# Small Farms Quarterly

**Good Living and Good Farming – Connecting People, Land, and Communities**

## Feature Articles



CORNELL Small Farms PROGRAM

**FALL 2023**

# SMALL FARMS QUARTERLY – FALL 2023



## SMALL FARMS QUARTERLY

**Good Farming and Good Living**
**Connecting People, Land, and Communities**

*Small Farms Quarterly is for farmers and farm families — including spouses and children - who value the quality of life that smaller farms provide.*

**Our goals are to:**

- Celebrate the Northeast region's smaller farms;
- Inspire and inform farm families and their supporters;
- Help farmers share expertise and opinions with each other;
- Increase awareness of the benefits that small farms contribute to society and the environment;
- Share important research, extension, and other resources.

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The Small Farms Quarterly is compiled by the Cornell Small Farms Program, based at Cornell University in Ithaca, NY. The Cornell Small Farms Program fosters the sustainability of diverse, thriving small farms that contribute to food security, healthy rural communities, and the environment. We do this by encouraging small farms-focused research and extension programs.

Anyone is welcome to submit articles for consideration. See our guidelines at smallfarms.cornell.edu/quarterly/writers/ and contact Kacey Deamer with inquiries. Articles should be 1,000 - 1,600 words in length with at least three high-resolution image options.



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Cornell Cooperative Extension

# News from the Cornell Small Farms Program, Fall 2023

**Learn with Our Online Courses Now Underway**

Are you looking to improve your technical or business skills to benefit your farming operation? Consider joining one of our more than 30 online courses during live instruction this upcoming online course season.

We are excited to share that our upcoming online course season has begun live webinars this autumn, and features new courses to offer even more learning opportunities. New additions to our online course suite include "Growing Uncommon Fruit," which will help you determine whether incorporating uncommon fruit into your operation is the right decision for you, and "Farm Strategies for Farmer Well-Being" on strategies to make your farm feel more manageable.

In addition to new courses, we are expanding our Spanish-first online course offerings with our "BF 101: Cómo Iniciar su Negocio Agrícola," "BF 102: Mercados y Rentabilidad," and "BF 204: QuickBooks para Negocios Agrícolas" (el cursó se lanzará a principios del 2024).

Our growing team of online course instructors includes experienced farmers, Extension educators, and agriculture service providers. The online courses are offered on a user-friendly platform which grants registrants permanent access to their course content. Also, courses have tiered pricing based on household size and income to make access to the courses more affordable and equitable for everyone.

Registration is now open for all courses, with live content starting at the end of October for our second block of courses:

- BF 102: Mercados y Rentabilidad – Poner a Prueba la Factibilidad de sus Ideas para un Negocio Agrícola
- BF 120: Vegetable Production I – From Planning to Planting
- BF 122: Berry Production – Getting Started with Growing & Marketing Berries
- BF 130: Poultry Production – Profiting from Layers, Broilers, Turkeys, & Ducks
- BF 138: Getting Started with Pastured Pigs – Developing a Successful Farm Business with Pigs
- BF 150: Farm Woodlot Management – Assessing the Economic Potential of a Managed Forest
- BF 151: Outdoor Mushroom Cultivation – Growing Mushrooms on Logs, Stumps, & Woodchips
- BF 152: Intro to Maple Syrup Production – Sugaring for Profit
- BF 170: Cut Flower Production – Introduction to the Business of Flower Farming

Our program offers nearly three dozen online courses to help farmers improve their technical and business skills. These courses cover a range of topics any farmer needs to succeed, such as soil health, holistic financial planning, poultry production, vegetable farming, and so much more. Experienced farmers, Extension educators, and agriculture service providers guide students through course content, including weekly live webinars, videos, and resources.

Last year we added "Goat Production," which will guide beginning farmers through the production and marketing of goats for dairy, meat, and fiber, and "Identifying and Partnering with Mushrooms in Farms, Gardens, and Forests" to teach you basic identification, species, lifecycle, and potential applications of mushrooms to solve community-level challenges.

In recent years we've also added "Access to Capital" for anyone seeking funding for a farm enterprise; "Cut Flower Production" on the business of flower farming; a course on "Beef Cattle Management"; a primer on "Social Media & Online Marketing" for your farm business; and a four-week intensive in how "Reading the Land" can help you monitor its health.

The bulk of the course happens on your own time, with discussions, readings, and assignments in Teachable, our online course platform. To add to the experience, webinars will be woven into the interface of the course for a dedicated time slot each year to allow you to meet on a weekly basis to learn from presenters and ask questions in real-time. If you miss one, they are always recorded and posted for later viewing.

You can browse all of our course offerings and learn more on our website: smallfarmcourses.com.

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## Message from the Editor

Dear farmers and friends,

In our program update we share details on our current online course season. While we offer many in-person trainings throughout the year, our suite of courses available online have the widest range of learning opportunity for farmers of any experience and scale.

This year, we are offering scholarship opportunities for eligible New York State farmers who face an entry barrier to farming due to economic or systemic disparities, who cannot otherwise afford to enroll and/or who lack access to farmer training resources in their community. This includes people who are BIPOC (Black, Indigenous, People of Color), LGBTQIA2S+, and those suffering from recent extenuating circumstances, like job loss.

We are offering free tuition for up to two online courses to applicants. We consider applications based on an assessment of equity, need, and the resources we have available at the time of the request. Funding for these scholarships is provided by the State of New York. Learn more at smallfarms.cornell.edu/online-courses/scholarships-becas.

**Kacey Deamer**
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# Assessing a Maple Woods for Sap and Syrup Production

***Before thinking about the specific attributes of the woods, you need to consider several property-level conditions of your land and objectives before venturing into maple production.***

By Peter Smallidge

Many woodland owners enjoy working their land with the intent of generating income. While timber harvesting is common, harvesting is episodic and may not be suitable for any given property at any point in time. Maple production is compatible with goals that include timber and firewood harvesting, and in some cases offers additional economic and personal opportunities for the owner. Woodland owners thinking about maple production will need to consider the characteristics of their property, and the characteristics of the section of woods where sap is collected, called the sugarbush.

Maple production, the collection and processing of maple sap into syrup or value-added products, can take one of three strategies. These strategies range from significant owner investment to no direct investment by the owner. With the greatest investment, the owner is the producer. As producer, the owner installs a sap collection system (usually tubing, infrequently buckets for commercial production), a way to process the sap, and a plan to market the syrup and any related maple products. This strategy has the greatest investment and the greatest return.

An intermediate strategy is for the owner to collect the sap and sell it to a nearby producer. The owner thus needs only to invest in the collection system and a manner or strategy to transport the sap. The least investment is for the owner to lease trees to a maple producer who does the work and pays on the owner, usually on a per-tap basis. All these options may allow the owner to take advantage of a reduction in land taxes through the agricultural district laws.

Before thinking about the specific attributes of the woods, an owner needs to consider several property-level conditions of their land and ownership objectives before venturing into maple production. The list is similar to the considerations that would be made before starting any new enterprise, and the full consideration is beyond the scope of this article. The owner should consider their proximity to a market, their ability to market products such as sap or syrup, whether they would accept tubing in their woods (which usually remains throughout the year), their willingness to make a multiyear commitment (especially if they lease their trees), their availability and capacity to participate in a busy spring season, and their ability to finance some initial investment for supplies and equipment.

Owners considering a maple enterprise should spend time with other producers and join the New York Maple Syrup Produces Association. They could also participate in the annual summer training called Cornell Maple Camp, announced at CornellMaple.com and usually hosted at Cornell's Arnot Forest near Ithaca.

The economics of maple vs. timber can be either simple or complex. On the simple side of this consideration is woods with maple trees that are mostly 10 to 16 inches in diameter. If the comparison is maple vs. timber, these smaller trees can begin producing an annual return immediately but might be a few decades from a timber revenue event. The net present value and collective revenue through time is in the favor of maple sap/syrup production.

If the trees are 18 to 22 inches with high-quality stems, the economics would likely favor timber. This is not all or nothing, because the trees used for maple sap can eventually be sold as "tap hole" maple logs to buyers with markets for specialty lumber. The complexity arrives because some owners with high-value timber trees are reluctant to harvest trees; they want to maintain a high canopy or want an activity that is annual and binding across generations of the family. The analysis is further complicated because there will be greater and lesser value trees, and by adding the potential for increased revenue from maple value-added products such as maple cream, granulated maple sugar, maple candy or maple cotton candy.

Having considered the broad questions of whether to begin a maple enterprise, there are several characteristics of your woods that will help you identify the best place to begin and which section of your property to avoid. The assessment is done in one stand or section of your woods; the stand is analogous to a farmer's field. Sugarbush stand criteria presented here are based on a fact sheet called "Assessing the Commercial Potential of a Site for Maple Sap Collection." It is available in the "downloadable publications" section on CornellMaple.com While intended to inform potential commercial producers, the nine assessment criteria will help producers of any scale.

The number of taps per acre will influence efficiency, and thus cost, of collecting sap. The easiest way to estimate the number of taps per acre is to use a point sample with an angle gauge. Using the angle gauge, as described in the assessment guide, provides the owner with a rigorous method to know how many 10-inch diameter (the minimum tapping size) and larger maple trees exist. The owner can keep track of red and sugar maple, both of which can produce delicious syrup. In areas with few maples, it may be possible to thin the woods and accelerate the growth of the smaller maples so that more will reach the minimum diameter.

*Maple tubing is the standard approach for collecting sap for the commercial (and profitable) production of syrup. Tubing system designs allow for ease of access. Tubing usually remains in the woods throughout the year.*

Soils are important as they influence the growth of trees, the types of trees, and the ability of the trees to respond to stressors. Sugar maple grows best on soils that are fertile, moist, and well-drained. Red maple has a broader range of acceptable soils. Owners can use the USDA-NRCS web soil survey to learn about their soils. A fact sheet about woodland soils is available at ForestConnect.info via the link to "popular publications." Unfortunately, if the soils are not good for maples, there are few options for remediation. Do not try to force a maple to grow on a soil where it doesn't belong.

The health and quality of trees is likely a combination of soils and past activities in your woods. Tree crowns should be evaluated to ensure there are fine branches and that the upper branches are thriving. Stems should be free of significant defects that would compromise structural integrity and lead to premature stem breakage. Damage to the root flare or root zone could indicate root decay, greater sensitivity to drought, and lowered resilience to defoliation. A forester can advise on management practices that will enhance the vigor of trees in their woods.

The location of the production woods relative to the collection site impacts the efficiency of moving sap. Eventually the sap must be transported or moved from the sugarbush to a collection point. The ideal condition is the sugarbush is located immediately uphill from a collection tank and next to the sugarhouse where the sap is

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*Modern maple production is still just boiling sap into syrup, but it's an often involved process of highly engineered vacuum pumps, reverse osmosis, high efficiency evaporators, and storage in controlled environments.*

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**Farm Ops Project Offering Scholarships for Online Courses & Veteran Cohorts**

Our project supporting veterans in agriculture, Farm Ops, is building veteran learning cohorts during the 2023-24 online course season. These veteran learning cohorts expose veterans to new careers, opinions, experiences, and ideas. The next application deadline is Jan. 3, 2024 to be part of the Tree Fruit Production Online Course NYS Veteran Cohort. Veterans can also apply for a scholarship for a course of their choice. Learn more at smallfarms.cornell.edu/projects/farm-ops/veteran-scholarships.

# Practical Farm Skills and Unity Emphasized at Spanish-Language Farm Field Day

***The Futuro en Ag project of the Cornell Small Farms Program offers agricultural education and training for a Spanish-first audience.***

By Tim W. Shenk

Under a shady tree at West Haven Farm in Ithaca, NY, more than 30 people gathered to learn organic farming and farm management practices at a Spanish-language field day on July 29. The event attracted farm owners, farm employees, supervisors, and aspiring farmers and was organized by the Futuro en Ag project of the Cornell Small Farms Program.

Carlos Aguilera, co-owner of West Haven Farm with his wife Lorena Mendoza, explained his motivation for hosting the daylong event.

"There's a great need to build community among Latinos who work in agriculture here," Aguilera said. "There's a separation that we carry with us from the times of colonization. Sometimes we think we're different – say if I'm from Mexico and the person next to me is from Honduras. But once we get to know each other, everything changes. I begin to want to share what I know, and I ask you about your expertise, and we support each other."

Since 2019, under the care of Aguilera and Mendoza, West Haven Farm has provided organic produce to community supported agriculture members, and the farmers and their team of five employees sell vegetables and starts wholesale and at farmers markets.

Mendoza grew up on a small subsistence farm in Mexico and wanted her own children to have a similar experience of living off the land. She said, "I see this kind of event as a gift. Seeing this group here together fills me with pride and satisfaction. Seeing how despite how our communities can become fragmented when we come to the United States, we can come together here, share knowledge, and build strong connections."

The training began with participants introducing themselves to the others around the circle and sharing what they hoped to come away with. Hormis Bedolla, a 20-year veteran of the New York apple industry and currently a supervisor at Teeple Farms in Wolcott, NY, made the two-hour journey with a carload of her colleagues.

"I'm here because I think I deserve to dream," said Bedolla. "Sometimes you think, 'Who am I to have goals? I'm an immigrant, I'm a woman.' But no, with effort anyone can have something of their own and live with dignity. I thank the program for the opportunity. Everything we're going to talk about, I want to learn: finances, pest management, how to access grants, things like that."

After introductions, Aguilera began the field day by taking participants out to the farm to show them his strategies for integrated pest management. Among the long rows of yellow onions and ripening tomatoes, the group learned practices such as soil management, crop spacing, and proper irrigation, as well as pest identification and organic pest management.

Next, Aguilera took the group a series of high tunnels they use for germinating plants, extending the growing season, and post-harvest processing. He explained how he calculated the benefit of investing in high tunnels and some avenues for accessing government grants to subsidize the investment.

After a homemade Mexican lunch prepared by West Haven Farm employees, participants learned leadership and communication skills from Bedolla.

*Carlos Aguilera, co-owner of West Haven Farm with his wife Lorena Mendoza, shares his organic farming and farm management practices with a group of Spanish-first farmers at a field day on his Ithaca, NY, farm this summer.*

*Clara Tagliacozzo-Lee / Cornell Small Farms Program*

"Good communication is just as important to a farm business as being able to identify pests on our crops," she said. "We have to be clear communicators and have empathy – that is, learn how to put ourselves in another person's shoes."

Bedolla particularly spoke to the nearly 20 women in the room, encouraging them to recognize their worth and potential. "As women in our culture and our families, we often have a secondary role, but we have so much potential. We women can do whatever we set out to do."

Mildred Alvarado, Futuro en Ag's project leader who grew up on a subsistence coffee farm in Honduras, wrapped up the day's instruction with an introduction to household and business budgeting. "If we want to be able to run a business, we first have to manage our family finances well," she said.

One of the participants was Vicente Morales, who works in a Finger Lakes winery. He shared that his grandfather used to take him and his brothers to work on the family farm in Michoacán, Mexico, where the family grew corn and beans.

"Coming here is completely different, working in grapes," said Morales. "Before today I had never had an opportunity like this. I'd love it if we could have more chances to get together and learn from each other. There are lots of us [Latinos] in this area, and we should support each other."

Oscar Contreras, from Tamaulipas, Mexico, agreed, and appreciated the instruction and camaraderie in Spanish: "Sometimes you think you're alone. Sometimes you have a hard time communicating with people from here but if you find someone who speaks your same language, you feel more accompanied, more valued."

Alvarado reiterated some sentiments she had heard throughout the day.

"Historically, we have been fragmented, not only from people from the U.S. but even among ourselves as Latinas and Latinos," she said. "At work, many times we're told 'Do this, do that,' but they don't tell us why. These field days are to explain why we do what we do on the farm. In the big picture, we are trying to empower people from marginalized communities to unite and see ourselves as leaders in agriculture in New York, no matter if we're managers or employees or farm owners."

Alvarado highlighted the importance of facilitating farmer-to-farmer education in a shared language. "Who better to teach these courses than Latino farmers themselves, who have overcome the barriers that we all face in agriculture?"

She concluded by thanking the hosts from West Haven Farm and all of the participants who gave of their time and shared their enthusiasm for learning.

The Futuro en Ag project of the Cornell Small Farms Program offers in-person and online agricultural education and training for a Spanish-first audience. In autumn and winter, Futuro en Ag will offer three online courses in Spanish for new and aspiring farmers and will host a two-day Latino/a Farmers Conference in Latham, NY, in December.

*Tim Shenk joined the Cornell Small Farms Program in 2023 as the Bilingual Communications Specialist. He is responsible for the multifaceted communications strategy for the Futuro en Ag project and supports Spanish language online and in-person education.*

# Uncovering the Roots of Organic Farming

***Oral histories reveal hidden influences and organizations.***

By Clara Tagliacozzo-Lee

In an era where organic food's popularity continues to soar, it's the untold stories of the pioneers and visionaries that truly breathe life into the history of organic agriculture. These narratives, rich in wisdom and experience, provide a window into the heart of a movement that has reshaped our approach to farming and food. Beyond the statistics and research papers, these stories unveil the human spirit behind the growth of organic farming.

One recent study embarked on a mission to unearth these voices, traversing the landscapes of the Midwest and Northeastern U.S. to connect with the organic and sustainable agricultural communities. While the surge in organic food sales and production since the advent of USDA organic certification requirements in 2002 is noteworthy, it's the influential authors, journals, and organizations that have fueled this transformation that truly illuminate the organic farming narrative.

Join us as we embark on a journey through these compelling narratives, as captured in Anneliese Abbott's essay, "Organic Information: Influential Authors and Organizations in the Midwestern and Northeastern United States Organic and Sustainable Agriculture Community" (available at tinyurl.com/4fud32fh). These stories remind us that at the core of every agricultural revolution, there are individuals whose stories deserve to be heard.

Sales of organic foods reached a record-high of $56.4 billion in 2020, according to the Organic Trade Association (OTA). This rising trend is anticipated to continue, given that Millennials and younger generations have demonstrated a keen interest in organic foods. While historical studies have mainly focused on the social, cultural, philosophical, and political connections of organic farming, less research has been done on the historical development and dissemination of organic farming methods.

This is where the "History of Organic Farming in America" comes in. (See historyoforganic.com/transcripts for more information.) In their quest to document and preserve the oral histories of influential individuals and organizations in the organic farming and sustainable agriculture community, the creator of the website, Anneliese Abbott, seeks to capture the stories, experiences, and insights of farmers, researchers, leaders, and others who have played a significant role in the development and dissemination of organic and sustainable farming methods. The platform's mission statement asserts that sharing these oral histories contributes to a deeper understanding of the history and evolution of the organic farming movement in the U.S.

Through the "History of Organic Farming in America" project and her essay, Abbott highlights the animosity that existed between agricultural researchers and organic farmers from the late 1940s to mid-1980s, which hindered the documentation of organic farming methods. Organic farmers predominantly learned about farming methods from non-governmental and non-academic sources like networking, conferences, workshops, books, and the internet.

The study's purpose is to fill the knowledge gap by identifying influential authors and organizations in the Midwest and Northeast organic and sustainable agriculture communities, which can lay the foundation for further historical research in this field. By collecting data from anonymous online surveys distributed by organic and sustainable agriculture organizations, researchers were able to investigate the influences on farming practices in these particular regions.

Additionally, out of 224 respondents, 171 (76%) mentioned at least one book or publication that influenced their farming practices, with growers more likely to mention books than non-growers.

For example, Mary-Anne Cateforis is an organic grower and nature lover who was interviewed for "History of Organic Farming in America." She founded the Bluegrass Organic and Consumers Association in Kentucky, and cited magazines and articles such as "Organic Gardening, Of Course, and Prevention." Cateforis said, "Eventually, I subscribed to Acres U.S.A., Mother Earth News. Those were the main ones. We just learned so much from them – that was our education." She first started farming in her 30s.

Respondents listed a total of 199 unique authors or publications, with Eliot Coleman's books being the most frequently mentioned, followed by works from Rodale publications, Wendell Berry, Acres U.S.A. Magazine, Masanobu Fukuoka, Joel Salatin and Michael Pollan. The study found that the reading choices varied widely, but certain authors, like Coleman, were more popular among growers, farmers, and certified organic growers. Additionally, there were differences in reading preferences between growers who began farming before and after 2002, as well as between growers from the Midwest and Northeast regions.

The study also found that 55% of respondents mentioned influential individuals who were not identified as published authors. Farmers and certified growers were more likely to list individuals compared to gardeners and uncertified growers. The survey identified 208 unique individuals, including farmers, relatives, university affiliates, organizational leaders, and business owners, with 91 individuals listed by name without additional details.

For example, George Bird, another interviewee for "History of Organic Farming in America" and a nematologist and professor emeritus at Michigan State University, included a quote from Gandhi's "Seven Social Sins" in a book he co-wrote with Fred Kirschenmann: "Food and farming systems must be regenerative in nature and based on cooperating partnerships and ecological independence. Food and farming systems must be based on family enterprises cooperating to maintain vibrant communities and foster intergenerational equity."

Another general consensus, especially among growers who got their start in farming before the rise of the internet, and even those that started afterward, often reference older members of the farming community who influenced, taught, and disseminated knowledge to the younger generation. Dan Lefever, a second-generation organic farmer in Virginia, noted that his father was one of these educators, and that "his education of a lot of people through NFA and Paul Keene, the connection, many years' education, and Rodale's work basically laid the foundation for Pennsylvania now being second in the country in organic production."

This research sheds light on the influential authors and organizations that connect organic and sustainable farmers in the Midwest and the Northeast.

Regional and state organizations also play a significant role, yet their influence remains under-researched. The survey results suggest that there is much more to explore in the history of organic and sustainable agriculture in these regions, and efforts to preserve oral histories and organizational records should be prioritized to enrich our understanding of this complex history.

*Clara Tagliacozzo-Lee is a student intern at the Cornell Small Farms Program.*

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processed. If the sugarbush is remote from the collection site, the sap must be moved through tubing or in a tank on wheels. Poor access can be improved by building a new road to the sugarbush or installing an effective tubing system to move large quantities of sap.

The presence of roads and topographic features influences the ease of tubing installation and work during both the sap and off seasons. The owner/producer will spend considerable time in the sugarbush during time periods. Road access improves efficiency, simplifies the transport of tools and supplies, and increases the likelihood that the owner will monitor the condition of the sugarbush and the operation of the tubing system. Poor trails and roads can be resolved, perhaps, with a forest harvest that plans for a road and trail network that considers future maple sap collection.

The presence of electricity will determine whether you can easily run a vacuum pump, need to add an electricity source, or will use buckets. The value of electricity is the potential to use an artificial vacuum system. Vacuum systems increase sap yield by about 5% for each inch of vacuum (measured as inches of Hg). Thus, a well-designed and maintained system with vacuum operating at 20 inches of Hg can expect to double the yield of sap compared to a conventional system, and with no health consequence to the tree. Without electricity, the owner could use and maintain a generator. In a remote sugarbush without electricity the owner can use tubing with a gravity flow or buckets.

The topography of the area, particularly the steepness and the direction of slope, impacts the ease of tubing installation, if sap runs to or away from collection, and the potential for natural vacuum. Sap runs downhill, but steep hills are only fun in one direction. Tubing systems operate best when the tubing is tight, straight and downhill. Gentle slopes of 3% to 15% are comfortable to work on with tubing but more challenging with buckets. Recent technology has emphasized the use of smaller 3/16th-inch diameter tubing (traditional tubing is 5/16th-inch diameter). However, research at Cornell's Arnot Forest and in Vermont is finding some problems related to plugging of the smaller diameter. When the 3/16th-inch tubing works, it can create a natural vacuum and save the expense of electricity and an artificial vacuum pump.

*Maple producers attending Cornell Maple Camp learned how to use an angle gauge to estimate the number of tappable trees. The abundance of tap trees per acre influences efficiency.*

Canopy closure and competition among trees for light will influence tree growth rates, taphole closure, future sugar production, and tree vigor. At the core of maple production is realizing that the tree is the factory: it uses and requires sunlight to photosynthesize and create the sugar in the sap. When trees compete for sunlight, they are less efficient at making sugar. A forester can assess the amount of competition among trees for sunlight and suggest proper thinning to increase the growth, and thus vigor, of the maple trees.

Interfering plants, native and non-native, can become sufficiently dense as to complicate your work in the woods and the collection of sap. A variety of plants can become sufficiently abundant as to make access into the woods difficult or restrict the regeneration of desired tree species. The solution to managing interfering plants depends on the problem plant and the objectives of the owner. Several webinars on this subject are archived at youtube.com/ForestConnect.

Maple production requires a commitment of space, and perhaps time if you're the producer, but the pay-off can be rewarding. The process connects you to the land and can bind that connection across generations. Enter the process with understanding, realism, and the spirit of America's oldest agricultural venture.

Visit ForestConnect.info and see the webinar archives at youtube.com/ForestConnect for more information.

This article originally appeared on Forest Connect.

*Peter Smallidge is the NYS Extension Forester and Director of the Arnot Teaching and Research Forest. Contact Peter at pjs23@cornell.edu or 607.592.3640.*

*Maple products can bring high values. The value-added products can sell for three to eight times the equivalent value of syrup. Participants at Cornell's Maple Camp learn how to make maple candy.*

*Images Provided*

# Where's the Forage? The Ridiculous Year of 2023

***In part 14 of our "What's Your Beef?" series on raising cattle on small farms, we share how 2023 has been a very trying year for hay producers and some coping strategies to dealing with too much rain and wet hay.***

By Rich Taber

As small farmers, we must contend with the vagaries of Mother Nature, whatever she may throw at us. We endure dry years, wet years, scant rain, and ridiculous amounts of rain. 2023 has provided us with a whole potpourri of Mother wrath!

The growing year started out promising enough, but then it morphed into a pronounced dry spell in late May and into June. There was little or no rain for several weeks; hay tonnages and grazing looked grim indeed. I spread a considerable amount of fertilizer on my hayfields and only saw about one-third the amount of hay that I normally harvest, fertilizer or not! Then I saw my grazing paddocks shrivel up to almost non-existent growth for a while. I had no clue at that point how I was to contend with getting enough grazing and forage for my beef cattle.

Mother Nature came to the rescue, so to speak. It began raining in late June and had not stopped as of this writing in mid-August. It has been all but impossible to make dry hay this summer, and the hay that is made is often rained on and then repeatedly tedded out to dry enough to bale. Those who make baleage or haylage have done okay, as that type of forage needs only one day to wilt and then get chopped or wrapped. People often say to me "Oh, you need to buy a wrapper!" I respond, "Yeah, right! I have a 20-cow beef herd. I'm not going to invest $20,000 in a wrapper for an enterprise that doesn't generate too much income to begin with!" Then others say to me "Hey, you get all your hay baled?" I respond, "You're such a funny guy!" as we seem to have day after relentless day of rain.

Here are some strategies you can use to contend with a year like this. I might add that grazing has been somewhat of a dream since the rains have never let up. We have had lots and lots of grazing available for the animals, with not much of the typical summer slump which usually begins in July and runs into August. Dry year – yes, you can get most of your hay baled with grazing being shortchanged. Wet year? You can't make hay but you have good grazing. We can't ever seem to find a normal year anymore. I am convinced that there is no such thing as a normal cropping year in the face of climate change and abnormalities. Had the year remained dry, then one strategy is to go back to one of your hayfields that you took first cutting off and bring such fields into the grazing rotation. Such was not the case this year, so this is a moot point for 2023.

What else can we do in this wettest of years?

1. You can consider selling more animals than you normally do. Beef cattle prices have remained relatively high this year; perhaps this is the time to cull some of your older animals and they will bring a good price to boot. Or you might want to let some that you had intended to keep for replacements go to market. The sales could provide you with income to pay for some winter hay.

*You might be able to find some left over baleage from dairy farmers to get you through the coming winter.*

2. Some of the hay that you've made may be of relatively low quality. You can feed this in autumn and early winter to brood cows and they won't be shortchanged too much. Shop around and try to locate some higher quality hay to feed the cows later in winter as it gets colder and the cows go into the later trimesters of pregnancy. Dairy farmers often have leftover baleage from the year before. Just be careful about buying two- and three-year-old baleage – sometimes that stuff can be spoiled more than we would like.

3. With the good grazing that we do have this year, perhaps you can graze a little later into November, but always be careful to not overgraze your paddocks.

4. You may have hayfields that you cannot make dry hay with. If your animals don't have access to such fields, you can go mow a little at time, bale up a few higher moisture bales, and feed it to the cows before it molds and spoils.

5. One trick that I've used in the past is to find a flail chopper somewhere for sale and then make greenchop hay. Such green material can be blown onto a flatbed wagon and can work out well. You don't need a huge tractor to power a flail chopper; oftetimes a 50- to 60-horsepower tractor will do fine. You used to be able to pick these choppers up for very little money, but with the recent huge increases in machinery prices, they, like all machinery, have ballooned in cost. The only drawback to flail chopping is that it can be rather time consuming, as you need to hook and unhook wagons, go chop the hay, and haul it to the animals. Having two wagons of whatever type can help a little. But running any farm tractor takes fuel and adds some to the depreciation of the machinery. Don't forget, machinery only seems to break down on holidays and Sunday afternoons!

*Beautiful days to dry down hay have been few and far between in summer 2023.*

*Rich Taber / CCE Chenango*

6. With so much grass being available for grazing this year, you can subdivide your paddocks into smaller sizes. This might provide some more grazing than normal what with higher regrowth rates in a year like this.

7. Another warning: See my article about overgrazing cows in the Summer 2023 edition of Small Farms Quarterly. When you are short of grazing, don't fall into the trap of grazing animals continuously on overgrazed pastures. This leads to animal cruelty situations and underperforming animals unless you feed supplemental hay. It has certainly been a hard year for cropping. But then again, we haven't been burning up with 115° days like other parts of the country. In the grand scheme of things, I think that wet years provide you with more options than dry years.

This is the latest installment in our ongoing "What's Your Beef?" series on beef cattle management. Previous articles may be accessed in the Small Farms Quarterly archives at smallfarms.cornell.edu/quarterly.

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*Tedding hay kicks out the hay so it can dry better before raking into windrows – an absolutely essential tool/operation in a wet year like 2023.*

# Practicing Resurrection: Using Green Manures on a Small Semi-Urban Homestead

***Cover crops are all about connection.***

By Lee Rinehart

The garden entrance is protected from groundhogs and deer by a mesh-covered wooden gate. On the gate hangs an 18-inch-long pallet board with the words “Mad Farm” painted in green. Inspired by Wendell’s “Manifesto,” I wanted to instill the place with the contradiction embodied in his poem. To “every day do something that won’t compute… say that the leaves are harvested when they have rotted into the mold.”

The quarter-acre I steward in northeastern Pennsylvania is, I hope, an incarnation of this contradiction. This spring I planted a seed pack from High Mowing Seeds. Blooming annuals, for their own sake, though I stopped counting pollinator insect species when I got to 20. Now they reach five feet or more above their soil blanket, buds and flowers and stems thick and spindly. There are sunflowers, cosmos, buckwheat. The phacelia has gone, has begun its own return. I watched them last night and considered their being, as individuals. Not as singular flowers, but rather the instantiation of these particular plants in this space.

Though I will invite a similar community on the farm next year, and they will be cousins of these plants, these will have passed once again into the soil, their essence to arise in next year’s tomatoes. Knowing these plants, or really maybe recognizing them as individuals, has softened my heart some. It has reified the value I place on this farm/garden as a place of connection.

Cover crops are all about connection.

There is a hope here that feeds the soul, as the good fruits of the garden feed the body. It speaks to what I have come to see as fundamental to all human and non-human well-being – namely, the law of return. On the Mad Farm, this is enacted through compost and, most especially, the cover crops that occupy space on the gardens each season. I rely on these crops, idealistically to bolster hope and practically to provide most if not all the fertility my garden crops need to live fully and produce quality fruits.

Last September, I terminated a three-sisters garden and planted a cover crop of annual rye, red clover, and hairy vetch. This has been my go-to cover mix for many years.


*The author’s quarter-acre farm in northeastern Pennsylvania.*

The planting window for these crops is broad here in the upper Mid-Atlantic, and I can get a decent cover of perhaps three inches of resilient green leaves prior to the deep winter freeze. What’s more, it comes on strong in early spring, yielding loads of plant biomass and unparalleled nutrition for summer crops.

This year was weird. Spring nighttime temperatures held steady in the upper 40s for weeks on end. The cover crop was loving it, the rye gaining altitude, vetch climbing hand-over-tendril up the glaucous rye culms and promising the high volumes I depend on for summer fertility. But the tomato plants were getting anxious. I had potted them up three times since planting in March and now they were screaming for room. On May 10 the rye was almost in boot stage, the clover was blooming, and the vetch flowers were still a week or more away. Though the cover wasn’t quite ready to be terminated, the tomatoes had to go in.

I cut the cover crop on May 10 and incorporated the green residue into the soil to a depth of about four inches with a Sunjoe electric tiller. (This little machine is a beast and a godsend to my back, which I have for years abused by tilling in high biomass covers with a heavy Earthtools grubbing hoe. At age 59 I have finally succumbed to the luxury of a machine.) I usually wait two weeks from the day I turn in the green manure to the day I put in my transplants to make sure I get good decomposition and nitrogen release. This year was different. Given the cool nights I believe the decomposition slowed down but the transplants were beyond ready.

*Tomatoes planted into a tilled-in rye, vetch, and red clover green manure on May 21.*

*The tomato crop 50 days after transplanting, on July 10.*
*Lee Rinehart / NCAT*

I put in the tomatoes on May 21, 11 days after tilling in the green manure. It proved to be too early and I knew nitrogen would continue to be used by the soil bacteria to finish decomposing the biomass. To compensate, I added a small handful of blood meal in the hole for each tomato plant and hoped.

Sure enough, eight days later I noticed slight chlorosis on some of the tomatoes. They weren’t starving, and I knew they would grow out of it because soon the nitrogen from the green manure and the blood meal would become available. I needed some reassurance, however, so on May 29 I applied one ounce per gallon of fish fertilizer to the plants. They came out of it, though whether it was on account of the fertilizer, the blood meal, or just the cover crop, I have no idea. But the whole situation gave me some ideas.

One option I am thinking of for getting summer transplants into early terminated cover crops when the temperatures are too low for timely cover crop decomposition is to use winter-killed cover crops instead. This autumn, I’ll likely plant oats and winter peas, which will die in winter. In late spring my tomatoes can be planted earlier into the decomposed mulch. I have never experimented with winter-killed covers so I know I will have to pay attention to nitrogen next year and sidedress if needed. It will be a good learning experience to see how nutrient carryover from winter-killed covers compares with spring-killed covers.

Using cover crops at this scale is fun. It’s an adventure and it’s practical. Buckwheat grows wicked quick in summer, making it a great cover between early summer and autumn crops. Rye and vetch have amazing yields and, seriously, crops that follow them just don’t need fertilizer (unless I am nervous... which admittedly I am at times. A handful of bloodmeal may do no more than give me the warm-and-fuzzies but I still do it). Even the pollinator crops are covers providing multiple benefits.

Eliot Coleman once said green manure and cover crops and crop rotations are public commons, so corporations can’t make money off them. Maybe that’s why their use on American farms is still excruciatingly low. As for the Mad Farm

**Green manures 10**

# In Amish-Chinese Partnership, Shiitake Mushrooms Are the Main Ingredient

***From a collaboration that grew out of the impact the pandemic had on food and farm businesses, the Amish Agriculture shiitake mushroom sauce is a story of success.***

*Shiitake mushroom spores grow year-round on logs in Amish farmer Sam Peachey's greenhouses in Ovid, NY.*

By Krishna Ramanujan

Sam Peachey, who started raising free-range chickens and eggs in 2015, found himself financially strained by 2019.

"I invested a lot in a hen house that didn't work out so well," said Peachey, an Amish farmer in Ovid, NY. He had been traveling to New York City each weekend to sell his meat, eggs, and produce at farmers markets there, but he simply wasn't drawing enough customers to his stand to make a profit.

"I'm watching a vendor across from me and he has a line of people waiting, and I'm thinking, how can I attract people?" he said.

He then noticed his competitor's sign: "Fresh Mushrooms."

"I was firmly resolved when we left that day that next year, I'm going to have fresh mushrooms," he said, motivated by his fellow farmer's obvious success. He asked around and learned that few local farmers grew the mushrooms, which were in demand and fetched a high price at market.

In July 2020, as the COVID-19 pandemic worsened his financial woes, Peachey reached out to one of his regular customers, entrepreneur Mark Lin, who regularly bought chicken, eggs, and produce from Peachey when he cooked for his family. Lin liked the Amish food because it was fresh, tender, local, and grown using traditional practices, such as horse-drawn plows, which reminded him of his childhood in China.

"He said, 'Hey, Mark, do you know how to grow mushrooms?'" Lin said. Lin was quite familiar with shiitakes because they were grown in his hometown in Zhejiang Province, China. As an immigrant, Lin related to Peachey's farming style and struggles.

"We have a true connection with Amish people," Lin said, noting both communities' desire to sustain their cultures and practices. "They're a minority group, and slowly their farming techniques may just fade away because of technology and progress."

The conversation inspired a partnership between Peachey, Lin, and Lin's friend Peter Chang, a Chinese chef who won the James Beard Award in 2016 for best chef in the Mid-Atlantic region and owns 14 restaurants in the Washington, D.C., area, Virginia, and in Stamford, CT. The collaboration, which centers around mushrooms, was borne out of the pandemic that reshaped all of their businesses. It is rooted in each man's commitment to simple, largely bygone small-farm lifestyles, which they had each experienced in their own ways. And it was enabled by their relationships with experts at Cornell.

As their plans took shape, both Lin and Peachey sought help from Cornell Cooperative Extension (CCE) specialists they'd consulted in the past. CCE staff had advised Lin on his attempt to grow tea for the Finger Lakes Tea Company he started in Waterloo, in Seneca County. And Peachey already knew Judson Reid '97, a vegetable educator at the Cornell Vegetable Program, who helped develop the Seneca Produce Auction in Romulus, NY, where Peachey served as auctioneer.

With Cornell's help, Peachey found financial stability growing shiitake mushrooms, while Lin and Chang launched a business featuring a mushroom sauce – at once an ingredient for dishes, a condiment, and a dressing – made from Peachey's shiitakes.

With staff from CCE helping Peachey with best management practices for growing shiitakes and developing a plan for food safety, and Cornell AgriTech professionals advising Lin and Chang on how to get their sauce to market, the sauce has now made its way to the shelves of three Taste NY stores run by CCE around the state, with applications in for more.

"It's a fascinating cross-pollination between these two different cultures," Reid said.

**Mushroom Magic**

Lin connected Peachey to a shiitake farmer in Albany, where Peachey bought shiitakes for resale at GrowNYC Greenmarkets, with whom Cornell partners. Peachey's hunch was correct: The mushrooms drew more regular customers to his booth.

Emboldened by this success, and with Lin's financial support, Peachey then built two large greenhouses – roughly 28 by 160 feet – on his farm in late 2020. He fitted the greenhouses with long racks and sprinklers and found logs to inoculate with shiitake spores.

Peachey contacted Reid for advice. "I told him I needed all the help I could get because I didn't know enough about mushrooms," Peachey said.

Reid and colleagues helped Peachey develop a Good Agricultural Practice food safety plan, which he needed to produce and sell mushrooms commercially. Peachey's family and others were trained to adhere to the plan.

"We needed to ensure that the mushrooms were grown safely," Reid said, "and that they left here safely."

Following his faith's traditions, Peachey faced unique challenges that might otherwise have been solved by technology like thermostats and climate controls. He built his greenhouses on a 3% grade – an Amish design – to take advantage of the thermodynamics of rising heat, creating a natural air flow from one end of the long structures to the other. In winter, when temperatures drop to 10º outside, an indoor wood stove keeps the greenhouse air at 70º.

The greenhouse construction had the added benefit of enabling year-round growing conditions, positioning Peachey for success during the off-season.

"In the wintertime there's not a lot of produce being grown," noted Judy Wright, a CCE Seneca agricultural resource educator who assisted Lin and Peachey. "So the mushrooms offered a good opportunity to grow something through the winter that could be

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**Green manures** *from 9*

and hundreds of farms and gardens like mine, we'll take hope, connection, and resilience, and will each day try to do something that doesn't compute.

For more information on cover crops, visit attra.ncat.org/topics/cover-crops. For a toolkit on how to reduce synthetic fertilizer use, visit attra.ncat.org/toolkit-how-to-reduce-synthetic-fertilizer-use. And for the video "Growing Hope: Fertilizer Reduction," see youtu.be/iHdPSaqgRF8.

This article was first published on Aug. 15, 2023 on the ATTRA Blog.

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**Amish-Chinese** *from 10*

sold for income."

Peachey picked the first shiitakes in early February 2021. Mark and his brother, Leo Lin, immediately began selling the mushrooms at local grocery stores and in Chinese supermarkets in Boston and New York City.

The shift to shiitakes reinvigorated Peachey's business. "Mushrooms have changed our lives," Peachey said. "My goal is to be known as the Mushroom Man. It's not just financial, it's also a passion: to try and grow something healthy that people love."

*Bruno Xavier, Ph.D. '08, associate director of the Cornell Food Venture Center at Cornell AgriTech in Geneva, NY, runs tests on a jar of Amish Agriculture shiitake mushroom sauce.*

*Peter Chang, an award-winning chef, owns 14 restaurants in the Washington, D.C., area, Virginia, and Stamford, CT.*

**Celebrity Chef**

By summer 2021, Peachey – with help from Cornell partners Wright and Reid – needed to balance three basic conditions for growing shiitakes: the correct temperature, humidity, and amount of water. Achieving each condition was exponentially more challenging without modern thermostats and climate control. In July 2021, a rise in heat caused an entire greenhouse of mushrooms – thousands of pounds of fungi – to bloom at once. This excess supply presented a new challenge, since shiitakes remain fresh only a few weeks at most.

When Chang learned of the wasted shiitake crop, he didn't want Peachey to lose revenue, and he and Lin agreed to absorb the losses. Chang and Lin had already started a business, Amish Agriculture Inc., which aimed to help distribute Amish produce, meat, and eggs. They added mushrooms to their product line. Today, 15% of the ingredients that Chang uses in his restaurants – mushrooms, chickens, ducks, eggs, and garlic scapes and bulbs – come from Amish farms. Peachey grows the mushrooms, and Mark and Leo Lin deliver them to Chang's restaurants.

"I respect the Amish a lot, that they persevered in a hard time and were able to continue farming," said Chang, who hails from a rural farming community in China's Hubei Province. "Looking at Amish children reminds me of growing up in the rural area in China. My heart is to help them."

At the same time, Lin realized the pandemic was changing his business goals. Before, his dream was to have a personal brand that spread across the U.S. More recently, he just wants to help people.

It was then that Chang came up with the idea of creating a sauce that could be made from extra shiitakes, including edible but blemished mushrooms that didn't meet store standards. He developed a sauce made mostly from finely diced shiitakes, chili oil to bring out the flavor, and dried shrimp and scallops.

Chang slowly introduced the sauce in his restaurants to test customer reaction and tweak the recipe. He ultimately created six versions of mushroom sauce, including one with beef and another with seafood.

Chang is proud of the response. "Not only Chinese," he said, "but American customers like it as well."

**Into Jars**

After the success in the restaurants, Lin and Chang decided to try to sell the Amish Agriculture mushroom sauce in stores. For guidance, they turned to Bruno Xavier, Ph.D. '08, associate director of the Cornell Food Venture Center at Cornell AgriTech in Geneva, NY. The center helps about 500 food entrepreneurs a year commercialize their products, assisting with lab analysis, regulatory compliance, nutritional analysis, and packaging.

"We're very lucky and happy to get help from Cornell," Chang said, "because from the perspective of food safety, we are not very knowledgeable and we need support."

Led by Xavier, the Food Venture Center staff tested the samples, evaluated ingredients and provided options for making the product safe and shelf-stable. They also helped scale up the recipe. And they made it possible for Lin and Chang to shorten the time and lower the cost of making products safe and shelf-stable without losing nutritional value and taste.

"There's a lot of learning that goes into that, even for an experienced chef like Peter," Xavier said. "It's one thing to serve the food in your restaurant, and it's going to be immediately consumed. But if you are going to put that in a jar, and ship it all over the country, you have completely different concerns and parameters that you have to meet."

Xavier quickly noted two serious challenges to scaling the mushroom sauce. The oil base made it hard to lower the pH to keep the sauce acidic enough to ward off microbial growth. And the oil lubricated the jar seal, creating difficulties in securing the lids.

Xavier lowered the pH as much as possible to limit microbial growth so that they could increase the water in the product, creating a better vacuum in the container.

When the recipe was ready and the process was approved by state regulators, Lin took his sauce to Craft Cannery, a co-packer near Rochester. The cannery's owner has his own Cornell connection, having developed tomato sauces through the Food Venture Center and Cornell's Center of Excellence for Food and Agriculture, which helps food product and agricultural technology companies launch, grow, or relocate to New York State.

The first jars of Amish Agriculture shiitake mushroom sauce were filled in April 2023.

**Off the Shelf**

Peachey said his finances are back on track thanks to selling shiitakes. He and Lin have also tried to teach other Amish farmers to boost their incomes by growing mushrooms. They have conducted workshops over the last few years at Peachey's farm and in Wisconsin and Ohio.

CCE's Judy Wright helped Lin apply to sell the sauce at Taste NY Welcome Center stores in Broome County and Auburn. The sauce will soon be available for sale online. Response has been positive, especially after Lin and Peachey offered in-person samples in June.

"As soon as people tried samples, the two cases Mark brought were off the shelf," said Victoria Giarratano, assistant director for food systems and innovation at CCE.

"One of my coworkers saw Mark the other day and was asking where she could buy another jar because her family went through it like that," Wright added. "People like it."

This article originally appeared in the Cornell Chronicle.

*Krishna Ramanujan covers life sciences research for the Cornell Chronicle.*

*Jars of Amish Agriculture shiitake mushroom sauce are currently being sold at three Taste NY Welcome Center stores, with more locations to come.*
*Ryan Young / Cornell University*

# ‘No Me Rajo’: La Resiliencia Requerida para Iniciar una Operación Agrícola

***A pesar de muchas barreras, la pareja mexicana Bernardo Trujillo y Verónica Cruz crían a sus hijos y cultivan hortalizas orgánicas en Two Brothers Farm.***

A Tim W. Shenk

No hay granero rojo, ni silos blancos, ni siquiera un letrero que indique la entrada a Two Brothers Farm, a las afueras de Middletown, en el condado de Orange, NY.

Las siete acres están lodosas, con agua estancada todavía en los campos en muchos lugares. La pareja mexicana Bernardo Trujillo y Verónica Cruz analizan lo que queda de sus cultivos de la temporada.

“Perdimos 2.800 plantas de jitomate por las lluvias,” dice Trujillo. “Y como 800 de chiles de todas las clases. Sandías y melones también. Se dañó muchísima calabaza por la lluvia. No fue porque uno no las haya cuidado sino porque llovió bastante.” Cruz añadió, “Este pedazo de aquí era de calabaza y zucchini. Solo llegamos a hacerle un corte porque de ahí vino el agua y se ahogó la planta. Toda esta zona de allí era de col,” dijo, señalando una parcela inundada. “Ha llovido mucho.”

Trujillo y Cruz llevan tres años cultivando en esta tierra, pero éste es el primer año que se atrevieron a dejar su trabajo y dedicarse a tiempo completo a su propia operación, a su propia finca. Ya han finalizado los trámites para convertirse en una operación agrícola registrada, pero aún no han podido contratar un seguro de cosecha.

Trujillo y Cruz están casados y tienen cinco hijos, de edades comprendidas entre los 18 años y los seis meses. Ellos son de México y trabajaron casi 20 años en las plantaciones de manzana en Nueva York antes de rentar estas tierras para montar su propio negocio. Según el Censo Agrícola del 2017, aproximadamente el 70% de la mano de obra agrícola del Estado de Nueva York se identifica como latina. Sin embargo, solo 606 latinos poseen u operan una finca, rancho o granja en el estado, o un poco más del 1% de los propietarios-operadores en Nueva York.

Trujillo era fumigador y tractorista en el rancho y se convirtió en un mecánico experto en el camino. Ambos provienen de entornos agrícolas.

“En México trabajamos en el campo cosechando frijol y maíz con mi familia,” dijo Cruz. “Desde pequeños nuestros padres nos criaron así y eso fue algo muy bonito. Son recuerdos muy bonitos que uno vivió, y pues uno quisiera seguir lo que nuestros padres nos enseñaron y enseñárselo a nuestros hijos que también sigan teniendo esa experiencia que nosotros tuvimos de niños.”

Aquí, en el Estado de Nueva York, han diversificado la producción. Cultivan jitomates, zanahorias, remolachas, col, berenjenas, cilantro, melones, tomatillos, y hierbas culinarias mexicanas como son el epazote, el pápalo, y las pipichas. Las gallinas deambulan libremente bajo los árboles en los bordes de los campos.

Vivir y trabajar en E.U. ha sido difícil. “A mí me motivó salirme de esa finca,” dijo Trujillo. “Yo llevé muchos años trabajando ahí y no miraba un cambio para mí. Siempre me usaban de tractorista y yo dije, ‘Se acabó ya,’ porque yo estoy para superar y no estoy para quedarme en un lugar. Yo tengo que crecer más, quiero ser más que un tractorista. Hablé con mi familia y dije, ‘Es tiempo de retirarnos de aquí para que nosotros mismos seamos dueños de nuestro negocio ya no trabajemos para nadie más.’”

Cruz añadió que fue discriminada por un supervisor y se sintió subvalorada por sus jefes. El estrés del trabajo en la finca cuando estaba embarazada, le provocó que perdiera un bebé. “Cuando yo tuve ese accidente, me salí del trabajo y ya no volví más. Le decía a mi esposo, ‘Vamos a trabajar nosotros en la agricultura y vamos a tratar de salir adelante.’”

Al iniciar su propia operación, Trujillo y Cruz han encontrado muchas de las barreras de entrada que enfrentan los productores latinos en la agricultura en Nueva York. Las barreras lingüísticas y culturales dificultan el acceso a los aspirantes a agricultores hispanohablantes a información sobre normativas, permisos, créditos fiscales, y subvenciones estatales y federales disponibles. Pocas oficinas de proveedores de servicios encargadas de ayudar a los agricultores con todas estas cosas tienen empleados que hablen español. Cuando sí lo tienen, estos especialistas bilingües tienden a estar sobrecargados de trabajo, responsables de atender a múltiples grupos marginados en la agricultura.

Acceder a la tierra, al crédito, y al capital puede ser difícil. Los prestamistas públicos y privados suelen exigir un historial de crédito y garantías que resultan poco realistas para los inmigrantes más recientes, además del racismo sistémico que ha asolado el sector durante dos siglos. El USDA ha tomado recientemente medidas para rectificar prácticas de discriminación racial en la concesión de préstamos agrícolas, pero corregir un viejo patrón es un proceso lento y desigual en su aplicación.

Las y los agricultores latinos de las zonas rurales pueden sentirse aislados y vulnerables ante las autoridades estadounidenses formales e informales, incluso cuando están completamente dentro de sus derechos. Es cara la asistencia jurídica para redactar un documento tan sencillo como un contrato de arrendamiento de tierras. En muchas partes del estado es difícil encontrar abogados que hablen español o que estén dispuestos a dedicar tiempo extra a un cliente para que comprenda los documentos que está firmando.

Trujillo y Cruz se han enfrentado a las caras sistémicas e interpersonales del racismo. Trujillo se quedó callado cuando se le preguntó qué es lo más difícil de su trabajo. “El racismo,” dijo finalmente. “Aquí todo es orgánico, y producir orgánico es difícil y bastante caro. He tenido clientes que se molestan y pues tiran las cosas de la mesa porque no quieren pagar el precio que le hemos puesto a nuestros productos. Yo no miro que le hagan eso a los americanos, solo a uno.”

Cruz afirmó que, “Tiene uno que tener paciencia porque se ponen a veces agresivos.” Le consuela tener a toda la familia participando en el esfuerzo. “Pero seguimos todos juntos, gracias a Dios. Mis hijos siempre nos han ayudado, todos desde el más grande hasta el más chiquito. Pues de esa manera estamos tratando de salir adelante.”

Su hijo mayor, Cristo, ha asumido muchas responsabilidades en la finca familiar. Además de estudiar mecánica en la universidad comunitaria local, es el principal tractorista en la finca. Vende en los mercados de agricultores de la ciudad de Nueva York los fines de semana.

“Pues sí, el trabajo es duro,” se reía. “Es difícil por el cuerpo. Pero es bonito crecer todo tú mismo. Solo viendo todo el trabajo que uno hace, pero ya estamos vendiendo y es bonita toda la verdura que tenemos, y es bueno ver que a la gente le gusta.”

Este año, los ingresos familiares han sido muy afectados debido a las inundaciones. Carlos Aguilera, copropietario de West Haven Farm, en el condado de Tompkins, afirma que estos fenómenos climáticos extremos serán cada vez más frecuentes. Los agricultores tienen que empezar ya a aprender prácticas climáticamente inteligentes para minimizar la erosión y manejar las nuevas plagas para mantener la producción. Por eso Carlos enseña prácticas de resiliencia climática a otros productores y productoras a través de los Días de Campo del Cornell Small Farms Program.

“En lugares como México y Costa Rica, el gobierno paga a los agricultores que incorporan prácticas que minimicen los efectos del cambio climático,” dijo Aguilera. “Tenemos que abogar por eso también aquí en Estados Unidos. Creemos que aquí estamos avanzados, pero en realidad vamos 40 años atrasados de lo que hacen otros países en cuanto a cómo afecta el cambio climático a

**Futuro en Ag 13**

*Cristo Trujillo, 18, works on the farm his family is starting in Middletown, NY, and sells at farmers markets in New York City on the weekends. In addition, he studies automotive technology at the local community college.*
*Cristo Trujillo, de 18 años, trabaja en la finca que su familia está iniciando en Middletown, NY, y vende en mercados agrícolas en la ciudad de Nueva York los fines de semana. Además, estudia mecánica en la universidad comunitaria local.*
*Verónica Cruz / Two Brothers Farm*

# What It Takes: The Resilience in Starting a Farm

***A profile of Bernardo Trujillo and Veronica Cruz, the Latino farmers growing their family and their crops at Two Brothers Farm.***

There is no red barn, white silos, or even as much as a sign to indicate the entrance to Two Brothers Farm outside of Middletown in Orange County, NY.

The seven acres are muddy, with standing water still in the fields in many places. Hands on hips, Bernardo Trujillo and Veronica Cruz surveyed what is left of the season's crops.

"We lost 2,800 tomato plants when the land flooded," said Trujillo. "Eight hundred more of hot peppers. We lost most of our cantaloupe, most of our watermelon." Cruz added, "We had a whole plot of winter squash and another of zucchini that were ruined. This whole area here was kale," she said, gesturing toward a flooded patch of land. "There was just so much rain."

Trujillo and Cruz have been farming here for three years, but this is the first year they've taken the plunge to quit their day jobs and work full-time here. They have finalized their paperwork to become a registered farm, but they haven't yet been able to get crop insurance.

Trujillo and Cruz are married with five children, ages 18 years to six months. They're from Mexico and worked nearly 20 years in the apple industry in New York before renting this land to start their own farm. Approximately 70% of the agricultural workforce in New York State identifies as Latino. Yet only 606 people identifying as Latino own or operate a farm here, or slightly more than 1% of owner-operators in New York, according to the 2017 Ag Census.

Trujillo was a fumigator, drove a tractor in the orchards, and became a skilled mechanic along the way. Both come from agricultural backgrounds.

"I grew up in the countryside raising corn and beans with my family," said Cruz. "I have beautiful memories of Mexico, and I want to pass on what I learned from my parents, so that my kids can have some of the experiences that I had."

Here in New York State the couple has diversified. They grow tomatoes, carrots, beets, kale, eggplant, cilantro, melons, tomatillos, and Mexican cooking herbs such as epazote, pápalo, and pipichas. Chickens roam freely under the trees at the edges of the fields.

The couple's experiences living and working in the U.S. have been difficult. "We were being treated poorly in the orchard where we were working," said Trujillo. "We'd been there for a long time already, and I didn't see any change coming. I didn't just want to drive a tractor for someone else my whole life. I told my family, 'We need to leave here, start our own business, and be our own bosses and not work for someone else anymore.'"

Cruz added that she faced discrimination from a supervisor and felt undervalued by her bosses. The high stress of orchard work caused Cruz to miscarry. "After I lost the baby, I didn't ever go back. I told my husband 'Let's grow our own food and see if we can make it work.'"

*Bernardo Trujillo, pictured, and his wife Verónica Cruz have started Two Brothers Farm outside of Middletown, NY. As Latinos they have faced many barriers to entry in agriculture, including lack of information and technical assistance in Spanish, difficulty with legal agreements and insurance, as well as racial discrimination and mistreatment.*
*Bernardo Trujillo y su esposa Verónica Cruz han puesto en marcha Two Brothers Farm en las afueras de Middletown, NY. Como latinos se han enfrentado a muchas barreras para entrar en la agricultura, como la falta de información y asistencia técnica en español, dificultades con los acuerdos legales y los seguros, así como la discriminación racial y malos tratos.*

*Jamie Johnson / Cornell Small Farms Program*

In starting their own operation, Trujillo and Cruz have faced many of the barriers to entry that Latino farmers tend to encounter in agriculture in New York. Language and cultural barriers make it difficult for aspiring Spanish-speaking farmers to access information about regulations, permits, tax credits, and available state and federal grants. Few service provider offices tasked with supporting farmers with all of these things have employees who speak Spanish. When they do, these bilingual specialists tend to be overworked, responsible for serving multiple underrepresented groups in agriculture.

Accessing land, credit, and capital can be difficult. Public and private lenders often require a credit history and collateral that is unrealistic for newer immigrants, in addition

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la agricultura."

Trujillo dice que ahora trabaja más horas que cuando fue empleado. Aún así, prefiere este estilo de vida y está decidido a que salga bien.

"Estamos felices," dice Trujillo. "No necesitamos que nos lleguen cien mil dólares por temporada. Simplemente que me paguen mis gastos y que tenga para seguir creciendo poco a poco. Realmente no tengo ese estrés que yo tenía. Me siento muy contento con una libertad. Ahora estoy con mi familia. Yo estoy desde las 6 de la mañana hasta las 8 de la noche con toda mi familia, con todos trabajando juntos aquí deshierbando y todo."

Para Trujillo, tener su propia finca significa libertad. "Me gusta el campo, porque ver crecer una planta y aprender a cultivarla, es lo que a mí me gusta. Más que nada es la libertad." Para muchos latinos y latinas en E.U., tener su propia finca significa libertad para tomar decisiones y para estar con sus hijos, sus parejas y su familia extendida. Es libertad para crear su propio futuro. La libertad que pueden encontrar en sus emprendimientos agrícolas les permite formar carácter en sus hijos, reconocer, y desarrollar sus talentos y promover la dignidad, el amor por la tierra, y el respeto para las personas que trabajan la tierra.

Mildred Alvarado, directora del proyecto Futuro en Ag de Cornell Small Farm Program, agregó lo siguiente, "La agricultura para nosotros no es solamente rentabilidad. Es la libertad de sonreír y no solamente llorar, de hablar y no solamente callar. La agricultura para nosotros significa la responsabilidad en el manejo de los recursos naturales y proveer algo esencial para la comunidad."

El consejo de Trujillo a otros aspirantes a productores latinos es que tomen todas las grandes decisiones juntos. "Yo les aconsejo que tomen una decisión de pareja muy bien," dijo. "Y pregunten todo, porque si no preguntamos salimos engañados. Si alguien está sufriendo lo mismo que yo, que le eche para adelante, no pasa nada. Todos vamos a ir adelante."

Mildred Alvarado, Suly Valdez, y Jamie Johnson participaron en el levantamiento de información y entrevista para este artículo.

*Como especialista en comunicación bilingüe de Futuro en Ag, aporto mi experiencia en comunicación en español, periodismo, investigación, educación popular, desarrollo curricular, y pedagogía. Mi deseo es poder contribuir a la construcción de una red de agricultores de habla hispana en el estado de Nueva York y más allá.*

# Extending the Grazing Season Beyond Growing Season

***How to do it and to what end.***

By Ulf Kintzel

Extending the grazing season well beyond the end of growing season is a desirable goal when raising sheep on pasture. Feeding stored feed like dry hay and haylage over the winter is costly. Extending the grazing season can reduce these winter-feeding costs.

There are various ways to extend the grazing season into late autumn and early winter. One method is to "stockpile" existing perennial pasture. It means letting pasture grow, starting in late summer or early autumn, and saving it for grazing later in late autumn or early winter. You would allow the pasture to grow for approximately 50 to 60 days before the end of growing season. Going longer than the 60-day period is not advisable. The gain in growth will be minimal, if any. The quality and digestibility of the forage will decrease with every additional day. To be able to stockpile, you would need to have additional acreage available beyond the grazing acreage that you need for your existing flock. If you're also making all your winter feed on your land, you are likely to have this additional acreage.

Stockpiled forage holds its value well into winter. The quality is comparable or better than hay that could have been made on these acres instead during the time of stockpiling. However, grazing the land is far less costly than making and then feeding the hay.

*These sheep are grazing on stockpiled pasture in December. The light snow cover helps preserving the quality of the forage.*

If you already own agricultural machinery and farm in other ways besides raising sheep, a practical way of extending grazing season is to plant forage after harvest of small grains in late summer or early autumn. (I do not recommend plowing up perennial pasture for this purpose unless the pasture needs rejuvenation anyway.) This forage will function as a cover crop as well as forage for grazing. Remember, the most valuable part of the cover crop is its roots. That means grazing it will subtract very little from its purpose.

Depending on when you can plant winter forage after harvest, there are several options. Triticale is a valuable choice since it will likely yield high, is very winter hardy, will hold its feed value throughout winter, and can even be harvested the next spring as baleage. Oats are another high-yielding option and are well liked by sheep, even after they head out. Oats have the added benefit that winter frosts will kill them and it will not cause a problem in the crop planted the following spring. If you are a little late in the season and need a cover crop that germinates and grows under much cooler weather, consider cereal rye. It is a high-energy winter feed like triticale but is much hardier and will grow on marginal soils as well. It develops allelopathic compounds, which suppress the germination of weed seeds but also can affect crops with small seeds planted the following spring. Crops with larger seeds are rarely affected by it.

There are other winter crops that are being recommended in seed catalogues, alone or as mixtures. Turnips are high on the list of desirable winter feed. Brassicas like rape seed, oilseed, and radish (daikon) are other viable options. All of these can be mixed with annual ryegrass, triticale, or oats.

*Moving the flock with the use of a herding dog to harvested hay fields at a neighboring farm.*

*Ulf Kintzel / White Clover Sheep Farm*

I have been extending my grazing season by stockpiling but also by grazing neighboring harvested hay fields in autumn and early winter, using my herding dogs to get there, and electric nettings, electrified by battery-powered energizers, to graze these fields. That allows me every year to delay the onset of feeding stored forage (in my case dry hay) until early to perhaps mid-January. Heavy snow in early January might put an end to grazing even when I haven't entirely run out of grazing opportunities. That means my grazing season usually lasts about nine months. I feed hay for only three months of the year – about one round bale per ewe during that time. That amounts to no more than $40 to $50 hay feeding cost per ewe all winter.

What about extending the grazing season even further? Heavy snowfall and cold temperatures, paired with windy conditions, are the norm for me in Western New York during January and February. I suspect the same holds true for most of the readers of this publication, living in the Northeast and in New England. These adverse conditions make it hard on both the sheep, who would have to dig through heavy, perhaps even drifted snow, using up much of the energy they might gain once they get to the forage. Windy conditions paired with cold weather may make it altogether impossible to graze. Setting up and moving portable fencing will also be a challenge in heavy snow or frozen soils.

During the month of March, the thawing soil often loses its structure. Mud is the result, possibly causing harm to the sod with the animal traffic and making it hard or impossible to drive into the pasture. In short, extending the grazing season even further may not be desirable since it takes a toll on both the animals and the humans tending to them. It may defeat the purpose of grazing by making it unsustainable in the long run, especially with aging or older farm managers (like me) who do not wish to expose themselves to the extremes with possibly marginal financial savings.

The calculation may be different if you raise sheep farther south, in states like Virginia, Maryland or Missouri. There, extending the grazing season to up to 12 months and only having hay for emergency purposes for the times of infrequent winter

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to systemic racism that has plagued the industry for two centuries. The USDA has recently taken steps to rectify a history of racial discrimination in their granting of farm loans, but righting the ship is a slow process and uneven in its implementation.

Latino farmers in rural areas can feel isolated and vulnerable to formal and informal U.S. authorities, even when they've done nothing wrong. Legal assistance to craft a document as simple as a land lease is expensive, and it is hard in many parts of the state to locate attorneys who speak Spanish or are willing to take extra time with a client to understand the documents they are signing.

Trujillo and Cruz have faced both the systemic and interpersonal faces of racism. Trujillo got quiet when we asked him what the most difficult thing about his work was. "Racism," he said finally. "We grow everything organic here, and I have had customers get upset about the price of our produce. People have knocked vegetables off of our market table and stormed off. I've never seen a white farmer treated that way."

Cruz said, "You have to have a lot of patience with the customers. Sometimes they get aggressive but most are quite kind." She takes solace in having the whole family taking part in the effort. "Thank God I have my kids here helping me. From the biggest to the littlest ones, we're all here working together."

Their oldest son, Cristo, has taken on a lot of responsibility on the farm. In addition to studying automotive technology at the local community college, he drives the tractor on the farm and sells at farmers markets in New York City on the weekends.

"Yeah, the work is hard," he laughed. "It's hard on your body for sure. But at the same time it's beautiful to grow everything yourself. Now that it's market season, you see all of this green and everything you've cared for, and see that people like it."

This year, the family income has been sorely impacted by the flooding. Carlos Aguilera, co-owner of West Haven Farm in Tompkins County, said these extreme climate events will only become more frequent and farmers have to start learning about climate smart practices now to minimize erosion, manage new pests, and maintain yields. He teaches others climate resiliency practices through Cornell Small Farms Program Farm Field Days.

"In places like Mexico and Costa Rica, the government pays farmers to implement practices that will mitigate effects of climate change," Aguilera said. "We have to advocate for that here in the U.S. too. We think we're advanced here, but in reality we're 40 years behind what other countries are doing in terms of how climate change is affecting agriculture."

Trujillo said he works more hours now than in the orchard. Even so, he prefers this lifestyle and is determined to make it work.

"We're happy," said Trujillo. "We don't need to make $100,000 in a season – just enough to pay our bills and keep growing little by little. I don't have the same stress that I had, and I'm so happy with the freedom of this work. I'm with my family all day, not just a few hours. From 6 in the morning until 8 at night, we're all together, working together, weeding or picking vegetables or whatever needs to be done."

*The Trujillo brothers sell organic vegetables from Two Brothers Farm and at outdoor farmers markets in NYC.*
*Los hermanos Trujillo venden verduras orgánicas de su finca familiar Two Brothers Farm y en mercados de productores de la ciudad de Nueva York.*
*Verónica Cruz / Two Brothers Farm*

To Trujillo, having his own farm is freedom. "I like this feeling of freedom. To see these plants grow, to nurture them, and to be with my family." For many Latinos and Latinas in the U.S., having their own farm means the freedom to make their own decisions and to be with their spouse and children. It means the freedom to build a future. The freedom they can find in agricultural entrepreneurship allows them to instill values in their children, recognize and develop skills and talents, and promote dignity, love for the earth, and respect for all of those who work the land.

Mildred Alvarado, director of Cornell Small Farms Program's Futuro en Ag project, said, "For us, agriculture isn't just profits. It's the freedom to smile and not just to cry, to speak up and no longer be silent. Farming is about a responsibility over natural resources and providing something essential to the community."

Trujillo's advice to other aspiring Latino farmers is to make all big decisions together. "Always make decisions with your partner," he said. "And ask a lot of questions before you jump in. I would also say, if there's someone else who is suffering the same things as me, we can't worry. We're all going to make it somehow."

Mildred Alvarado, Suly Valdez, and Jamie Johnson with the Cornell Small Farms Program also contributed to the data collection and interviews for this article.

*Tim Shenk joined the Cornell Small Farms Program in 2023 as the Bilingual Communications Specialist. He is responsible for the multifaceted communications strategy for the Futuro en Ag project and supports Spanish language online and in-person education.*



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storms or adverse weather is entirely possible. Some of these states are known for their tall fescue as their dominant pasture species. Sheep do not like tall fescue much. However, that changes when the days get colder and nighttime temperatures get down to freezing or near freezing. That is when fescue puts sugars from its roots back into the plants, which are now sought out and well-liked by sheep.

In addition, among all cool season grass species, tall fescue holds its feed value the best into late winter, far surpassing any other cool season grass species. That feed value is likely in February still comparable or better than any dry hay. In addition, fescue sods are seemingly indestructible and can take a lot of "abuse" during times when other pastures might get harmed by animal traffic and vehicles.

Ultimately, the decision how to extend the grazing season and for how long will be different in every case because everyone's circumstances will be unique. There isn't a one-size-fits-all approach. While extending the grazing season is or should be a desirable economical goal, going the extreme mile may not be worth it because of the toll on both humans and animals. Instead, I recommend finding your personal sweet spot.

*Ulf Kintzel owns and operates White Clover Sheep Farm and breeds and raises grass-fed White Dorper sheep without any grain feeding and offers breeding stock suitable for grazing. He is a native of Germany and has lived in the U.S. since 1995. He farms in the Finger Lakes region in Upstate New York. His website is whitecloversheepfarm.com. He can be reached by email at ulf@whitecloversheepfarm.com or by phone during the "calling hour" indicated on the answering machine at 585.554.3313.*

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# Rochester Farm Brings Opportunity, Joy to At-Risk Young Adults

***A small half-acre farm managed by CCE Monroe offers workforce training and transitional jobs for young adults 18 to 26 who face obstacles in finding or keeping employment.***

By Caitlyn Hayes

Just north of some of the most challenged neighborhoods in Rochester, a small farm is flourishing – and providing more than just food.

The half-acre farm, established in 2022 by Cornell Cooperative Extension Monroe County (CCE Monroe), is the site of a workforce training and transitional jobs program for young adults, ages 18 to 26, who face obstacles in finding or keeping employment.

"This is a population that just doesn't have the opportunities everybody else has, and it's not fair," said Marci Muller, horticulture program leader for CCE Monroe and longtime advocate for at-risk young adults. "The purpose of our program is to help them build that workday structure into their life, to develop the soft skills: getting to work on time, being a good team member. When they're at a point where they can hold on to a job, we help them find work."

Part of CCE Monroe's South Lawn Project, the GROWS program (Gaining Relevant and Outstanding Work Skills) is in its second year, with cohorts of five young adults moving through the program at a time; by the end of this year's growing season, 15 employees will have worked on the farm, receiving stipends for their hours. With CCE, partnering nonprofits and agencies help the workers tackle the broader challenges that prevent them from finding and keeping employment, such as housing and financial insecurity or inconsistent access to internet, childcare, and transportation.

"We know our limitations," Muller said. "We're not counselors, we're not social workers, but when things are beyond our capacity, we know where to reach out for help."

"This program is not what you expect," said current employee Anthony Walker, 20. "They're very caring people. When I was working in fast food places or things like that, nobody cared about what was really going on, but here – it's like, they got you."

The support made a difference in the program's first season: Of the 10 young people who participated in 2022, three employees subsequently enrolled in school, and five more were employed six months after leaving the program.

Farm employees gain tangible skills – maintaining the infrastructure of the farm and learning how to grow, tend, and harvest the crops – but also begin to imagine new careers for themselves, said Michael Kincaid, urban agriculture educator at CCE Monroe and farm manager for the South Lawn Project.

"These are transferable skills in terms of accuracy and attention to detail that they would use in any job," Kincaid said. "Maybe even more important is that you see them considering careers they weren't considering before, whether that's in horticulture or not."

Kincaid and Muller helped current employee Jordan Conyer, 21, find an additional part-time job and enroll in community college for autumn.

"They've helped me feel comfortable with certain goals I want to achieve," said Conyer, who plans to study graphic design and enter a four-year college after completing his associate degree. "And the program gives you the opportunity to access jobs and the new things we're learning. It's a good thing."

Conceived as an outdoor classroom, the farm is located on the south lawn of the CCE Monroe offices and, in addition to GROWS, provides opportunities for the community to learn about horticulture, urban farming, nutrition, and more. Between 80 and 90 crop varieties are currently growing, and the harvested food is donated back to food pantries in low-income neighborhoods – the first delivery, made the last week of June, consisted of 36 pounds of food.

"In the neighborhood I grew up in particularly, there isn't much access to foods that are good for you," Conyer said. "That's why I like programs like these because, with the knowledge that you get, you realize you can bring all of that stuff to yourself."

Muller said she would love to expand the program's footprint and bring urban gardening directly to the communities where Conyer and others live.

"Having more of a presence in the city would help a lot, if we could get access to more funding, a vacant lot, and have a mobile crew," Muller said. "There's a big push to empower people to grow their own food, to take back property in the city that is not being utilized, to beautify and improve communities. Having a satellite garden in the neighborhoods where our kids live would make a big difference for those communities and for our program."

*(L - R) Gianni Robles, Nika Colley, Andre Johnson, and Lahquel Lewis scout vegetables at the CCE Monroe South Lawn Community Garden in Rochester, NY. Colley '23 was a 2022 CCE summer intern leading workforce development training for CCE Monroe at the Community Garden.*

Already, the farm has shifted employees' relationship to food. They take fresh produce home with them, and Kincaid uses fruits and vegetables from the farm to make lunches for the crew; they've made kohlrabi fries, mulberry jam, garlic scape pesto, and more.

*Andre Johnson (L) and Libon Jilane are young adults who participated in a CCE Monroe work skills development program at its South Lawn Community Garden in Rochester, NY.*

"There have been new flavors and things I've never tried or never even seen," Walker said.

The employees said the knowledge of how to grow food is something that will stay with them, even if they don't end up working in landscaping or agriculture.

"Thanks to this program, I know once I get my own place, I'm going to have my own plants," said James Flanagan, 19, who hopes to attend community college, and eventually a four-year college, to pursue computer coding. "I definitely wouldn't have done that without this program."

Some current and past employees have discovered a more direct career interest in horticulture as well. Walker may be on that path – he left the program for two weeks, and when he returned, the change in the garden astounded him.

"When we first started, there was nothing there, literally

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# Harvest New York Releases Manual for NYS Hemp Growers

***From production guidelines to considerations for grain and fiber processing, as well as relevant legal and regulatory information, a new interactive manual offers key information for New York State hemp growers.***

By Melissa Jo Hill

A new, first of its kind manual will provide guidelines and best practices for New York State growers of hemp – a crop with the potential to revitalize economies while revolutionizing industries from fiber to pharmaceuticals.

Daniela Vergara, a Cornell Cooperative Extension (CCE) emerging crops specialist, and a team of Cornell researchers and students have put together the "New York State Cannabis sativa L. Production Manual," freely available as a PDF document on the Cornell Hemp Program website (at hemp.cals.cornell.edu/resources/new-york-state-cannabis-sativa-l-production-manual).

"I think it's the best manual out there," said Vergara, a member of the Harvest New York economic development program, a state-funded multidisciplinary program of CCE specialists dedicated to developing New York's farm and food economies. For the hemp growers' manual, she gathered input from colleagues across CCE and the College of Agriculture and Life Sciences, with the assistance of a team of Cornell graduate students.

"Everyone knows the industry needs resources to grow, and this was a wonderful collaborative process," she said.

Zachary Stansel from the USDA contributed, as well as industry experts and researchers from Alabama A&M University. The guide was developed with support from the New York State Department of Ag & Markets, the state's Office of Cannabis Management, and the Toward Sustainability Foundation.

While the manual is geared toward growers and producers, a thriving hemp industry would impact the entire state.

"Hemp is the material of the future," said New York State Sen. Michelle Hinchey, chair of the Senate's Ag Committee. "And positioning New York to lead the way in its production is a winning strategy for removing plastics from our world and fighting the climate crisis, boosting rural economic development, and giving our small farmers a new revenue source."

Said New York Assemblywoman Donna Lupardo, chair of the Assembly's Committee on Agriculture, "I am proud to support the development of this comprehensive manual on hemp production. This resource will be invaluable to farmers, businesses, and policymakers alike as we work to build a successful and sustainable hemp industry in New York State. I thank the team at Harvest New York for their hard work on this project, and I look forward to seeing the positive impact it has on our state."

Damian Fagon, chief equity officer for New York's Office of Cannabis Management, said that democratizing technical assistance is essential for hemp cultivation throughout the supply chain.

*Daniela Vergara, a Cornell Cooperative Extension emerging crops specialist, helped produce a new freely available hemp growing manual.*

*Image Provided*

"The office is hopeful that this manual will guide new and experienced farmers in every corner of the state," he said.

Unlike the standard growing guides, the manual is interactive, full-color and fully illustrated. It includes graphs and charts to make the complicated information easier to digest for current and prospective growers.

"My goal with this manual was that if someone wanted to start growing tomorrow, they could read this and find all the information they would need to be successful," Vergara said.

To that end, the manual includes production guidelines for selecting and growing hemp both in the field and indoors, along with considerations for grain and fiber processing, as well as relevant legal and regulatory information for New York State.

As new research emerges and state guidelines change, Vergara plans to continue updating the manual. The website will also evolve, and a Spanish-language edition is planned for 2024.

"As a land-grant university, it's our mission and charge to make research-based information available to anyone who needs it," said Judson Reid, Harvest New York team leader. "For years, CCE has been putting out crop guides, but this particular manual takes everything to a new level."

This article originally appeared in the Cornell Chronicle.

*Melissa Jo Hill is a communication specialist for Cornell Cooperative Extension.*



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nothing," he said. "Coming back and just seeing the beauty in the garden – it really inspired me. It was a change for me. It's like, wait, this is maybe something I want to do."

Kincaid said there are many moments where he and the employees recover a childlike curiosity, a sense of joy, and surprise.

"We're walking the rows, taking a close look at the progress every day," Kincaid said. "We see hawks, skunks, some bugs that we have no idea what they are. That kind of curiosity and wonder is really gratifying in and of itself."

*Marci Muller, horticulture program leader for CCE Monroe, carries some recently harvested vegetables at the organization's South Lawn Community Garden.*

*RJ Anderson / Cornell University*

Employees recalled surprises too: finding weeds that smell like peanut butter, discovering fennel's black licorice flavor, catching and releasing a groundhog and a baby raccoon.

"It's a peaceful environment. It brings peace to the mind," Walker said. "We pay attention to the work here, and we do hands-on things that pertain to life. And we get everything you need to be able to move on."

This article originally appeared in the Cornell Chronicle.

*Caitlin Hayes is a staff writer for the Cornell Chronicle.*

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# Hummingbirds May Help Control Invasive Berry Pests

***Hummingbirds, which can eat up to 2,000 insects per day, can play an important role in a farm's integrated pest management.***

By Mike Hibbard

Ten years ago, Juliet Carroll was intrigued when a New York State berry grower asked if hummingbirds could be used to prey on spotted-wing drosophila (SWD), a pest species new to the region but quickly wreaking havoc on the state's $20 million berry industry.

Now, a Cornell study by Carroll, who is a senior Extension associate for New York State Integrated Pest Management at Cornell AgriTech, entomology professor Greg Loeb, and others recently published in ScienceDirect shows hummingbirds reduced SWD fruit infestation levels by up to 64% in field trials.

The pest, which is native to Southeast Asia, was first discovered in New York State by Cornell in autumn 2011. By the next year, blueberry fields were swarmed by the insects. Growers lost up to 80% of their blueberry crop, and nearly all raspberry and blackberry crops were destroyed.

The invasive insect attacks fruit just as it's beginning to ripen. Females, which can lay 2,000 eggs per day, deposit their eggs in soft-skinned fruits, especially berries and cherries. Within a few days, fruit begins to wrinkle and crater as larvae feed and grow.

In an effort to address the problem, Cornell researchers and growers have experimented with a variety of control measures, including insecticides, pruning to create more open canopy for better spraying, and netting. Hummingbirds, which can eat up to 2,000 insects per day, were added to the Cornell research mix in 2015.

Carroll, Loeb, and Courtney Weber, professor of horticulture, first put feeders in raspberry field plots at Cornell AgriTech, then worked with commercial raspberry farms in the region. In addition to showing reduced SWD fruit infestation levels, their research over the next five years indicated that ruby-throated hummingbirds spent time in raspberry plantings that had feeders and that 81% of hummingbird flights to feeders showed potential for predation of SWD. They also found that hummingbirds were particularly present when raspberry fruits were susceptible to SWD infestation.

David Stern, owner of Rose Valley Farm in Wayne County, grows 40 to 50 types of crops on 80 acres, including organic blueberries, and admitted to being skeptical when Carroll approached him about putting hummingbird feeders in his fields as part of the research trial. Today he is a believer.

"Hummingbirds are part of a very big picture, along with pruning and organic sprays we use," Stern said.

*Photo courtesy of Unsplash*

"While we can't expect hummingbirds to eliminate the problem, they certainly help," said Loeb, who added that for growers with U-pick operations who are big on agritourism, "Having the hummingbirds adds to that experience."

Carroll believes her research is part of an effective, integrated approach for growers to manage SWD.

"Hummingbirds are so pugnacious. They are really fun to be around," she said. "Things are looking bright for the berry industry."

This article originally appeared on Cornell CALS News.

*Mike Hibbard is a freelance writer for Cornell AgriTech.*

# Characteristics of the Beef x Dairy Industry in New York State

***A new white paper from Cornell Cooperative Extension specialists with the South Central NY Dairy & Field Crops Team shares farmers' survey responses on how they utilize beef sires in their dairy herds, criteria in selecting animals to breed, management practices, and more.***

By Margaret Quaassdorff and Betsy Hicks

The usage of beef sires on dairy farms more than doubled from 2015 to 2019. In recent years, New York sale barns reported that beef x dairy (BxD) calves consistently brought $50 - $150 over a standard dairy bull calf. Because of the premium for black-hided calves, many dairy farmers have tried to capitalize on this novel market without fully understanding the BxD industry and the implications of an inferior calf entering the beef supply chain.

Data presented in this white paper are from a Qualtrics survey conducted online between October 2020 and June 2021. Farmers were surveyed to assess how they utilize beef sires in their dairy herds, their criteria in selecting dairy animals to breed to beef sires, and sire selection criteria. Farmers were also surveyed on their management practices of producing, raising, marketing, and selling BxD cattle, as well as information needed by them to further their knowledge.

The majority of BxD calves are leaving dairy farms at less than a week old; however, there are still a number of farms raising these cattle to different timepoints across the state implementing a variety of management and feeding strategies. This combined with the scarcity of on-farm scales and actual growth measurement data make it nearly impossible to gauge the "best" way to encourage farmers to incorporate a BxD enterprise into a farm's business strategy.

Results from this survey led to establishing several keys for the viability of the BxD industry in New York State.

Read the white paper at nydairyadmin.cce.cornell.edu/pdf/impact_ny/pdf210_pdf.pdf.

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