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Cover photo courtesy of Fungi Ally
Shiitake mushrooms grown on sawdust blocks at Fungi Ally, in Massachusetts.
News from the Cornell Small Farms Program

New Events Series for Veterans
Now that the Northeast is beginning to warm from the winter months, the Cornell Small Farms Program team is preparing for an exciting series of events to support veterans in agriculture. Farm OPS, a project of the Cornell Small Farms Program, will be providing series of training workshops for veterans interested in agriculture. Opportunities include two week-long intensives that cover a wide range of agricultural enterprises, single-day focused classes, as well as connecting participating veterans to additional regional training opportunities, print material, and online resources tailored to each individual’s interests.

Specific topics in this series will include: mushroom production, high tunnel growing, soil health, pasture management, greenhouse management, maple syrup production. There will be additional 5-day intensive sessions for those preparing, or beginning, to launch a farm business enterprise. The events will begin this Spring and run through the year. Events will be held at the EquiCenter Farm in Mendon, NY, unless otherwise specified.

Mushroom Program Expands
Since 2010, the Cornell Small Farms Program has been offering research and extension support to those interested in cultivation specialty mushrooms. While the focus has been primarily on outdoor methods of production, recent funding has opened the door for the program to expand and incorporate indoor growing methods as well.

The project, led by extension educators Steve Gabriel and Yolanda Gonzalez, is working with a number of collaborating organizations including Fungi Alley, Harvest NY, GrowNYC, Just Food, and FarmSchool NYC, to develop resources and training for both rural and urban mushroom growers.

Over the next few years, team members will prototype production systems and develop economic models based on a 40ft shipping container, simulating a small-scale production facility and collecting quantitative and qualitative data to optimize mushroom yields and economic potential, minimize time and energy expenses, and resolve management and labor constraints. In tandem, local market assessments at multiple scales will articulate the market potential through new enterprise budget tools for farmers. Finally, the project aims to develop curriculum and train service providers to grow a network of support for growers as the industry grows.

Updates on the project and suite of resources including guidebooks and videos can be found at www.CornellMushrooms.org.

Local and Regional Food Systems Initiative
The Cornell Local and Regional Food Systems (LRFS) is a complementary initiative led by staff from SFP that is university wide, given that a vibrant local food system engages individuals beyond agriculture, with interests such as culinary science, rural development, arts, humanities and the law.

LRFS is dedicated to elevating the visibility of research, extension and practice on campus and in New York communities. The initiative also works to support collaboration within this work, with the express goal of increasing the impact of these efforts for individuals and communities.

One recent achievement of LRFS is the launch of a new Farm to School (F2S) Program Work Team. Hosted by Cornell Cooperative Extension, Program Work Teams are “groups of faculty and staff, extension educators, and external stakeholders who collaborate to identify issues, study needs, and create educational materials.” This new F2S work team will help to connect and support those working to advance farm to school in New York through research and education, shared learning, collaboration and peer support. The work team recently made available a list of F2S support ideas, consultative services, and a website to serve as a public resource to anyone that needs assistance.

An ongoing project of LRFS is the monthly newsletter, which shares the initiative’s work, related news, recent publications, job opportunities, and upcoming events. A feature of this newsletter is profiles of researchers and educators focused on local and regional food systems. The LRFS website features more than 50 profiles, and further highlights existing efforts.

Learn more about the initiative at www.localfood.cornell.edu and subscribe to the newsletter for regular updates.

Farm Management Master Classes
The Cornell Small Farms Program’s “Labor Ready Farmer” project works to ensure that new farmers and advancing employees in our region can access high-quality information, supportive networks and proven tactics essential to effective management of labor. These efforts support new farmers scaling up and Latino agricultural employees to move up the ladder of management on existing farms.

In March, the project hosted two hands-on “Farm Management Master Classes” in Eastern and Western NY. These two-day intensive workshops gave farm owners and managers the skills they need to effectively hire, train and supervise farm employees.

Included in the two-day workshops were sessions on:
• Moving from Individual Performer to Supervisor, which helped attendees identify the skills needed to be a great supervisor of people, and how to develop and apply those skills on their farm.
• Overview of Labor Laws Affecting Farm Managers, which covered the key programs and identify resources to help stay in compliance.
• Onboarding New Employees, where attendees learned to create an employee onboarding program with clearly assigned responsibilities, designed training experiences, full regulatory compliance, and basic evaluation.
• Performance Management, which covered effective performance feedback in developing training and assessment programs that get employees off to a good start.

The workshops were led by Richard Stup, director of the Cornell University Ag Workforce Development Program. Richard focuses on human resource management, enhancing employee engagement, regulatory compliance, and leadership development at the farm level.

A Discussion of African Diasporic Wisdom for Farming and Food Justice
Recently the Cornell Small Farms Program welcomed Leah Penniman to campus to lead a seminar describing her work, as well as her newly published book, “Farming While Black.”

Farmer, educator, food justice activist, and now writer, Leah is well known in the New York farming community as the co-founding of Soul Fire Farm in Grafton, NY. Soul Fire Farm was established in 2011 with a powerful mission to end racism in the food system and reclaim ancestral connection to the earth. Soul Fire Farm has acted as a hub for learning and farm training, offers sliding cost CSA, and supports youth food justice leadership. Soul Fire Farm works in collaboration with a large-scale movement to take back Afro-Indigenous land stewardship knowledge and promote equality within the food system.

Farming While Black extends that work by offering the first comprehensive manual for African-heritage people ready to reclaim our rightful place of dignified agency in the food system,” Leah said of her new book.

During the seminar, Leah talked about her book and the intersectionality between race and food issues. There was also a panel discussion addressing questions about racial inequality in the food system as well as more general food justice topics. The panel was composed of Cornell Small Farms Program director Anu Rangarajan, Development Sociology Professor Scott Peters, Natural Resources Professor Shornia Alired, and local farmer and advocate Raphael Aponte.

This seminar was jointly sponsored by the Cornell Small Farms Program, Minorities in Agriculture Natural Resources, and Related Science, School of Integrative Plant Science, Center for Conservation Social Sciences, and Cornell Community Food Systems Minor.

You can learn more by watching the seminar online at http://bit.ly/2T2z3zF.

SFQ Spring 2019 Editor’s Letter
In the last Small Farms Quarterly issue, Steve Gabriel shared the news that he was passing the baton of managing editor over to me. Steve has produced three years’ worth of incredible Quarterly issues, and will continue to support the magazine’s production as a content curator.

As a brief introduction, my name is Kacey Deamer, and I serve as communications specialist for the Cornell Small Farms Program. Prior to joining the SFP team last summer, I worked in communications, journalism and publishing, with a specialty in science and sustainability.

I look forward to reading and sharing all of your stories, research and other resources in the Small Farms Quarterly as we continue to celebrate small farms in the Northeast.

Kacey Deamer

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Producing Specialty Mushrooms: Outdoor vs Indoor Systems

Mushrooms are a perfect crop for many farm enterprises

by Steve Gabriel

The time is ripe for growers to consider adding mushrooms as a crop to their farm enterprise. Specialty mushrooms are defined by USDA as any species of mushroom not belonging to the genus Agaricus, the most commonly grown and consumed mushroom in the United States. In fact, the white button, crimini, and portabellas are all derived from a single species, Agaricus bisporus. The most common specialty mushrooms are shiitake (Lentinula edodes) and oyster (Pleurotus ostreatus), which represent the second and third most produced in the U.S.

USDA data shows a remarkable increase in demand for mushrooms; U.S. per capita consumption of mushrooms was 2.7 pounds in 1978, but is now well over 4 lbs. In 2016 and 2017, specialty mushroom (non-Agaricus) sales have consistently increased at a rate of 4% per year, with overall mushroom sales in U.S. increasing by over 15 percent. Despite this rapid growth on the consumer end, the most recent USDA report indicates that both the number of growers and overall production volume rates have been declining over the past three seasons. There is clearly an open niche for more growers, and small farms are the perfect place to encourage more domestic production.

So, what does it take to grow specialty mushrooms? This article outlines the opportunities and differences between outdoor and indoor cultivation systems, with an eye toward small farm commercial enterprises. Future articles will expand on these systems and dive deeper into the economic considerations for profitable production.

Mushroom Cultivation in Four Steps

Regardless of the location, species, and method, there are four main steps to the process of growing mushrooms:

1. Gather substrates and spawn
   The word “substrate” refers to any material that is a food source and growing medium for your mushroom mycelium. These could include bags, stumps, woodchips, straw, sawdust, coffee grounds, grain hulls, and other carbon-rich materials. Some species are very particular about the type and mix of substrates you use, while others are more flexible. It’s often best to explore the landscape around you and determine what materials are available and most cost effective for you to use, based on the scale of your operation.

   “Spawn” is intentionally cultivated mycelium from a known species that has been isolated, generally in a sterile lab facility to ensure it is free of outside contaminants. For most growers, spawn is purchased from a supplier, much like a vegetable grower buying seed from a company. You can find a list of suppliers on our www.Cornell-Mushrooms.org website.

2. Inoculation
   This step of the process involves bringing the spawn into contact with the substrate to initiate its growth and development. Depending on the material, you might drill holes into a log or cut wedges into a stump, or simply mix the spawn evenly and pack it into bags or containers. Outdoor methods can generally be done with little concern for introducing contaminants (mostly molds), while most of the indoor methods require the substrate be first “cleaned” (via heat, steam, or other methods) and then inoculated in a clean space to avoid contaminating the batch.

3. Spawn Run or Incubation
   Starting after inoculation, the spawn needs time to grow through the entire mix of substrate, and the rate at which this occurs will vary given the density of the substrate and species as mushroom. Oyster, for instance, is much faster growing than Shiitake. In general, logs and stumps can take from 6-18 months, woodchips 2-6 months, and straw and sawdust as little as 3-4 weeks. While the finer substrates may be ready to fruit sooner, they also have a shorter production life; sawdust and straw based systems tend to produce for 4 – 8 weeks, whereas logs can reliably produce for 3 years or more. In outdoor systems, little effort is required during this period, as long as logs are kept in the shade of the trees. When producing indoors, it’s critical during this phase to maintain a consistent temperature (usually 65-70°F) and monitor for mold contaminants during this initial stage of growth.

4. Fruiting and Harvest
   After the substrate material has been fully consumed by the mycelium, fruiting can occur. For good fruiting, the proper temperature, light, humidity, and airflow parameters must be maintained. Monitoring is mostly to ensure that insects and other pests (slugs) don’t get to the harvest before you do. Some substrates (such as shiitake logs) can be “forced” to fruit, while most of the indoor methods will fruit spontaneously, called a “flush” of mushrooms. After harvesting, the material needs to rest and recharge, and then a second and even third flush can usually occur, often spread out by several weeks.

   Keep in mind that while the steps above are generally true for all methods and species, there is quite a bit of detail depending on the species of mushrooms and growing medium you choose. Let’s next look at the differences when growing outside versus indoors.

Outdoor Growing: Mimicking Nature

In many senses, growing mushrooms outdoors is ideal because the forest (or any shady environment with good humidity and airflow) creates the ideal conditions for fruiting without the need for any climate control on the part of the farmer. Indeed, the forest is where the mushrooms we grow come from, so why not simply grow them there? This is the thinking that led to the development of Cornell’s initial mushroom research and extension project, led by professor (now emeritus) Kenneth Mudge, who was particularly interested in agroforestry, or the combination of trees, forests, and agricultural crop production.

Ken researched several species for almost 15 years, mostly focused on log-grown shiitake mushroom rooms as they quickly proved to have the most economic viability. We also know that lion’s mane, oyster, wine cap stropharia, and a few other minor species can be grown successfully outdoors. We detail how to grow these on our website.

The main limit with forest or outdoor cultivation is that out of the species listed above, only the log-grown shiitake can be grown consistently enough to yield mushrooms on a weekly basis, a necessary part of the supply chain for a farm business. This is due to the unique property that shiitake logs can be soaked or “forced” to fruit by immersing the logs in water for 12-24 hours, which stimulates them to fruit. This method can be utilized to produce mushrooms quite reliably from around the first week in June through the middle to late part of October, at least in the climate of central NY. The other species, while successful, fruit on their own time, and so are not good choices if the goal is to...
produce consistent yields for markets.

Indoors: Controlled Environment Growing
Once we step out of the woods and into a contained space, the list of species we can reliably grow starts to greatly expand. Along with it, we also have to start concerning ourselves with monitoring and maintaining the ideal environment for the various stages of production, from the incubation to fruiting. And probably most challenging, we have to take extra measures to reduce and eliminate sources of contamination in our substrates, which will arrest and prevent our desired mushrooms from fruiting. This issue is almost non-existent with outdoor production, a big advantage point.

Indoor farming systems are sometimes referred to as “controlled environment agriculture,” which includes other systems such as hydroponics, aquaponics, and greenhouse production. In contrast to CEA systems used for greens and herbs, mushrooms can be produced in locations with minimal infrastructure and capital to start and sustain production. However, considerations and controls for temperature, humidity, light, and air flow present do need to be made.

A big advantage of indoor production is that systems can be adapted to work in a wide range of abandoned and underutilized farm infrastructure including barns, outbuildings, high tunnels, and storage facilities. In an urban environment, basements, shipping containers, and warehouse spaces can be easily retrofitted for production. This positions mushrooms to be a system that is accessible to both rural and urban farms and those farmers with limited capital and access to other resources for start-up.

Learn More and Start Growing!
Our website is a reliable source of information on all things pertaining to specialty mushroom cultivation in the small farm context. We offer two online courses each year, along with several downloadable resource guides, videos, and tutorials. Over the next year, you will see new resources and events that will continue to expand our offerings and give more in-depth information about production systems at a range of scales. All these resources can be accessed at www.CornellMushrooms.org.

Steve is extension specialist with the Small Farms Program, focused on Agroforestry and Specialty Mushroom Production. He co-owns a small farm in New York with his wife Elizabeth, where they produce maple syrup, mushrooms, pastured lamb, duck eggs, and elderberry. He can be reached at sf535@cornell.edu.
What Can Variety Trialing Do for Your Vegetable Farm?

Put those glowing seed catalog descriptions to the test and find varieties that are the best fit for your own farming environment.

by Kristen Loria

A variety trial entails growing different varieties of a crop alongside each other in order to directly compare their performance across any number of characteristics. It can be highly controlled and scientific or very informal. Conducting a variety trial on your farm is a simple idea that can produce long-lasting benefits to your farm enterprise.

Why do a variety trial?

Each year new varieties crop up in your favorite seed catalogs — maybe your old standby variety is no longer offered, or you have been dissatisfied with it and are looking for alternatives. Perhaps your farmer’s market customers or chefs are asking for a crop or crop type you haven’t grown before. Catalog descriptions can give relevant information — for example, disease resistance attributes, days to maturity and beautiful photos, but they don’t tell the whole story. Much of these catalog descriptions might not reflect the conditions on your own farm, and here lies the main reason that it might be worth your while to conduct a variety trial on your farm: identifying what varieties perform best in your specific farming system and environment.

In addition, you might be looking for specific quality traits that are hard to glean from the catalog. For example, rainbow carrots might be really popular at your market stand, but you haven’t been satisfied with the variety you have been growing. Perhaps you want to find out what qualities have the best flavor, or which store the best for your winter sales. Or perhaps you want a variety with strong tops that won’t snap off when you are bunching them. Any of these traits could be the basis for a great on-farm trial, and you know best what traits are most important for your own farm.

Third, as our weather becomes more extreme and unpredictable, you might want to evaluate what varieties you will be able to count on when the weather gets weird. Although you can’t control the weather during your variety trial, testing out which varieties perform best in stress from drought, flooding, cold snaps — whatever the season throws at you — might be open pollinated (OP), while new varieties are either hybrid or open pollinated. If you are considering turning this into a breeding project down the line, selecting open-pollinated versus hybrid varieties will affect your choice of potential breeding material. More on that in future issues!

How to do a variety trial?

First, you need to select what crop(s) you want to trial. Crop planning can be a time of lofty goals for the season ahead, but it’s important to be realistic about your capacity and prioritize what to focus your efforts on. So, a good approach is to think about the biggest crop challenges or frustrations you have had in past seasons and focus your trial efforts where they will have the biggest pay off for you.

1. Replication and Randomization

It’s a good idea to do at least one replication to get a sense for how many differences between the reps you observe. Randomizing the order of variety plots within a rep is another way to minimize environmental effects. Also try to orient plots to minimize the effect of variation in your field (wet pockets, rocky spots).

2. Border rows

A well-known source of variation in a crop field is “edge effect,” when environmental conditions are substantially different for the outermost rows, which can fudge your trial results. A good way to avoid this is to plant border rows surrounding your trial that you don’t plan to evaluate.

3. Make a map

To make sure you don’t lose track of what’s what, it’s a good idea to overdo it when it comes to documenting your trial layout. You should label your plots in the field itself (most trials are “blind” to minimize bias, which means assigning numbers to each variety rather than writing names on the stakes).

Evaluating your trial

The most important thing in evaluating an on-farm trial is to make sure you have a reliable method to get the information you want, while being realistic about your ability to spend time on the trial.

1. Keep good records

Keeping good records of the trial such as seed source, seeding or planting date, days to emergence, maturity and/or harvest etc. will be useful no matter what trait you are evaluating. If you just want to evaluate yield, you can record yields whether they are weekly fruit harvests or a bulk root harvest. If you are looking for disease resistance, you probably want to use a scale for rating disease severity, and also collect yield data.

2. You’re the boss

There’s no need to go overboard and take data you don’t really need. Write down some notes, flag plots that you like at randomizing the order of variety plots within a rep is another way to minimize environmental effects. Also try to orient plots to minimize the effect of variation in your field (wet pockets, rocky spots).

Picking your varieties

1. “Check” varieties

These are varieties that you already know are likely to perform a certain way — including the common “workhorse” varieties that you or other growers in your region count on. If your trial is focused on resistance to disease, that means including varieties that are likely susceptible as well as those that are resistant. This allows you to better draw contrasts between your varieties.

2. Open pollinated vs. Hybrid

In many vegetable crops, older traditional varieties tend to be open pollinated (OP), while new varieties are either hybrids or open pollinated. If you are considering turning this into a breeding project down the line, selecting open-pollinated versus hybrid varieties will affect your choice of potential breeding material. More on that in future issues!

Designing your trial

In general, when conducting a variety trial, you want each variety to get the same exact “treatment” so that all differences you observe are due to the variety itself. A few common strategies can help you do this, and get the most out of your trial that you can.

Evaluating basil quality and Downy Mildew resistance. Photos courtesy of Mazourek Lab

Once you have picked the crops you will trial, you also want to figure out exactly what your goals are for the trial, and what you want to evaluate. Do you want to find a slicing tomato that won’t crack when grown in the field, or a cilantro variety that won’t bolt as fast in hot weather? Think about what you will need to do and when, all the way from seed to harvest in order to get the information from the trial that you need.

Evaluating your trial

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2. You’re the boss

There’s no need to go overboard and take data you don’t really need. Write down some notes, flag plots that you like at various stages of growth, whatever you think will be useful to your future self.

Stay tuned: More on Selection and On-Farm Plant Breeding in the next issue.

References and More Resources

Extension Plants Seeds for Urban Growth

CCE Harvest New York urban agricultural specialists travel from their Brooklyn office by bus, subway and ferry providing educational programming and on-site technical assistance in all five boroughs for commercial vegetable growers and non-profits operating commercial urban gardens.

by R.J. Anderson

In New York City, CCE Harvest New York urban agricultural specialists Sam Anderson and Yolanda Gonzalez travel from their Brooklyn office by bus, subway and ferry providing educational programming and on-site technical assistance in all five boroughs for commercial vegetable growers and non-profits operating commercial urban gardens.

“One thing I love about working in agriculture in this city is that there’s such variety,” said Anderson. “One day we’re visiting an outdoor aquaponics setup where there’s goldfish on one side and okra growing in floating rafts on the other. Then the next day we’re visiting a rooftop farm with a view over the Hudson River and the next we’re in the Rockaways, on a farm half a block from the beach.

“However, a lot of people in the city are coming into agriculture from a gardening background or from an activist background or from an interest in food or social justice,” he continued. “Not many are coming into it with a commercial vision, or from a gardening background or from an activist background.”

In the shadow of New York City’s Hell Gate Bridge, Cornell Cooperative Extension urban agriculture specialists Yolanda Gonzalez, left, and Sam Anderson, center scout for harlequin bugs and consult with farmers at Randall’s Island Urban Farm in New York City. Photo by R.J. Anderson / Cornell Cooperative Extension

not only provide technical assistance, but also help participants learn basic agribusiness skills. “We encourage people to take as much information as they can and apply it to their situation,” said Reid.

On the farm, newly resettled refugees from the Democratic Republic of the Congo, Nepal, Bhutan and Myanmar grow produce that is sold locally through a CSA, at Farmer’s Markets and in local restaurants, and shared with families in the neighborhood.

“Cornell Cooperative Extension plays a very important part in providing technical assistance to what we do here,” said Jenna Walczak, the program’s administrator. “A lot of our participants have agriculture experience in their home countries, but it’s a little different here in regard to climate and some of the technical aspects. Experts like Jud help us decide where, and how to plant it and help us trouble shoot plant disease issues.”

“I love in the past five years I’ve been studying how to optimize high tunnels to extending the growing season and maximize profitability. On the Blewster Street farm, I’m able to apply those principles by showing the farm how to grow tomatoes using vertical trellises and utilize advanced integrated pest management and soil fertility techniques.”

Reid believes CCE’s role in urban agriculture allows the organization to achieve its mission by putting research-based knowledge in the hands of people - in this case who want to grow their own food to eat, or grow food as a business - and do so in a way that is environmentally and economically sound. Reid added: “And we often find that urban agriculture gives people an opportunity to develop a sense of belonging, a sense of contribution to the greater community.”

R.J. Anderson is a communications specialist with Cornell Cooperative Extension.

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Kristen Loria is a Masters’ candidate in the Plant Breeding and Genetics section at Cornell University. Her own research focuses on trialing and breeding vegetable varieties for organic production systems, under the USDA NIFA-funded Northern Organic Vegetable Improvement Collaborative (Grant #: 2018-51300-28430). She is excited to be a SFQ consultant and to help grow and support a more independent, adaptive seed system for small farms. Please reach out by email: ksl2@cornell.edu

The Organic Seed Alliance advances ethical seed solutions to meet food and farming needs in a changing world. Through their research farm and extensive outreach and collaborative work, they educate growers, conduct plant-breeding projects and advocate for stronger regional seed systems. Their website is a wealth of resources for all things related to conducting variety trials, on-farm plant breeding and growing seed crops, so be sure to take a look if you are looking for further information and inspiration.

In the shadow of New York City’s Hell Gate Bridge, Cornell Cooperative Extension urban agriculture specialists Yolanda Gonzalez, left, and Sam Anderson, center scout for harlequin bugs and consult with farmers at Randall’s Island Urban Farm in New York City. Photo by R.J. Anderson / Cornell Cooperative Extension

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Trialing from page 6


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How Crayons Inspired My Sheep Tracking System

An introduction on how to use color and number code ear tags for sheep.

by Ulf Kintzel

The USDA decided years ago to combat scrapie, a disease similar to Mad Cow Disease that affects sheep and goats. In its effort to do so, it became law in the United States that you must get a premise ID number for your sheep farm and tag your sheep with scrapie-approved ear tags. The tags have consecutive numbers when these sheep are older than 18 months to trace the farm, or for lambs and sheep of any age when they go across state borders. The idea behind the program is to trace animals that are tested and are determined to be affected with scrapie back to its owners. The link at the end of the article describes this mandatory program, which includes a fact-sheet.

I used to not tag my sheep. However, if life gives you lemons, I figured I might as well make lemonade. So, I got creative with these ear tags, the available colors, and the numbers to trace animals and bloodlines. Since the inception of these mandatory scrapie tags, I started selling a lot of breeding stock. Because returning customers needed new bloodlines on their way forward, using ear tags became a necessity. While a burden to many, using ear tags became a blessing in disguise for me. I developed a tagging system with color codes and number codes. I never felt compelled to share this system because it is indeed a bit cumbersome. However, it has become more frequent that I am asked how I keep track of the bloodlines of my ewe lambs, who sired them, and how to avoid inbreeding.

If you are one of those farmers who has impeccable bookkeeping skills and keeps track of every ewe and its lineage, and can access that information easily, my article will be of little to no value to you. If you have just access that information easily, my article will be of little to no value to you. If you have just

As mentioned before, all ewe lambs get tagged in the right ear, the color of the tag indicates who the sire of each ewe lamb is. A select number of ram lambs that are born in any given year will be left intact and receive an ear tag with the color that indicates who the sire is in the left ear. The male lambs that will be market lambs will be castrated during tagging and will receive a white ear tag, also in the left ear. This may again sound cumbersome and one might think I would easily lose track over the colors and left versus right ear. However, my kids often help tagging and while they often cannot remember at all what I told them in the morning they should do that day, they do have an amazing ability to shout out all at once when I am about to tag a lamb the wrong way. They remember that, go figure.

The second “code” are the numbers. Numbers on scrapie-approved tags must have at least four digits. The lowest number is there is a color. For instance, all ewe lambs sired by ram number 174 “Nelson” are yellow, all ewe lambs sired by ram #88 “Paul” are scrapie-approved, all lambs sired by ram #11 “Outback” are salmon-colored and so forth. There are plenty of color choices available. I am confident that by the time I have used all colors I can start again from the beginning.

The numbers on tags of certain colors are much better to read than other colors when looking at a distance. For instance, the numbers on scrapie-approved ear tags are great to read from a distance, green and purple not so much. Also, some colors are somewhat similar and may become more similar when they start fading in the sun and will become indistinguishable. I recommend picking colors that are very different from each other. Blue is not available for scrapie tags because it is being reserved by the government.

Several companies are listed as suppliers of these scrapie-approved ear tags such as Allflex, Alliance ID, National Band & Tag Company, Premier One Supplies, and Shearwell Data. Currently, I am using custom-printed Q-tags 1.5 sold by Premier One Supplies. Two different taggers work for these tags. I am using the universal ear tag applicator from Allflex, which works for many different tags.

I tag all my lambs during the first day of their lives when the ewes are for 24 hours in the jug with their new-born lambs for bonding purpose. The starting point for my tagging system is that all male lambs get tagged in the left ear while all female lambs get tagged in the right ear. I use my chute often when I treat animals, such as deworming and vaccinating. However, I use the chute far more often to sort out lambs that get sold as market lambs or breeding stock. As the sheep and lambs come up in the chute, I can determine in a split second what is male and what is female. That is helpful.

All daughters of White Dorper ram #88 “Paul” have scrapie-approved ear tags. His daughter in the picture was born in 2017 as the 7000 number will tell me.

Photos by Ulf Kintzel / White Clover Sheep Farm

The yellow color of the ear tag indicates this is a daughter of White Dorper Ram #174 “Nelson.” The 7000 number indicates she was born in 2017.

There are a few drawbacks to the system. One is that the first-year lambs will be market lambs and all of the tags are white, which makes it difficult to see the numbers and to tell what ram they were sired by. Also, it is difficult to read older numbers, especially those in the 5000 and higher range. The numbers in the 5000 range are used for recent years, the numbers in the 4000 range are used for earlier years, and the numbers in the 3000 range are used for very old shows. The numbers in the 8000 range are used for the year 2018, the numbers in the 9000 range are used for the year 2019. The numbers that have been used for years past are not the same and depend on the company where you ordered your tags to avoid that any given number is being used twice when you order new tags. The consecutive numbers are both on the male and female side of the tag. The second number is also on the female side. When tagging, the male side of the tag should be on the upper side of the ear and the female side on the inner side. That is the correct way of tagging. Now the larger number is clearly visible on the upper and more visible side of the ear. The male part of the tag is inside the ear and is less likely to get caught on feeders and in brush and is therefore less likely to get ripped out of the ear.

Why do I have such a cumbersome system? First, I can avoid inbreeding. Furthermore, this management system allows me to sell ewe lambs as breeding stock with unrelated ram lambs to breed them. It also allows the customer to come back in future years to purchase additional ram lambs that are not related to any ewe or ram lamb they previously purchased. It also allows me to significantly extend the use of my breeding rams, which were quite expensive and came from far away, from the state of Oregon. The purchase price and distance would be both cost-prohibitive to rotate rams more often.

My system does require splitting the flock during breeding season into several groups and keeping track of what ewe was bred by what ram. This will require using breeding harnesses, equipped with differently colored crayons or it will require marking the ewes of each group with a dot of spray paint on the wither. This will be addressed in my subsequent article in the next Quarterly. All of this is cumbersome, no doubt. However, it costs little to nothing. It does require some management skills and some additional work. The financial benefits become apparent in future years.

What do I do with all the left-over tags? I use them up in a following year for the ewe and ram lambs I intend to sell. When I do, I still apply my color code. It’s just that not every customer will be able to take advantage of my numbering system since the year of birth will be off. On occasion, a ewe will lose its ear tag. I use leftover ear tags for those as well. Often, I still know who the ewe’s sire was when I re-tag her and can use the corresponding color.

For more information about the mandatory scrapie ear tag program, including a fact-sheet, visit http://bit.ly/2UscFGo

Ulf owns and operates White Clover Sheep Farm and breeds and raises grass-fed White Dorper sheep and Kiko goats without any grain feeding and offers breeding stock suitable for grazing. He is a native of Germany and lives in the US since 1995. He farms in the Finger Lakes area in upstate New York. His website address is www.whitecloversheepfarm.com. He can be reached by e-mail at ulf@whitecloversheepfarm.com or by phone during “vailing hour” specified on his answering machine at 585-554-3313.
USDA Expands “Defend the Flock Campaign” with New Resources for All Poultry Growers

Biosecurity has proven to be the most effective way to protect the nation’s poultry, property, and people.

by Anna Birn

The United States Department of Agriculture’s (USDA) Animal and Plant Health Inspection Service (APHIS) has expanded its Defend the Flock program to educate all poultry growers about best practices in biosecurity.

Considering the devastating impact of the highly pathogenic avian influenza outbreak in 2014-2015, as well as the recent outbreak of virulent Newcastle disease, the timing is right for everyone in the poultry community to work together to protect the health of our nation’s flocks.

The Defend the Flock campaign to promote biosecurity combines and updates two previous campaigns that were each targeted at a specific segment of the poultry population. This comprehensive public education program provides new resources to ensure that all growers have the information they need to keep flocks safe from infectious diseases.

APHIS is introducing the expanded program to combat the increasing risk of serious disease outbreaks. Biosecurity, which encompasses structural and operating practices to block diseases and the pathogens that carry them, has proven to be the most effective way to protect the nation’s poultry, property, and people.

“While each of the previous campaigns were successful, by combining them and emphasizing shared responsibility, USDA will improve its ability to promote biosecurity and protect avian health across the country,” said Dr. Jack Shere, USDA’s Chief Veterinary Officer and a poultry veterinarian himself.

Having experienced several poultry health issues over the last couple of years, the poultry community knows how important biosecurity is to protecting the nation’s flocks.

“We’ve seen great strides in biosecurity since 2015, but biosecurity is an every day, every time effort,” said Dr. Shere. “To sustain good practices takes awareness, training and reminders – which this campaign is poised to do. Let’s all work together to defend our nation’s flocks.”

According to Dr. Shere, the program taps into the sense of responsibility all poultry growers share.

“The health of our nation’s poultry is a responsibility that must be embraced by all growers – from operators of large commercial enterprises to owners of small backyard flocks. This program will rally commercial growers and backyard enthusiasts to adopt best practices in biosecurity and keep our flocks safe from infectious diseases.”

The Defend the Flock program includes checklists, videos, and other resources that reflect the knowledge, insights, and experience of USDA, veterinarians, poultry owners, growers, scientists, and other experts. All Defend the Flock materials are available at no charge 24/7 at the Defend the Flock Resource Center.

For more information on the program, visit usda.aphis.gov/animalhealth/defendtheflock.

Anna Birn is a junior studying Agricultural Science with a minor in Community Food Systems. She works as a student assistant at the Cornell Small Farms Program, supporting its communications and outreach efforts.
Tarping: Combining Freeville Research with Local Farm Experience
Researchers working on reduced tillage take opaque tarps, simple and affordable tools with the potential to reduce tillage, to farms in the Finger Lakes Region and Hudson Valley to test their usability on real farms.

by Haley Rylander and Kelsie Raucher

The Cornell Small Farms Program is working to find effective ways to reduce tillage on small farms throughout New York State through the Reduced Tillage project. Based at the Homer C. Thompson Research Farm in Freeville, NY, Small Farms Program staff Ryan Maher and Brian Caldwell have spearheaded the project for four years.

Tackling reduced tillage means finding alternative strategies to manage weeds. Weeds are problematic for small and large farms alike. Tillage can be an effective strategy for elimination of weeds, but can also damage soil health. Frequent and deep tillage can degrade soil structure over time, decreasing soil organic matter and moisture content and increasing erosion.

A strategy to combat weeds while maintaining soil health is using tarps. Tarping has become increasingly popular among small-scale farmers and can be used for a period of a few weeks in the spring to prepare a seedbed for planting, several months over winter, or intermittently in the growing season. An article in the Spring 2018 Quarterly synthesized many benefits of tarping after several years of trials in Freeville.

Tarp Trials in Freeville, Local Farms
Over the past two years research trials in Freeville, NY, as well as in Long Island and Maine, have looked into the impact of tarps on the soil, weed pressure, and yield of direct-seeded beets. While crop and weed residue were not degraded by tarps in these experiments, soil nitrate concentrations increased significantly, and there were no living weeds present under tarps of any duration. Tarped plots kept lower weed pressure for two weeks, and at the end of the season, tarped plots had almost no perceptible difference between tillage treatments for beet yield or weed pressure, whereas untarped plots had significant differences between tillage treatments.

These trials with beets show benefits of tarp use, but are these results generalizable to working farms? Cornell University master’s student, Haley Rylander, partnered with small farms throughout New York State to observe the functionality of tarp use.

Haley worked with several farms in the Finger Lakes region, and found positive results and feedback from area farmers. The incorporation of tarping into their farming systems was a learning curve, but the local farmers found weed suppression and better regulated soil moisture as benefits making tarp use worthwhile.

Centurion Farm
Locke, NY is home to Centurion Farm owned by Nina and Jeff Saeli. The Saelis had not used tarps previously, but found increased soil moisture in tarped beds compared with bare soil, and some reduction in weed pressure.

They planted two crops to compare the impact of tarp use: dry beans and onions. The onion beds were prepared the previous fall, tarped for 3-4 weeks in spring, and then planted into (without further bed preparation) as soon as the tarps were removed. Since onions were planted early, the tarps went on early. Therefore, the ground underneath the tarp did not heat up as much as other trials.

Tarps were applied later for the dry beans. The difference in soil moisture between tarped and untarped beds was more noticeable in the bean plots. In addition to soil moisture, Nina and Jeff found that the untarped bean plots had significantly more weeds.

“Even though it hasn’t shown to be successful to help us reduce our tillage because it’s too early, I can tell you that the weed suppression alone makes the tarp worth it,” Nina said. “When I timed myself when I weeded, on the tarped beans, it literally took me more time to walk the beds to look for weeds than it took me to actually weed. And if there was a weed, it was something that just got snapped up easy with a linear hoe.”

Nina and Jeff said they will be using tarps next growing season. They hope to be able to reduce tillage as they create systems with tarp use. A strategy they have for managing the heavy tarps is to cut their 50’x40’ tarps in half to make folding and handling of the tarps easier.

Muddy Fingers Farm
Liz Martin and Matthew Glenn own Muddy Fingers Farm in Hector, NY. They tarped their beds 4-5 weeks before planting beets and found that the tarps retained soil moisture better on their farm as well. Their tarped and untarped beds received the same amount of water throughout the season, yet the plants in the tarped beds had much better stand counts.

Tarps were also useful for weed suppression. The beds were tilled before placing the tarps, and the ground had green weeds. When tarps were removed before planting, everything was dead leaving a fresh bed for planting.

Liz and Matthew use cover crops on their farm and have found that tarps can sometimes be used in place of a cover crop, or used to kill a cover crop before planting. They already try to reduce tillage, but have found that these methods help in reducing tillage within their system.

FROM A SOIL HEALTH STANDPOINT, LIZ RECOMMENDS TARPING. SHE SAYS THAT TARPING OPENS UP OPTIONS FOR FARMERS BY BRINGING UP EARTH-

Jeff Saeli (Centurion Farm) lays tarps on the soil in the fall to protect the soil and preserve his planting bed over the winter.

THINKING SMALL ISN’T ALWAYS A BAD THING!

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worms and nutrients. While suggesting that everyone tries it if even only considering tarping, Liz cautions that planning ahead is crucial. Successfully implementing tarps requires that your planting schedule fits with a 4- to 6-week window of tarps being down.

Plowbreak Farm
Perennial weed suppression has been a benefit of using tarps for Aaron Munzer and Cara Cusolito of Plowbreak Farm in Hector, NY. In their second year of using tarps, they said it’s better than any other tillage or control methods that they’ve tested for perennial control. For Aaron and Cara, tarping has been especially helpful in establishing a new farm by combatting thistle and quackgrass.

Aaron and Cara prep their seedbeds before laying down the tarps, then plant directly into the beds after tarp removal. Although not a perfect solution, Aaron said tarping “does really wipe out the majority of the seed bank in the top strata of the soil.” Soil moisture was retained under their tarps, and soil life seemed undisturbed. Worms and bugs were able to survive while any living plant material under the tarp was killed.

Similar to Muddy Fingers Farm, Aaron states that tarping doesn’t add to the flexibility of his farm and requires planning. When not in use, tarps are rolled up on the edge of beds. Tarps are no silver bullet, but Aaron said tarping is “a tool in our tool belt of options to keep weeds down and to practice some reduced tillage.”

Rise and Root Farm
Tarps aren’t a new sight on the black dirt of Rise and Root Farm, but Jane Hodge, Karen Washington, and Michaela Hayes continue to reap the benefits of tarps on their Hudson Valley farm. They laid tarps for 3.5 weeks prior to planting dill, cilantro, and Thai basil. The tarped beds required no early-season weeding in comparison to the un-tarped beds, which required 2 hours of hand-weeding. Jane, Karen, and Michaela tilled before tarp application and used a broadfork after tarp removal to loosen soil due to severe compaction from earlier in the season.

Jane said the contrast between the soil under the tarps and the surrounding ground was striking.

“The bed underneath was weed free and ready to plant,” she said. “We actually had to weed whack around the bed because the surrounding weeds had gotten so out of control.”

The trials in Freeville combined with area farms found increased soil moisture, elevated nitrate levels, weed suppression, and the ability to reduce tillage as benefits of adding tarping to your system.

For more information, contact Haley at hrr53@cornell.edu or visit the project website at www.smallfarms.cornell.edu/projects/reduced-tillage/

Haley Rylander is a Masters student working on reduced tillage in organic vegetable systems. She was born and raised in Texas but has fallen in love with the beauty and culture of Central New York, and loves working with the vibrant and diverse community of farmers that lives and works there.

Originally from Missouri, Kelsie is a junior at Cornell University pursuing a double major in Agricultural Sciences and Communication. She interns with the Cornell Small Farms Program where she worked on the Reduced Tillage in Vegetable Systems Project in Summer 2018 and currently enjoys her time in the office working on SFP Communications.
Cooperative Extension Dairy Update

Keeping milk safe and profitable through farm modernization
by Timothy Terry

Despite the economic concerns stemming from several years of low farm gate prices of milk, some New York dairy operations have adopted a proactive approach by investing in farm improvements to increase efficiency, cow comfort, overall animal welfare, and, ultimately, milk quality.

Cornell Cooperative Extension Harvest New York Farm Strategic Planning Specialist Tim Terry was instrumental in the planning phases for an $800,000 (estimated) multi-year project in Wyoming County which includes a new dairy barn with a robotic milking system for ~250 Jersey cows, a bunker silo, and an earthen ag waste storage pond. Once populated, the new barn will relieve current overcrowding issues and will contribute to improved cow comfort and overall farm health.

Robotic milking systems remove much of the labor, reducing the potential for human error. Abnormal and/or unsaleable milk from cows undergoing treatment therapies is automatically diverted and sequestered apart from saleable milk, ensuring high bacteria counts or antibiotics will not enter the food stream.

The new bunker silo with a silage leachate collection system and the ag waste storage pond will protect environmental quality through collection and containment of nutrients until they can be properly applied to crops. This recycles the nutrients and significantly decreases the likelihood of runoff and subsequent contamination of water resources.

Tim Terry is a farm strategic planning specialist for CCE’s Harvest NY agricultural economic development team.

Heat stress: You can still deal with the effects long after summer
by Kimberly Morrill

Heat stress, heat stress, heat stress. I think that was the hot topic this summer and every dairy farmer had to deal with it, whether it was in the lactating cows, dry cows, calves or people. I had more phone calls this summer about heat stroke in calves, then combined for the past seven years. While we may be enjoying the cooler fall temperatures (the cows are too), we are still overcoming challenges related to this summer’s heat.

As August came to a close and September rolled in, we had one last round of heat. For some cows (and calves), this was too much. I had many farms report that the last bout of heat was the hardest. It was shorter in duration then that in early July, but the cows took a hard hit, and many didn’t recover. This led to phone calls asking what’s going on, why this time? Cows are like humans; they can only handle so much stress before they crash. Heat stress is an additional stressor to the animal. When multiple stressors are present (overcrowding in pens and at the feed-bunk, social changes, routine changes, feed changes...) they lead to compounding negative results. For some cows, the last bout of heat stress was the tippling point. Many farms chose to dry cows off early, while some had to cull cows and others deferred the best option was euthanasia. This unplanned change in inventory (both lactating and youngstock) can have longer term implications as it changes the herd makeup. Farmers are now looking at having an overcrowded dry cow pen, decreased overall milk production, and a potential need to purchase animals due to animals that were culled or euthanized. Additionally, many farmers are still dealing with the longer term consequences of heat stress, especially when it comes to calves.

Calves: “Weird bugs” That was the phase a farmer used to describe what was affecting his calves. “It’s like pneumonia, but it’s not and we can’t stay ahead of it”.

While we can plan to be proactive for next summer, we need to be reactive NOW.
• Identify calves that were born during the summer, particularly those born during the heat waves.
• Identify calves that have been treated for pneumonia – this should be done for all calves.
• This can be as simple as making a notch on the eartag. If you keep records on DC 305 it’s very simple to add pneumonia as an event.
• Monitor growth rates. Are the calves born during heat stress keeping up?
• While knowing average daily gains would be great, not all farms routinely weight calves. It’s important to have an estimate as to how big the calves should be at weaning, at different pen moves and ages.
• If heat stressed calves are not keeping up with cohorts that should be evaluated for potential culling.
• Identify poor “do-ers”. While there is no definition for “off-call”, it’s a phrase that is used a lot. And many farmers can think of at least one animal that “looked off” this past summer.
• Keep track of your “off-call”. She might not have had pneumonia (or another diagnosable condition) but heat stress both in-utero and after birth can lead to a compromised immune system.
• Now evaluate your animals and cull some animals. Is that “off-call” smaller than her cohorts? Has a calf been treated for respiratory issues 2 or 3 times? While no one likes selling heifer calves, if they are compromised and at risk of not becoming a productive cow, they should be culled earlier rather than later.

Lactating Cows:
Reproduction. Heat detection, conception rates and pregnancy all took a hit this summer and many are still recovering. From a reactive standpoint there is not a lot we can do to fix this. We can be more stringent on heat detection, focus on a synch program...but all of these practices will take time to show an effect on heat detection, pregnancy & conception rate and we are potentially left with a hole in our inventory.

Inventory: For some farms, the losses were minimal, and for some they were large. It's always important to keep a tag on your herd inventory. Not just how many animals you have, but how many animals across stages of lactation, how many cows and heifers are due each month? Are you going to be able to meet your herd goals, or do you need to look at purchasing some animals? Herd projections can be done on DC 305, and there are many herd inventory calculators available online.

While we are being reactive this fall and winter taking care of animals, and making some hard decisions we can also be proactive for next year. While working on your 2019 operating budget, have discussions about purchasing more fans, curtains, sprinklers... Look at your inventory projections and determine if any pens will be overcrowded in June through August. Should you de-populate, or can you move animals to a different pen? What group of animals was hardest hit on your farm, and what management changes could be made before next year? Should you make a management decision not to breed cows in November so you don’t have calves born in August? Should you invest in an activity monitoring system? These are all potential topics to review and have some discussion on at a profit team meeting, with your industry consultants or Extension specialists.

Kim Morrill is a dairy management specialist with CCE’s North Country Regional Agriculture Team.

Reflections from a new extension specialist
by Mary Kate Wheeler

If there is one thing I’ve learned after nearly half a year on the job at Cornell Cooperative Extension, it’s that dairy farms are incredible businesses. Farmers manage people, land, equipment, infrastructure, and, of course, animals. Their complex and dynamic production systems generate milk rich in protein and butterfat, which is hauled to one of several regional plants for processing.

Despite the gloomy economic aura hovering around the dairy industry, the level of...
FAQ: Agritourism on Your Farm

by Farm Commons

Educational or recreational activities on your farm, u-pick operations, wedding facilities, and other events can be wonderful ways to deepen the connection between farmers, customers, and community. Agritourism ventures can build buyer loyalty, increase sales, and increase peoples’ understanding of where their food comes from—‘all while helping the public understand why sustainable farming is important!’

Like all other farm enterprise activities, agritourism ventures have risks. Good risk management can help maximize the value of farm events while minimizing any legal risks of the venture. The questions below are an excellent place to start in striking that balance.

My farm operation is allowed under my local zoning ordinance. Does that mean an agritourism venture is allowed as well?

The short answer is no. Even where a farm operation is allowed, zoning ordinances can prohibit agritourism ventures. This is because agritourism is often classified as an entertainment, educational, or other commercial, non-agricultural use of the property. These other uses may not be allowed in agricultural, residential, or urban zones. More likely, agritourism ventures will require an event permit, conditional use permit, or even a variance before they are allowed. Securing event or conditional use permits is generally fairly easy, so long as the farmer allows enough time for the process.

Farmers will need to do more research to learn their specific zoning obligations. One option is to call the local zoning authority (which may be a city, town, county, or other unit of government), explain the proposed venture, and ask if it’s allowed. Other farmers may prefer to research the zoning code themselves. Many local entities have their zoning codes online. Start by discovering in which code the property falls, and then read up on which activities are allowed or disallowed in that zone. Other options include talking with a local attorney or asking a reference librarian for assistance.

Does agritourism change my legal obligations regarding employee wages and workers’ compensation?

Yes, agritourism can change the farm’s employment law obligations. If they don’t already, most farmers will need to pay at least the minimum wage and provide workers’ compensation once they start an agritourism venture.

In some states, farmers take advantage of exceptions that allow them to pay less than the minimum wage or go without workers’ compensation. Farmers need to know that these agricultural exemptions to minimum wage and workers’ compensation requirements may not apply once they begin agritourism events. Agritourism is typically considered a commercial activity, not an agricultural activity. This area of law can be complex and farmers should consult our additional resources for more detail.

Where legal research is a barrier, there is a risk management strategy available: pay workers at least the minimum wage and provide workers’ compensation. Failure to do so if it’s required by law can result in heavy fines and obligations for back wages, and there is no penalty for doing so if it turns out not to be required.

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production across our six counties remains as impressive as ever. According to numbers from the NYS Department of Agriculture and Markets, dairy farms in our 6-county region managed more than 53,000 cows in 2017. In just one month of 2017, our 310 dairy farms produced 127 million pounds of milk, enough to feed 2.4 million people.

Regardless of their remarkable management and production levels, dairy farmers are facing immense personal and financial stress. After three years of low milk prices, farms are encountering cash flow constraints, even after having implemented cost-cutting measures. September is a critical time for dairy farmers to use sound financial analysis as a decision point, I see great value in supporting farmers in reexamining their goals and values, and considering new ideas. This makes for an exciting time to enter the field of agricultural extension, especially as a farm business management specialist. From my vantage point, I see great value in supporting farmers to use sound financial analysis as a foundation for making decisions and implementing changes, both on their farms and in their lives.

Mary Kate Wheeler is a farm business management specialist with CCE’s South Central NY Dairy & Field Crops Program.

In her first year with Cornell Cooperative Extension (CCE), Mary Kate Wheeler, a farm business management specialist with CCE’s South Central NY Dairy & Field Crops Program, learned a lot – including how to deliver a calf.

Photos by R.J. Anderson /Cornell Cooperative Extension
Cornell Cooperative Extension Podcast Breaks Down Impact of 2018 Farm Bill

Julie Suarez, associate dean of governmental and community relations in the College of Agriculture and Life Sciences (CALS), joined the podcast to discuss the farm bill's potential impact on areas such as New York's dairy industry, urban farming, industrial hemp and research.

by R.J. Anderson

With the Agriculture Improvement Act of 2018 – also known as the farm bill – signed into law, the new season of Cornell Cooperative Extension’s (CCE) “Extension Out Loud” podcast series kicks off by unpacking what the $867 billion legislation means for New York state farmers.

In the first episode of season 3, Julie Suarez, associate dean of governmental and community relations in the College of Agriculture and Life Sciences (CALS), joins CCE hosts Katie Baldwin and Paul Treadwell to discuss the farm bill’s potential impact on areas such as New York’s dairy industry, urban farming, industrial hemp and research.

For Suarez, the most surprising inclusion in the bill was the creation of a new urban agriculture initiative within the USDA.

“This comes also with the creation of a new research and extension awards program that’s really going to focus on facilitating growth of urban farming and emerging crops,” Suarez said. “Cornell CALS has a lot of ties with urban growers already. Many of our urban growers are in fact Cornell CALS alumni, which is a wonderful thing.”

Another focus is on beginning farmers; funds have been added to the USDA Beginning Farmer and Rancher Development Program as well as the veterans program. “We need to make sure we’re recruiting new people into the industry,” Suarez said, “and some of those programs will really help us going forward.”

Increased funding for advanced agricultural research and development was also an exciting inclusion, Suarez said:

“['Extension Out Loud' features conversations on urban agriculture in New York City and Buffalo and maple production trends.]

“Extension Out Loud” is recorded and produced by CCE administrative staff on Cornell’s Ithaca campus. Full episodes, descriptions and transcripts of each episode can be found online at soundcloud.com/extension_out_loud or on iTunes by searching “Extension Out Loud.”

R.J. Anderson is a communications specialist with Cornell Cooperative Extension.

Agritourism from page 13

Does agritourism change the way I do tax reporting and accounting?

Yes, agritourism activities are handled differently than production agriculture activities with respect to federal taxes. Agritourism activities are reported in accordance with IRS Schedule C, Profit or Loss from Business. This is because the IRS considers agritourism a “non-farm” business activity (even though it occurs on your farm).

This can be confusing to farmers, because “farming” income and losses are reported on IRS Schedule F. As the IRS sees it, farming includes things like growing and harvesting crops, raising livestock or poultry, and preparing unmanufactured farm products for market and delivery to market. On the other hand, hosting weddings and corn mazes, for example, are considered non-farming activities.

For example, if a farmer hosts a wedding in her barn and charges a fee, the fee would be included on the Schedule C. Likewise, wedding-related expenses (for example, event insurance or construction costs to remodel the barn for weddings) are also included on the Schedule C. The results of the Schedule C are then carried to the farmer’s regular tax return form, just as the Schedule F results are generally transferred to the Form 1040.

Am I liable if someone is injured at my farm event?

It’s usually impossible to predict who will be responsible for potential injuries at farm events. It all depends on the details: what, where, and how. Fortunately, farmers don’t need to know complex details behind legal liability for injuries. The best and easiest way to manage legal liability is to make sure the farm has insurance coverage and to follow the terms of the insurance policy. Under a good policy, the insurance company will provide an attorney to defend the farm. Then, it’s the attorney’s job to understand and present the legal arguments that vindicate the farm. Insurance is valuable even for the safest farms. Even if the farm did nothing wrong, that needs to be proven in court.

Although farmers typically have general farm insurance policies that cover farm-related injuries, these policies often do not cover agritourism. Often, farmers have to do a little research and talk to their insurance agent to learn if they have coverage for their envisioned event. If not, the insurance agent is also the best source for obtaining coverage.

A few options are generally available. A special event endorsement or rider may work best for the occasional event. If the event is held frequently, a commercial line of insurance may be a better choice. A commercial insurance policy is designed to cover injuries extending from the business as a whole, not just the farm operation. Farmers can often add a commercial policy to their farm policy at an affordable rate.

As part of the policy terms and conditions, insurance companies may require specific precautions such as repairing infrastructure, posting signs, or providing other warnings — things that are probably good ideas anyway. Because the insurance company knows the ins and outs of legal liability in detail, they assist their customers in minimizing the chance of liability.

Do I need to collect sales tax for tickets, meals, and other items sold as part of my agritourism venture?

Farms offering agritourism options may need to collect sales tax on tickets or fees, meals, and items sold. Most states exempt raw agricultural products from sales tax requirements, so farmers may not be experienced with sales tax. However, agricultural or grocery exemptions often do not extend to entertainment, services, meals, crafts, and other components of an agritourism venture.

If sales taxes are required, the farm will need to open a tax account — something farmers may already have done if they have engaged in other taxable sales. Once a sales tax account has been opened, withheld taxes may be deposited into the account on a regular basis. The state department of revenue generally provides detailed information on how to open these accounts and remit taxes.

If I host on-farm events, what accommodations do I need to make for people with disabilities?

The Americans with Disabilities Act prohibits businesses that serve the public from discriminating against people with disabilities. This means that business entities that host public events must make sure they do not exclude people with disabilities. For example, the farm should provide a way for people in wheelchairs to experience the event. Of course, things like accessible parking spaces, ramps, wide paths, and accessible picnic tables meet that requirement. But, simple things such as offering assistance pushing a wheelchair uphill or carrying a customer’s items to a vehicle are also reasonable accommodations in many instances. Failure to provide reasonable accommodations can lead to lawsuits and fines.

Simple and low-cost solutions are often available for insuring access to disabled persons. Where major renovations are necessary, tax breaks may be available for making ADA-related access improvements. Since each farm event is different, call the Federal Department of Justice’s ADA hotline with specific questions about their events and facilities. Each state has local Small Business Administration offices that can also answer questions.

DISCLAIMER: This guide does not provide legal advice or establish an attorney-client relationship between the reader and author. Always consult an attorney regarding your specific situation.

Cornell Cooperative Extension’s new season of the “Extension Out Loud” podcast unpacks the 2018 Farm Bill, which legalized the growth of hemp and made distribution of seeds and products easier for New York growers.

Photo by R.J. Anderson / Cornell Cooperative Extension

“The goal is to take ag science to the next level — what is the ‘moonshot’ in agricultural technology? It’s really focusing on innovative technology research to solve some of the pressing problems of the day.”

Suarez’s other takeaways include:

• The Supplemental Nutrition Assistance Program (SNAP) as well as the SNAP Education program, with which CCE has been very much engaged, remains largely intact.

• The new farm bill should provide some better risk management options for dairy farmers, particularly medium-sized to larger operations.

• Legalization of the growth and sale of industrial hemp is a wonderful thing.”
Weathering Change: Cornell CALS Helps New York Farmers Adapt

Climatic changes are disrupting the entire farm cycle, from forcing delays in planting to reducing yields when the crops do grow.

In the autumn of 2018, unusually heavy rainfall — almost 8 inches above the norm — interfered with harvests. The year before, a late spring frost killed off most of the strawberry crop. And the year before that, farmers experienced the worst drought New York has seen since the 1960s.

“I don’t want to complain a lot, because farmers have been dealing with this forever, but the frequency of these weather challenges has certainly gone up,” said Corey Mosher, owner of the 1,200-acre Mosher Farms, a diversified fruit and vegetable farm in Bouckville, New York. “I wouldn’t make a scientific observation, but I’d say you’re blind if you’re a farmer and you aren’t noticing these changes. I don’t know what a normal year is anymore.”

Sharp changes to the climate have forced farmers in New York and across the Northeast to adapt. Since the 1950s, the region has seen a 72 percent increase in heavy rainfall events that dump from 2 to 5 inches of rain in 24 hours. Sometimes that much rain falls in a single hour, threatening farmers’ fields and causing severe erosion of soil and the nutrients required to grow crops.

Climatic changes are disrupting the entire farm cycle, from forcing delays in planting to reducing yields when the crops do grow. Root damage, soil loss and increased contamination of waterways from agricultural runoff are among the consequences facing farmers as climate change accelerates.

“Farmers realize the climate is changing; they see it in the growing patterns and threats from pests and pathogens that they’ve never had to face before,” said Alli-son Chatrchyan, director of the Cornell Institute for Climate Smart Solutions in the College of Agriculture and Life Sciences. “We’re here to give them a better sense of what’s happening and what they can do about it.”

Shorter, warmer winters, combined with changes in soil moisture and drought have forced farmers to adapt to uncertain conditions. And more extreme heat and rainfall are expected. If greenhouse emissions continue to increase unabated, temperatures are expected to increase in the Northeast by 4.5 to 10 degrees by the 2080s, according to the National Climate Assessment. As farmers grapple with longer, more erratic growing seasons, they are vulnerable to enhanced risk of drought and intensified disease and pest pressure, said Chatrchyan.

Cornell’s Climate Smart Farming program (CSF) supports farmers in New York state and the Northeast to increase agricultural productivity and farming incomes sustainably. The program helps farmers reduce greenhouse gas emissions and boost resilience to extreme weather and climate variability through use of advanced digital tools and best management practices. The team gathers stakeholder needs and input on their experiences with the climate, then develops resources and tools for farmers and extension specialists.

“Farmers here in New York are facing the unique challenges from both flooding and extended periods of drought. If we can help them identify impacts on their farm, and put in place new practices to increase their resilience, then hopefully in ten years they will have avoided the most catastrophic consequences of climate change,” said Sarah Ficken, resource educator for Cornell Cooperative Extension of Madison County.

In the face of drought, many New York farmers have had their wells run dry, and have had to make extensive changes to their irrigation systems to create extra storage capacity and in some cases tapping into more reliable municipal water systems.

“We’re here to help. Our solutions come from listening to farmers and building on what they’re already doing by helping them figure out next steps, how to use more precise information to make informed decisions, and connecting them to specialists in different areas,” Ficken said.

CSF’s digital tools, accessible online, provide farmers with robust and actionable information as they make multiple decisions daily — from when to plant winter cover crops to how to assess freeze risks in the spring, and everything from specific crop hardiness to seasonal precipitation outlooks. With most of the CSF tools, any farmer from Maine to West Virginia can enter their address and field data to get outputs that are customized to their specific location.

For instance, in 2018, in the Finger Lakes region of New York, snow fell on the last day of April, while the next day brought summer temperatures. The erratic weather forced farmers to delay planting summer annuals, shortening the time between planting and first cuttings. Unpredictable weather compounds the risk as farmers grapple with decisions of when and what to plant.

The CSF Extension Team provides farmers access to agricultural specialists as they work to manage the risks posed by increasing extreme weather, climate variability and long-term change. Working in partnership with Cornell Cooperative Extension and researchers at Cornell, the team draws on the latest science to answer growers’ questions about changes they can make to their management practices that will help increase resilience and farm sustainability. During the summer of 2018, Sarah Ficken along with Tyler Brewer ’19, a CCE intern, visited more than 30 farms in Madison County, New York and held a twilight meeting at Mosher’s Farm to the CSF demonstrate tools and practices with other farmers.

The CSF tools are built on powerful climate data and modeling provided by Cornell’s Northeast Regional Climate Center (NRCC). For 36 years, the NRCC, housed in CALS, has been helping farmers and policymakers adapt to the weather. Led by director Art DeGaetano, professor in the Department of Earth and Atmospheric Sciences, the NRCC monitors climatic conditions and shares its information with the public.

“At Cornell, we have this phenomenal strength to be able to combine long-term climate data from the NRCC’s with agricultural models to create cutting-edge and practical tools that allow farmers to access information about changes growing degree day accumulation, water deficit, freeze risk, and timing of cover crops,” said Chatrchyan.

The growing degree day (GDD) tool is a heat index that is used to predict when a crop will reach maturity.

Adding to farmers’ concerns, many of the crops that currently dominate the Northeast agricultural industry, such as some traditional apple varieties, cabbages, or potatoes may no longer be well suited for the warmer Northeast climate predicted for this century. However, the CSF program also recognizes that the changing climate also offers profitable opportunities to experiment with new crops or new crop varieties.

Mosher Farms has been operating for 100 years, and Mosher is hopeful that they’ll make it for the next 100, too. The farm grows a wide variety of fruits and vegetables for direct marketing, along with approximately 350 acres of green beans for Seneca foods, and corn, wheat, malting barley and hops for the malting industry. They are highly diversified both in products grown and in distribution chains, which helps soften the blow when freak weather takes out one crop.

“A lot of the strategies Cornell is talking about with climate-smart farming — the cover crops, renewable energy, soil management — the benefit isn’t just in how you’re using your resources, it can also generate money or help save on costs,” he said. “I’m optimistic because we kind of have to be, as farmers. We have to be innovative, and that’s what makes it exciting.”

Krisy Gashler is a freelance writer for the College of Agriculture and Life Sciences. Jennifer Savaran Kelly contributed to this report.

Climate Smart Farming tools and resources are available online at www.climatesmartfarming.org.
Avoid a Golden-Goose Approach to Forestry

Smart woodlot stewardship makes sense — and a whole lot of dollars — for you and your family.

by Paul J. Hetzler

What do you call a livestock farmer who spends decades improving the genetics of their herd, then abruptly sells all the best animals to start a new herd from scraggly, unproven stock? Crazy, perhaps, or foolish at the very least. (Or maybe someone with a gambling debt...)

Under normal circumstances, no farmer culls their best animals to start over with random ones. Yet it’s common for a woodlot owner to sell all the large, well-formed trees during a timber sale and leave nothing but small and defective trees to regenerate the next forest.

Genetic variation in trees works just like it does in other organisms. If you take a thousand seedlings, some are going to have a slight genetic advantage. Maybe they are more efficient at photosynthesis, or they’re less apt to develop weak (narrow) branch attachments prone to breakage. When an unusually straight, fast-growing tree rises head and shoulders above its peers, it’s generally more than mere chance — that tree probably has something the others don’t, and that’s the one you want seeding the next forest.

The multigenerational process of choosing superior genetics in trees is called “silviculture.” Ideally a forester marks defective trees to cull for firewood, and marks some mature trees for harvest. She or he intentionally leaves some of the very best trees for seed.

This kind of timber production is sustainable in both an ecological and economic sense. Not only does the overall gene pool improve, but periodic selective harvesting creates openings in the forest canopy, increasing habitat diversity as it releases understory trees.

Many forest owners have heard of silviculture but continue to practice what some foresters call “silver-culture,” maximizing short-term gain at the expense of long-term forest health. Harvesting all trees above a certain size, known as a diameter-limit cut, has been called “selective harvesting” by unscrupulous loggers (and even the occasional forester).

Land owners can protect themselves from such deception by hiring a consulting forester to inventory timber, mark trees and oversee a harvest. For information on locating a consulting forester, contact your New York State Department of Environmental Conservation office.

The thing is, a diameter-limit cut may be worse than clear cutting. Like a clear-cut, it causes much residual damage and soil disturbance. Coupled with greatly increased light penetration, this can lead to unwanted vegetation taking hold, either an invasive like swallow-wort or a native like hay-scented fern. Such plants are called “interfering vegetation” because they inhibit seedling germination and survival, often delaying the start of forest regeneration for many years.

Nearly all forests are roughly even-aged, meaning tree size differences have more to do with genetics than with age. While clear-cuts take the bad with the good, diameter-limit cuts take only the best, leaving the runts to re-seed the forest. Going back to the livestock producer, this is like a farmer knowingly getting a sire whose offspring produce less milk, not more.

A prevailing opinion in our culture right now seems to

be that doing the right thing for the environment will hurt financially. Although that may seem true in some instances, it is definitely not the case in forestry.

Dr. Ralph Nyland, Professor of Forestry at the State University of New York College of Environmental Science and Forestry in Syracuse, stresses that forestry is a very long-term endeavor. He believes we have to start thinking much farther into the future. Dr. Nyland illustrates why good forestry make the most sense — and dollars — in the following example:

Assume you and your neighbor have identical woodlots with salable timber (everything 16” in diameter and larger) worth $20,000. Your neighbor goes for a diameter-limit cut and gets that entire amount. But you mark a select cut, harvesting $10,000 worth of timber and leaving trees of equivalent value standing. It sounds like your neighbor made out better, doesn’t it? Just wait.

The next time you can harvest is fifteen years later. By that time, your timber is worth $34,000. You harvest half, leaving trees valued at $17,000. Your neighbor won’t yet have enough salable timber for a harvest at this time.

Thirty years after the first cut, your neighbor again has salable timber valued at $20,000. Their total income plus residual value after 30 years is $44,000. Your timber, though, will now be worth $77,000, which means that your total income plus residual value after 30 years is $104,000. Now we have two winners, both you and your woodlot.

OK, what do you call a poultry farmer who kills the goose that lays one golden egg each day just to get his hands on two or three gilded ova all at once? Well, for starters you’d call them fictional, but also dumb as a rock. Don’t manage your woodlot like that.

Silviculture will give you a healthy woodlot and a healthy bank account. “Silver-culture” will give you bad metaphors, a lower income, and a lot of poor-quality trees to pass onto the next generation.

Paul Hetzler is the Natural Resources and Horticulture Educator at Cornell Cooperative Extension of St. Lawrence County, and has been an ISA Certified Arborist since 1996.


Previously published in Shady Characters: Plant Vampires, Caterpillar Soup, Leprechaun Trees and Other Hilarities of the Natural World, by Paul Hetzler (Lexington 2018)

Photos by Theresa Lahnen / Cornell Forest Connect

“Silviculture” will give you a healthy woodlot and a healthy bank account. “Silver-culture” will give you bad metaphors, a lower income, and a lot of poor-quality trees to pass onto the next generation.
Featherbed Lane Farm’s Profit Team Experience

About the Farm
Featherbed Lane Farm is a diversified vegetable operation offering a full-year CSA to members. The farm is also home to a flock of hens that produces eggs for CSA members, and two draft horses, Bear and Duke, who support production. Sited on 60 acres of mixed woods, wetlands and fields, the farm is located in Ballston Spa, NY. In 2017, it served 45 full-year CSA members, with a goal of scaling up in 2018 to provide for 75 members.

Owner Tim Biello began planning for his farm business in 2010. Like many farmers, it took time to find the right property. Tim searched for about five years before landing in Ballston Spa. During that time, he explored a variety of strategies to secure financing, which led him to work with The Local Farms Fund. The Local Farms Fund would buy a property outright, with a lease-to-own arrangement and an option to purchase the site five years later. After four years of searching while keeping the draft horses on other properties, Tim either needed to find them a permanent home or sell the team. Not wanting to sell, he set a motto: “bringing home the team in 2015.” That same year, Tim found a place that met both the business and personal goals he had set forward, and Featherbed Lane Farm was launched.

Profit Team Project Overview
With a strong focus on securing land for the business, Tim’s profit team project encompassed two efforts. Tim explained, “One was to help really plan for buying the farm and... for putting together a conservation easement that would be part of protecting that land long term as well as making it more affordable for me in the current time.” He continued to explain that “the second part of the project ended up coming back to one of my original goals which was to work with a consultant to help me update and better understand my numbers to be able to use them more effectively for decision making.”

To apply for a conservation easement, Tim worked with the land trust, Saratoga PLAN, and an attorney to complete the necessary paperwork. This helped him identify language and strategies to ensure long-term preservation of the land, while considering the needs of current and future farmers. In focusing on finances, he collaborated with a business consultant to help evaluate scenarios for finances leading up to the purchase of his property. Developing these financial metrics helped Tim plan for the present and the future of the farm. In reflection, he noted that while he had started this type of analysis on his own, this project provided an opportunity to work with “somebody who had a lot more expertise looking at farm financial numbers to help me streamline how I kept records ... to better understand if my business was succeeding or not.”

Unlike many other profit teams, there was little change in the goals of Tim’s project from start to finish. He attributed this to a lot of planning, but also acknowledged that it simply was the logical course forward for operational stability.

Results
As of 2018, Tim is near to closing on an easement and has made a much clearer picture of current and future finances. These two efforts have helped Tim position the farm so that he can soon shift his attention towards investments to infrastructure and operations.

The conservation easement will preserve the property in the long term and reduce costs for rent and a future mortgage. This was taken into account when deciding to acquire the property and will be a component of making the land affordable for Tim to purchase.

In planning ahead for purchase in 2020, Tim also met with a consultant to review and update financial projections. He explained that it can be particularly tough for new farms, stating “we’re getting to a stage where we might move into the black soon, but it’s all thin margins.” He continued to explain that there are a lot of costs with farm start-up and sometimes farm income does not allow for a wide margin of error. Therefore clearly projecting costs and revenues, and establishing strong financial management systems is very important.

A Closer Look at Conservation Easements
Through an ongoing search for land, Tim explored many methods to secure funding. Ultimately, he determined that the best approach for his farm was a lease-to-own agreement with the Local Farms Fund, and pursuing a conservation easement on the farmland to make the purchase more affordable.

What, specifically, is a conservation easement? It is a farmland protection tool that prevents farmland from being developed. One of the purposes of the program in New York State (NYS) is to protect viable agricultural lands and conserve the land for agricultural use forever.

In considering protecting one’s land with a conservation easement, the first step is to find a land trust or municipality to work with. The land trust will hold the easement and ensure that the terms of the easement are carried out. Through his project, Tim worked with his local land trust and briefly with the town, due to some restrictions in the NYS program. In the end, the land trust was able to hold the easement and further work with the town was not pursued.

In exchange for the easement, a land owner is paid for the value of the development rights of the property. The money for this in New York is often provided through a state grant. For a beginning farmer like Tim, the payment for the development rights will make the farm more affordable in the short and long-term. Money received from the payment will be applied to the principle on the Local Farms Fund’s mortgage, reducing rent costs for Tim. When the option to buy is available in 2020, Tim will then have to borrow significantly less money for a mortgage.

See Featherbed page 19
Recipe for Success: Brew Your Own Biofertilizer

Biofertilizers can reduce crop stress and maximize performance, all while saving you money.

by Anna Birn

Have you thought about switching to a biofertilizer? Full spectrum biofertilizers like “Super Magro” have simple ingredients and can prevent yield loss. Through plant nutrition, biofertilizers reduce disease, pest, and physiological stress, to maximize your crops’ performance. After brewing the base recipe, Super Magro can be tailored by adding specific mineral salts to fit your needs.

Cornell Small Farms’ own Shaun Bluethenthal, an agronomist and research farmer describes the process of how to make Super Magro biofertilizer in a new video on our YouTube channel: https://www.youtube.com/ZxYLL51EwDo.

Super Magro was conceived in Latin America during the 1980s by farmer Delvino Magro with support from professor Sabastiao Pinheiro of the Juquira Candiru Foundation, in Rio Do Sul, Brazil. The Super Magro formula was intentionally released without patent or intellectual property claims as an empowering tool for independent farmers.

The base formula for Super Magro combines seven key components, which ferment over four days. The result is a nutrient-rich, complete with organic and amino acids, and essential minerals in plant-available form.

Base Formula*

- Untreated water
- Fresh cow dung
- Molasses
- Whey (or milk)
- S. cerevisiae (yeast)
- Wood ash
- Rockdust

*see supporting documents for complete formula and schedule at http://bit.ly/2W2KDZf

The beauty of this recipe, and biofertilizers in general, is that they harness naturally occurring microbial processes and use them to convert essential mineral ingredients into available plant nutrients.

Specialized rumen-microbes, delivered via the cow dung, use the readily available sugars in the molasses to perform anaerobic fermentation. After four days of fermentation, context-specific salts can be added to the mixture. Super Magro uses nine specific salts, each of which plays critical roles in plant health, to create a broad-spectrum complement of essential minerals.

Now that you understand the mechanisms behind this type of biofertilizer production, you can tailor-make your own fertilizers specific to the needs and stages of growth of your crops.

Since the recipe is scalable and requires no outside energy source for its manufacture, it can be a great fertilizer option for small farms, homesteads, and even urban farmers. During this type of biofertilizer process, gasses expelled through the air-lock during the fermentation process have no detectable odor. Also, at the completion of a successful fermentation, the end product no longer has a raw manure smell. This bonus is especially useful for farmers and growers that have neighbors within close proximity.

In addition to its robust nutritional profile, Super Magro is also a cost-effective alternative (> $2.50 per acre) to commercial fertilizers. Some farmers may already have many of the ingredients on hand. Even if you don’t, the ingredients are common enough that they are readily available and inexpensive.

Anna Birn is a junior studying Agricultural Science with a minor in Community Food Systems. She works as a student assistant at the Cornell Small Farms Program, supporting its communications and outreach efforts.

Read more about Super Magro at: http://www.ragmans.co.uk/shop/abc_of_organic_agriculture/Lamierdadevacca.com
http://www.ragmans.co.uk/harvesting_the_sun/
Roadmap Points Way to Better Soil Health in New York

The Cornell-led New York Soil Health Initiative has just released its Soil Health Roadmap, which identifies ways farmers and land managers can adopt better soil health practices.

by Kitty Gifford

There is a revolution of sorts going on in farming today, triggered by discoveries in plant and soil ecology, and a recognition that we will need to restore the health of our soils to feed an expanding population.

New York has been a leader in this soil health revolution, but where do we go from here? This is the focus of the recently released New York Soil Health Roadmap, a collaborative effort of the New York Soil Health (NYSH) initiative coordinated by Cornell.

The roadmap identifies key policy, research and education efforts to overcome barriers to adoption of soil health practices by farmers. It also identifies strategies for integrating soil health goals with state priorities focused on environmental issues such as climate change and water quality.

Roadmap contributors developed four goals for advancing soil health. The goals include overcoming barriers to wider adoption of soil health practices, and the integration of climate change adaptation and mitigation in all aspects of soil health programming.

As a resource for policymakers, researchers, farmers and those concerned about healthy food and a healthy environment, the roadmap comprises input from many individuals, organizations and government agencies in New York and nationally. It is intended to help expand soil health policy, research and outreach efforts to reach New York’s underserved.

“This roadmap highlights the linkages between soil, water and air quality,” said David Wolfe, Cornell professor of plant and soil ecology and leader of the project. “It was impressive to see how such a diverse group of stakeholders was able to find consensus on a few key goals that address some of our most urgent environmental challenges while supporting the long term success of our farms.”

It is ultimately farmers and other land managers who must make adjustments – which could be costly and/or risky – in order to rebuild healthy soils, according to Wolfe. The roadmap discusses the results of a 2018 New York farmer survey focused on economic issues, and found that while some benefits can take years to be fully realized, others – such as avoiding soil-erosion losses with cover crops, and reducing fuel and labor costs by reducing tillage – can pay off in the near term for the farmer.

“We need to get in front of soil health or we’ll fall behind, and we’re not going to like the dust that gets kicked up,” said Donn Branton, who farms 1,500 acres of grain crops and vegetables in Stafford, New York. Branton gave up traditional tillage on his farm in 1988, and incorporates other conservation practices, including cover crops and nutrient and drainage management.

Farmers in New York are facing uncertainty about the climate and extreme weather events. Increasing soil organic matter – a key to soil health – improves resilience to both drought and flooding, and stores carbon in the soil that would otherwise be in the air as carbon dioxide, a greenhouse gas.

Healthy soils are also less prone to soil erosion and nutrient runoff during heavy rainfall, reducing an economic loss for farmers while protecting the water quality of streams and lakes.

New York Soil Health’s vision is to strengthen the state’s leading role in soil health research, outreach and policy with effective partnerships. In 2018, NYSH hosted a soil health summit in Albany to gather input from stakeholders. The summit brought together experts from 35 organizations to discuss shared agricultural and environmental interests and form solutions.

Attendees considered the unique features of New York agriculture, which is dominated by mixed animal-crop dairy farms as well as economically important fruit and vegetable crops. New York ranks among the biggest producers in the nation for many of these crops.

*After working on this roadmap for over a year, I’m more optimistic than ever about the sustainability of New York’s diverse agriculture,” said Wolfe, a faculty fellow at Cornell’s Atkinson Center for a Sustainable Future. “We not only have innovative farmers rebuilding their soils, but also a wide range of allies, from consumers to policymakers, who are ready to support them."

Kitty Gifford provides communications support for the New York Soil Health Project. She can be reached at kmg277@cornell.edu.

This article also appeared in the Cornell Chronicle.

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Although conservation easements offer a number of benefits, there are some considerations one should keep in mind before pursuing this option. It is important to note that one should make sure the terms of the easement are compatible with your goals for the farm. To navigate this process, and develop language that supports these goals, it is recommended to consult with a knowledgeable attorney. One should also keep in mind that only a few easements are issued per year, and the process can take up to several years. Properties must also be located in an agricultural district to be eligible.

Strategies for Success

Tim’s business planning strategies can be applied at other farm operations.

• Stay focused. From the project’s initiation, Tim had identified that he wanted to pursue a conservation easement and evaluate financials for future farm planning. His laser-like focus has carried this strategy forward, and Tim is now closer to realizing the success of these efforts.

• Use supporting data to make clear decisions. In working with a consultant to review finances, Tim was able to enhance existing projections about business goals. Based on this information, he held-off on making large financial investments in infrastructure and focused on securing the property first. He noted that if he had more time and funding, he would also like to work with a consultant to evaluate pricing for the CSA. Similar to his overall farm approach, he has tracked labor hours and builds on past knowledge to set share prices. He pointed out that bringing in an outsider might, however, offer a different way to interpret the data that informs his decisions.

• Follow a phased approach for planning. Since finding the property in 2015, Tim has focused on securing a conservation easement for Featherbed Lane Farm. Once he purchases the property, he indicated that he would like to next focus on enhancing the site’s infrastructure. A new multi-purpose building could provide space for an indoor packing area, a CSA pick-up, and more. While this would improve efficiency and comfort, Tim has recognized the need to follow a step-by-step process, first securing property, and then enhancing infrastructure.

Tim walking the field at Featherbed Lane Farm.
Family Dairy Farm Awarded “Conservation Farm of the Year”

Dennis Family Farm in Manlius, NY was presented with the “Conservation Farm of the Year” award from the Onondaga County Soil & Water Conservation District.

by Mark Burger

Craig Dennis and his father Carl own and operate a 100-cow dairy and cash crop farm in the outer eastern hills of Onondaga County. The farm is situated in the Limestone Creek watershed that empties into Oneda Lake.

Craig and Carl have initiated many of their own conservation practices, along with working with the District to protect water quality. The farm also participates in the Onondaga County Soil and Water Conservation District and the NYS Department of Agriculture and Markets “Agricultural Environmental Management” program.

The farm works with the District to implement Best Management Practices that meet the requirements for water quality in their watershed. Their plan had a number of different facets to support the farm’s conservation efforts.

This included soil and manure samples are taken to help with nutrient analysis and fertilizer recommendations. A milkhouse wastewater treatment system was installed with a settling tank, grease trap, and grass filter treatment area. A concrete barnyard with manure collection and screen was constructed to collect polluted runoff and direct the runoff to a grass filter treatment area. Clean water exclusion using driplines safely collect clean storm water and directs it underground to water courses. A rotational grazing system across 33 acres with an alternative water supply was developed, along with 4,400 linear feet of exclusion fence to create a 25 ft. buffer from the top of the bank to keep the cows from drinking in or defecating in the tributary that runs to Limestone Creek.

Local funds through the Onondaga County Agricultural Council and NYS funds through the Environmental Protection Fund, along with substantial farmer cash and in-kind contributions, have made these conservation projects possible. The USDA Natural Resources Conservation Service offers its Environmental Quality Incentives Program, which the Dennis farm qualified for, along with the USDA Farm Service Agency’s Commodity and crop protection programs.

The Dennis family’s commitment to help the environment, their community and their neighbors led to the Dennis Family Farm’s award for “Conservation Farm of the Year” from the Onondaga County Soil & Water Conservation District.

Mark Burger is the Executive Director of the Onondaga County Soil & Water Conservation District.

Soil & Water Conservation Districts are special purpose districts created to develop and carry out a program of soil, water, and related natural resource conservation, by providing technical assistance and programs to residents, landowners with a focus on agriculture. Visit the Onondaga County’s SWCD website for more information: www.ocswcd.org.