-learning together.

Using draft over a traditional tractor does come with benefits. I am able to get into the field sooner because we create less compaction than a tractor. The necessity to decrease our use of fossil fuels is becoming increasingly evident. And finally being closer to the soil and the quiet (from not running a diesel engine) has, for me at least, created a deeper connection to the work I'm doing and the impact I'm having.

Choosing to be different from the majority is hard. It's hard to be a draft-powered farm in a tractor-powered industry. However, I am very thankful for my network of draft-powered farms. Whenever things get tough I have a number of farmer buds I can turn to for advice and that is invaluable.

What do you grow and how do you market your products? Do you have any advice to new farmers out there for overcoming marketing-related challenges?

I grow a large diversity of mixed vegetables which I distribute through a CSA, farmstand, and 2 farmers' markets. It's tough starting a business and it's hard to find any easy solution to marketing challenges. Honestly, it takes time to find your space and I'm still figuring out where the best fit for the farm is.

For new farmers who have yet to start their own farm, the best advice I can give is to learn on someone else's dime — get a paid farm job for at least a season, preferably more. The other advice I have for new farmers is to work for both an established and a newer farm. One of the biggest challenges for me starting out was that all the farms I had worked for were really established, with systems refined and their markets established. These farms were absolutely amazing spaces for learning the ins and outs of growing food and were really great examples of what I wanted my farm to look like at year 6+. However, I definitely struggled in finding the balance between what I wanted my farm to be and the reality of being a new farm on rented land, starting with nothing.

To new farmers who have started their business — talk to other farmers! Talking to other farmers about what's working and not working on your farm is really important. Knowledge sharing and comradery are a really important part of being a farmer.

You've said that your BIPOC farmer role models have been few and far between — how has this impacted your journey to farming?

In my experience farming, I didn't have any non-white farmer role models. I had some peers and co-workers who were not white and I worked alongside some migrant workers who were among some of the best farmers that I have worked with, however, I never worked at a farm that was owned by someone who was not white.

If I'm being honest, it's hard for me to say how this has impacted my journey in the farming industry. I grew up and worked in predominantly white communities and in my experience the farming community was no different. I didn't seek out that type of mentorship purely because I didn't know if I could find it. I'm hoping that this is not the case for new farmers today. I'm excited about the idea of this changing with the increased awareness and visibility that is being created through both the NFU and EFAO. ■

Resilience and Risk Management at a Time of High Input Costs

As farmers begin rolling into their fields for #plant22, skyrocketing fertilizer, fuel, and other input costs have been a subject of much discussion and anxiety.

By Jackie Clark

For some folks that have been in ecological or regenerative agriculture for a while, investments in building soil health pay dividends in a year like this one. Practices like cover cropping increase climate resilience through soil improvements and reduced synthetic input requirements, but they can also reduce costs to improve a farm's economic resilience.

"Let cover crops make the plant available nutrients for you," says Andy van Niekerk, CCA and farmer in Simcoe County.

"At the early stages of cover cropping I attended a Soil and Crop meeting [in another county] and was asked how I justified $25-45 per acre in cover cropping in the late fall. I answered with two things: I don't do tillage in the fall (savings of $24 per acre). And the rest?" he asks. "Take it out of your P & K expenditures. You will get that back in another year when the cover crop breaks down and releases its nutrients. For example, I'm convinced that I get it back the same year during an August rainfall in soybeans. The rain leaches the K and N out and feeds the soybeans during pod fill. Also, because the rain hits the cover crop residue and not the soil, I experience less white mold issues and can save on at least one fungicide pass," van Niekerk explains. "The cost of cover crops is a small portion of your P & K fertilizer costs, particularly in today's atmosphere."

Climate resilient practices that increase efficiency on the farm can also provide risk management. If you can grow the same yield with fewer inputs, it's a win for your farm's bottom line.

"Regardless of gross income, or yield, we still only get to use the net income for personal withdrawal or debt repayment. So, if we can produce at least the same crop with fewer inputs, then that is a win. Less fungicide, usually one less herbicide pass," says van Niekerk.

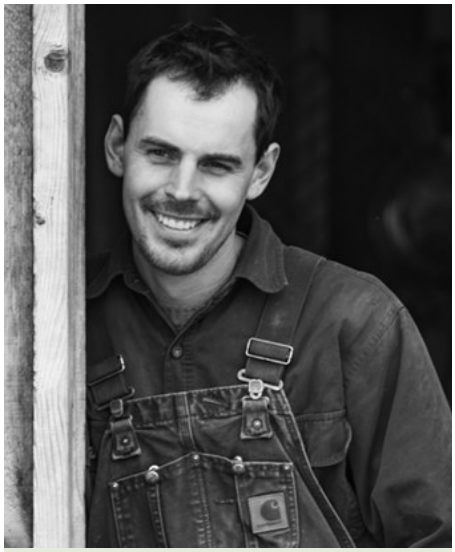
"Even if cover cropping is breakeven in the short run, the long term benefits of cover crops will result in better soil health whereby the soil microbes are feeding your soils," he adds. "More resilient soils will result in more consistent yields."

In years like 2022, those benefits may help your farm remain resilient in the face of astronomical costs.

On certified organic farms, the story is similar.

Certified organic producers are limited in the types of inputs they can use, "therefore fertilizer and chemical inputs are not causing much impact," explains Charlie Cumpson of Sonset Farm, an organic dairy, beef and broiler farm that grows hay and field crops in Inverary.

"We have invested in soil building inputs such as cover crops for many years now," he says. "So if you look at these inflated inputs amortized out over the past years and the benefits they've had on our soil health, it all pencils out quite well."



Charlie Cumpson of Sonset Farm in Inverary.

Input prices aren't the only volatility that Cumpson hopes investing in resilient practices will protect him from.

"We feel we have put effort into setting up our soils, and from there our crops, for a greater chance of success during these times of volatile weather patterns," he says. "We have always emphasized building organic matter in our rotation with a focus on a diverse crop rotation and diverse species in hay mixtures. In return, we believe our land has good

Jessica Pfisterer of Pfisterer Farm in Wellington County.

water retention and ample opportunity for a thriving crop even during extreme weather conditions such as droughts."

Livestock integration also provides manure for relief from fertilizer costs, and soil-building hay crops.

"We try to keep our crop rotation consistent and not get swayed by high valued crops as well as giving land a 'rest' in hay for a few years as part of our rotation," Cumpson says. "In return for having a good portion of land in hay, we can easily tie in our livestock to our overall holistic plan. Risk management of one enterprise is insured by every other aspect of the farm business."

However, the onus of high input costs and climate volatility is still felt by farmers who are newer to their fields, and haven't had many seasons to use ecological practices to build up their soils just yet.

Jessica Pfisterer, an EFAO member who grows hay, field crops, and livestock in Wellington county, began farming in 2019 in partnership with a mentor farmer. She's seen a 100 per cent increase in fertilizer costs compared to last year.

She wants to use organic soil amendments and fertilizer that align with her farming values, but "has to balance the vision for the farm with what is financially feasible at the time," she explains.

As an example, Pfisterer would like to plant field crops using a no-till drill. However, hiring a custom operator for a small field is expensive (not to mention the huge expenditure she would have to make if she wanted to invest in a planter herself), whereas her mentor farmer can plant for free, but with conventional tillage. These tradeoffs are heightened in a year when inputs are more than doubling in price.

"High input prices put increased stress on newer farmers and smaller farmers who may struggle with cash flow," she adds.

Many farmers, like Pfisterer, Cumpson, and van Niekerk, are experts at turning challenging circumstances into creative solutions.

"Times like this are a great opportunity to get creative and apply your management practices to the next level," Cumpson says. "For instance, we will probably spend more time grazing our dairy and beef herds rather than chasing feed with the disc bine wasting valuable fuel. Incorporating our cattle into our crop rotation has become an increasingly important goal of ours and perhaps these current pressures will help accelerate that."

For Pfisterer, this means investing where she can in practices like cover cropping, which have a high potential to generate returns. In just a few years she's already seen soil runoff and erosion decrease with the use of cover crops, hopefully keeping more nutrients in the field feeding her crops.

To support newer and smaller ecological farmers, government programs should be better informed of the likely adopters of climate resilient practices, and mindful of their operating budgets, Pfisterer says. More money doesn't always mean greater impact — small ecological farms can make a little support go a long way. ■

***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.*

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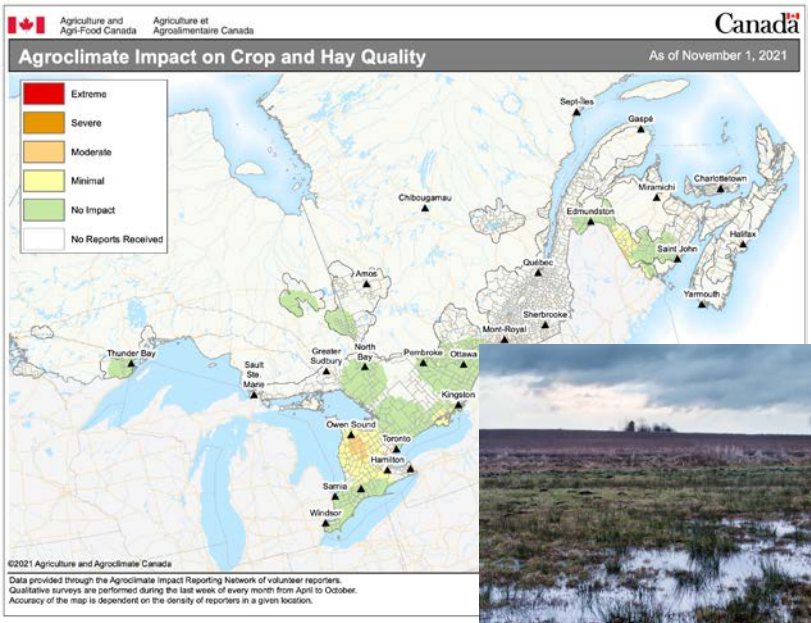
The Agroclimate Impact Reporter

Uniquely and Entirely Canadian

There are some things farmers know that even weather stations, satellites, and computer modelling won't. There's a reason that farming is passed down by generations and why it is rarely picked up by someone entirely new. Farmers make their decisions based on several variables each season using climate and environmental indicators they've learned to watch for. One farmer's decision to not plant may be different from a neighbouring farm, based on what is seen on their respective farms, or there may be obvious signs of poor water quality in one area that aren't visible in another. This type of information is essential to safeguarding the livelihood of Canada's agricultural sector. **So, what if there was a way to improve and strengthen the community understanding of agroclimate conditions?**



This is where the Agroclimate Impact Reporter (AIR) comes in. AIR is an online geospatial program designed for the collection and reporting of weather and climate impacts on farms across Canada. Over the past 10 years, drought, flooding, and excess moisture have resulted in increasing costs to the Canadian economy. The impacts of these events can be managed by increasing the climate data available to make climate predictions. AIR operates by collecting a 5-minute survey from farmers each month about what they see on their farms. When the survey is closed, a report can be viewed throughout the remaining weeks. The reports include maps on soil moisture, erosion, crop, hay and pasture quality and staging, feed production and availability, water supply and quality, and more.

AIR monitors the impact of weather on water, soil, and agricultural production to strengthen regions' ability to adapt, withstand, and recover from climatic extremes. The more farmers that submit reports, the better government agencies can do to accurately assess conditions and steer their support and funding toward areas that need it.

Canada's climate is unique and how climate change is going to impact us has always been a huge question mark. One thing we do know is how important it is to build community strength and resilience by spreading knowledge and awareness of weather and climate impacts already affecting us. AIR can help track environmental changes in real-time to be better equipped to handle the climate realities of the future. Like our agricultural community, AIR is uniquely Canadian, a citizen-science network to be proud of. The program is also engaging and educational, a tool that can be used to spread knowledge through generations of farms, using the maps built from recent data to explain patterns and farm techniques to the future leaders of farming in Canada. Together, we can contribute to Canada's agricultural community and guarantee a positive future for our nation. ■

Jonathan Giret is the owner of Elite Agri Solutions and runs a broiler farm with his wife Andrea. Jonathan is passionate about driving Canadian agriculture forward by providing high quality consulting and grant support services through Elite Agri Solutions. You can reach him at jonathan@eliteagrisolutions.ca.

You can contribute to the Agroclimate Impact Reporter by visiting http://eliteagrisolutions.ca/AIR.

Co-operative Models for Farm Financing

by Thorsten Arnold

The Land Problem

In the early 21st century, Ontario faces a farming question that has haunted Europe for centuries: how to protect and ensure access to agricultural land. On average, the price of Ontario's agricultural land rose by 22% in 2021 alone; the stretch between Bruce county and Peterborough/Haliburton by 28% (FCC 2022). Marginal land, formerly an entry opportunity, has slipped out of reach: now these properties get scooped up by urbanites who turn them into cottages or country homes. In Ontario, becoming the owner of farmland has long been out of reach for most prospective farmers who are Black, Indigenous, or people of colour. With the recent land price explosion, even people with considerable privilege can no longer purchase farmland — so the dream of becoming a farmer is more unrealistic than ever. The land question has become the central barrier for Ontario's young farmers and for landscape regeneration.

The agricultural land narrative as cultural trait – lessons from Europe

The struggle to access land is well known in many European countries. Many have developed strategies and legal framing to address this issue. To counter speculation, France, Spain and Portugal restricted the purchase of agricultural land by foreign buyers. Before the French Revolution, land in France had accumulated in the hands of a few aristocrats who exploited landless peasants. The land reform that followed persists today: all French farmland sales must be approved by Société d'Aménagement Foncier et d'Etablissement Rural (SAFER). SAFER was set up in the 1960s to preserve rural landscapes and fight land speculation and accumulation. Today, SAFER supports young farmers and start-ups, and protects landscapes, natural resources, and rural economies. Whenever farmland is offered for sale, SAFER must be notified first. It can then choose to pre-empt the sale by purchasing the farmland — either at the set value or at a lower price that SAFER sets. The seller can only accept SAFER's lower price or take the land off the market. SAFER typically resells land to young local farmers. France's restrictive management of land accumulation, though only partly successful, builds on a cultural memory that land accumulation results in a devastating misuse of power by landowners.

In Switzerland, co-operative management is culturally embedded. Alpine pastures in particular are managed co-operatively; good grazing management is essential to stabilize soils, prevent mudslides and avalanches, and protect communities. The Swiss have long recognized land ownership as a responsibility of the entire community! Hence, land use restrictions are legally enshrined: all uses of agricultural lands are restricted by the Swiss constitution, which prescribes the **multifunctional** duties of agricultural landowners: *"the reliable provision of the population with foodstuffs;* ***the conservation of natural resources and the upkeep of the countryside;*** *decentralized population settlement of the country" (Source:* The Swiss Agency for Development and Cooperation). Swiss federal law also limits the purchase of agricultural land to agricultural producers who are the managers of their agricultural enterprises and live within 10 kms of the farmland. Land rental can only occur if farmers retire or their heirs are not farming themselves. Furthermore, this prevents agricultural land from being severed, and land pricing is capped at

5% above the average surrounding land value.

The French and Swiss examples demonstrate how proactive governance of land ownership reflects cultural identity and the narrative of the peasant movement. But Ontario (and Canada) have a different cultural narrative around land.

Land Co-operatives in Europe

In response to the farmland crises throughout Europe, several land access initiatives have emerged. Among the first organizations that address land ownership are France's Terre de Liens, and Germany's Kulturland Co-op and BioBoden Co-op. These co-operatives, which connect peasant farmers with community investors, have joined forces as Access To Land (ATL), a network of organizations that is dedicated to "raising the bar for land access by agroecological peasant farmers." ATL recently fostered new initiatives in Catalonia (Terra Franca), Flanders (De Landgenoten), Czech Republic (CooLAND) and Scotland (Scottish Farmland Trust).

These co-operatives generally share the same premise: they help farmers access land by raising money from the community. Land is co-operatively owned as a common good, and agricultural practices are restricted by the co-op. For example, *Kulturland Co-op* requires that farms (1) are certified organic, (2) reserve at least 10% of the land for conservation, and (3) participate actively in community. In exchange, community members provide an interest-free loan to the co-op to purchase land.

Of course, there are country-specific legalities. For each new farmland that *Kulturland* purchases, the co-op creates a Limited Partnership. In this partnership, the co-op owns the land title, but farmers maintain 90% of the decision making power over the land. The farmer has an indefinite use contract, as long as the co-op's three requirements are met and the low rent is paid. Today, *Kulturland co-op* can access sufficient capital to purchase land even before a community campaign. The co-op has 1080 bond holders and owns around 1,000 acres with 26 farm partners.

Before a purchase occurs, farmers must demonstrate that their community will pay 33% of the purchasing value, through written declarations of intent by supporters. After purchase, farmers must actually raise these 33% in their community; the rest is contributed by the co-op. The co-op offers support with this, in the form of a crowdfunding website, communication and fundraising training, and legal advice.

Understanding the history of *Kulturland* and the role of cultural narrative

In an interview with biodynamic farmer and Kulturland co-founder Thomas Kliemt-Rippel, Thomas pointed out a recurring theme: a fundraising-oriented co-operative like Kulturland must be embedded within the cultural narratives of the region. Some aspects of this narrative include the responsibility of individuals for our landscapes and for their community; the social responsibilities between rural and urban dwellers, eaters, and farmers; and older and younger generations. Cultures hold unique narratives around the role of collaboration and co-operative management, food, and how individuals value reciprocity.

For community members that pay into a co-op, the main driver for supporting farmers to access farmland are intrinsic values. Members provide a zero-interest

bond to purchase the farmland. This bond is paid back after a defined period of time, and members forfeit any income from that capital. Raising bonds is far easier during stable times with low interest rates. As the war in Ukraine has created significant uncertainty in early 2022, community members are increasingly cautious, and community investment has dropped sharply.

Replicating land commons in North America

In the United States, the European co-operative model was replicated in the Agrarian Trust. The Trust is a national umbrella organization that oversees multiple *farm commons*. For each of these farms, a not-for-profit is established that holds the land title and supports land tenure for the young generation. A team of attorneys at Sustainable Economies Law Center was instrumental in getting this started — they translated the European co-operative model into something that works in the US. Based on 10 guiding principles, the Agrarian Trust restricts land uses and farmer liberties, secures equity that farmers build on farms (e.g. buildings). Since purchasing its first farm in 2019, the Agrarian Trust now supports dozens of farms — an inspiring feat! The Agrarian Trust also offers toolkits for church communities who want to invite young farmers to utilize their land, detailed guidelines for establishing a Commons farm, and lots of good communication materials.

Replication structures in Ontario

In Ontario, several land trusts exist for preserving agricultural land or for conservation. However, Ontario does not have a mechanism that protects land for organic or agroecological farming — nothing resembling the Access To Land network or the US Agrarian Trust. Beyond legalities, there are several paradigmatic barriers to forming agroecological farmland trusts in Ontario. All stem from our cultural narrative.

First, land acquisition is traditionally used as the main savings strategy for farmer retirement: the price-inflation of real estate remains the dominant savings strategy within North America's broader cultural narrative. Collective land ownership means letting go of the idea of building assets through real estate speculation. So how will we ensure retirement for farmers in a collective land ownership approach?

Secondly, one of the draws to farming is the "narrative of liberty" — that farmers can do on our land whatever we like. In contrast, Germany's tight regulatory framework, France's shared memory of its revolution and land reform, and Switzerland's successful communal land management all connect land ownership with significant social responsibilities. Within these "responsibility narratives," farmers understand that their freedoms also come with responsibilities. Ontario's freedom narrative is a barrier to this sense of responsibility, community obligations, and restricting negotiations.

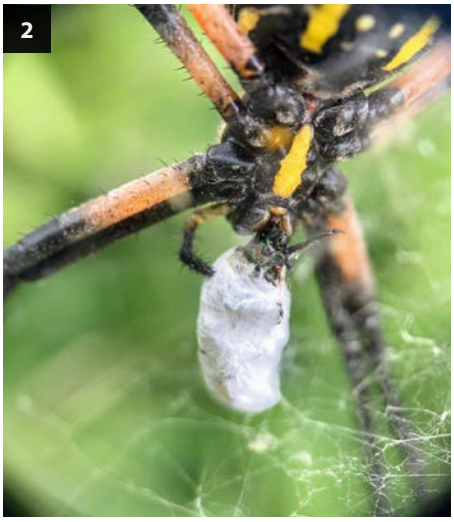
Finally, the untouchable role of private property is a foundation of Ontario's settler culture. In France and Switzerland, a history of land reform and expropriation puts this sense of 'untouchable property' into perspective. Direct democratic elements are also embedded there, giving communities a sense of agency over their landscape that Ontario and Canada lack.

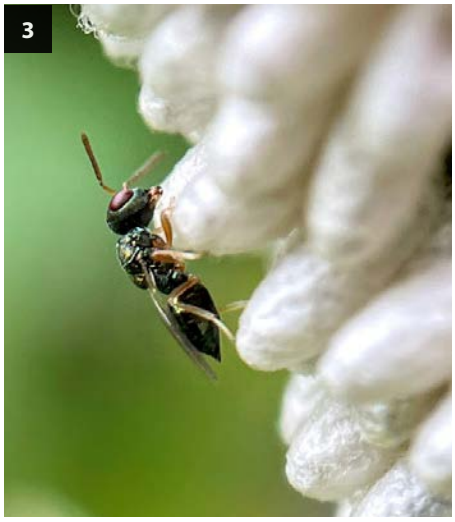
Agroecological land trusts are sorely needed in this province, but before adapting any form of collective land ownership to our region, we need to reconsider three aspects of our current cultural narrative: (1) real estate speculation as retirement savings, (2) land ownership as liberty & right, and (3) the untouchable nature of private property. The Agrarian Trust shows how land access approaches can be translated to different cultures if details are adapted accordingly, but participants must be open to new narratives. To face the issue of land inequality demands bravery, imagination, and new ways of working together — not easy, in a climate of fear and individualism. Yet worth it, without a doubt. ■

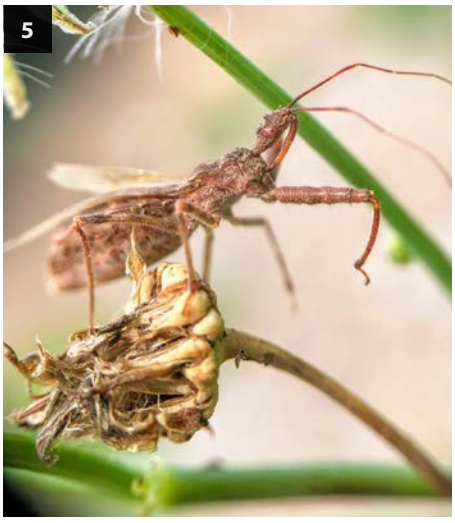
Thorsten Arnold *co-owns Persephone Market Garden. He educates about and advocates for regenerative food systems in all its facets, especially regenerative production systems, co-operative distribution, and restoration of climate-resilient landscapes.*

An unabridged version of this article with links to its sources is available at efao.ca/news.

PHOTO HIGHLIGHTS







1. Yellow Garden Spider *(Argiope aurantia)* patrolling on an Amaranth plant.

2. Yellow Garden Spider *(Argiope aurantia)* uses its fangs to inject a digestive enzyme into a japanese beetle.

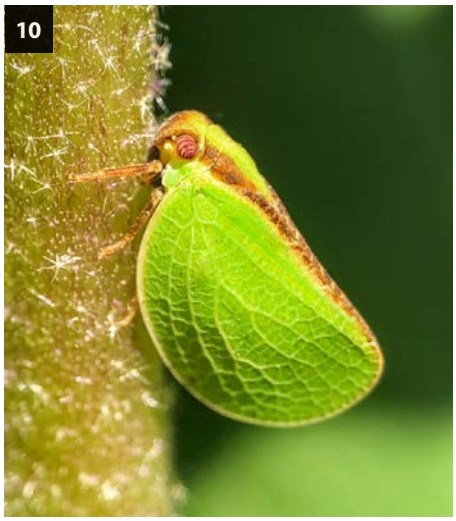
3. A Braconid wasp *(Cotesia congregata)* emerges from its cocoon after spending its larval stage eating inside a tomato horn worm.

4. A native Convergent Lady beetle *(Hippodamia convergens)* a specialist aphid predator. Hobbies include chowing down on aphids.

5. Spined Assassin Bug *(Sinea diadema)* manoeuvring through an insectary strip. A fearless hunter, they use their thick beak to both inject digestive enzymes and slurp up their meals, like bubble tea through a straw!

6. A Spined Solider Bug *(Podisus maculiventris)* after spearing a lady beetle larvae. This is known as intraguild predation, when one beneficial preys on another. There are also parasitoids that parasitize other parasitoids — this is known as hyperparasitism.

7. Three-lined potato beetle larvae eating an Ashwagandha plant. This larvae produces a poop shield with highly mobile anal glands that also acts as a club that it can swing to defend itself from predatory insects.



8. Red Soldier Beetle *(Rhagonycha fulva)* though it spends the majority of its adulthood mating (I have never seen them not making love), in the larvae stage it is an amazing predator.

9. Aphid midges (*Aphidoletes aphidimyza*). Orange maggots are amazing aphid predators, consuming over 60 different types of aphids. As adults they are tiny little flies that eat the honeydew secretion off of the backs of aphids.

10. Two-Lined Planthoppers (*Acanalonia bivittata)* are beautiful insects you may find around your farm and aren't a pest, but can be mistaken for a leafhopper.

11. A praying mantis *(Mantis religiosa)* striking a pose in the broccolini bed.

12. An orb weaving spider *(Araneidae)* protecting our orchard.

13. A black swallowtail caterpillar *(Papilio polyxenes)* maneuvering through a dense strand of dill.

All photos taken by Fianna Dirks.

***Fianna Dirks** has been working as a farmer for the last eleven years focusing on organic growing, on-farm compost production, and beneficial insect habitat creation. When not ogling over the micro universes of soil microbes and insects, they are usually reading Sci-Fi or are on the hunt for a sequin outfit.*

This spring, Fianna led an EFAO workshop on Farming with Predatory Beneficial Insects.

The photos were taken with an iPhone and a jewelers loupe – an easy and low-cost way that growers/farmers can take close up insect photos for ID purposes by simply placing a jeweler's loupe against the back camera on a cell phone.

Communing with Cosmos: Kim Delaney's Isolation Distance Trial

By Sarah Larsen

In 2011, Kim Delaney wanted to learn more about flower seed production. As a seed grower and owner-operator of Hawthorn Farm Organic Seeds, she was seeing increased interest in flower growing but realized "there wasn't much information out there in terms of seed production."

With this need in mind, she and Patrice Fortier took on the task of presenting on flower seed production at the 2012 Eastern Canadian Organic Seed Growers Network (ECOSGN) conference.

To prepare for the talk, they found a lot of information about growing flowers, harvesting flowers, and even nitty gritty details about germinating like temperatures, days to germination, light requirements," says Kim.

Very quickly, however, they realized there was a big knowledge gap around isolation distance for seed production. Their only lead was a textbook called *Flower Seeds: Biology and Technology,* which appeared to be an extensive resource.

When the book arrived Kim remembers "flipping straight to the page on isolation and [being] stunned! There was only one paragraph about isolation distance that said something like: this is proprietary information, and most flower seed production companies will not share this information."

She continued her search for information by looking at isolation distances for a number of crossing crops, and talking to people who had grown flowers. From these conversations Kim came up with 800 feet as a safe distance to start with — and that's the standard isolation distance she has used on her farm ever since.

A bumble bee (Bombus sp.), the main pollinator of Cosmos, gathering pollen from a Rubenza flower.

While an isolation distance of 800 feet works, "the problem is that it isn't based on any data, it's just what we've had to make do with," says Kim. "And it's a big distance to commit when growing flowers on your farm." Alternative isolation methods include barriers, such as a physical structure (e.g. barn), or blocks of bee-loving crops like sunflowers or runner beans. However, these methods also take up space and resources on the farm."

"When you're growing something like a zinnia or cosmos, or even a snapdragon, there are so many varieties of each. With an 800-foot isolation distance, you can grow only one or two varieties of that crop type a year, and that's very limiting as a seed grower — especially for seeds with shorter lifespans. It's frustrating not knowing how much we could narrow that isolation distance so we can grow more varieties each year," Kim says.

To address the challenge to shorten the isolation distance for flower seed production, Kim applied to conduct a research trial in cooperation with EFAO's Farmer-Led Research Program.

Starting in 2019, Kim planted two varieties of cosmos isolated from each other by 400 feet and 600 feet, for a total of four plots. She chose cosmos because it produces single (simple or open) flowers with a single row of relatively flat petals, and is insect pollinated — meaning it is the easiest type of flower to pollinate, and therefore, potentially cross-pollinate. She reasoned that if she observed no crossing with cosmos at 400 or 600 feet, she could transfer this finding to species with double flowers, which are harder to pollinate.

Utilizing the genetics of flower colour, Kim chose white-flowered Purity cosmos and pink-flowered Rubenza cosmos. With pink as the dominant trait, she could test cross-pollination at the

two distances by looking for off-type coloured flowers in the grow-out year. Off-types could be anything from softer shades of pink to stripes.

At the end of the 2019 season, Kim collected seed from the four plots, jarring and labeling them separately. She grew out the seed in 2020 but the plants didn't grow well. In 2021, Kim planted the remaining seed, and was finally able to see results.

Purity seed heads.

At 400 feet of isolation, Kim observed four (8%) off-type flowers (i.e. plants that had cross-pollinated) in the Purity cosmos and three (6%) off-types in the Rubenza variety. From this data Kim concluded that 400 feet was not a enough isolation distance for retail sales, and not worth testing again. However, at 600 feet she observed only one (2%) off-type for Purity, and none (0%) for Rubenza. Crossing rates of 1-2% are acceptable for retail seed packs, but not foundation seed, or pure seed stocks used to produce commercial seeds.

When asked about the challenges of the trial, Kim said the biggest issue was finding space.

"I was shocked when Aaron and I went out with a measuring tape to set-up the trial," says Kim. "Seeing the distances laid out really hit home to me the need for narrowing isolation distance because of the space they take up."

Not only does the isolation distance take up a lot of space, there's also the challenge of filling the space between plots. As a seed grower, Kim doesn't grow anything in large blocks, so she's left with the puzzle of filling in the isolation distance with a variety of other crops that are also appropriately distanced from each other.

In fact, another grower in Ontario was going to replicate this trial with Kim, but couldn't find the room to test the different distances, given that the seed from the test distances would be unsellable as a pure variety.

"Out of the challenge of really wanting to learn this information about isolation distance and having to find space for test distances on the farm, came a potential citizen science project for flower growers," explains Kim.

Next year, Hawthorn Farm Organic Seeds is hoping to sell trial seed by telling the story of the trial on the seed packets. Customers will purchase a seed pack with both "Purity" and "Rubenza" cosmos seed in separate glassine envelopes.

"They will get more seed for the same price, and with that they're going to get some Purity, they're going to get some Rubenza. But will they get something else?" she wonders. "Maybe they can find their own candy cane striped cosmos. And then they could name it, or save the seed and give it to us, and we could bulk it up and name it for them."

Years in the making, Kim's results are helping her to "be braver to narrow isolation distances." She will use 600 feet for a few flowers this year, maybe some physical barriers as well. She has shared her results with other seed companies, and they are considering narrowing their distances as well.

Seeing the striped candy-caned flower was one of Kim's "aha moments." "You know in your head these can cross, but to see such a pronounced and distinct cross was exciting."

Overall, **a reduction from 800 to 600 feet of isolation results in 25% more seed that Kim and other seed growers can grow on their farms**, thereby increasing the capacity of local seed production in Ontario.

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.*

Read Kim's full research report in EFAO's Farmer Led Research Library: https://efao.ca/research-library/

Interested in learning more about flower seed production? Watch the Flower Seed Production Webinar organized by the Bauta Initiative! Search for it on YouTube!

Living Fences for Living Farms

by Jennifer Osborn

The feeling of excitement is difficult to contain as I open the first of six packages. Each package contains bundles of willow whips, and together they represent a journey of over 10 years. They will become the first plantings of a living fence hedgerow on the farm, a goal of mine since starting out on 1.18 acres outside of Guelph as a permaculture homestead called All Sorts Acre. In 2016 we purchased our forever farm, a place where all the planning and dreaming could come to fruition, very slowly.

With all the farm in grass or marsh, it's the ideal place to base a diversified grass-based sheep dairy from. The sheep love their time in the fields.

All Sorts Acres Farm is a regenerative permaculture farm. Its 50 acres consist of rotationally grazed pastures, a hayfield, large marshy areas, the homestead, and an area that is used more by nature than by people. The marshes keep the land vibrant, attracting everything from mammals to birds to insects to amphibians, and are the heart of the landscape. Sheep are the soul of the farm and the reason we do things the way we do. Consisting of mainly milking breeds, there are some primitive breed sheep as well, helping add resiliency to the flock. Throughout spring, summer, and autumn we milk the ewes each morning after they have been separated from their lambs overnight. The entire flock grazes together during the day. There are roughly 40 adult sheep with 20-30 milked from spring to fall. Lambing adds an additional 60-80 lambs to the flock — 10-15 are kept as replacements, and the rest go to freezer camp. Over the summer the flock hovers around 100 animals of varying ages. The flock has 14 one-acre pastures they graze in summer. They are moved every 3-5 days depending on the condition of the grass, the sheep, and the weather. This helps to minimize worm loads, as do some other techniques we've developed over the years. It's not perfect, but it helps. Everything revolves around the sheep's needs, from barn layout to when haying happens. Without them there wouldn't be a farm.

Farming is my full-time job. Income streams have been deliberately diversified so as not to have all our eggs in one basket. In the on-farm commercial kitchen we make sheep milk yogurt, kefir, and cheese, and the most unique product: sheep milk gelato. Pastured lamb is sold through the Eat Local Grey Bruce Food Coop, two farmer's markets, our own online store, and directly from the farm. Wool from the sheep adds additional income. Items such as woven and felted rugs, felting kits, wool batts, and hand spun and dyed yarns have been the mainstay of the wool offering. In the coming months, wool garden pellets and mulch will be added to that line-up. We also have a couple of beehives, a few ducks and chickens for eggs, some elderberry and strawberry plants, and a tiny garden. The premise of our farm is to have one area's waste feed into another. It's been slow to realize how each area fits into another. Some of the plans for the farm and what it creates are quite unconventional, and the willow fits right into that unconventional ideal.

Each package of willow whips contains four bundles of 25 whips, all of one variety: Dave's Green. This variety, purchased from Lakeshore Willow in Wainfleet, is purpose-grown for windbreaks, fencing, living furniture, and for making furniture. They don't look like 400 of anything sitting in two buckets, making it hard to imagine them as a ten foot high mass of leaves

The milking ewes are on grass for as much of the year as possible. Rotational grazing is one of the techniques used to reduce worm loads.

Sheep milk gelato made with local, fair-trade, and organic ingredients is our specialty and very delicious.

spanning into the distance. The willow's main purpose here is to be grown as a living fence to keep sheep in, but it has the potential to do much more. Willow isn't a fussy plant and it will hybridize with other willows. Having a good stock of a determined variety makes it easier to anticipate growth rates for the future. We aim to create living fences throughout the farm, but specifically for the rotational grazing pastures. With a growth rate of up to 10 feet a year, the initial planting will provide nursery stock to fence off the entire 14 acres of grazing area. The willow is the first stage of a multi-stage living fence project. In Europe, living fences are also commonly called hedgerows, but for us, "living fence" accurately describes them.

Willow is the backbone of the fence that will eventually have 3-4 other species in it, all for different purposes. Willow was chosen as this important first stage because it grows quickly, is easy to plant and establish, has a multitude of uses, and is not too expensive. Having willow in such large quantities on the farm will change the profile of what the farm produces and provides to the ecosystem. Willows are one of the first plants to flower, providing an early food source for insects and birds and hopefully establishing healthy populations of insects. Insects will bring other wildlife, something we highly value. We lose the occasional duck or chicken to a predator, but it doesn't happen often, as we have taken steps to protect them. When it does happen, we live with it so we can have the privilege of a more robust ecosystem around us.

Sheep readily eat willow, so keeping them away until the whips are much larger is essential. The fencing we currently use is 4 strand polywire and step-in posts that are VERY hot. The sheep don't test them as they have a consistent supply of fresh, tasty pasture from being moved regularly. Once the willows are large enough, the process of shaping the fence will begin. The plan is to begin weaving the branches within the willows themselves. Any unwanted branches will be harvested and used elsewhere, likely as feed.

The cut or coppiced branches will be made into traditional sheep hurdles, a single barrier that can be lashed together in varying ways creating portable, biodegradable pens. Other kinds of things can be built with willow as well. For example, due to its naturally occurring salicylic acid, willow mulch is being trialed as an alternative to fungicide to help combat apple scab in the UK. Willow is a hardwood and is also used as a biomass fuel. There is a process to drying and pelletizing willow, but as we already heat with wood, the idea of growing our own heat makes the switch to a pellet stove a viable option. Artist willow charcoal is a product we already make and sell. With so much more material, better tools have been brought in to make charcoal burning more cost and environmentally effective. Finally, this willow planting will provide a reservoir of cuttings to plant on the rest of the farm and other farms interested in doing something similar. With between 6-10 kilometres of fence line to plant, our work is cut out for us.

We plan to plant the whips at 30 cm and at 60 cm. Current recommended spacing is between 20-30 cm. Our whips will be planted upright to facilitate straight, long rods. Once the plants are large enough, the side branches will be woven together more densely lower to the ground, and less densely higher up. Ideally the fence will be impenetrable to the sheep and livestock guardian dogs but allow smaller mammals and birds to go through it.

To plant the whips, we had two planting spikes made. Each spike looks like a very long nail just under an inch in diameter, and 3 feet long. Their appearance inspired the ominous

The two buckets of whips appear deceivingly small. There really are 400 future trees here.

sounding name, "earth nails." The earth nails push through our stony soil and make it possible to create holes while standing up. Whips average 12 inches in length. They are planted 4-6 inches deep to make sure there are enough potential rootlets as well as branches to form leaves. The first 100 feet will be at 30 cm intervals, and the second at 60 cm intervals. These lengths were chosen to ensure that if the 60cm spacing was too far, it could easily be made into 30cm spacing. The most anticipated challenges are keeping the whips well watered, and controlling competing vegetation. Wool will be utilized as a mulch for the whips when needed.

Whether this is a great idea or whether it will turn into an even bigger problem is currently unknown. Despite all the books, forums, websites, and ideas we've absorbed over the years, the only way to really know if it will work is to try it. It's going to be an adventure, and an experiment in how to make our farm more circular, resilient, and self-sufficient. Progress and updates can be found at www.allsortsacres.ca. ■

Jennifer Osborn *is an artist who became a sheep farmer after leaving her digital career in the dot com boom of the late 90's. She and her partner purchased their farm outside of Mount Forest in 2016, to pursue their dream of creating a circular, regenerative permaculture art farm. She has been farming in various capacities since 2007, with a focus on the intersection of art, agriculture and nature.*

Behind sheep fencing, the area where the willow will be planted is measured out. If the sheep are to graze here this year, sheep netting will have to be added to protect the whips.

Planting willow requires few tools. Although earth nails make it easier, they aren't essential. In wet, spongy soil, the whips can be pushed in on their own, pointy side down.

The heads of the willow whips waiting to explode with new, fast growing life.

Queer Farmers Connect

What Does Being a Queer Farmer Mean to You?

by Jackie Clark

That is the question Anna is asking folks to answer in their new community, Queer Farmers Connect (QFC). Anna is the education program assistant at the Tsawwassen First Nation Farm School. The QFC initiative — mostly online for now — was inspired by conversations had at the Not Your Father's Farm Conference, and in the Queer Farmer Network (@queerdirt on Instagram).

Anna harvesting broccoli

"I've been growing food in various capacities for six years, basically since I graduated high school," Anna explains. They "came out 10 years ago, at a very young age in a fairly rural community which was not always super fun."

Their goal is to build community and connections.

As part of this new initiative, Felix from the Cabbage Patch Farm in Guelph, and Rav from Shade of Miti in Mississauga, have been featured on the @queerfarmersconnect Instagram account. EFAO was able to connect with each of them to hear more about what this initiative means to them.

Why is it important to build community for queer and trans folks within the broader agriculture community?

Anna, Felix and Rav all said that community building is key for resilience in the face of isolation.

Farming "is still a very isolated profession, and being queer is also isolating," Anna explains. They are "trying to find a way to exist in this ag world as I am, and see myself reflected in other people and be in community with other queer farmers, because I always knew we were around."

Felix agrees.

"Being queer and farming can be pretty isolating," they say. "It's been important for me to see that I'm not the only one, there's a broad spectrum of queer people in agriculture who I can bounce ideas off of, who I can admire."

Communities support each other in hard times.

"Being queer is definitely a really beautiful thing, but it can add another stressor on top of everything else, so I think it's important to have a community that you feel comfortable with," says Rav.

When facing homophobia or transphobia, having a community of queer farmers "reminds everybody that you're not a burden, your existence isn't too much, pronouns are easy," Felix says. "That sense of community . . . there's nothing more empowering."

What do you think is the connection between the LGBTQIA2S+ community and ecological, organic or regenerative farming?

"Queer people have been in organic agriculture since the very beginning," Anna explains. Lady Eve Balfour, an early 20th century organic farming advocate in the UK, was one of the founders of the organic movement.

"A lot of people don't know that she was queer, but she was. She had a long-term

partner, they did organic agriculture research together," Anna says.

Many queer and trans folks have experience subverting the systems that currently hold the lion's share of power, and building more self-reliant and sustainable communities.

"When we're from a marginalized group who were already not taken seriously and we're already used to being on the margins, it just makes sense being in this space where you're like 'the current culture doesn't work for me' and striving for change," Anna says.

Queer and trans farmers are breaking the mold in agriculture, as well as their daily lives.

"When you've spent so much time trying to get to know who you are in a world where there's so many molds already set, that can be transferred into agriculture," Felix explains. "There are already these ideas about how agriculture's going to look."

A perspective change can empower farmers to make agriculture look the way you feel it should, they add.

"You just realize that you have that level of control, I don't have to continue with these practices that I can see are no longer serving me," they explain. "And then you realize, just like with gender and sexuality, that a lot of these practices aren't new, they're super ancient and have just been colonized and pushed out of the way. That's the parallel I personally draw."

When Rav began "connecting to organizations that were doing climate work, ecological farming or food justice work, that's when I first started to see and hear people talking about being queer in farming," she explains. "I think a lot of people doing that local, grassroots action around climate and food recognize the intersectionality between food and climate and other aspects of our society. They see the benefit of bringing these other aspects into their work."

Working in the food system is more than a job – it involves family, community and lifestyle.

"Farming is one of those professions where it's really hard just to work the 9 to 5 and then walk away from the field," Rav says. "It really does just blend in with your personal life."

What change do you want to see happen for queer folks in ag in the future?

Rav hopes that consumers in the future will "know more, not just about farming, but also how it intersects with climate, gender, sexuality, race and so on. And know where to go to support their local queer farmer," she says.

She'd like to see some redistribution of power and leadership, so more queer and trans farmers are empowered to take up their own space within the food system. Business grants and land access programs that prioritize marginalized communities could be a good start, she explains.

In this way, more queer and trans people can become farm owners, which was an important goal identified by Rav, Felix and Anna.

Anna hopes queer farmers can continue to find their places in agriculture.

"We've been here from the beginning, but that's not represented in how we talk about farming," they say. Language like 'family farms' "does not describe the queer kinship and the ways that we, as queer people, experience land tenure."

Anna and many others are working on industry-wide evolution to help agriculture be more inclusive for queer and trans folks, but individual workplaces can help as well.

"I would love to see diversity training for farmers who aren't queer or trans so that when they hire queer and trans workers, those workers aren't the pillars of education," Felix says. "My pronouns are they/them and all of a sudden I have to teach everybody what that means, what that looks like. It's a whole other job on top of my already-busy job."

Farm leaders need to learn how to "make spaces actively safe for queer and trans people," Anna says. "Material conditions for queer and trans farmers do not get any better unless we have real conversations."

Farm owners can start with simple efforts like respecting pronouns, correcting folks who misgender staff, and establishing gender neutral washrooms and change rooms, they suggest.

"Unless you really make that honest, concerted effort to make spaces safe for queer and trans people, you're just upholding the status quo," they add.

In the future, Anna wants to see Queer Farmers Connect decentralized to platforms other than Instagram – including in-person events and communities – to expand the reach and impact.

Visibility is important. "I wouldn't be in farming today if I didn't have queer elder farmers to show me that this was a space I could inhabit," Anna explains. They also aim to explore "how visibility can be paired with policy change or language change."

Anna would love to hear from more queer farmers who'd like to be connected to the network, or featured on the Instagram page. Reach out to queerfarmersconnect@gmail.com and/or follow along on Instagram @queerfarmersconnect.

***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.*

BOOK REVIEW

Blockchain Chicken Farm

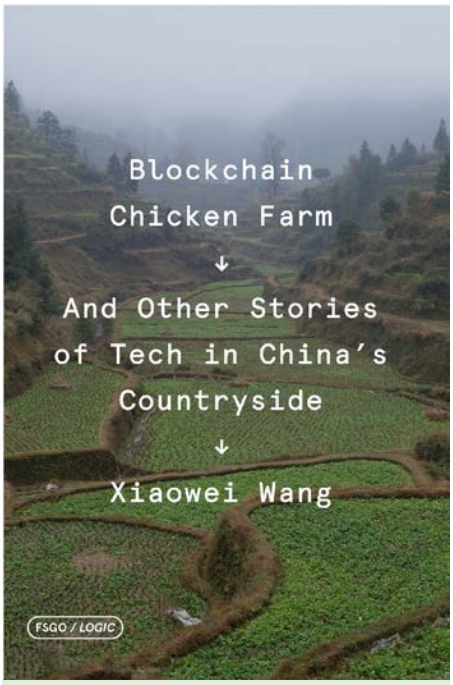
by Ricardo Ramirez

In rural China, technology is driving a transformation of rural life at a maddening pace. In their book, Blockchain Chicken Farm, Xiaowei Wang reminds us that the promise of technology often masks the strings attached by concentration of power.

As I read this book, it felt like a real-life rural version of the first *Blade Runner* movie. Massive data management behind huge chicken and pork operations: each animal wearing a fitness tracker, not to mention facial recognition for pigs. There is even a map of the chicken's movements. The author looks behind the fascination with technology and uncovers an underbelly of unexpected consequences – corporate control, loss of biodiversity, and problems with food safety and regulation.

The word "blockchain" refers to a set of records that are grouped into a block. Multiple computers work in nodes and hold lists of prior records. The records are linked through complex mathematical formulas that make falsification enormously difficult, because they would require huge electricity and other resources. Blockchain technology is used to instill trust in the value chain. In this instance, the blockchain platform allows customers of GoGoChicken to track the product's provenance, so that upper class urbanites have a sense of connection to the farm. The data is uploaded to Anlink, a proprietary blockchain enterprise owned by an insurance company.

The author writes: "Blockhain, like an authoritarian regime, uses a parallel logic: people cannot be trusted in a free market, and bad actors are intrinsic to a social system. In order to mediate trust, a technical infrastructure is better than a government; governments are made up of fallible people, whereas technical infrastructure works automatically: Instead of the government moderating trust, blockchain does so with machines" (p. 60-61).



Published in New York, FSG/LOGIC: 2020

The author adds that trust cannot be scaled, which brings me back to Ontario's farmers markets and CSAs. I keep trying to make connections to our context. *Would Ontario farmers prefer blockchain technology to the Canadian Food Inspection Agency? Would OMAFRA agree to have Walmart or Amazon in charge of rural development? Or more sobering, how much of this is already happening here?*

Alibaba is a Chinese multinational specializing in e-commerce, retail, internet and technology. In its 2014 Initial Public Offering (IPO), it raised US$25B, the largest IPO in world history; it is now valued at US$231B. Alibaba owns a number of platforms including Taobao e-commerce (as of 2017 it had 600 million monthly active users; Amazon has half as many). Taobao not only buys and sells any item imaginable, but it also promotes village enterprises to produce many of the goods we consume. Alibaba also offers Alipay, a financial institution contained in your mobile device, and Ant Financial, a financial services provider. The list goes on.

"Farmers need access to loans...But they typically have types of collateral that are different from those of rural people. A farmer's assets might be pigs or chickens. As a result, Ant Financial is setting up cameras on farms that can display a farmer's assets in real time to help assess credit scores and risk in lending scenarios. Such data can also be used by ET Agricultural Brain [also by Alibaba] to help farmers with animal raising issues. With this risk-assessment camera in place farmers can then use Alipay to apply for loans." (p. 195)

China's Rural Revitalization strategy prioritizes food security. This includes sustaining what the government refers to a "red line:" at least 124 million hectares of arable land. The strategy aims at poverty alleviation and the development of a "consumption upgrade." Small rural entrepreneurs are being brought into e-commerce through tech monopolies working in tandem with the State. They are lured by the promise of consumerism, but in the process they become exploited.

The author draws a comparison with American rural policies and paints a picture across the Central Valley of California: Amazon warehouses next to industrial agriculture and increasingly more prisons. There is reference to a 2001 article from The New York Times suggesting that building prisons was more effective than building Walmarts in stimulating economic growth in rural America. In both places, the rural-urban income gap leads to practices that exploit cheap labour.

Xiaowei Wang (who uses they/them pronouns) offers a refreshing writing style. This comes from their unique background as artist, writer and coder – with two Harvard degrees and a PhD from Stanford. They are American, of Chinese origin, and with family in rural China who are experiencing this rural transformation firsthand. The writer appears to have an ecological affinity, but the critique is mainly centered on the risks inherent in the concentration of power behind electronic platforms. The code writers are mainly white-collar urban men, and the platforms are disconnected from their impact on rural livelihoods. This disconnect feels like a structural threat.

The writer visits the Rice Harmony Cooperative in Yangguan, a farm that produces organic rice without fertilizers or pesticides, using ducks and fish as part of the system. The rice is planted in very small flooded paddies, between terraces interconnected by water. Each member has access to different paddies that are distant from one another. The allocation of plots is done through a lottery every year. The interdependency is built into this centuries-old strategy. The co-op even manufactures its own machinery to fit this unique production system. Xiaowei explains that the people are at the helm of decision-making, not technology. The innovation does not scale across millions of users, but across time. They refer to the verb shanzhai: "... to turn protocols into practices that bind us together and renew our commitment to care" (p. 138). They add: "shanzhai means we give up parts of our ego, rather than innovating a quick fix that scales to millions. After all, money and seed funds are finite, but time is long and ever passing, leaving us with more questions than answers." (p. 139)

The aftertaste from this book is mixed. The critique is refreshing in that it gives us a reference point to counter technological promises. But it also leaves one with a portrait of the insatiable consumerism that is driving the technological platforms. It feels as if the Chinese are catching up with the Western addiction to endless resource extraction and the dream of "making it" in a material world. The voices of caution, and the practices that celebrate a balance with nature, are at risk of losing ground under this barrage of technology and control.

You can find a presentation by the author on Youtube, by searching "Xiaowei Wang Columbia."

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