Farm-to-table restaurant steps up as community food hub in pandemic

By Lisa Kivirist

When life gives you lemons, make lemonade. But what about when life gives you a COVID-19 pandemic that forces you to close your business doors? Take advice from Marie and Matt Raboin of Brix Cider and pivot, in their case reinventing their cidery and café into a regional food hub and community food delivery service.

“We celebrated our first anniversary of Brix on January 31, 2020, and we were one of the first restaurants in Dane County to close due to COVID on March 14, before the Governor’s stay-at-home orders,” said Marie Raboin, who operates the cidery and local food café just west of Madison in Mount Horeb.

Up until then, she and her husband, Matt, had successfully navigated that unpredictable first year in business, building a strong reputation of commitment to community, quality ciders, and local food.

Sure, numbers and data should play an important role in running one’s business; however, true entrepreneurs like the Raboins also learn to listen to their heart and intuition. “I remember on that last day the café was open, Friday, March 13, feeling things were weird and wrong. Crowded places like ours would be high risk,” Raboin shared. “We did not want to be a potential new story of outbreak.”

The Raboins made the decision to close after business that night, which meant canceling a popular band scheduled to play the next day that was sure to bring in crowds and profitable cider tap sales. “We could not in good conscience stay open.

When she and Matt were instantly forced to reevaluate their business model, they drew on the advice they shared with the Minnesota Food Hub Network. “The food hub is a structure that exists to provide outlets to farmers, and during a pandemic, it’s a way to fill the need for food security,” Raboin said. “We decided that in order to continue to make a positive impact on our business and the community, we would need to pivot to a different model.”

According to Raboin, the team at Brix needed to act quickly in order to pivot their business model. “The decision was made to leverage our location in Mount Horeb and expand our food delivery service to help provide food to local residents while helping area farmers reach customers.”

Center for Food Safety sues USDA to take organic label off hydroponically grown food

By Andrew Kimbrell

Organic farmers and consumers understand that the Organic label means more than just growing food in soil. The Organic label indicates that the organic food improved the fertility of that soil. That’s an important distinction.

Scientists and government agencies agree that improving soil health is a critical piece of climate resiliency. When soils are healthy, they can serve as carbon sinks to store and reduce atmospheric carbon. Healthy soils can also retain more water, reducing runoff and erosion.

While many know that improving soil fertility improves our health and the health of the planet, not everyone knows that the law. The federal Organic Foods Production Act (OFPA) requires farms to build soil fertility in order to be certified organic. Despite this legal mandate the US Department of Agriculture (USDA) decided to allow hydroponic operations that do not use soil at all to be certified as organic. USDA’s major loophole allows food produced hydroponically from the largest companies to be sold under the Organic label, which guts the very essence of what the label was meant to indicate in the first place.

Protecting the integrity of the Organic label meant that USDA’s decision needed to be reversed as soon as possible. Center for Food Safety (CFS) drafted and filed a citizen’s petition in 2019 demanding that USDA prohibit hydroponic operations under the National Organic Program. The petition was endorsed by many members of the organic community. Several months later, USDA denied the petition, claiming that OFPA does not require organic farms to improve soil fertility, thereby allowing them to continue to certify hydroponic production as organic.

Alongside a coalition of many of the country’s oldest certified organic farms and other organic stakeholders, CFS filed a federal lawsuit on March 3, 2020, which challenged the organic certification of hydroponics.1 In addition to CFS, the other plaintiffs in the hydroponics lawsuit are Swanton Berry Farm, Full Belly Farm, Durst Organic Growers, Terra Firma Farm, Jacobs Farm del Cabo, Long Wind Farm, OneCert, and the Maine Organic Farmers and Gardeners Association.

Our hydroponics lawsuit gets at the very heart of organic integrity. Improving soil fertility and promoting ecological balance are the bedrock of organic food production. We believe our case is supported by the law and will result in a court ordering USDA to permanently halt organic certification of hydroponic operations—the majority of which take place indoors in sterile warehouses and rely entirely on added nutrient solutions, rather than soil nutrients, to produce crops.

This lawsuit marks what should be the final chapter in the decade-long battle between USDA and the organic community over the meaning of the Organic label as it applies to hydroponics. The National Organic Standards Board (NOSB), the expert body assigned by Congress to represent the organic community and advise USDA on organic matters, has long held that hydroponic operations do not meet organic standards of production. In 2010, the NOSB recommended that hydroponic operations be prohibited from organic certification because soil building is “the central theme and foundation of organic farming,” which derives its very name from “the practice of maintaining or improving the organic matter (carbon-containing) content of farm soil through various methods and practices.”

MOSES offers virtual field days this summer

By Audrey Alwell

For well over a decade, MOSES has organized on-farm field days to give farmers the chance to see how other organic farmers manage their operations and to get ideas they can use on their own farms. With COVID concerns, this year we’re moving our field days online to protect the health of our farm hosts, our team, and field day participants.

These virtual events will include content (podcasts, videos, handouts) posted on our field day pages in advance to show what’s growing on the farm and explain the production choices the host farmers have made. Farmers can listen to, watch, and read these materials any time and then join in the virtual field day through Zoom. The Zoom virtual field day will include a presentation to update and highlight prior posts and then give participants the chance to ask questions. All of the hosts also will share how the pandemic has impacted their farms.

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Steps to Eradicate Canada Thistle

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Hydroponics Lawsuit continues on 8

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By Lauren Langworthy, MOSES Executive Director

Last time I wrote to you, the COVID-19 coronavirus pandemic was just in its infancy. A lot has changed since then. In the midst of these changes, the value of good agricultural practices and local food systems has become apparent to a growing audience. As meat processing plants slow or close to the face of worker illnesses, people are met with empty grocery store shelves and headlines about vegetables and livestock being destroyed because of weak links in transportation and supply chains.

It’s tempting to say that these are “unprecedented times.” However, the patterns we are experiencing are not altogether new—they are morphed repetitions of the past. The current consolidation of industrialized businesses mirror the notorious Gilded Age. In fact, the agricultural cartoons from that era depict the stranglehold business had on many farmers and are still disturbingly accurate today. The devaluing of human labor and animal life echo the grotesque stories of the early 1900s that led to the Meat Inspection Act, The Pure Food and Drug Act, and eventually, some protection of worker rights. Today’s headlines of strikes, labor actions, and unemployment figures are strikingly familiar when compared to headlines from the 1910 labor strikes following the peak of the Spanish Flu and the mass unemployment of the Great Depression.

While humanity has seen these themes before, this moment in time presents new opportunities. People are seeing the flaws and fragilities of industrial models and yearning for resilience, redundancy, and relationships in their food system. In the midst of widespread fear and trauma, we can provide comfort and stability to our communities. This is our moment to shine. We can learn from history, modifying the past’s most effective tools to fit today and leveraging new tools that allow us to communicate, organize, and build the food system we have been dreaming of. MOSES is taking new strides toward harness technology to share the deep wealth of knowledge of this network holds. To respond quickly to rising concerns, MOSES kicked off weekly podcasts interviewing farmers and other experts about relevant topics. This blossomed into a new online “farmer chat” series where you are all invited into dialogue about specific subjects. Participants ask questions and provide unique perspectives in the shared quest for solutions. In this issue of the Broadcaster, you’ll learn how MOSES is modifying our summer field day line-up to distribute their value as widely as possible during the crisis.

Of course, there are challenges. Technology barriers, internet access, access to credit, and the struggling processing and distribution networks are all hindering huge segments of our community. Many families have lost off-farm income and healthcare access they depend on. We’re worried for our loved ones, our Main Streets, and our futures. We’re grieving and facing uncertainty. We must keep our neighbors (no matter how distant) in mind, reach out, and hold each other up as we’re able. This is a time for solidarity—with other producers, with eaters, with laborers, and wherever we see common ground.

As more people learn about how their foods were grown, harvested, processed, and distributed, they are seeking a better alternative. As we fill their cupboards, refrigerators, and freezers, we’re providing more than food. We’re providing the opportunity to participate in a necessary new paradigm.

I’m incredibly grateful for the resilience and ethic of sharing that the MOSES community displays. Farmers and supporters throughout our network are stepping up to offer tools and knowledge to help each other through difficult situations. Together, we are feeding our communities, shifting our plans for this season to meet the needs around us, “pivoting” our operations, and developing creative solutions for all manner of problems. Local, organic, sustainable, and regenerative food systems have always mattered...and, right now, everyone is seeing why.

The Organic Broadcaster is a bimonthly newspaper published by the Midwest Organic & Sustainable Education Service (MOSES), a nonprofit that provides education, resources and practical advice to farmers.

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COVID-19 crisis could lead to sustainable change in food system

By Grant Lundberg, Lundberg Family Farms

Across the globe, people are pulling together to battle the COVID-19 pandemic. It’s a powerful demonstration of our interconnectedness and, more than that, our ability to work together for a healthier world. This year, more than ever, I see an opportunity for sustainable change in the way we cultivate food from the ground up: by prioritizing soil health.

It takes nature about 1,000 years to generate one inch of topsoil, which is responsible for 95 percent of all food produced for human consumption. It takes humans no time at all to destroy it with chemical-heavy, industrial farming practices.

In 2014, soil scientists estimated that a third of the world’s topsoil already had been lost and that it could be completely gone by 2075. So, it’s time to talk dirty.

As Bill Gates recently wrote, “We should discuss soil as much as we talk about coal.” In my family, we’re more likely to reference my Grandpa Albert’s motto, “Leave the land better than you found it.”

Lundberg Family Farms was founded on this premise more than 80 years ago after my grandparents endured the Dust Bowl—a merciless lesson about what happens when over-plowing and drought combine. Since then, we’ve learned to treat Mother Nature like a member of the family by tending to soil, air, water, and wildlife as carefully our crops. Today, many of our family’s rice fields have been certified organic for more than 20 years, and more than two-thirds of our products bear the Organic label.

Regenerative Organic Certified

Now, a new food label is making inroads at the grocery store: “Regenerative Organic Certified,” or ROC. Whole Foods named “regenerative agriculture” this year’s top food trend, and big producers are embracing it.

General Mills recently committed to advancing regenerative practices on at least 1 million acres of land by 2030. Danone North America is partnering with Replant Capital to invest $20 million in support of Danone farmers as they transition to regenerative or organic farming practices.

At Lundberg Family Farms, we’re excited to see these efforts. We’ve always geeked out on the future of organic farming, knowing it’s tied to the future of the planet. Regenerative agriculture, like organic farming, puts the planet first, building rather than degrading soil by increasing organic matter, biodiversity and fertility.

Still, it’s a long row to hoe. A half-century after the modern organic movement began, less than 1 percent of the nation’s farmland is managed organically, including much of what we consider “regenerative agriculture.” It may seem daunting to change how much of the nation produces food. But organic producers have long shown that soil doesn’t have to be mined to be productive. In fact, today’s regenerative practices elevate old ways of farming that predate the industrial era. These practices take more thought, time, and planning, but good things usually do.

Eco-Positive Farming

Here at Lundberg Family Farms, we’ve cultivated eco-positive farming methods over four generations, including:

Use of cover crops. Cover crops—such as oats, vetch, and fava beans—are crops we grow for the soil instead of the table. We plant them during the winter so photosynthesis can occur year-round, bringing carbon out of the air and putting it into the soil. This creates a better home for microbes, which naturally make nitrogen, an essential part of the soil’s well-balanced diet.

Incorporating rice straw. My grandma and grandpa saw the value of returning rice straw to the soil long before a 1993 act was passed to curb the practice. Other farmers laughed at our efforts to turn straw into the soil because the task was so cumbersome. Now, incorporating rice straw is common practice to protect air quality and build organic matter. Between cover crops, rice straw and compost, we’re able to provide the soil with more than we take from it.

Natural weed/pest control. We manage weeds naturally, with water. A few weeks after planting, we raise the water level just high enough to control grass weeds but not so high that it harms the rice. Then we dry up the fields to control aquatic weeds. It’s a system my dad and uncles developed as they prepared to give up on a field that had been overrun with aquatic weeds. Decades later, it’s our best defense against aquatic weeds—no herbicides or pesticides needed.

We also build owl boxes and put them around the fields so the owls can naturally control pests. After all, biodiversity is at the heart of organic farming, and our fields are home to hundreds of species.

Growing Together

Desperation often precedes action, and the state of the world’s soil is reaching a tipping point. We need to increase organic production. For this to happen, growers and processors need to pull together to create a healthier food ecosystem. As both a grower and a processor, we at Lundberg Family Farms know firsthand that each pillar of production is complex. However, nutritional quality and environmental protection have to come first.

Ultimately, consumers hold the power. Fair payments and living wages are an integral part of regenerative agricultural practices. On average, we pay organic growers 30 percent more so they don’t lose revenue by farming organically, which is more labor-intensive than conventional farming and produces lower yields. However, when consumers buy organic food, they’re not only saying no to chemicals and GMOs, they’re saying yes to soil health and biodiversity.

Given the economic ravages of COVID-19, I know increasing the grocery budget is the last thing any of us want to do. However, it’s up to us to “eat” the change we want to see in the world. And after seeing how the world is banding together to battle COVID-19, I’m convinced we can band together to tackle other crises, too.

My cousins and I are the third generation of Lundbergs to carry on my grandparents’ legacy of respect for the soil, and the fourth generation is doing the same. Let’s all do our part, as we’re doing with COVID-19, so we can keep growing together for generations to come.

Grant Lundberg is CEO of Lundberg Family Farms. Find him on Twitter at @grantlundberg.com.
Organic crop specialist shares strategies for fertility, weed management

By Carmen Fernholz

An interesting part of my position with MOSES as a crop specialist is the variety of questions that come my way. The questions range widely from specific crop rotations to determining what to plant where, given the wide variations in climate and soil across the Midwest. It is these two facts, climate and soil types that are the first pieces of information I usually seek out when answering the inquiries that come in.

However, a majority of questions most often deal with fertility and weed management in organic field crops. So, let me try to give some general suggested management practices that can go a long way in dealing with these two concerns.

In organic field crop management, soil types are an important consideration. However, ambient soil temperatures and soil moisture are the two factors that dictate when to do seedbed preparation and when to actually begin planting or seeding. They are the two telltale signs of when to be in the field. Soil temperatures early in the growing season directly impact soil fertility availability because of the relationship of soil microbial activity to temperatures. And most of us understand that it is microbial activity that provides the nutrients for plants.

What does this have to do with weed management? Weather factors including air temperatures, wind conditions, and precipitation events impact weed management very directly, as moisture and soil and air temperatures determine the time and amount of weed seed germination.

From mid-April on, a good indicator of soil temperatures in the seed zone is to take note of the air temperatures. Soil temperatures will lag behind air temperatures by several hours with 8 a.m. usually being the coolest part of the day for soils. 5 p.m. is when soil temps will be at their maximum. You can use an ordinary meat thermometer as a reliable tool when soil temps will be at their maximum. You can use an ordinary meat thermometer as a reliable tool when soil temps will be at their maximum. You can use an ordinary meat thermometer as a reliable tool when soil temps will be at their maximum.

These soil temperatures directly impact seed germination because they determine growing degree units and days which, in turn, determine the rate of maturity for the growing plants. This applies to the planted crop as well as the weed seed banks in the soil.

For small grains like wheat, oats, or barley, seed these crops as soon as the fields are dry enough. This means soil temperatures are in the 38- to 45-degree range. Most small grains will germinate at colder soil temperatures than foxtail grasses and most other broadleaf weeds, except for lambsquarters.

Consider small grains very much like you would consider planting lawn seed. They love cool, wet conditions and a much firmer seed bed than row crops. By planting these crops early there is a better chance to get the grain mature and harvested before the grasses and broadleaf weeds that do grow set seed.

One additional reason for seeding these small grains earlier is the desire to have them in the pollinating and seed-setting stages of growth ahead of the hotter midsummer temperatures that can significantly negatively impact this process and cut yield potential. Dried field peas are especially sensitive to temperatures at pollination. So, get them planted as early as possible, even above frost if field conditions allow.

Best weed management in row crops like corn and soybeans is nearly opposite to that of small grain. Plant later to allow the seed bed to warm so, when the crop is planted, it will germinate and emerge quickly to compete with the existing weed seed bank, which also likes warmer soils. Here again, pay close attention to soil temperatures. These temperatures should stay above 50 degrees 24/7 for at least three to four days, something that rarely occurs in western Minnesota before May 15. A great indicator that this is happening is that you will begin to see foxtail grasses and some broad leaf weeds emerging when it is time to prepare the seed bed.

This also means being able to time weed, rotary hoe, and then cultivate after planting as quickly as possible. It is important to remember that any weed that is green and above the ground can only really be eliminated with a shovel on a shank. Rotary hoeing and time weeding decrease in effectiveness with each passing day post planting.

Several other things about row crop weed management. An initial pass through the intended corn and soybean fields on a hot breezy afternoon in late April to create a stale seed bed is an excellent way to manage weeds. This creates ideal conditions for weeds to germinate that can then be tilled out just ahead of planting the corn and soybeans later in May. And, finally, higher seeding rates for row crops can help suppress weeds as well as lessen the impact of plant stand loss from any of the mechanical weedling equipment.

Feel free to call me with questions, especially now that field work is starting up again. If I do not have the answers, I know we can find someone to help.

Carmen Fernholz is the Organic Crop Specialist for MOSES and OGRAIN. He has been farming organically since 1975.

Reach Carmen on his cell phone at 320-212-3008 or call the Organic Answer Line at 888-90-MOSES (888-906-6737 ext. 1). Send Carmen your questions by emailing carmenfernholz@mosesorganic.org.
Research compares summer cover crop options for organic vegetable farms

By Naomy Candelaria

As a woman and Latina, my particular experiences have truly shaped the person I am, and the one I aim to become. I am originally from a small, rural town in Puerto Rico, where natural environments constantly surrounded me. It is not a surprise that how nature works and interactions with nature have always drawn my attention. My undergraduate degree in sustainable agriculture gave me a unique vision of how the world works, how the food system works, and how important those concepts are for having a strong society. It also taught me the importance of our environment, and our pivotal role in preserving it. My passion to learn more about agroecology motivated me to pursue a master’s degree in applied plant sciences at the University of Minnesota-St. Paul and to further understand how agroecosystems can support biodiversity.

Premise for Research

Summer cover crops have been proposed as a tool for increasing resilience and efficiency in organic systems and may provide ecosystem services that benefit both agroecosystem health and crop productivity. However, knowledge of specific summer cover crop species’ effectiveness at providing ecosystem services, such as beneficial insect habitat provision and nutrient scavenger species, is not well documented.

Summer cover crops can supplement fertility inputs necessary to maintain crop health in organic systems. Nonetheless, it is crucial to narrow the purpose and use cover crops will have in order to determine what sort of management strategies are necessary to obtain such services, whether it is to provide nitrogen (N) to the subsequent crop, suppress weed growth, add floral resources, restore soil composition or some other intention.

Warm-season cover crops offer a range of unique contributions. For example, they could accumulate more organic matter than over-wintering cover crops, leading to increased soil N contribution. Additionally, summer cover crops have the capacity to provide floral resources. These floral resources are vital for attracting and sustaining beneficial insects, such as pollinators, parasitoids, and predatory insects. In an agroecological sense, beneficial insect refers to any species that contributes to the conservation, protection and enhancement of an agronomic crop and farming system (Landis et al., 2006). Research shows that many beneficial insects are highly dependent on these resources for nesting and forage (Hogg et al., 2010). The use of summer cover crops may provide alternative food sources to maintain beneficial species at key points in the season when resources are intensely needed. Supporting the presence of these organisms in organic systems is fundamental considering the limitations of organic pesticides.

Synthetic fertilizer restrictions in organic farming make conscientious nutrient management decisions crucial. All cover crops obtain N through scavenging (grasses) and fixation (legumes), the latter achieved through a symbiotic relationship with N-fixing bacteria (rhizobia) located in the roots. Although both types of summer cover crops can be planted as single species, mixes are often recommended. This is most applicable to soils with high organic matter concentrations; because N fixation comes at a high energetic cost for the plant, the legume will primarily use what is already available in the soil (Kiers, 2003). Grasses are more intense N scavengers than legumes; by adding them to the mix, legumes are pushed to use other resources such as nitrogen fixation. Circumstances that could promote single species planting could include fields prone to N leaching that merits efficient scavenger species.

Experiment

In May—September 2019, we evaluated a range of summer cover crops (see Chart 1) at the University of Minnesota-St. Paul campus to determine feasibility in organic rotation systems. We also wanted to assess the capacity of these treatments to provide two fundamental ecosystem services: N contribution and beneficial insect attraction—two services that may possess trade-offs.

The Xerces Foundation, an organization involved in the conservation of invertebrates and their habitats, earned first place for her research project in the juried poster session of the Organic Research Forum at the 2020 MOSES Organic Farming Conference.
Saturday night when it would be standing-room-only and encouraging crowds." Raboin remembers going to bed the night they made the decision to close thinking this could be the last time they might make any money for a long time and maybe forever.

Somehow a good night’s sleep and fresh start the next day can fuel new perspectives. The Raboins and their two young kids spent the following day hiking at a state park and taking some time to step back and rethink things. Amidst the crisp spring air, they formulated the plan to reboot Brix as a regional food hub offering weekly community food delivery and pick-up. By the next day, Sunday, they had the online store up and running and took their first box orders that week.

"For us, it was a natural pivot given our existing relationships with area farmers and having worked in the local food system for years," explained Raboin. With their established strong commitment to buying from area farms, the Raboins already purchased from over 20 farms locally, which readily provided their supplier base for the online store.

**Online Store Start-Up**

Building off their existing core farmer base, the Brix online store focuses on key essentials that area folks would need during the stay-at-home orders. From staples like meat from area farms and bread from a local bakery, customers can order exactly what they want with a minimum order of $30. Produce and staples are supplemented via Co-op Partners Warehouse, which can bring in storage crops like parsnips and radishes from Tipi Produce and Organic Valley milk and butter.

Direct Brix sales make up about 10 to 15 percent of total online orders, including bottled cider and frozen cookie dough so customers can bake this café favorite at home. When a business such as Brix quickly reinvents, other elements of the enterprise also need to rapidly evolve. On the cider side, Brix’s profit margins historically have been on-tap sales at the ciderry. To accommodate delivery, they can only sell bottles, which adds to production cost. The ordering system works on a weekly calendar with customers making purchases by noon every Tuesday. The Raboins then place orders with the farmers and vendors, receive the items on Wednesday, and pack boxes and deliver on Thursday. About half the customers pick up on-site with contactless pick-up and the other half receive free delivery within a 10-mile radius of Mount Horeb.

"We quickly learned efficiencies in packing the boxes as this was all new territory for us at first," recalled Raboin. "The first week, we had 35 orders and it took us 14 hours to pack them up. Now we're averaging 160 weekly orders and it takes us eight hours.”

**Community Commitment**

The driving force behind the online store comes from the Raboins’ dedication to their employees, farmer-suppliers, and local community. The new labor required for the delivery model enabled the Raboins to retain employees who wanted to keep working during the pandemic. They also have a commitment to support their farmer suppliers, many of which are also close friends. With most of their farmers already losing business via other restaurant closures, these online sales could help make up for that.

"Before everything COVID happened, restaurants were probably 90% of our meat sales," said Chloé Dolan. She and her husband, Michael, run Seven Seeds Farm in Spring Green, Wisconsin, a seventh-generation farm raising organic, grass-fed beef, pork, and chicken. "We didn’t have a way to let everyone in the area then know we have these products and they are accessible. Brix has majorly bridged that gap for us. We are able to reach new customers through the visibility and reach they have developed with their restaurant.”

Brix’s commitment to farmers started way before the current COVID crisis. Marie and Matt would approach farms and want to buy what they had a lot of, what they were struggling to sell. "Many chefs will say I want 10 animals worth of bacon' and nothing else,” Dolan explained. “But at Brix, they came to us and said, 'How can we help, what do you need us to sell?'” It takes special people to not just recognize what a farmer needs, but also care enough to follow through even when it’s the harder thing to do.”

Additionally, this business reinvention enables Brix to continue in new ways to support their community.

"Brix grew to be a community gathering place, somewhere for people to go to connect and be together," Raboin said. "If we would have just completely shut down, there would be a real gap and folks would have nowhere to go." Granted, this is a totally different scenario than the past, but the deliveries now still enable people to feel connected to each other and their farmers.

It is more important than ever to support our local businesses, especially the independent restaurants, farmers, and dairies that do not have big corporate bank accounts to fall back upon,” added Grace McLaughlin, a new online ordering customer. "Buying through Brix helps us strengthen our local food web, reduce pollution, and make sure our small businesses survive. We have run out of our own homemade organic onions, potatoes, and carrots so it is great to be able to replenish our stocks without the need to visit a large grocery store 25 miles away where much of the produce is shipped from hundreds or thousands of miles away.”

Even with all of these good intentions, the economic side of such a community food delivery service remains a challenge. "If we were to have shut down the whole operation, we would end up in the same financial place that we are now,” mussed Raboin. "The bottom line is, most customers still do not want to pay a truly fair price for food and I can only mark things up so much. I can see why food hubs fail.” Committed to fairly paying farmers remains her priority, even if it means hurting her own bottom line.

Looking to the future and the eventual reopening of the primary business of the ciderery and café, Raboin plans to survey customers to assess interest in continuing the community food delivery as a secondary income source. In the meantime, a voluntary portal for tips and donations when folks make their online orders significantly aids the cash flow.

Amidst all the uncertainty, the Raboins still prioritize fun with a twist of creative marketing as they support fellow farmers. Their latest brew bears the name “QuaranTEAn,” uniquely brewed with Dream Tea from Sacred Blossom Farm in Mondovi, Wisconsin. "Lisa Rivist manages the MOSES In Her Boots project. She is the author of several books, including her latest, Homemade for Sale, about crafting and selling farm-fresh food under cottage food laws. To learn more about Brix Cider and see their community food delivery set-up, see brixcider.com.”

*Dr. Jim Approved*

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I would suggest that many of you have witnessed more Canada thistle patches in recent years not only in summer-harvested small grain crops, but also in areas that don't get mowed on a timely basis, such as road- way medians, natural habitat areas, borders of farm ponds and impression like areas. It has been my observation that excessive rain typically results in increased spread of Canada thistle where patches are well-established and where heavier soil types, especially clay, are present. We've certainly had excessive spring rain in the past few years. You might also have off-farm origins of thistle dispersion, like I do, that can negatively impact your farm.

My contiguous 224-acre farm borders 11 different landowners. Some properties adjacent to me are owned by absentee landlords and one is a county bike path (former railroad bed). Every summer, I encounter thistledown blowing onto my farm from almost every direction. One summer, I had a “talk” with one of my neighbors. This elderly man didn’t have a clue as to the damage his thistles were causing. He said he grew up in the city and was not aware of the invasiveness of thistles—he really enjoyed watching the thistledown blowing in the breeze.

Sometimes the problem is one of our own doing. During the fall of 1991, I purchased some spelt seed from an individual located in a neighboring state, about 5 hours from home. When I asked him if the seed was weed-free, he assured me it was. I bought enough seed for a 2-acre field. Seed was hard to find that year, so I took a chance on planting this shipment by tilling the field or part of the field where I wanted to sow sorghum-sudangrass around the second week of June, although I have planted as late as July 4 due to moisture being adequate. As the title suggested, other perennial weeds, in addition to thistles, were alleviated or totally eradicated by growing sorghum-sudangrass as a cover crop in a fallow year.

In the first year of the research, I trialed different cover crops to study their effectiveness in rooting out Canada thistle. I found that sorghum-sudangrass was the most effective. I refer to this cover crop practice as a “smother-and-starve” approach. This research project was highlighted twice in MOSES-sponsored field days I hosted in 2010, and again in 2018.

Steps to Control Perennial Weeds

This protocol focuses on an ecological approach of weed management, although some spring tillage is needed as well. Tilling in spring rather than fall forces the plant to use up its energy reserves as it regrows after each tillage pass or each pass with the mower.

Start out in the spring when soils are not too wet by tilling the field or part of the field where you want to use this method. Here in northern Illinois, I plan to sow sorghum-sudangrass around the second week of June, although I have planted as late as July 4 due to wet soils and still have had success.

I suggest using a quack-digger type of field cultivator, preferably on days when it’s sunny, dry, and windy. Figure at least two, maybe three tillage passes will be needed before drilling sorghum-sudangrass. The goal is to stunt the thistle plant multiple times in order to weaken root reserves. Sorghum-sudangrass will grow very rapidly during June and July and will “smother” weeds by depriving them of sunlight.

Photosynthesis is not occurring in the weeds because weeds can’t compete with the rapid growth of sorghum-sudangrass.

Another effect sorghum-sudangrass exhibits is a “starvation” effect. The root system of this plant outcompetes invasive weeds for moisture. Even though roots of sorghum-sudangrass are much smaller than that of corn plants, planting at approximately 600,000 seeds/acre generates a massive root system. This vast network of roots will soak up moisture and thereby limit the amount of moisture available to thistle roots, especially during times of dry weather, such as mid-summer into fall.

Seeding rates for sorghum-sudangrass are recommended at 50M/acre, according to the research. I typically drill 45M/acre and am pleased with that rate, although I would not seed any less than that. Seed catalogs typically suggest planting around 25M/acre when drilled. Keep in mind that this lower seeding rate is suggested for grazing or forage production, not for thistle control. Aim to sow at 1” to 1½” deep, assuming moisture is adequate.

The next step in the process is to clip the sorghum-sudangrass before the plant fully heads out. Clipping can take place after heading out as well, although less weeds are present.

Cover crop of sorghum-sudangrass smother, starves Canada thistle

By Dave Cambell

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Canada thistle encroaches on a field of soybean stubble at Lily Lake Organic Farm in Maple Park, Illinois.

Photo by Dave Campbell
Hydroponics Lawsuit — from page 1

Rather than heeding to the recommendation of the NOSB, USDA instead skirted the issue, first delaying its decision by creating the Hydroponic and Aquaponic Task Force to further study the issue. When that task force agreed with the fundamental position of the NOSB that soil-less hydroponic operations cannot meet the standards of the National Organic Program, the USDA ignored its own task force. Instead, the USDA issued a blanket statement that soil-less hydroponic operations cannot be certified organic because they do not fulfill the national organic standard of contributing to soil health. USDA’s rationale for holding otherwise is arbitrary, capricious, and contrary to our federal organic law.

Unfortunately, the issue of hydroponics is not the first instance in which these large, corporate “organic” companies have bent USDA to their will and ignored the advice of the NOSB and the organic community to dilute the Organic label. CFS won a groundbreaking lawsuit
closing a loophole that was permitting some organic operations to use compost contaminated with pesticides in 2016. CFS is also currently leading a law-suit challenging USDA’s rollback of vital organic rules set standards for organic livestock care—that as adequate space and outdoor access—again in the face of NOSB recommendations to the contrary.

CFS has been protecting the integrity of the federal organic standard since its creation in the 1990s. As a representative for organic stakeholders, consumers, farmers, producers, certifiers, and retailers, CFS has a strong vested interest in maintaining the integrity of the National Organic Program and ensuring that consistent principles and standards of organic certification apply to all products labeled Organic. We will continue to take all legal steps necessary to make sure that USDA, and the National Organic Program it administers, limit certification to soil-based farms that work to improve our precious soils. Sign up at centerforfoodsafety.org/join6000 to receive updates and advocacy opportunities in your inbox to protect strong organic standards.

Andrew Kimbrell is the Executive Director at the Center for Food Safety. CFS provides groundbreaking legal, scientific, and grassroots action to protect and promote safe food and the environment.

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If you would like to receive updates and advocacy opportunities in your inbox to protect strong organic standards, sign up at centerforfoodsafety.org/join6000. For more information, please visit the Center for Food Safety at centerforfoodsafety.org.
Flamers, electrically charged innovations expand weed-fighting arsenal

By Tony Ends

Harnessing elements of nature, like intense heat or electrical charges, to dispatch weeds and kill bugs continues to find growing application and interest in farming at all scales of production. Small equipment operators tending specialty crops and expansive row-crop grain farmers—both organic and conventional—have found themselves drawn to a flame or turned on to “zapping” what confronts them in the field.

“We started working with smaller equipment in 2 and 4 rows,” said George Gogos, who brought decades of research experience in heat transfer, fluid mechanics, and combustion science in 2007 to flaming study and development at the University of Nebraska. Gogos and his university colleague Stefan Knezevic, an agronomy specialist in plant physiology, weed, and production systems, presented a workshop on flame-weeding at the 2020 MOSES Organic Farming Conference, along with organic farmer Derek Shrock of Sandy Ridge Farms in Tampico, Illinois.

“It’s 12- and 16-row flaming units for 1,000, 1,500, 2,000 acres, that are now selling the most,” Gogos said, in an April phone interview about flaming. Many factors are spurring this interest, he explained. Herbicide-resistance vexes conventional grain producers while organic farmers face cultivation challenges from wide swings between wet springs with mud-clogged fields and moisture-starved, droughty field conditions later. Crops like corn and soybeans have longer, cell walls in weed plants, killing them within days of exposure. Crops like corn and soybeans have longer, cell walls in weed plants, killing them within days of exposure.

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Agricultural Flaming Innovations

Hoods developed to cover torches in rows cut heat loss, lengthen exposure times at higher temperatures, and shield against wind, which can disperse heat and curtail flaming’s effectiveness. With tractors traveling 3 to 5 miles per hour across rows of plants just inches apart, flaming equipment must maximize heat exposure and effectiveness with each design feature.

Electronic ignition and detection have made flaming equipment operation easier and safer, too. These systems can monitor the torches and reignite a torch if it extinguishes during flame cultivation.

A crop is not exposed to the high temperature when flaming is employed to kill weeds during that crop’s pre-planting or pre-emergence. Yet when flaming is used in early growth stages, the crop must either be able to recover quickly from any flaming damage (such as young corn), or much more tolerant of heat than the surrounding weed species (as with young soybeans).

Specialized practices, timing, and equipment help effectively address concerns, Gogos said. He put great emphasis on safety in equipment design and operation, adding that he’s seen unsafe fabrications and practices in field-use.

“Flame weeding can reliably control weeds within the crop row, making it an excellent complement to mechanical cultivation,” Gogos stated. “Adding flaming to existing cultivation methods can eliminate the need for hand-weeding, which can lower operating costs for the farmer.”

“Even more important, flame weeding can, through improved control of weeds growing within the crop row, increase yields up to 25 to 30 percent, compared to yields obtained with cultivation alone.”

With that boost in yields, it’s possible a producer could cover the purchase price of flaming equipment in a single season if it’s properly used with the right timing to weed several hundred acres of certain crops.

Agricultural innovators were building and patenting flame cultivation, first pulled with teams of mules or horses, through sugar cane fields in the 1850s. Historic use as flame cultivation unfolded, first fueled with kerosene and oil, expanded to cotton crops in the 1930s and 1940s. Flame cultivation, in particular, has ebbed and flowed with development—and prices—of fuel types.

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Organic farmers try innovative practices to beat spotted wing drosophila

By Annie Klodd and Andrew Petran

Spotted wing drosophila (SWD), Drosophila suzukii, is an invasive fruit fly that is testing the patience of berry growers all over the globe. Organic farmers and researchers in the Midwest are playing a major role in finding ways to manage this pest successfully. Gigi DiGiacomo, an agriculture economist at the University of Minnesota (UMN), has been surveying Minnesota berry farmers to learn how SWD has impacted their operations. Since this fly was introduced to Minnesota in 2012, growers reported median yield losses of 20%, with 79% of surveyed growers reporting infestation in 2017. DiGiacomo’s work estimated that SWD costs the state’s raspberry industry $2.2 million annually, due to yield losses and increased labor costs.

DiGiacomo’s work also underscores how SWD is changing the way we grow berries. Most Minnesota berry growers she surveyed reported using multiple tactics to combat SWD. Both organic and conventional growers reported using practices like daily harvest (clean harvests), frequent spraying, sanitation, hard pruning, and increased mowing, all to keep SWD from their fruit.

Plan of Attack for SWD

Growers should formulate a plan for tackling SWD before the season is well underway, so they are ready to tackle this invasive pest when it shows up in mid-to-late June.

By understanding SWD, researchers and farmers can find innovative ways to manage it. While completely eliminating SWD is not possible for most growers, they can still make their farm less hospitable for SWD to live and breed. Tools to do this include daily harvest, removing dropped fruit, mowing, hard pruning, and using landscape fabric.

SWD relies on berries to reproduce, so clean harvests that remove all dropped or unsellable berries from the field is a critical way to keep fly populations down. Many farmers carry a “bad” bucket with them while harvesting to collect bad fruit and dispose of it in a sealed bag. Composting probably won’t kill the insect, because the eggs can turn into flies while sitting in the compost pile.

The flies localize near the ground and within the crop canopy during the day, where it is cool and humid. Recent UMN research in Dr. Bill Hutchison’s lab has indicated that flies will be active in the crop from 6-10 a.m. and 6-10 p.m., with the highest activity during the evening hours. During other periods of the day and overnight, they will leave the crop and find refuge in nearby wooded areas. They prefer humidity above 20% and temperatures below 86 degrees. Frequent mowing and selective pruning of perennial fruit can modify this habitat, forcing SWD to seek refuge elsewhere.

Researchers at Michigan State University found that berries harvested daily or every two days have much lower infestation than berries harvested every 3 days. Refrigerating the berries immediately after harvest can also keep the berries intact even if they have been impacted.

Organic Insecticides

In terms of organically certified insecticides, spinosad like Entrust are so far the most effective defense against SWD. Pyganic, an organic pyrethrum, may have a moderate effect on SWD, but many farmers express disappointment with its performance. Neem oil is not considered to have acceptable efficacy on SWD. Because SWD and other insects can develop resistance to Entrust, and because it is an expensive product with limited applications per season, we highly encourage berry growers to develop more holistic management plans beyond chemical control.

Some farmers and researchers, such as Rogers at UMN, are starting to work together to test an essential oil-based repellent between Entrust applications.

Tips to Beat SWD continues on next page
Preliminary results are promising. But more research must be done before we start recommending this method. We need to learn which essential oils work best, how effective they are, and how to use them most successfully. Collaborative research between universities and farmers is critical for this work.

Exclusion Netting

Frustrated by the time-consuming, labor-intensive, and costly nature of SWD management, some farmers are surrounding their berry fields and high tunnels with exclusion netting in order to keep out insect pests altogether. Exclusion netting is already being adopted by berry farms of all scales in places like California, New York, Canada, and Europe. Researchers at UMN, and a small handful of Midwest farms, are experimenting with it, too.

Andrew Petran of Twin Cities Berry Company in Farmington, Minnesota, used exclusion netting over ¼ acre of day-neutral strawberries in 2019, and plans to expand it to another ½ acre in 2020. His structure consists of 80g netting, PVC and steel support poles, and polyamide wires; this setup meets one of his key requirements, that it must be moveable to fit with his crop rotation. For perennial fruit crops such as blueberry or raspberry, installing a more permanent support structure may be more suitable.

Dale Ilia Riggs, the owner of Berry Protection Solutions and The Berry Patch Farm in New York, has several high tunnels with netting covering the side openings, and caterpillar tunnels covered in exclusion netting. She has helped many growers learn how to implement exclusion netting on their farms, emphasizing that it is not a one-size-fits-all method. Rather, the specific setup of the exclusion structure comes down to the scale, needs, and existing infrastructure of each farm. Riggs also designed a vestibule for her side-netted high tunnels, to help ensure that no flies enter the tunnels with her when she goes in to harvest.

What about pollinators? Naturally, the question of pollinators comes up in each presentation we give on exclusion netting. Raspberries and strawberries are both wind-polliinated, and recent research at UMN with pollinators in high tunnels has shown that the impact of pollinators on strawberry and raspberry yield and quality is not as clear-cut as one might think. However, many farmers using exclusion netting often order bees and place the hive boxes inside their exclusion for the period when the crop is being pollinated. We are often asked if the exclusion netting can wait to be put up until after the crop has been pollinated. The main barrier to this is that crops like raspberries and strawberries continue flowering and pollination throughout the harvest period, when SWD are targeting the berries. So, if farmers wish to use pollinators for raspberries and strawberries, the netting would need to go up prior to the start of flowering.

Moving forward: It can be easy to get discouraged by SWD, and many growers really are struggling with this insect. However, in times like these we all need hope, and the good news is that organic farmers and researchers are working together to discover feasible, innovative methods to manage this pest. Management of invasive pests does present a challenge, but it is a challenge we can overcome if we are willing to think outside the box and think holistically.

Learn More

Annie Klodd and Andrew Petran presented a workshop on organic management of SWD at the 2020 MOSES Organic Farming Conference. See slides from their presentation here: bit.ly/SWDOrganic. To pair the slides with the audio recording of their workshop ($5 for an MP3 download), see bit.ly/mosesorganicSWD.

Annie Klodd, Gigi DiGiacomo, and Mary Rogers discuss SWD on two recent episodes of the UMN podcast What’s Killing My Kale? See www.fruitedge.umn.edu/kaleipodcast.

Annie Klodd is a University of Minnesota Extension Educator for Fruit. She welcomes your questions about SWD at kloddann@umn.edu.

Andrew Petran is a fruit researcher-turned-grower who owns Twin Cities Berry Company.

References


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Canada Thistle — from page 7

plant regrowth will occur. I typically use my haybine to clip the grass at a height of 12” or a little higher off the ground. Set the windrow gate all the way down to allow for a wider swath of grass to cover the majority of stubble, which will limit sunlight exposure to the few thistle plants still remaining. Mowing sorghum-sudangrass increases root mass while forcing roots to penetrate deeper. If you can’t get in to clip your sorghum-sudangrass until well after heading out, then I suggest chopping with a flail mower because the sorghum-sudangrass will have lodged somewhat by this time. Mature sorghum-sudangrass is also hard on rubber haybine rollers. You can come back for a second mowing with a flail chopper later in the fall, or just leave regrowth until the following spring.

Canada thistle is much more prevalent in the northern latitudes of the U.S., due to more hours of daylight during the peak of the growing season. Surprisingly, it doesn’t take much of a difference in daylight hours around the time of the summer solstice to observe a difference in thistle plant growth. Canada thistle has been found in all states of the U.S., but is more commonplace in areas north of 37° latitude, and extends well up into Canada. In Illinois, there’s a recognizable difference in Canada thistle populations near the Wisconsin border versus far southern Illinois. I have also noticed a very strong allelopathic effect following the growing year for crops grown after a sorghum-sudangrass cover crop. I have observed a 7-10 day broadleaf weed emergence delay in row crops following a year of sorghum-sudangrass fallow, which is significant. I have been asked a few times if one might grow a short-season cash crop, such as buckwheat after a sorghum-sudangrass cover crop during the same season in order to generate at least a little bit of income. I suggest not doing that. Paul Hoffman, who farms in north-central Illinois, has grazed sheep on sorghum-sudangrass that was drilled to alleviate Canada thistle issues. So far he has had success controlling Canada thistle, in this scenario. For Paul, grazing did not start until mid-late August when daylight is rapidly diminishing. The sorghum-sudangrass was not tilled under, and a fair amount of top growth still remained after grazing. I mow thistle patches, when present, in my small grain fields with a 3-point mower. Immediately after mowing, I hire local kids to clip thistles in sparsely infested areas before the rosettes (buds) open up, in order to greatly minimize the spreading of thistles. We use heavy-duty clippers made by Corona that last forever, and very rarely need sharpening. (Don’t waste your money on purchasing the cheaper clippers that you will probably toss out the first day of use.) We clip thistle plants around 1 foot or so below the bottom rosette, to prevent more rosettes from forming. We typically go back a second time, about 2 weeks later, to catch thistles missed or that weren’t mature during the first pass through the field. When managing thistle in non-tillage areas, especially in waterways and fence lines, mow before rosettes bloom. Multiple mowings work best by weakening root reserves (carbohydrate starvation.)

Dave Campbell has been growing small grains, row crops, and forages organically in northern Illinois and southern Wisconsin for the past 40 years.

Weeding Innovations — from page 9

Propane, which is a popular fuel now, was not commercially available in the United States before 1911. A byproduct of natural gas and petroleum refining, propane has seen its prices fall more than 22 percent since 2014, due to pressures on home-heating supply and demand. Propane, which is a cleaner-burning, lower-carbon fuel, is not toxic to soil, water, or its handlers in open spaces.

Gogos, Knezevic, Bruening, and others contributed to an informative guide published in 2014 by the Propane Education & Research Council. This 33-page manual has several particularly useful charts, including tables for propane dosages in gallons per acre as a function of propane pressure and application speed, and a list of broadleaf and grass weed species, their growth stages with corresponding heights and costs from global impacts and international developments since.

Of eight main fossil fuels EIA has compared, propane comes in second behind its parent source, natural gas, in carbon dioxide emissions, according to eia.gov. Propane, which is a cleaner-burning, lower-carbon fuel, is not toxic to soil, water, or its handlers in open spaces.

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New demonstration farms in Illinois to showcase commercial-scale agroforestry

By Jacob Grace

“The best time to plant a tree was 20 years ago,” the saying goes. “The next best time to plant a tree is right now.” The Savanna Institute, a nonprofit organization devoted to laying the groundwork for widespread agroforestry in the Midwest, is planning to do just that. Last year, the organization helped establish Wisconsin’s first public agroforestry demonstration farm at Silverwood Park in Dane County, and plans to set up additional demonstration sites in Wisconsin in the coming years. This year, the institute is establishing three demonstration farms across Illinois to show how agroforestry can be managed on a commercial scale. Agroforestry, or growing trees for agricultural purposes, has been practiced by cultures around the world for centuries. In the Midwest, common agroforestry practices include the use of windbreaks, riparian corridors, and forest farming, as well as silvopasture, or integrating trees into pastured live-stock production, and alley cropping, or planting rows of trees into fields with other crops. The dual-purpose nature of these agroforestry practices can make them a win-win for farmers, allowing them to harvest multiple products from the same land area and access new sources of income. Ultimately, agroforestry has the potential to be a low-tech, scalable farming practice that enhances farm profitability, ecological resilience, carbon storage, water quality, and rural job creation.

Although agroforestry practices can improve the financial stability of any farm, farmers in the Midwest have been slow to adopt practices they have not seen demonstrated on the scale of a commercial farm. The Savanna Institute’s three new Illinois demonstration farms are designed to address this gap by showing farmers in the region what agroforestry looks like on a commercial scale. Similar demonstrations in Europe and Canada by universities and NGOs have greatly increased agroforestry adoption.

Demo Farm Locations

The Savanna Institute has been working on a two-acre agroforestry pilot project since 2014 at Allerton Park, a 1,500-acre park owned by the University of Illinois in Monticello near Champaign-Urbana. The new demonstration farm at the park will feature rows of hardwood timber with alleys of annual row-crop rotation, as well as a pawpaw, persimmon, and northern pecan planting to expand genetic diversity. The site will also feature a groundcover management experiment to explore best practices for working with understory grasses, forbs, and flowers in agroforestry systems.

Sun Dappled Farm near Peoria is a privately owned 17-acre farm that had 5 acres of alley cropping. Located off a busy state highway, Sun Dappled is poised to become an agroforestry destination. This site will focus on growing systems that combine ecological restoration of depleted farmland with perennial fruit and nut production. In its first year as a demonstration farm, Sun Dappled Farm faces many challenges: site-wide goldenrod colonization, nutrient deficiencies, and years of low maintenance. Savanna Institute’s work will focus on designs for revitalization that include soil regeneration, water management, and how the landscape informs design and farming decisions.

Fields Restored is a privately owned 166-acre row-crop farm near Oregon, Illinois, which is about an hour south of the Wisconsin-Illinois border. The Williams family first worked with the Savanna Institute to transition 20 acres to alley cropping in 2015. After seeing the rapid revitalization of this parcel, they are now committed to converting more of their farm into the prime agroforestry demonstration farm of Northern Illinois. The diverse topography and ecology of their land are ideal for demonstrating a range of agroforestry practices.

In 2020, our work at Fields Restored will focus on 5 acres of actively grazed pasture, where we will be establishing a silvopasture experiment and riparian buffer to stabilize an eroded waterway. The silvopasture experiment will feature islands of fodder trees (black locust, mulberry, persimmon, and oak) planted directly into pasture and fenced off from livestock. The riparian buffer design includes trees and shrubs for restoration, beauty, and profit.

To plant, manage, educate, and build community, Savanna Institute has hired four seasonal interns to work at the three demonstration farms. The first of these interns started work (after an on-farm quarantine period) last month. The Champaign-Urbana-based demonstration farm team plans to travel throughout the state planting trees, assisting agroforestry farms, managing Savanna Institute plantings, and connecting with farmers, landowners, researchers, industry builders, and the public.

The Illinois Demo Farm Program had planned to host a series of field days this season to explore design choices and options, opportunities and challenges, and connect attendees with resources. In response to COVID-19, these in-person field days now will be converted to a series of livestreamed farm tours and more interactive webinars for the 2020 growing season. These events will give attendees an opportunity to see the process of agroforestry establishment at three unique sites, ask questions of the farm manager, and offer feedback on site design and implementation. Details about these events will be posted at savannainstitute.org/events. For more information about the demonstration farms or to support Savanna Institute’s work, email Illinois Demonstration Farm Manager Kaitie Adams at kaitie@savannainstitute.org. This program is made possible by generous support from the Lumpkin Family Foundation and North Central SARE.

Jacob Grace is the Outreach Coordinator for the Savanna Institute.

Alley Cropping

Savanna Institute’s Kevin Wolz, left, and Bill Davison think through plans for renovating goldenrod-covered fields at Sun Dappled Farm near Peoria, Illinois.

Photo by Kaitie Adams

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Cover Crop Options — from page 5

recommended species based on capacity to attract pollinators. Choices included nine treatment mixes of monocultures and polycultures (2-7 species), with a total of 16 species evaluated. Initial trade-offs between N provision and beneficial insect services associated with flowering cover crops were explored. Collected data consisted of flower counts, non-observational insect collection, soil sampling and cover crop biomass (biomass, hereafter). Flower count data and insect collection occurred once a week. Soil sampling was taken twice: at the time of biomass collection (before termination), and two weeks after biomass incorporation, to capture the effect of biomass on soil N. Termination was conducted when most summer cover crops had reached flowering peak, and at least 10 seed pods had started to develop and mature. The C:N ratio and percent nitrogen in cover crop biomass and amount of biomass produced were quantified. Insect species were identified to family taxonomic level. Inorganic nitrate nitrogen (NO3-N) was evaluated in the soil before and after biomass incorporation.

Results

Our study showed that a mix of summer cover crops containing oats, field peas, and clovers (OFC) contributed the most N (237 pounds of N per acre) relative to other species combinations. Other studies using field peas in monoculture have reported up to 161 pounds of N per acre (Beckie et al., 1997). Biomass contribution by summer cover crops and cover crop mixes was primarily supplied by the OFC mix (7,804 lb. acre), followed by phacelia (Ph) (4,492 lb. acre) and sunflower (S) (3,792 lb. acre) monocultures. Soil inorganic NO3-N increased in all treatments following biomass incorporation, supporting the contribution of N from the evaluated species. The OFC mix showed highest overall soil NO3-N after biomass incorporation with a mean of 10.98 NO3-N mg per kg of soil.

Of the species that flowered by termination time, buckwheat demonstrated the fastest time to flowering at 42 days, followed by field peas and phacelia (56 days). Sunflower time to flowering, at 76 days, was the longest of all evaluated species. Flower duration was maximized by phacelia with 27 days of total flowering period, followed by field peas (20 days), buckwheat (13 days) and sunflower (7 days). Insect data collected showed presence of beneficial families such as Apidae (bees), Coccinellidae (lady beetles), Syrphidae (pollinator-predator syrphid flies), Plaenomalidae (parasitoids), and common pest families like Miridae (plant bugs) and Thripidae (herbivores). A mixture containing legumes (peas), grasses (oats and millet), brassicas (canola and radish) and buckwheat (BRFMO) had the highest presence of syrphid flies, while the phacelia monoculture attracted most bees. Herbivore pressure by thrips was predominant in the OFC treatment.

Conclusion

Maximization of ecosystem services provided by warm-season summer cover crops relies on thoughtful management. The total amount of nitrogen contributed from both legume and grass cover crops depends on the amount of biomass produced. Cover crops with capacity to produce greater amounts of biomass will subsequently provide more N to organic systems. Similarly, vigorous growth and flowering provides the desired forage and habitat for beneficial insects. Therefore, management should focus on considerations such as planting time and establishment, species selection, planting density, weed control capacity, and termination strategies. Even though trade-offs may exist between ecosystem services in many summer cover crop species, if combined and managed properly, single species as well as polycultures can provide a variety of agroecological benefits.

Naomy Candelaria is a CFANS Diversity Scholar and graduate student in the Organic and Sustainable Horticulture and Soil Agroecology Labs at the University of Minnesota. Her research is funded in part by the North Central SARE Research and Education Grant (LNC19-423) and the Xerces Foundation.

To discuss her research, contact her at cande036@umn.edu.
One of my favorite things about MOSES is our mentorship program. The kinds of farmers mentoring others in our program are typically people who have served in that capacity informally for many years. They are great examples of one of the most striking aspects of the organic farming community—the willingness to share hard-earned expertise to help others along the way. When I thanked one of the mentors last summer for being in the program, he told me that when he started farming he didn’t know anybody else doing what he was doing and he’s just happy to share what he has learned. I really appreciate that spirit, and it makes me thankful every day to be a part of this community.

The Farmer-to-Farmer Mentorship Program pairs beginning farmers—farmers new to organic production or farmers adding a new enterprise to their farms—with experienced organic farmers. The mentors and mentees check in with each other regularly, visit each other’s farms, and attend the MOSES Conference together. The program really gets to the heart of what MOSES is—farmer-to-farmer education—and more importantly what our community is. Our practices and solutions are locally adapted, bottom-up ideas, and we share those ideas with others.

When you get a diverse enough group of farmers in a room together to solve a problem, they are going to come up with some good ideas. In that spirit, we hosted a virtual get-together with the MOSES men last February so they could learn from each other about how to best shepherd along their beginning farmers this season. In the meeting, I asked the mentors to discuss a pretty broad question in small groups: What makes a mentorship relationship successful? The mentors identified five key principles: expectations, goals, listening, humility, and trust.

**Expectations**
- Set clear expectations for the mentoring relationship.
- Have clearly defined tasks. What is the role of the mentor? What is the role of the mentee?
- Structure is important—write down expectations, goals, and agreed-upon communication methods and times.

**Goals**
- Prioritize goals together, with what the mentor can offer to help them achieve their goals.
- Include quality of life goals.
- The mentor needs to understand the mentee’s motivation.
- Set a timeline for goals—what do they want to accomplish throughout the mentorship?
- Determine what a successful year looks like.

**Listening**
- Don’t assume you know what they want or need.
- Don’t give them too much information all at once.
- Ask questions.

**Humility**
- You (the mentor) don’t have to know everything.
- If your expectations for yourself as a mentor are too grand, you won’t be able to live up to them.
- People need to find solutions for their own situations.
- Realize that the trajectory and solutions you have had on your farm aren’t necessarily the right trajectory and solutions for everybody.
- Know what you can and can’t offer your mentee. Find resources for them if you can’t help them with something.

**Trust**
- Trust is built over time spent together.
- Vulnerability—share mistakes you’ve made, don’t just talk about things that went well.
- Don’t shy away from difficult subjects—“Don’t be afraid to talk about money.”
- Tell the truth—he is upfront and honest.
- Be available and reliable.
- Set up a schedule so you have some kind of regular communication, so it’s harder to get distracted from the mentorship as the season gets busy.
- Set boundaries.

I hope that you find their advice helpful in your own mentoring relationships, whether they be formal or informal. If you are interested in being a MOSES mentor or mentee, let me know. You can reach me through the Organic Answer Line (888-90-MOSES) or at chuck@mosesorganic.org.

Chuck Anderas, the lead MOSES Organic Specialist, coordinates the Farmer-to-Farmer Mentoring Program.

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MOSES farming mentors offer advice on mentoring other farmers

By Chuck Anderas

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2021 MOSES Conference Workshop Planning Survey

The MOSES Conference continues to be a community-driven event. Your answers to this survey will help us determine how to move forward with the 2021 conference. Please take the survey online at www.surveymonkey.com/r/2021workshops or clip this form and mail your completed survey to: MOSES, PO Box 339, Spring Valley, WI 54767. Survey deadline is June 30, 2020.

Do you plan to attend MOSES 2021 Feb. 25-27 in La Crosse?
- Yes, I’m looking forward to it.
- No (select reason)
  - Concern about coronavirus
  - Other:

If we offered online education in the winter of 2021, would you participate?
- Yes, that’s a great idea!
- No (select reason)
  - No internet
  - No (please explain):

Would you participate in online networking with other farmers?
- Yes, I’d be open to that.
- No (select reason)
  - No internet
  - Other:

Workshop Topics (select top 3 choices in each category)

Business, Marketing, and Management
- Farm financial management 101
- Marketing and selling for specialty wholesale
- Creating cash flow budgets
- Selling farm products online
- Social media marketing
- Creating a brand
- Land access for organic production
- Pricing your farm product
- Writing successful grant proposals
- Healthy farm partnerships & estate planning
- Employee management
- Employment law for farmers
- Agri-tourism
- Protecting your farm assets & managing taxes
- Farm business planning for disaster resilience

Farming Systems
- Agroforestry
- Farming outside the industrial model
- Regenerative practices
- High-residue cultivation
- Creating pollinator habitat with native plants
- Water management (keylines, field contours)

Field Crops
- Nitrogen-fixing organic corn
- Re-carbonizing row crop soil
- Row cropping in extreme weather patterns
- Weed indicators and control
- Interseeding, companion, and relay planting
- Food-grade small grains
- Organic no-till
- Cover crops
- Emerging implementation technology

Health & Homesteading
- On-farm meat processing
- Farming with horses
- Wild foraging
- Cheesemaking
- Sustainable/alternative building methods
- Healthcare solutions for the farmer
- Linking healthy soil, food, and healthy people
- Indoor urban farming with a vertical living wall
- Beekeeping
- Agrotourism
- Re-purposing on the farm

Leadership, Justice, and Community Issues
- A global view of food production
- Diversity and inclusion training (for ag. communities)
- Gleaning
- History of race in farming and farming systems
- Urban farming general
- Farm-to-school programs
- Food sovereignty
- Indigenous food systems
- Green New Deal
- Domestic fair trade
- Farming after the first 5 years

Livestock
- Silvopasture
- Year-round watering systems
- Pastured broilers
- Pastured pork
- Managed grazing techniques
- Holistic small ruminant or cattle health
- Beef genetics and production
- Egg production
- Multi-species grazing and fencing
- Integrating crops, cover crops and livestock
- Low-stress livestock handling

Market Gardening
- Perennial fruit production for a market farm
- Deep winter vegetables
- Fruit tree grafting
- Companion vegetable planting
- In-depth veggie diseases and solutions
- Berries in high tunnels
- Regionally adapted seeds
- Perennial polycultures
- Small farming tools and methods
- High tunnel vegetable production
- No-till organic vegetable production
- Food safety with composting and animal manure
- Weed control in perennial and long-season crops
- GAP audits: what to expect
- Incorporating value-added products
- Increasing efficiencies and good record keeping
- Pest control in organic tree-fruit
- CSA - Customer convenience/customization
- CSA - Start-up 101

Organic Certification & Labeling
- Transition for commercial-scale farms
- Organic certification for veggies
- Writing an organic systems plan
- Crop rotation during transition
- Debate about hydroponics and aquaponics in organic
- Food safety/GAP/FSMA
- Regenerative organic labels
- Blockchain technology and organic integrity
- Organic international trade update
- Organic consumer trends

Soils
- Understanding organic amendments and fertilizers
- Biochar production and use
- Compost science and utilization
- Tools to assess your soil
- On-farm composting
- Mycoremediation
- Reversing compaction
- Using plastic mulch or biodegradable plastic mulch
- Bigger soil science
- Interpreting soil tests
- Working with living soils
- Bioclimatic for better early crop growth
- Selecting cover crops for specific functions

Specialty Crops
- Growing mushrooms
- Herbs - medicinal or culinary
- Fruit-tree crops
- Hazelnuts
- Garlic production and business operations
- Hemp production - CBD or fiber
- Growing hops organically
- Elderberry production

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New Podcast on Organic Farming Topics

MOSES Organic Specialist Chuck Andrus hosts a new podcast featuring relevant conversations with farmers and ag professionals. COVID-19 has been the focus of many of the initial episodes:

- **Market Farming in a Pandemic**
  - Katie Bishop, PrairieErth Farm, and Rebecca Henderson, Green Wagon Farm, talk to Chuck about how COVID-19 has impacted their market farms.
  - And, and Janelle Maiocco, Barn2Door, shares ideas to get into online sales of farm products.

- **Organic Grain & the Coronavirus**
  - Ryan Koony from Mercari looks at COVID-10’s impact on the organic grain market while Carmen Fernehoul and Luke Peterson of A-Frame Farm in Minnesota discuss strategies for organic grain farmers.

- **Farmer Mental Health in this Crisis**
  - Emily Krekelberg, Minnesota Extension’s Rural Stress Task Force, and Rick Adamski, Wisconsin Farmers Union Board, have a candid conversation with Chuck about how the uncertainty of the pandemic can affect mental health and offer suggestions for dealing with stressful times.

- **Produce Safety and COVID-19**
  - Food safety expert Annalisa Hubl, University of Minnesota Extension, and MOSES Organic Specialist Rachel Henderson talk about food safety and hygiene practices to prevent transmission of coronavirus on farms.

- **Beef & DairyTogether during the Pandemic**
  - Milk dumping and the problems at meat processing plants spur this discussion with Bobbi Wilson, Wisconsin Farmers Union, and Kevin Mahalko, Grassworks, on how to build more resilient dairy and livestock farms.

- **Social Media for Your Farm Business**
  - Mimo Davis and Miranda Duschack of Urban Buds share how they reach customers through social media—a timely topic when in-person connections at farmers markets and farm stands have been put on pause.

- **Rebuilding a Just Food System after COVID-19**
  - Dan Cornelius, Oneida Nation of Wisconsin talks to Chuck about food systems, the role seeds play in resilience and food sovereignty, cooperatives, and how this pandemic provides a unique opportunity to build new and more just food systems.

We post new episodes on Thursdays. Search “MOSES Organic” in your podcast app to find the podcast. MOSES? See mosesorganic.org/organic-farmer-of-the-year. You can also donate $25 to MOSES for farmer education. Support sustainable fisheries, eat delicious seafood, and boost organic farming—wins all around! Take advantage of this offer now at stikasalmonshares.com.

**Award Nominations**

Awards are open for the 2021 MOSES Organic Farmer of the Year award. This prestigious award recognizes organic farmers for outstanding land stewardship, innovation, and outreach. See mosesorganic.org/organic-farmer-of-the-year. You can also recommend an emerging leader or advocate to receive the new Changemaker award. This award honors those who are finding creative ways to build a more just, organic, sustainable, and diverse agriculture/food system for all. See mosesorganic.org/changemaker-award.

**COVID-Related Resources for Farmers**

Find helpful resources about online selling, grants and loans for farmers, and health and safety measures for working on the farm during this pandemic at mosesorganic.org/covid-farmer-resources.

**Coronavirus Food Assistance Program**

The USDA's Coronavirus Food Assistance Program provides direct payments to farmers and ranchers who have suffered losses during the 2020 marketing year due to COVID-19. The program is run through the USDA Farm Services Agency. Application information wasn’t been announced when this issue went to press. For current information, see www.farmers.gov/cfap.

**COVID-Related Legal Resources for Farmers**

Farm Commons has a series of webinars and related resources to help farmers understand legal issues such as providing sick leave for farm workers, offering home delivery of farm products, and accessing federal aid loans. For details, see farmcommons.org/resources-search.

**Farmers’ Guide to COVID-19 Relief**

Farmers’ Legal Action Group, Inc. (FLAG) has published a guide to financial relief programs, including several in the CARES Act—the Coronavirus Aid, Relief, and Economic Security Act. See www.flaginc.org/covid-19-guide.

**Individualized Organic Benchmark Reports**

Certified organic crop or dairy farmers in Minnesota, Wisconsin, and North Dakota can receive individualized benchmarking reports and one-on-one guidance through university-based Farm Business Management programs. Farmers can enroll at any time and may apply for 25-50% cost-share for the annual cost of farm business management instruction through the Organic Benchmarking Project. See bit.ly/OrgBenchProject.

**National Organic Standards Board**

The USDA seeks nominations of qualified individuals for five open seats on the National Organic Standards Board (NOSB). Each member serves a five-year term and represents a specific sector of the organic community. Nominations are due by June 1, 2020 for terms starting in January 2021. The board is looking for individuals who own or operate an organic farming operation or their employees; who represent public interest or consumer interest groups; or, who are USDA-accredited certifying agents. See bit.ly/NOSBnominations.
Virtual Produce Safety Visits

Wisconsin produce farmers can now have virtual On-Farm Readiness Reviews (OFRR) to assess produce safety practices to ensure they align with federal FSMA regulations. Producers can schedule a virtual OFRR any time during the growing season by emailing SafeProduce@wi.gov, calling 608-224-4511, or visiting the Safe Produce website: safeproduce.wi.gov.

COVID-19 Risk Management

Extension at the University of Wisconsin and the University of Minnesota teamed up with FairShare CSA Coalition to create a template fruit and vegetable gardens can use to identify risks on their farms and then use some of the suggested practices to reduce those risks. The template is set up in Google Drive at bit.ly/COVIDriskMGMT, allowing farmers to download and adapt the template to their specific operation.

Value of Conservation Practices

Implementing conservation practices costs money for benefits that are not immediately tangible. A research team at the University of Minnesota is trying to articulate the benefits in dollar terms. To estimate how much farmers value improvements in soil health, the researchers have developed an online game and survey for farmers that takes about 15-20 minutes to play. Participants will receive a $20 gift card electronically for project participation. Email researcher Dojin Park, park1587@umn.edu, to receive a link to participate.

Resource for Media Outreach

“Amplify Our Voices: Connecting Organic Women Farmers with the Media” is a new resource from the Sustainable Farming Association of Minnesota (SFAM) and Farming Research Foundation (OFRF) to help set national research priorities. Organic Farming Research Foundation (OFRF) and Organic Seed Alliance (OSA) have two national surveys—one for certified organic producers (www.opinion.wsu.edu/organicproduction) and the other for producers transitioning to organic certification (www.opinion.wsu.edu/transitionproducers). Upon completion of the survey, you can enter to win a $100 gift card to REI. The survey closes June 1.

Free ATTR Resources

All technical support materials offered on the ATTRA website are now available for free downloads. These include fact sheets on a variety of farming topics. In addition, NCAT/ATTRA staff have produced a video series that offers ideas for building food security and resiliency. See attra.ncat.org/all-free.

Silvopasture Resources

The Sustainable Farming Association of Minnesota has created new resources on silvopasture and agroforestry, including four webinars and a Silvopasture Resource Manual, a starting place to quickly and easily connect with information and people to improve understanding and implementation of silvopasture. Go to www.sfa-mn.org/silvopasture-agroforestry.

National Guide to Finding Local Food

The COVID-19 pandemic has disrupted our country’s food system from farm to fork. To help people find food from farmers in their area, the National Sustainable Agriculture Coalition has collected a list of websites, guides, and directories across the country. See sustainableagriculture.net/blog/national-guide-to-finding-local-food.

Insurance Flexibilities for Organic Acres

USDA’s Risk Management Agency (RMA) has said organic producers may report acreage as certified organic or transitioning to organic for the 2020 crop year if they can show they have requested a written certification from a certifying agent by their policy’s acreage reporting date. For details, see www.rma.usda.gov/News-Room/Press/Press-Releases/2020-News/USDA-AlloWS-Flexibilities-for-Organic-Certification-Amid-Coronavirus-Pandemic.

Longer-Term Conservation Pilot Program

USDA Farm Service Agency (FSA) will offer farmers and landowners in the Great Lakes and Chesapeake Bay regions the opportunity to enroll in a 30-year Conservation Reserve Program (CRP) contract. Signup for the CLEAR30 pilot program is July 6 to Aug. 21, 2020. Eligible producers must have expiring Clean Lakes, Estuaries and Rivers (CLEAR) initiative contracts, including continuous CRPCropland contracts with water-quality practices or marginal pasturelands CRP contracts devoted to riparian buffers, wildlife habitat buffers, or wetland buffers. For more information, contact your local FSA office.

New Online Store Platform

Tend—a software platform providing small-scale farmers with one login to manage their season from crop planning to sales—just released an online store feature designed specifically for diversified growers. Tend’s Square integration enables farmers to start selling immediately in an online store optimized with the direct-sales tools they need, including setting order limits by product and offering order windows with multiple pick-up and delivery options. Orders from the store will flow into Tend’s Pick & Pack feature, which is scheduled to launch later this summer. Learn more at www.tend.com.
**EQUIPMENT**

Commercial Chipper/Mulcher/Shredder [Red Roo MS50/ CMS100]: Purchased new April 2018, in very good condition. $6,250 price negotiable, financing available. Serious inquiries can call Deb at 717-464-6096 extension 1226.


Kovar Tine Harrow: 40ft, 5f sections. Mounted on JD 845 tool bar. Excellent condition. $8,000. Call Matt at 320-296-4100.

For SALE: 2 Lilliston 8 row cultivators. New baskets with only 400 acres. $4,000/basket. Eleva, WI. (715)538-3669.

For SALE: John Deere 845 8 row folding rear mount. Was 12 row, have other rows if want to make a 12 row again. $2,500/basket. Eleva, WI. 715-538-3669.

For SALE: John Deere 725 8 row front mount cultivator. $5,500 obo. Eleva, WI. 715-538-3669.

Shaver Post Pounder for skidster, $1500. Howard 12’ M4 Rotovator, $5000. 4 row flame cultivator, $6000. All stored inside shed. Call Ron at 608-477-0054.

Insta-Pro soybean extruder Model 600. 50hp 3-phase electric motor. Low hours on rebuild. Complete setup; electrical panels, cooling drum, augers, two 500 bushel hopper bins. $21,000. (605) 842-3108.

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Email jmckewan53@gmail.com

**FORAGES**

Organic Triticale Straw: 21 little bales bundled into a 3x4x8 foot bale. 75 for a little bale. Also 4x5 foot round bales, wrapped dry. $285/ton. Trucking Available. 920-680-5136.

OneCert Certified Organic Alfalfa, alfalfa/orchard, alfalfa/teff grass for sale, 3x4x3 square. 1st-4th cutting dry hay. 135-240 RFQ. Lynch, Nebraska. Josh at 402-336-8130 or Jim at 402-336-8139.


**JOBS**

See job listings at mosesorganic.org/job-postings.

**FORSALES**

Organic 2nd Crop Dry Hay: Cut/Baled WITHOUT Rain. 4X5 net-wrapped round bales, alfalfa/lovergrasses. One Lot, (75 tons) (16.65% Protein, RFQ 147) Forage tested. Call or text Ted at 715-616-9350. Central WI.

MCIA Certified Organic grassy soybean straw. 5x6 round bales. Asking $40 per bale. Near Maiden Rock, WI. Call or text 320-232-5269.

**FORSALES (continued)**

Organic ANSWER LINE 888-90-MOSES

Get answers to your questions about farming and organic rules.


Organic Transition Operating Loan: Sick and tired of lenders not understanding organic transition? Finally a loan with fair terms. Only pay when you’re net profitable, 3-year grace period, free technical assistance, and free crop marketing. www.theperennialfund.com. 508-930-0885.

Organic Fish Fertilizer 15-1-1, 100% dry water soluble. 5-7 times more nutritious than liquid fish. Will not clog drip irrigation. One lb, 5 lb or 55 lb packaging. Humates OMRI-certified, liquid and dry. Can be shipped anywhere via UPS. Frommelt Ag Service, Gрееу, IА, 563-920-3674.

For Sale: Tempered, insulated, double-pane glass. Large panes for sunrooms, solar homes, ag buildings, greenhouses or ??? One hundred fifty thousand sold since 1979. 32” x 74” x 1” double-pane only $69.00. We will be moving Arctic Glass to Roberts, WI. If you need glass now would be a good time! Arctic Glass, www.kissourglass.com. Call Sandy at 507-259-6351.


FREE Midwest Organic Resource Directory. Find buyers, suppliers (equipment, inputs, livestock feed and products, pest control, season extension, and seed) certification agencies, and other resources. 80 pages, 460 listings. Published February 2019 by MOSES. Download PDF or order printed directory: mosesorganic.org/organic-resource-directory or call 888-90-MOSES to request a printed copy.

For Sale: Audio recordings of workshops presented at the 2020 MOSES Organic Farming Conference. MP3 downloads are $5 each. The complete set of workshop recordings on a USB drive is $75. mosesorganic.net.
Midwest Berry Grower Webinar Series
May 27 | 1 p.m. | Online
Join Iowa Farmers Union as they wrap up their series of Regenerative Agriculture “Lunch and Learn.” Seth Watkins will outline how to successfully integrate livestock into regenerative agriculture practices on your operation. Watkins is a row crop and cow-calf livestock farmer from Clarinda, Iowa. Email info@iowafarmersunion.org to learn more.

Returning Livestock to Pasture
May 28 | 12-30 p.m. | Online
Join Rodale Institute experts and their guests to find out how to avoid making the mistake on your certified organic crop farm in the first place, and how to remediate the problem. Call 610-683-1400, or go to rodalenstitute.org/events/webinar-noncompliances-organic-crop-operations/

Panel: Ask the Experts - How Regenerative Organic Agriculture Can Improve Human Health
June 2 | Free | Online
Join Rodale Institute experts and their guests to hear the latest research on this pressing issue. Panelists include Dr. Scott Stoll, Dr. Zach Bush, Dr. Ron Weis, Dr. Haagan Grega, and Dr. Drew Smith. Pre-registration is required. Call 610-683-1400, or go to rodalenstitute.org/events/regenerative-agriculture-human-health.

Live Roller-Crimer and Weed Zapper Demonstration – Part 1
June 2 | 1-6 p.m. | Free | Online
The Iowa State University Extension, Outreach Organic Ag Program, and PFI are planning a virtual field day to demonstrate rolling rye in an organic no-till system at the Levi Lyle Farm in Keota, Iowa, weather-permitting. Lyle expects the rye to be past anthesis at that date, which is necessary for proper termination of the rye crop where soybeans will be planted. Part 2 scheduled for July 2. To learn more call 515-232-5661 or email info@practicalfarmers.org.

Small-Scale No-Till Vegetables
June 2 | 1-6 p.m. | Free | Online
Join the Land Stewardship Project for an online presentation and conversation with Les Macare and Els Dobrin of Racing Heart Farm as they share their experiences with implementing no-till practices on their farm in Western Wisconsin to increase soil health and efficiency. Learn more at 715-268-4500.

Webinar: Budgeting
June 4 | 11 a.m. | Free | Online
Hosted by the University of Tennessee, beginning farmers, value-added agriculture entrepreneurs and all farm operators are invited to participate in this webinar series. The series covers a variety of topics related to effective farm business management, marketing, and planning. Contact Joyce: xcullo@utk.edu or 931-648-5725.

Four-State Dairy Nutrition and Management Conference June 10 | Online
Learn about the latest research on issues concerning the dairy industry including feed efficiency, calves and transition cows. This conference is a collaborative effort of Iowa State University Extension and Outreach, University of Illinois Extension, University of Minnesota Extension and University of Wisconsin-Extension. Learn more at fourstatedairy.org/index.html.

Pasture Management Webinar: How to Treat Your Cover Crop Like a Cash Crop
June 10 | 2-3 p.m. | Free | Online
In this nuts and bolts webinar, Dr. Andrea Basche will discuss strategies to boost cover crop benefits, such as ideas for maximizing biomass growth for grazing. Tune in to learn more about why treating your cover crop like your cash crop can pay dividends. Register at register.gotowebinar.com/regist er/7852223376877960237 or call 703-302-5500.

PFI Virtual Field Day: Pasture Farrowing: Infrastructure, Scheduling, and Seeding June 12 | Free | Online
For experienced producers and newcomers alike, learn more about scaling up a swine enterprise to include farrowing. Jude Becker will share how he manages his organic farrow-to-finish operation. To learn more call 515-232-5661 or email info@practicalfarmers.org.

Women Caring for the Land Virtual Meet-Up June 13 | Online
To learn more go to mosesorganic.org/in-her-boots/events/ or call 715-778-5775.

Do the Numbers: Organic Dairy June 24 | 12:45 p.m. | Online
Learn about cover crop interseeding during June cultivation in both organic and conventional crop fields and using it for fall grazing from farmer Seth Smith. To learn more call 515-232-5661 or email info@practicalfarmers.org.

PFI Virtual Field Day: Early Interseeding of Cover Crops for Grazing June 26 | Free | Online
Learn about cover crop interseeding during June cultivation in both organic and conventional crop fields and using it for fall grazing from farmer Seth Smith. To learn more call 515-232-5661 or email info@practicalfarmers.org.

PFI Virtual Field Day: Flame Weeding and Crop Rotation for Weed Control June 30 | Free | Online
Farmers Caleb Akin and Noah Wendt will show how they use a flame-weeder and a small-grain crop in the rotation as tools for Weed Control. To learn more see him also demo an electric Weed Zapper. To learn more go to mosesorganic.org/organic-field-days or call 888-90-MOSES.

Organic Row Crops in South Dakota July 20 | 1-3:30 p.m. | Online
Join Rodale Institute staff and scientists, as well as exclusive Q&A sessions with the experts, all from the comfort of your home. Call 610-683-1400 to learn more.

Karma Trial Results July 22 | 12:45 p.m. | Online
MOSES hosts this update on this newly released perennial crop with host Carmen Fernholz of A-Frame Farm, Madison, Minn. Karma development and the Forever Green Initiative, planting, harvesting, post-harvest storage, economics, and marketing will all be discussed. To learn more go to mosesorganic.org/organic-field-days or call 888-90-MOSES.

In Her Boots: Resilience Boot-Camp July 28 | 7 p.m. | Online
To learn more go to mosesorganic.org/in-her-boots/events/ or call 888-90-MOSES.

Midwest Berry Grower Webinar Series August 12 | 1 p.m. | Online
Spotted Wing Drosophila: Prepping Strawberry Beds For Winter will be considered at this webinar which is hosted by the University of Minnesota Extension and University of Wisconsin-Madison. 30 minutes of Q & A is time scheduled after presentations. Call 612-624-1222 to register.

In Her Boots: Resilience Boot-Camp August 18 | 7 p.m. | Online
To learn more go to mosesorganic.org/in-her-boots/events/ or call 715-778-5775.