2021 ANNUAL REPORT

innovations

in sustainable agriculture

NORTHEAST SARE
Sustainable Agriculture Research & Education

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About Us

The Northeast Sustainable Agriculture Research and Education (SARE) Program offers grants to farmers, graduate students, educators, researchers, agricultural serviceproviders and others who work with farmers to address key issues affecting the sustainability of agriculture in our region.

The Northeast region includes Connecticut, Delaware, Massachusetts, Maryland, Maine, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont,West Virginia, and Washington, D.C.

We currently offer the following grant programs:

- Farmer
- Graduate Student Research
- Partnership
- Professional Development Program
- Research and Education
- Research for Novel Approaches in Sustainable Agriculture
- State Programs

Northeast SARE is one of four regional SARE programs funded by the USDA National Institute of Food and Agriculture.

Northeast SARE's outcome statement:

Agriculture in the Northeast will be diversified and profitable, providing healthful products to customers. Farmers and the people they work with will steward resources to ensure sustainability and resilience, and foster conditions where farmers have high quality of lifeand communities can thrive.

Rutgers University graduate student Alex Mayberry evaluated Native American hazelnuts for use as cold hardy pollenizers in European hazelnut orchards through a Northeast SARE Graduate Student Grant. Cover photo: Lisa Halvorsen

FROM OUR DIRECTOR

When seeds of sustainability take root

Managing a grants program isn't exactly fun. But it can be rewarding. The experience is akin to how a rural town's road crew once described plowing roads during a snowstorm: hours of consistency punctuated by moments of excitement.

Administering a USDA program hosted by a land-grant university means lots of procedures and plenty of paperwork, but all that feels worthwhile when grants yield positive results in the real world, sometimes in unexpected ways, years after projects have been completed. Let me tell you a few stories.

With the pandemic getting us down, my wife and I recently ventured out to a small holiday party. I was talking with a guy I hadn't seen for a long time, who had started a successful business selling recycling equipment.

At one point he described the project that brought him to the area a decade earlier to start his career. It was a program run by a non-profit to train recycling professionals in composting technology. Lo and behold, it was funded by one of our grants! Small world.

A few days later I was reading my email and came upon a retirement announcement from the director of an organization that provides access to capital and training to enhance the financial viability of farms in our region. The message thanked their many funders and described the robust footing that the organization is on after nearly 20 years of program development. I remembered that a SARE grant was one of their early sources of support, helping to establish what's become a highly effective enterprise.

Soil health is a term that was not in the agricultural vernacular until relatively recently, and for a very long time it was not practical to measure it in a comprehensive way, since available soil tests focused only on chemical characteristics.

Around the turn of the century, Northeast SARE grants were part of the funding that supported development of affordable, comprehensive soil health tests that now available to farmers and their advisors.

Subsequent research and outreach, much of it supported by SARE, has broadened how we measure and manage soils for sustainability. Searching the SARE project database, I found 167 projects with "Soil Health" in the title.

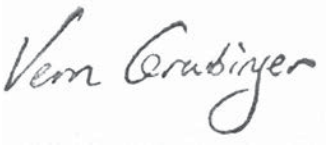
Part of my job is with Extension, and I can't tell you how many times during farm visits and workshops that I have heard about innovations developed by SARE projects. Vegetable farmers show off cultivating tractors that have been converted to run on batteries, thanks in part to a Farmer Grant project that figured out how to do this and posted the instructions on-line.

Fruit farmers explain their use of insect netting to exclude the spotted wing drosophila, an invasive fruit fly, a strategy that's been studied with funding from SARE. Livestock farmers expound on their intensive grazing management practices, a subject that SARE has supported from the very beginning of our program in 1988.

Obviously, we don't take full credit for the long-term impacts of SARE projects. Sometimes our grants fund a relatively small, but catalytic, piece of the development and distribution of an innovation. That's one way I think of our work.

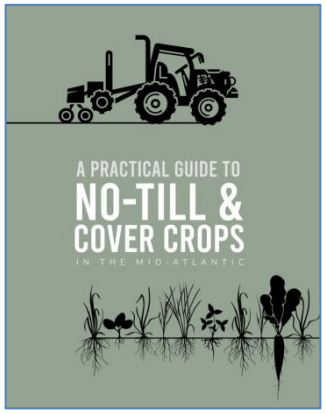
We support people in sowing the seeds of new knowledge and opportunities. Quite often those seeds grow, nurtured by the passion of the planters, expanded on by networks of cooperators, and supported by other funders.

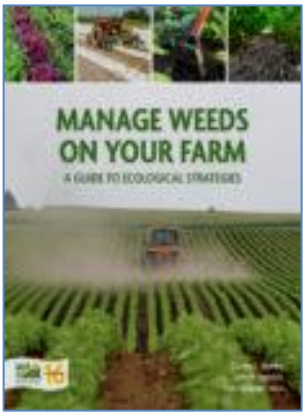
Looking over the many great projects described in this annual report, I wonder which will grow vines over time, yielding fruits to be described in the musings of some future SARE administrator.

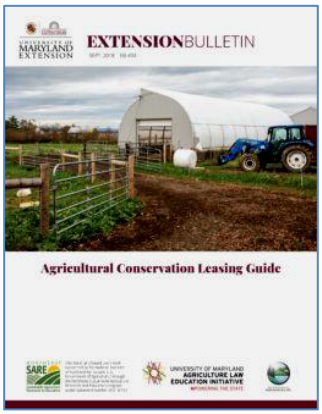


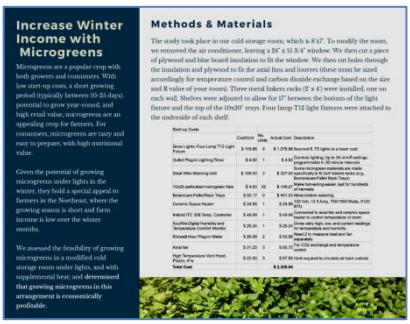
Some Northeast SARE information products produced by grantees in 2021

Among the many successes of our grant programs are the valuable resources that are developed and shared through outreach and education by farmers, researchers, educators, and other grantees. Here are just some of the resources created with SARE funds in 2021. Click on the image to go to the publication. To learn about other SARE resources, go to northeastsare.org/resources.









FARMER GRANT PROJECT: FNE19-917

Urban farming takes an agroecological approach

For over a decade, Project EATS has been growing and supplying fresh produce to underserved communities in New York City. In 2019, thanks to a Northeast SARE Farmer Grant, the non-profit organization began exploring more ecological approaches to production agriculture as an alternative to standard tillage methods shown to have long-term detrimental impacts on soil health.

Farm manager Orion Ashmore and his co-workers conducted the trials at the Help Sec Farm on Manhattan's Wards Island, the largest of Project EATS' eight garden sites, located in four of the city's five boroughs. For the study, half of the farm's one acre-plus production space was converted to a no-till, deep compost mulching system to compare the differences between the experimental (no-till) and control (tilled) plots.

A mid-season view of the production area at Help Sec Farm (photo: Orion Ashmore)

Both plots contained the same number of beds, planted with short-growth cycle/high-yield leafy greens (spinach and lettuce), root vegetables (beets and carrots), longer lifespan crops (scallions), and longer-yielding crops (kale, tomatoes, cucumbers). Based on best practices used by other no-till farms, a weed management approach known as the stale seed bed technique was used on all beds in the test plot, followed by six inches of compost applied to smother any remaining weeds. The same weed management schedule and time/task data collection spreadsheet was used for both plots.

Pak choi planted in the control bed (right) appears less healthy and began to bolt prematurely compared to pak choi in the control bed (left). (photo: Orion Ashmore)

"Our original hypothesis was that composted beds would only reduce cultivation labor by 20%, but the quantitative analysis indicated that labor was reduced by over 200%," Ashmore said. "The yield difference between composted and bare soil beds was negligible though a small trend of 2-5% higher yield from composted beds was observed."

Another anecdotal observation was that crops grown in the experimental bed bolted slower and appeared healthier and less stressed than in the control beds. Reduced weed pressure in the composted beds also allowed for more successful management of interplanted crops.

The crops along the edges of vertically trellised tomato and cucumber beds had little competition from weeds so had more consistent growth and were easier to harvest.

Although the expectation was that yields in composted beds would be greater, it can take 2-3 years for soil biology to develop an ecology that improves nutrient bioavailability, according to Ashmore.

“However, the short-term benefits of covering soil and eliminating tillage were so apparent after the first year that we that we planned on transitioning all of our production space to a deep mulch composting system the following season.”

The second phase of the project was the installation of two hedgerows of young native and/or edible perennials to provide wind buffering, diversified produce yields, and habitat and forage for beneficial and predatory insects.

The first hedgerow of native and edible perennials was planted in October 2019 as habitat and forage for beneficial and predatory insects. (photo: Orion Ashmore)

The first hedgerow, one year after planting, competing with mugwort, grasses, galinsoga, and other aggressive weeds. (photo: Orion Ashmore)

Species selection and planting arrangement were based on recommendations from consultations, agroforestry principles, and sourcing availability within the New York City metro area. Results from this study were inconclusive as data was only collected for one year and not all insects could be documented or accurately identified.

Outreach efforts included hosting on-farm demonstrations, tours, and educational events for the public, donors, and farmers, including one for the Collaborative Regional Alliance for Farmer Training. Students from a nearby trade school with an urban farming curriculum also spent time at the farm to learn about incorporating no-till techniques in their school garden.

“A key area where farmers reported a change in knowledge involved better understanding the role of weeds on the farm and how to reduce their ecological niche,” Ashmore said. “Demonstrating successful examples of how minimal tillage and compost mulching can reduce weed pressure encouraged five farmers to report that they had changed some of their soil management strategies for the remainder of the year.

“Another farmer reported that learning about ecological succession would help both her annual production and her maintenance of perennials bushes on her farm. Describing our selection criteria for perennial hedgerows also shifted two farmers’ awareness of the benefits of biodiversity not just within production but throughout the farm.” ■

PARTNERSHIP GRANT PROJECT: ONE19-349

Mobile market addresses food insecurity

Having access to fresh, quality, and affordable produce is a challenge for many low-income residents, resettled refugees, and immigrants, who cannot access existing farmers markets or distant grocery stores due to limited transportation or inconvenient operating hours.

To address this problem, the Organization for Refugee and Immigrant Success (ORIS) launched the Local Food Mobile Market in early summer 2019, which operated for 12 weeks at six sites in Manchester, New Hampshire, including three subsidized housing complexes. The markets not only increased the amount of healthy foods available to low-income families but also provided an economic boost to local farms, including the 30 refugee and immigrant farmers who comprise ORIS's Fresh Start Farms program.

A new American farmer in the Fresh Start Farms program waits on customers at the Local Food Mobile Market. (photo: Organization for Refugee and Immigrant Success)

Prior to the launch, ORIS surveyed 116 housing complex residents to determine their awareness of the coming mobile market and to ask about specific produce

requests, including ethnic crops, and preferred days and times to hold the markets. Most respondents mentioned price sensitivity as their major concern regarding fresh food. When asked what produce they most desired, 20% said, "anything that is fresh."

For this new concept to be accepted by the target audience, linguistically and culturally appropriate messaging was needed as well as a means to deliver this information.

"Merely driving a truck full of produce to a neighborhood does not necessarily equate to consumption of fresh fruits and vegetables by residents in that neighborhood," ORIS associate director Allison Cunningham pointed out.

"Changing residents' food consumption decisions can be challenging. Eating low-quality, but inexpensive, processed, expired, or watered-down foods over extended periods of time can become normalized behavior. And many residents may lack the skills or familiarity with preparing food using fresh ingredients or may misperceive how easy such food preparation can be."

A Northeast SARE Partner Grant enabled Cunningham to hire seven Community Food Ambassadors who reside at the largest public housing complexes served by the mobile markets.

These ambassadors promoted resident participation by helping them understand what a mobile market is, educating them about the importance of fresh produce and providing recipes, and explaining about the use of SNAP and Food and Nutrition Incentives, including double-value vouchers, and EBT. They also shared information about the markets' schedules and products for sale.

The mobile market expanded to include several sites in Concord, New Hampshire, in 2020 for a total of 20 subsidized, senior, and other housing complex locations in the two cities. Total sales increased 103%, and EBT sales increased 321% for the 20-week run of the markets.

Five sites hosting Community Ambassadors ranked in the top 10 sites for total sales. Four of these sites also were among the highest for EBT sales.

The project successfully utilized the Farmer' Register, a mobile point of sale system, another of its goals, although most of the Community Ambassadors were not comfortable using this technology to conduct pre-sales and/or communicate with residents.

"In 2020, we were able to train 14 beginner new American farmers in farmers market skills, including the mobile market, as well as increase 23 new American farmers' understanding of SNAP/EBT sales potential and participation in selling to the mobile market," Cunningham concluded.

A vendor with ORIS's Fresh Start Farms stocked her stand at the summer market with a wide array of different types of produce. (photo: Organization for Refugee and Immigrant Success)

"A total of $15,041 (an 85% increase from $8,099 in 2019) worth of vegetables and fruit were sourced from new American farmers in the Fresh Start Farms program for the Local Food Mobile Market. Because of expected sales, these farmers planted more crops in 2021 to be able to meet the increased demand."

Residents of a senior housing complex line up to purchase fresh produce at the Local Food Mobile Market. (photo: Organization for Refugee and Immigrant Success)

RESEARCH FOR NOVEL APPROACHES GRANT PROJECT: LNE19-393R

Tautog research shows promising results

Tautog (*Tautoga onitis*), prized throughout its natural range for its firm white fillet, commands a premium market price in both the processed and live fish markets. However, high demand and stressed wild populations due to overfishing have diminished the supply of wild-caught tautog in recent years.

Dr. Daniel Ward (left) and UMASS Dartmouth grad student Mike Coute sample tautog at the UMASS Saltwater Facility. (photo: Lori Ward)

Through a Northeast SARE Novel Research Grant, Dr. Daniel Ward, owner of Ward Aquafarms, LLC in North Falmouth, Massachusetts, collaborated with researchers at the University of Massachusetts (UMASS) Dartmouth to study the commercial potential of farm-raised tautog. As part of this project, they studied the feasibility of using green crabs, a discarded, invasive marine species, as a natural fish food.

"The development of new aquaculture species is paramount to the expansion of the domestic aquaculture industry," Ward said. "Currently, there are only a handful of well-developed aquaculture species, among these Atlantic salmon, tilapia, and shrimp, none of which are well suited to the southern New England environment.

"Developing local marine species will increase local production, which will relieve pressure on wild populations and increase employment and economic opportunities. It will also increase the overall production of seafood for local and export markets."

Preliminary work at UMASS Dartmouth showed that juvenile tautog (as small as 10 grams) will readily eat chopped green crabs, have good survival rates, and exhibit good growth. Further improvements in growth are possible with increased feed rations and warmer temperatures compared to the current ambient temperature. Results indicated that it would be feasible to raise tautog to market size (around 1 kilogram) in 18-24 months.

To evaluate the growth performance, the length and weight of all fish were measured biweekly during the six-week feeding trial. (photo: Daniel Ward)

In June 2019, 450 juveniles were collected from Buzzards Bay and then transferred to the UMASS Saltwater Facility in New Bedford, Massachusetts, and placed in a tank with flow-through seawater to acclimate.

Juvenile tautog were collected by beach seining and immediately placed in coolers upon capture. (photo: Mike Coute)

After 14 days, the fish were introduced to a heated saltwater recirculating system with controlled temperature, lighting, constant salinity, and aeration. They were divided into three separate groups and fed green crabs only, commercially available marine finfish feed, or green crabs supplemented with the commercial feed.

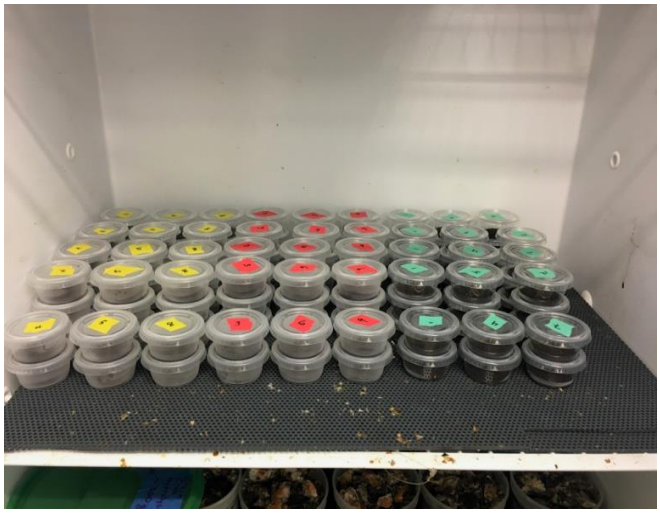
Tautog on the green crab diet had a significantly higher daily growth rate than the other groups, growing from 7 to 400 grams in just nine months. This could be attributed to a higher nutritional value or more attractive scent of the green crab, or longer period of desirable consumption compared to commercial pellet food, among other factors.

However, the investigators observed that water quality suffered as the natural diet was prone to disintegrate in the water, leading to the adverse health of some fish in those tanks.

"We learned that using green crab as a natural diet is one way to significantly improve the growth rates of juvenile tautog in aquaculture systems," Ward concluded.

"However, the amount required to produce market-quality deliverables would damage water quality in the natural environment or recirculating system. Further research also is needed to determine exactly why tautog fed a green crab diet saw better growth as well as to find a way to make processing green crab viable on a commercial-production scale."

According to Ward, most of the researchers and farmers involved in the trials anticipated that the juvenile tautog would feed and grow well on the natural diet of green crabs, since that partially comprises their natural diet in the wild.



In the second phase of the project, three different diets—control diet, squid hydrolysate, and green crab hydrolysate—were tested to study the relationship between feed attractants and tautog growth. (photo: Mike Coute)

"What was surprising," he acknowledged, "was how quickly the tautog took to pelleted feeds once acclimated, and how in our subsequent trials growth rates of the fastest growing fish fed pellets was similar, if not higher, than the growth rates of fish fed a crustacean-based diet."

With additional development, tautog may soon be a viable secondary crop for many farmers throughout New England.

PROFESSIONAL DEVELOPMENT PROJECT: ENE18-151

Starting a conversation about conservation on leased land

Farming leased land is a reality for many Maryland farmers. According to the 2012 USDA Census of Agriculture, around 42 percent of all farm acreage in the state is leased.

While cover cropping, grassed waterways, and other conservation practices are proven to help control soil erosion, manage nutrients, and protect the water quality of streams and other waterways, farmers are less inclined to implement these measures on rented land. The reasons are many, including lack of communication about land-use decisions between parties to the lease, indefinite lease terms, and/or financial uncertainties.

A Northeast SARE Professional Development Grant project provided agricultural service providers with the training and tools needed to communicate with farmers and landowners about conservation goals and how to incorporate specific conservation practices into leases.

Project leader Sarah Everhart (standing) goes over some information with an ag service provider at a 2019 workshop at Chesapeake College in Wye Mills, Maryland, on how to initiate communication with farmers about farm leases with conservation provisions. (photo: Harry R. Hughes Center for Agro-Ecology)

The project was led by Sarah Everhart, University of Maryland Francis K. Carey School of Law, in collaboration with staff from the Harry R. Hughes Center for Agro-Ecocology, University of Maryland Extension, USDA Natural Resources Conservation Service, the Maryland Department of Agriculture, Maryland Association of Soil Conservation Districts, and non-profits.

At Black Horse Flag Farm in Maryland near Chesapeake Bay, farm owner Joe Hickman, who is also an ag service provider, practices what he preaches through a close integration of conservation practices and field crops. (photo: Nevin Dawson/University of Maryland Extension)

Prior to the initiation of this project, few resources were available for farmers and landowners regarding conservation practices on leased farmland. The project team created a comprehensive educational agricultural conservation leasing program that included train-the-trainer workshops.

These workshops, which were offered at five different locations, were designed to help agricultural service providers learn how to initiate communication about conservation values and prepare farm leases with conservation provisions for farmers who lease land. Seventy-eight service providers and 31 farmers attended.

As a result of the workshop, 97% of the attendees said that their knowledge of how to incorporate conservation into leases had either increased or greatly increased, while 69% reported that their knowledge of the agricultural sector's role in the Chesapeake Bay clean-up had either increased or greatly increased.

Installing conservation practices often means losing production acreage for cash crops such as soybeans. This project developed resources and offered workshops that helped both farmers and landowners benefit from implementing conservation practices on leased land. (photo: Nevin Dawson/University of Maryland Extension)

When surveyed as to what actions they planned to take based on what they had learned, 90 attendees indicated future actions, such as discussing conservation and goals for the land with the landowner, providing resources to farmers and landowners so they can incorporate more conservation practices, and implementing more conservation practices and specifics in leases.

After attending one of the workshops, one agricultural service provider who helps with the leasing and management of approximately 17,000 acres of farmland in Maryland and Delaware commented, "I already had some references for following a conservation plan in the 50 leases that I manage, but the workshop was a great reminder of how specific conservation practices can be addressed in a lease.

"Following the workshop, I had discussions with the farmers and landowners I work with, and they were amenable to adding practices to their leases such as riparian buffers, required setbacks from drainage ditches, grass buffers, enhanced habitat areas, and the required use of a cover crop."

The team also developed other resources, including the *Agricultural Conservation Leasing Guide*, recorded webinars, informational handouts, a tax information resource, and other targeted materials, available for anyone to access.

Agricultural service providers were trained to use these resources to aid farmers and farm landowners in communicating about conservation priorities, educate landowners about appropriate practices, and develop leases that support on-farm conservation practices.

The team provided two years of technical support and inquired about the status of their educational outreach six months, one year, and two years following the workshops.

Of the 78 agricultural service providers who received training, 22 used the project materials and teachings to educate 167 farmers and 184 farm landowners. Following this education, 50 farmers and 71 landowners reported making efforts to communicate about leasing, and 58 farmers used conservation practices on leased farmland.

During an update webinar in November 2020, a farm landowner who had attended one of the workshops shared that "her goal as a landowner is to maintain farmland as farmland, which in today's world is getting more difficult." Attending one of the project workshops helped her to form two leases with her farmers that she feels has strengthened her operation.

Grassed waterways protect water quality by acting as a natural filter to slow water flow and trap sediment and nutrients from run-off from cropland. (photo: Nevin Dawson/University of Maryland Extension)

GRADUATE STUDENT GRANT PROJECT: GNE18-173

Research charts course to profitable buffers

In 2010 the U.S. Environmental Protection Agency enacted the Chesapeake Clean Water Blueprint, establishing Total Maximum Daily Loads (TMDL) or pollutant limits for Bay states to restore clean water to the Chesapeake Bay watershed by 2025.

Much of the pollution impacting aquatic life, outdoor recreation, and commercial fisheries can be attributed to agriculture, with Pennsylvania's intensive agricultural systems accountable for more than 30 percent, primarily from fertilizers for annual crops.

The Commonwealth's Watershed Implementation Plan to meet TMDL goals by the target date calls for planting 110,000 acres of new riparian buffers on agricultural land. While these buffers have proven successful in reducing nutrient and sediment pollutants of surface waters, farmers have been reluctant to install them, citing cost and potential loss of revenue from productive tracts of farmland.

Steph Herbstritt, a doctoral student at Pennsylvania State University, set out to change that mindset with the help of a Northeast SARE Graduate Student Grant. The goal of her three-year project was to demonstrate how multifunctional buffers planted with native perennial grasses and flowers not only will help meet the state's TMDL mandate but can provide farmers with a marketable crop.

She set up one-acre demonstration plots on two farms in the Spring Creek watershed in central Pennsylvania in partnership with Ernst Conservation Seeds. One was established along an identified priority buffer gap area (streamside parcel lacking a riparian buffer), the other outside the riparian zone on what the farmer described as marginal or unprofitable land (a field buffer). These sites were monitored for water quality impacts and yield.

Farmers gather around Steph Herbstritt (center), a Pennsylvania State University doctoral student to hear about her research on warm-season perennial grasses at an on-farm field day. (photo: Veronika Vazhnik)

Herbstritt noted, "We found that planting buffers of perennial warm-season grasses along marginal agricultural fields and in riparian buffers along streams can produce biomass that can generate revenue for farmers in Pennsylvania, likely with fewer inputs and a lower environmental footprint than corn production."

The project used satellite imagery to estimate corn yield from the normalized difference vegetation index and estimate land profitability with agronomic crop budgets to identify unprofitable annual cropland that may be more suitable for alternative crops such as perennial warm-season grasses and other buffer crops. It also looked at profitable annual cropland that may benefit from adding cover or double crops, such as winter rye, in Pennsylvania.

The demonstration sites were equipped with a climate station to monitor precipitation. (photo: Steph Herbstritt)

Information was shared through field days and tours of the field sites. In addition, a workshop was held with supplemental funding from the Chesapeake Bay Program Scientific and Technical Advisory Committee in November 2018. Fifty farmers and stakeholders from academia, industry, and government participated to discuss perennial warm-season grasses and other harvestable buffer crops and how they might help accelerate plantings of riparian buffers in the Bay.

A breakout session at a November 2018 workshop provided an opportunity for farmers, academics, and others with an interest in the health of Chesapeake Bay to discuss ways to increase riparian buffer plantings on agricultural land. (photo: Lara Fowler)

A post-workshop survey conducted two years later indicated that several stakeholders have started implementing small acreages of multifunctional buffers focusing on several crop options including switchgrass, other perennial prairie grass mixtures, fruits, nuts, berries, and sugar maple. However, none have begun to increase their plantings on a scale needed to meet Pennsylvania's TDML goals.

A second grant from the Pennsylvania Department of Conservation and Natural Resources is helping the team establish more buffers with trees and perennial warm-season grasses on 33 acres on four additional farms in the Halfmoon Creek watershed in collaboration with the Clearwater Conservancy. Part of that project includes demonstrating new markets for perennial grass mixtures, including for erosion control socks. The erosion control sock market currently pays up to $150 per ton for biomass from switchgrass monocultures.

Will Brandau, a switchgrass farmer and president of the Association for Warm Season Grass Producers, addresses farmers and other stakeholders at a field day. (photo: Veronika Vazhnik)

The results of these research and demonstration sites will have relevance across and beyond the Chesapeake Bay watershed and will be disseminated to farmers, researchers, and other stakeholders in the mid-Atlantic and Northeast.

RESEARCH AND EDUCATION GRANT PROJECT: LNE18-361

Developing corn silage systems for cover crops

In recent years, farmers' interest in integrating cover crops into field crop production has grown rapidly in northern New England for both environmental and economic reasons. But to maximize the benefits of cover cropping, farmers need strategies that address the entire production system and not just the cover crop itself.

From 2018-20, Dr. Heather Darby and her University of Vermont (UVM) Extension Northwest Crops and Soils Team in collaboration with the University of Maine conducted research through a Northeast SARE Research and Education Grant to identify best practices for corn silage production that would result in successful establishment of interseeded cover crops.

Dr. Heather Darby discusses factors that may impact cover crop establishment at an on-farm field day in Vermont. (photo: University of Vermont Extension Northwest Crops and Soils Program)

Through trials on eight farms in the two states and the UVM research station, the team studied three major factors: corn populations, corn variety selection, and timing of cover crop planting. They also evaluated corn silage varieties for their physical structure (leaf and ear architecture) and relative maturity to determine the optimal characteristics that increase light infiltration through the corn canopy for better cover crop establishment.

After corn was harvested in the fall, yields were recorded using a wagon equipped with scales. (photo: University of Vermont Extension Northwest Crops and Soils Program)

"Corn populations, which typically have shifted to increase the number of plants per acre, were evaluated for maintaining yield while also allowing for more cover crop growth," Darby explained. "In addition, we investigated the timing of cover crop interseeding as it plays a large role in determining adequate light conditions for growth."

Although the success of the on-farm trials varied due to adverse weather, the results highlighted that variety selection has a large impact on corn yields and may influence the growth of the cover crop. Results were variable, with some years showing significant impacts from variety and others no perceptible impact on cover crop establishment.

The trials also indicated that corn maturity, ear type, and corn yield did not consistently impact cover crop establishment.

As an example, in 2020, the best cover crop establishment occurred in the highest-yield corn silage variety, a clear indication that lowering corn populations to 30,000 plants per acre would maximize both corn and cover crop yields compared to higher or lower corn populations.

As part of the research project, interseeding was implemented on 30 farms in Vermont and Maine in 2018. (photo: University of Vermont Extension Northwest Crops and Soils Program)

"Interseeding the cover crop when there is adequate light penetration through the corn canopy helped with establishment," Darby said. "Research showed that interseeding at early corn growth stages (V2 to V4) most consistently led to adequate cover crop establishment."

In 2018, interseeding was implemented on 30 farms, in partnership with a cost-share program through the Vermont Agency of Agriculture, Food and Markets, to determine impact on soil health and crop yields. Participating farmers made changes to their corn silage practices including variety selection, reducing corn maturity, lowering corn populations, and/or modifications to lower residual herbicides.

Soil health tests collected in 2018, and again in 2020, from farms that adopted new practices showed a positive impact on cover crop establishment, resulting in soil health ratings moving from medium to high. Farmers reported an average yield increase of 1.2 tons per acre on a total of 1,395 acres of corn silage.

An additional 24 farmers received one-on-one technical assistance and access to interseeding equipment during the project period. As a result of the project, a total of 54 farms experimented with interseeding.

Research trials were conducted on several farms in Vermont and Maine with varying results. (photo: University of Vermont Extension Northwest Crops and Soils Program)

Cover crop establishment was measured by collecting percent cover and biomass samples at harvest and three weeks post-harvest on all plots. (photo: University of Vermont Extension Northwest Crops and Soils Program)

Research results were shared through 10 on-farm field days, the 2020 No-Till and Cover Crop Symposium, and regional dairy and forage workshops in Vermont, Maine, New Hampshire, and New York. The project team also developed the *Guide to Interseeding Cover Crops* and other educational materials and hosted a webinar series that addressed practices for successful establishment of interseeded cover crops.

Project information reached 1,369 individuals at in-person events and another 1,647 individuals through virtual events for a combined audience of 3,016.

STATE PROGRAM: NECT17-001

Training focuses on sustainable livestock production practices

As part of a Northeast SARE state program, agricultural experts from the University of Connecticut have worked together since 2009 to provide education about sustainable livestock production practices to agricultural service providers and farmers in Connecticut, Massachusetts, and Rhode Island.

For the 2017-2020 project, Nutrition's Role in Sustainable Livestock Production Practices, team members Rachel Bespuda, project director; Joe Bonelli, Connecticut SARE state program coordinator; and Jean King, project facilitator; collaborated with SARE state coordinators Clem Clay, University of Massachusetts, and Heather Faubert, University of Rhode Island Cooperative Extension.

Prior to the start of this project, a needs assessment survey was sent to 450 service providers and farmers. It identified the top three priorities for educational programming as livestock management relating to animal health and well-being, pasture management/infrastructure, and nutrient management decision making.

Classroom workshops, including this one on nutritional management of pasture-raised animals, were among the delivery methods used to provide outreach to farmers and agricultural service providers. (photo: Rachel Bespuda/University of Connecticut)

Participants at a University of Massachusetts field workshop in June 2019 learned about pasture plant identification, soil health and sampling, and using a pasture stick. (photo: Rachel Bespuda/ University of Connecticut)

Over the three-year grant period, the project team employed multiple delivery methods to disseminate information including meetings, on-farm demonstrations, individual consultations, webinars, articles, fact sheets, and group discussions. The team also produced a resource guide for each state containing an array of livestock services available in that state.

The 17 workshops (9 classroom and 8 field) covered a diverse range of topics. These included FAMACHA scoring (which helps producers make deworming decisions in small ruminants); forage sampling for nutritional analysis; grass, legume and weed identification; forage seed selection, pasture renovation vs. improvement; and silvopasture practices.

Participants also learned about types of grazing systems; cover crops; summer annuals; and ways to extend the grazing season. A total of 79 agricultural service providers and 63 farmers attended at least one workshop.

In the first year, the team also produced four short videos (http://s.uconn.edu/bcs) filmed during field workshops, on body condition scoring in cattle, pigs, sheep, and goats.

"These videos are fantastic!" one farmer participant exclaimed. "I have goats and use the tutorial regularly to check on the health of my animals along with FAMACHA scoring to assess their parasite loads."

"The experience of working with videographers to produce these videos was a strength for the project team," Bespuda said, "when we went from a field-based program to an online learning community at the start of the pandemic in 2020."

Masoud Hashemi, University of Massachusetts Amherst, spoke about grasses and legumes commonly found in New England pastures at a hands-on workshop in 2018. (photo: Rachel Bespuda/University of Connecticut)

Bespuda, herself a farmer and co-owner of Cedar Hill Farm in Orange, Connecticut, noted that one of the strongest outcomes of the project was the dialogue, trust building, and camaraderie that developed among participants who attended educational programs.

In her experience, many educational programs target a single audience, so she worked with her team to integrate farmers and agricultural service providers to learn side by side. As a result, service providers gained knowledge of the practicalities of farming, and farmers developed trust in service providers to benefit from their resources.

Dr. Andrew Radin (center), University of Rhode Island, discussed the proper techniques for soil sampling and how to test for and look at soil compaction at a workshop at Windmist Farm in Jamestown, Rhode Island. (photo: Rachel Bespuda/University of Connecticut)

The yearly follow-up surveys indicated that 59 agricultural service providers shared information acquired through the project with 274 farmers who manage 3,676 animals. Thirty-four farmers reported making a change or adopting a new sustainable agriculture practice as a direct result.

The team's next three-year project, Improving Pasture Management for Sustainable Livestock Production, began in October 2020 and is continuing to develop a learning community of service providers and farmers.

Northeast SARE State Programs are run by state coordinators at the 16 land-grant institutions in the region. The role of the state coordinators is to provide professional development education for service providers who work with farmers and conduct outreach about Northeast SARE grants and resources to the agricultural communities in their states.

Northeast SARE program results

Each year we summarize data from projects that submitted their final reports. Seventy-six projects were completed between October 2020 and September 2021 across 7 grant programs (16 Farmer grants, 22 Graduate Student grants, 13 Partnership grants, 4 Professional Development grants, 7 Research and Education grants, 3 Research for Novel Approaches grants, and 11 State Program grants).

Total funding awarded to these projects was $4.4 million. According to grant coordinator assessments using our internal rubric, 66 projects (86.8%) reported achieving most or all their objectives; 8 projects (10.6%) partially achieved their objectives, and 2 projects (2.6%) achieved few or none of their objectives.

These 76 projects:

- engaged 368 farmers in research, and consulted with 816 farmers
- held 59 online trainings, 87 on-farm demos, 115 tours, 220 field days/workshops
- gave 344 webinars, talks, and presentations
- produced 186 factsheets or curricula, 40 journal articles, 78 press articles or newsletters
- had 12,047 farmers and 3,126 ag. service providers participate in educational programs
- led to 8,354 farmers getting education or advice from participating ag. service providers
- resulted in 2,294 farmers and 857 ag. service providers reporting gains in knowledge
- resulted in 1,013 farmers reporting that they made a change in their practices
- led to 232 new working collaborations
- were followed up with 71 additional grants for a total of $6.6 million.

2021 grant awards

During the 2021 grant cycle, Northeast SARE funded 111 competitive grant projects throughout the Northeast, totaling $5,945,973. An additional $722,313 was awarded to State SARE programs at the region's land-grant universities to conduct professional development and SARE outreach. The list of 2021 awards follow, in order by the state of the project coordinator. More information about these and other SARE-funded projects can be found on SARE's national database at projects.sare.org/search-projects.

Connecticut

FARMER GRANT: FNE21-966
Using Shade Cloth to Prevent Heat Damage in Summer Broccoli
Andrew Urbanowicz, Urbanowicz Farm, CT
$10,320

PARTNERSHIP GRANT: ONE21-399
Assessment of a Composite Herbal Feed Additive on Reducing Haemonchus contortus in a Dual Purpose Sheep Operation
Erin Masur, Fork You Farms, CT
$14,319

RESEARCH AND EDUCATION GRANT: LNE21-423
The Northeast Forest Farmers Coalition: Building a Community of Practice
Karam Sheban
Yale School of the Environment, CT
$249,193

RESEARCH FOR NOVEL APPROACHES GRANT: LNE21-425R
In-ovo and Early Probiotic Supplementation to Control Salmonella in Broilers
Mary Anne Amalaradjou, University of Connecticut, CT
$150,000

RESEARCH FOR NOVEL APPROACHES GRANT: LNE21-430R
Reducing Farmer Risk through the Use of Triploid Hemp Genetics
Jessica Lubell, University of Connecticut, CT
$101,168

RESEARCH FOR NOVEL APPROACHES GRANT: LNE21-432R
Nutritional Management Strategies for Improving Growth and Carcass Composition of Beef-Dairy Crossbred Calves
Sarah Reed, University of Connecticut, CT
$200,000

Delaware

RESEARCH AND EDUCATION GRANT: LNE21-418
Increasing the Use of a Natural Fungus (*Duddingtonia flagrans*) to Control Internal Parasites in Small Ruminants
Kwame Matthews, Delaware State University, DE
$199,992

Maine

FARMER GRANT: FNE21-972
Maine Family Sea Farm Cooperative Hatchery
Keith Butterfield, Butterfield Shellfish, ME
$14,795

FARMER GRANT: FNE21-976
Assessment of Nursery Gear Technology to Optimize Growth, Survival and Economic Efficiency in Farming Atlantic Sea Scallops
Christopher Davis, Pemaquid Oyster Co., Inc., ME
$15,000

FARMER GRANT: FNE21-977
The Effect of Edge-spraying a Broad-spectrum Organically-approved Insecticide to Control Hop Arthropod Pests while Retaining Beneficial Arthropods
Krista Delahunty, Aroostook Hops, ME
$12,502

FARMER GRANT: FNE21-980
Ginger Spacing in High Tunnels for Maximum Yields
Erica Emery, Rustic Roots Farm, ME
$8,048

FARMER GRANT: FNE21-986
Product Differentiation on a Subtidal Oyster Farm
Jordan Kramer, Winnegance Oyster Farm, ME
$9,568

FARMER GRANT: FNE21-987
Aquaculture and Land Farm Collaboration
Emily Lane, Vinalhaven Kelp, Inc., ME
$14,309

FARMER GRANT: FNE21-988
Alternative, Non-plastic Materials for Aquaculture and Oyster Cultivation
Lydia Lapporte, Smithereen Farm, ME
$14,979

FARMER GRANT: FNE21-990
Development of a De-watering System and Cost Analysis to Transform Fish Waste from Recirculating Aquaculture Systems into Value Added Garden Compost Product
Cara O'Donnell, Aroostook Band of Micmacs, ME
$14,963

FARMER GRANT: FNE21-992

Development of Integrated Seaweed and Green Sea Urchin Nursery Strategies for the Northeast

Sarah Redmond, Springtide Seaweed, LLC, ME

$14,949

GRADUATE STUDENT GRANT: GNE21-253

Tracking Climate Adaptation Knowledge Spread in Advisor-Farmer Networks as Long-term Impacts of the Northeast Climate Adaptation Fellowship

Sara Delaney, University of Maine, ME

Advisor: Rachel Schattman

$15,000

GRADUATE STUDENT GRANT: GNE21-260

Optimizing Thresholds and Reduced-Risk Management Strategies for the Control of Spotted Wing Drosophila in Maine's Wild Blueberries

Benjamin Johnson, University of Maine, ME

Advisor: Philip Fanning

$10,528

PARTNERSHIP GRANT: ONE21-384

Biological and Economic Optimization of Shell Size and Timing for Sea Scallop (*Placopecten magellanicus*) Ear-hanging in the Northeast U.S.

Damian Brady, University of Maine, ME

$21,190

PARTNERSHIP GRANT: ONE21-398

Maine Soil Health Network: Sharing Soil Health Data and Practices to Increase Farm Viability and Climate Resilience

Marissa Mastors, Wolfe's Neck Center for Agriculture & the Environment, ME

$29,634

RESEARCH AND EDUCATION GRANT: LNE21-416

Education and On-farm Research to Improve Long-term Sustainability of Hemp in the Northeast

John Jemison, University of Maine Cooperative Extension, ME

$204,331

RESEARCH FOR NOVEL APPROACHES GRANT: LNE21-426R

Pilot-scale Efforts to Demonstrate Commercial Growout Technologies of the Artic Surfclam in the Marine Intertidal

Brian Beal, Downeast Institute for Applied Marine Research and Education, ME

$134,460

RESEARCH FOR NOVEL APPROACHES GRANT: LNE21-431R

New Approaches to Seaweed Aquaculture: Developing a Biosecure and Reliable Seed Stock for the Emergent Northeast Edible Seaweed Industry

Nicole Poulton, Bigelow Laboratory for Ocean Sciences, ME

$199,035

PROFESSIONAL DEVELOPMENTGRANT: ENE21-167

Diversity, Equity, and Inclusion Training for Agricultural Organizations and Individual Service Providers

Ryan Dennett, Maine Organic Farmers and Gardeners Association, ME

$149,990

PROFESSIONAL DEVELOPMENTGRANT: ENE21-171

Building Farm Business Advising Skills through Collaborative Professional Development for Maine Farmland Trust and SCORE Maine

Sarah Simon, Maine Farmland Trust, ME

$77,619

STATE PROGRAM: SNE21-007-ME

Building Capacity in Climate Adaptation Practices in Maine

Ellen Mallory, University of Maine Cooperative Extension, ME

$139,989

Maryland

FARMER GRANT: FNE21-991

Growing Dahlias for Cut Flower Production via Autopots and Aquaponics

Tom Precht, Grateful Gardeners, MD

$14,518

GRADUATE STUDENT GRANT: GNE21-254

Effects of Floral Diversification on Beneficial Arthropods and Ecosystem Services in an Edamame Agroecosystem

Kathleen Evans, University of Maryland, MD

Advisor: Anahi Espindola

$14,998

GRADUATE STUDENT GRANT: GNE21-255

How the Transition to Organic Grain Effects Biological Indicators of Soil Health

Biwek Gairhe, University of Maryland, MD

Advisor: Ray Weil

$14,970

GRADUATE STUDENT GRANT: GNE21-257

Dragonflies as Potential Biological Control on Farms: Prey Assessment using a DNA Approach

Margaret Hartman, University of Maryland, MD

Advisor: William Lamp

$15,000

GRADUATE STUDENT GRANT: GNE21-268

Management Options for Farmers Facing Saltwater Intrusion along the Chesapeake Bay's Eastern Shore

Alison Schulenburg, University of Maryland College Park, MD

Advisor: Katherine Tully

$14,999

PARTNERSHIP GRANT: ONE21-392

Giant Miscanthus Production on Maryland Eastern Shore's Marginal Land: Grassroots Efforts to Restore Profitable Agriculture

Sarah Hirsh, University of Maryland, MD
$25,801

PARTNERSHIP GRANT: ONE21-394

Increasing Efficiency and Decision-Making Capability of Small, Socially Disadvantaged, and Minority Farmers

Lila Karki, University of Maryland Eastern Shore, MD
$29,957

PARTNERSHIP GRANT: ONE21-395

Upcycling Local Waste Streams to Boost Urban Farm Productivity

Paul Sturm, Ridge to Reefs, Inc., MD
$26,883

PARTNERSHIP GRANT: ONE21-397

Increasing Awareness of Well Drinking Water Quality of the Farming Community in Maryland

Andrew Lazur, University of Maryland Extension, MD
$29,830

RESEARCH AND EDUCATION GRANT: LNE21-419

Teaching Black Farmers in Baltimore City to Grow Ethnic Crops for Black Communities

Denzel Mitchell, Farm Alliance of Baltimore, MD
$252,248

Massachusetts

FARMER GRANT: FNE21-989

Managing and Monitoring Bottom Cage Placement in Deep Water Oyster Culture

Dale Leavitt, Blue Stream Aquaculture LLC, MA
$13,570

FARMER GRANT: FNE21-994

Cardboard Chips as a Farm Input

Ronald Smolowitz, Coonamessett Farm, MA
$14,484

FARMER GRANT: FNE21-997

Using Plant Sap Analysis to Develop an Optimal Nutrient Profile for Lowbush Blueberries

Meredith Wecker, The Benson Place, MA
$14,985

GRADUATE STUDENT GRANT: GNE21-256

Evaluating an Attract-and-Kill Strategy to Manage Tortricid Moth Pests using Plant Volatile-based Lures and the Biopesticide Bacillus thuringiensis va

Ajay Giri, University of Massachusetts, MA
Advisor: Jaime Pinero
$13,411

GRADUATE STUDENT GRANT: GNE21-264

Interactive Effects of Pesticides, Drought and Pathogens on the Common Eastern Bumble Bee

Deicy Munoz Agudelo, University of Massachusetts, MA
Advisor: Lynn Adler
$15,000

RESEARCH AND EDUCATION GRANT: LNE21-422

Teaching Generative Apiary Practices for Effective Beekeeping in the Northeast

Angela Roell, They Keep Bees (Formerly Yard Birds Farm & Apiary), MA
$124,034

RESEARCH FOR NOVEL APPROACHES GRANT: LNE21-424R

Testing the Potential for Cut Flower Pollen to Improve Bumble Bee Health

Lynn Adler, University of Massachusetts Amherst, MA
$98,539

RESEARCH FOR NOVEL APPROACHES GRANT: LNE21-433R

Identifying Critical Criteria to Develop a Decision-making Model for Implementing Late Water Floods in Cranberry Production

Leela Uppala, University of Massachusetts, MA
$189,340

New Hampshire

GRADUATE STUDENT GRANT: GNE21-251

Antifungal Activity of Grapevine-derived Extracts against Botrytis cinerea

Annasamy Chandrakala, University of New Hampshire, NH
Advisor: Subhash Minocha
$14,490

PARTNERSHIP GRANT: ONE21-401

Merrimack County New Hampshire Cover Crop Seed Production Feasibility Project

Jessica Newnan, Merrimack County Conservation District, NH
$11,339

PROFESSIONAL DEVELOPMENTGRANT: ENE21-169

Building Equitable Farmland Tenure Models for Northeast Farmers

David Harper, Agrarian Trust, NH
$97,359

STATE PROGRAM: SNE21-008-NH

Network Development and Skill Building of Agriculture Service Providers for an Inclusive Food Secure New Hampshire

Olivia Saunders, UNH Cooperative Extension, NH
$132,897

New Jersey

FARMER GRANT: FNE21-974

Exotic Wild Mushroom Outdoor Cultivation

Sergio Campos, Merrick Farm, NJ
$7,590

FARMER GRANT: FNE21-979

Demonstration Pilot for Composting of Manure, Wood Chips and Leaves on a Certified-Organic Produce Farm via Aerated Static Pile Composting

Sherry Dudas, Honey Brook Organic Farm, NJ
$11,133

FARMER GRANT: FNE21-983
Testing the Efficacy of a Hybrid Floating Bag and Bottom Planting Method to Grow Oysters
Matthew Gregg, Forty North Oyster Farms, NJ
$11,912

FARMER GRANT: FNE21-985
Mobile Oyster Aquaculture Farming Unit
Todd Kostka, Brigantine Oyster Company, NJ
$14,999

GRADUATE STUDENT GRANT: GNE21-273
Development of Value-added Healthy Meal Solutions in Functional Recyclable Packaging to Rebrand and Increase Marketability of New Jersey Squashes
Shuo Yuan, Rutgers University, NJ
Advisor: Kit Yam
$14,997

STATE PROGRAM: SNE21-009-NJ AWD00000495
New Jersey Agricultural Service Provider Education and Networking to Improve Farmer Outreach and Services
Stephen Komar, Rutgers University, Rutgers Cooperative Extension, NJ
$117,119

New York

FARMER GRANT: FNE21-971
A Feasibility Study on How Affordable Micro-Creameries Can Help Manage On-farm Dairy Risks
Megan Burley, Burley Berries and Blooms, NY
$14,303

FARMER GRANT: FNE21-973
Low Tunnel Materials for Protection and Phenological Acceleration of Figs
Donald Caldwell, Finger Lakes Grape Program/Annelise Farms, NY
$3,420

FARMER GRANT: FNE21-978
Feasibility of African Eggplant Production
Kama Doucoure, Big Dream Farms LLC, NY
$14,081

FARMER GRANT: FNE21-981
Visual Learning Media for Deaf New American Farming
Jacob Gigler, Salt City Harvest Farm, NY
$14,772

FARMER GRANT: FNE21-995
Reduced-Tillage and Tarping for Small Scale Commercial Potato Growing in New York
Robert Tuori, Nook & Cranny Farm, NY
$5,090

GRADUATE STUDENT GRANT: GNE21-247
Utility of the Parasitoid Fly Celatoria setosa for Controlling Striped Cucumber Beetles in Cucurbit Agrosystems
Matthew Barrett, Cornell AgriTech, NY
Advisor: Jennifer Thaler
$14,924

GRADUATE STUDENT GRANT: GNE21-248
Assessing Insect Dynamics in the Sour Rot Disease Etiology of Grapes
Rekha Bhandari, Cornell University, NY
Advisor: Gregory Loeb
$14,851

GRADUATE STUDENT GRANT: GNE21-249
The Effects of Azoxystrobin on Rhizosphere Microbiology and Microbiome-mediated Susceptibility to Rhizoctonia solani AG 2.2 in Table Beet
Eric Branch, Cornell University, NY
Advisor: Sarah Pethybridge
$14,741

GRADUATE STUDENT GRANT: GNE21-265
Influences of Social Capital and Resource Efficiency on the Resilience of Local Food Supply Networks
Shriya Rangarajan, Cornell University, NY
Advisor: Kieran Donaghy
$15,000

GRADUATE STUDENT GRANT: GNE21-269
Improving Soil Health Using Beneficial Microbiomes in Urban Agriculture
Yejin Son, Cornell University, NY
Advisor: Jenny Kao-Kniffin
$14,991

GRADUATE STUDENT GRANT: GNE21-272
Using Hand-held Near Infrared Spectroscopy Devices to Predict Grass Percentages in Alfalfa-Grass Mixtures to Improve Nutrient Management and Whole-farm Sustainability in Dairy Systems
Rink Tacoma-Fogal, Cornell University, NY
Advisor: Debbie Cherney
$15,000

PARTNERSHIP GRANT: ONE21-396
Greenhouse IPM Scout School: Grower Input to Create the Curriculum
Elizabeth Lamb, New York Integrated Pest Management, Cornell University, NY
$20,614

PARTNERSHIP GRANT: ONE21-406
Fight the Mite! Post-harvest Control of Eriophyid Mites in Garlic
Crystal Stewart-Courtens, Cornell Cooperative Extension, NY
$24,960

RESEARCH AND EDUCATION GRANT: LNE21-415
Building and Strengthening Social and Economic Sustainability Among New York State Black Farmers
Allison DeHonney, Buffalo Go Green Inc., NY
$247,998

RESEARCH AND EDUCATION GRANT: LNE21-421
Sustainable Pest Management for New York Urban Farmers
Judson Reid, Cornell Vegetable Program, NY
$136,585

PROFESSIONAL DEVELOPMENTGRANT: ENE21-170

Agri-Cluster Retention and Expansion (ACRE) Program: Training Service Providers in Strategic Business Planning for Complex Value Chain Enterprises

Duncan Hilchey, Center for Transformative Action/Thomas A. Lyson Center for Civic Agriculture and Food Systems, NY
$143,883

RESEARCH FOR NOVEL APPROACHES GRANT: LNE21-429R

Creating a Black Farmer Commons in Transferring Land Ownership

Dennis Derryck, Corbin Hill Food Project, Inc, NY
$198,214

Pennsylvania

FARMER GRANT: FNE21-993

Prevention of Spotted Lanternfly Infestation in Vineyards Using a Physical Barrier

Mohinderjit Sidhu, M&M Vineyards, PA
$14,996

GRADUATE STUDENT GRANT: GNE21-258

Identification of a Potential Nonhost Fire Blight Resistance Gene

Jeremy Held, Pennsylvania State University, PA
Advisor: Tim McNellis
$14,966

GRADUATE STUDENT GRANT: GNE21-261

Increasing Sustainability in Dairy Production: A Proactive Approach to Addressing Salmonella Dublin, An Emerging Antimicrobial Resistant Pathogen

Sophia Kenney, Pennsylvania State University, PA
Advisor: Erika Ganda
$14,877

GRADUATE STUDENT GRANT: GNE21-262

Adapting Anaerobic Soil Disinfestation as a Pre-Plant Non-Chemical Soilborne Disease Management Tactic for Use in High Tunnel Tomato Systems,

Elisa Lauritzen, Pennsylvania State University, PA
Advisor: Beth Gugino
$15,000

GRADUATE STUDENT GRANT: GNE21-263

Understanding Production and Conservation Tradeoffs of Vertical Tillage Practices

Andrew Lefever, Pennsylvania State University, PA
Advisor: John Wallace
$14,124

GRADUATE STUDENT GRANT: GNE21-266

Farming as a Latinx: Analyzing How Ethnic and Gender Identities Shape Latino/a Participation in Sustainable Agriculture in Pennsylvania

Francisco Reyes Rocha, Pennsylvania State University, PA
Advisor: Kathleen Sexsmith
$14,923

GRADUATE STUDENT GRANT: GNE21-267

Identification of Non-Pseudomonas Blotch Pathogens Using High Throughput Isolation

Rachel Richardson, Pennsylvania State University, PA
Advisor: Kevin Hockett
$15,000

GRADUATE STUDENT GRANT: GNE21-270

Determining the Effect of Cover Cropping Legacy on Mycotoxin Accumulation and Fusarium Disease in Maize

Ryan Spelman, Pennsylvania State University, PA
Advisor: Gretchen Kuldau
$15,000

GRADUATE STUDENT GRANT: GNE21-274

Apple Blossom Density Estimation and Mapping through Unmanned Aerial Vehicle-based Photogrammetry

Wenan Yuan , Pennsylvania State University, PA
Advisor: Daeun Choi
$14,997

PARTNERSHIP GRANT: ONE21-382

Survey and Rearing of Grape Berry Moth Larval Parasitoids in Northwest Pennsylvania

Flor Acevedo, Pennsylvania State University, PA
$29,998

PARTNERSHIP GRANT: ONE21-387

Evaluation of the Influences of New Sustainable Bedding Materials with Stacked Litter Management on Factors that Benefit Turkey Health and Environment

Mary Deemer, PittMoss LLC, PA
$27,825

RESEARCH AND EDUCATION GRANT: LNE21-417

A Multifaceted Farm Succession Plan Development Program Via Virtual and in Person Learning and Assistance Opportunities

Darlene Livingston, Pennsylvania Farm Link, Inc., PA
$148,980

PROFESSIONAL DEVELOPMENTGRANT: ENE21-172

Advancing Nutrient Stewardship in Pennsylvania through Training Modules for Farmers' Trusted Advisors

Lindsay Thompson, Mid-Atlantic 4R Association, PA
$148,666

Rhode Island

PARTNERSHIP GRANT: ONE21-390

From Pasture to Cheese: Effect of Farm Practices on Raw Milk and Cheese Microbial Communities

Marta Gomez-Chiarri, University of Rhode Island, RI
$29,880

Vermont

FARMER GRANT: FNE21-984
Solarization or Occultation? Optimizing Tarping for Soil Health and Productivity in No-Till Vegetable Production
Tim Harper, Cedar Circle Farm, VT
$5,875

GRADUATE STUDENT GRANT: GNE21-250
Quantifying How Soil Aggregate Size Impacts Nitrous Oxide Emissions from Manure Injection
Sarah Brickman, University of Vermont, VT
Advisor: Heather Darby
$12,662

GRADUATE STUDENT GRANT: GNE21-259
Integrating Vermont Farmer and Service Provider Knowledges Using Co-Created Mental Models of Soil Health
Catherine Horner, University of Vermont, VT
Advisor: V. Ernesto Mendez
$14,968

GRADUATE STUDENT GRANT: GNE21-271
Developing a Plant-based Attractant to Trap Swede Midge
Andrea Campbell, The University of Vermont, VT
Advisor: Yolanda Chen
$14,438

PARTNERSHIP GRANT: ONE21-381
High Tunnel Gantry System with Transport Cart and Automated Row Cover System to Assist Small Farm Production, Scalability, and Profitability
Diane Abruzzini, Rigorous, VT
$29,944

PARTNERSHIP GRANT: ONE21-386
Integrating Solar Corridors into Vermont Corn Silage Production Systems
Heather Darby, University of Vermont Extension, VT
$28,797

PARTNERSHIP GRANT: ONE21-389
The Creation of Two Alley Cropping Demonstration Sites as Cases Studies on Massachusetts Farms
Meghan Giroux, Interlace Commons, VT
$29,496

PARTNERSHIP GRANT: ONE21-391
Mycorrhizal Banks to Enhance Vegetable Yield and Reduce Water Quality Impairment by Mitigating Excessive Soil Phosphorus
Josef Görres, University of Vermont, VT
$29,994

PARTNERSHIP GRANT: ONE21-402
Assessing Feasibility of Bio-acidification to Reduce On-farm Ammonia Volatilization from Dairy Manure, Digestate and Urine
Abraham Noe-Hays, Rich Earth Institute, VT
$29,939

PARTNERSHIP GRANT: ONE21-407
Organic No-Till Forage Crop Innovations
Kirsten Workman, University of Vermont Extension, VT
$29,745

RESEARCH AND EDUCATION GRANT: LNE21-414
Improving Pasture Resource Management with Farmer-Engaged Planning – Part 2
Cheryl Cesario, University of Vermont Extension, VT
$85,346

RESEARCH FOR NOVEL APPROACHES GRANT: LNE21-428R
Improving the Capacity of Pea Cover Crops to Enhance Soil Health
Eric Bishop-von Wettberg, University of Vermont, VT
$196,658

STATE PROGRAM: SNE21-013-VT
Building Capacity to Support Diverse and New Farming Audiences
Beth Holtzman, University of Vermont, VT
$150,333

WEST VIRGINIA

FARMER GRANT: FNE21-970
Trialing Cultivating Chicken of the Woods Using Standard Mushroom Farm Technology While Confirming PCR Primer Sequence Traits in Fruiting Bodies
Sharon Briggs, Peasant's Parcel Mushroom Farm, WV
$14,356

FARMER GRANT: FNE21-582
A Practical Comparison of Cold Storage and Traditional Outdoor Hive Wintering Methods in Central West Virginia
Eric Grandon, Sugar Bottom Farm LLC, WV
$7,317

GRADUATE STUDENT GRANT: GNE21-252
Characterization of Agouti-signaling Protein during Oocyte Maturation and Early Embryonic Development to Improve In vitro Embryo Production in Cattle
Heather Chaney, West Virginia University, WV
Advisor: Jianbo Yao
$14,926

PARTNERSHIP GRANT: ONE21-383
Increasing the Product Supply of Ramps via Enhanced Plantings and Educational Farm Programming
David McGill, West Virginia University, WV
$29,876

PARTNERSHIP GRANT: ONE21-388
Evaluation of Pelletized Poultry Litter to Improve Specialty Crop Production in West Virginia
Candace DeLong, West Virginia University, WV
$29,944

PARTNERSHIP GRANT: ONE21-393
Production and Value-Added Processing of Cultivated and Wild-Harvested Elderberries in West Virginia
Lewis Jett, West Virginia University, WV
$29,700

PARTNERSHIP GRANT: ONE21-400

Hopping on Hops: Technical Assistance and Peer-to-Peer Mentorship to Support West Virginia Hops Growers

Spencer Moss, West Virginia Food & Farm Coalition, WV
$29,999

PARTNERSHIP GRANT: ONE21-403

Training Small Farmers for Commercial Seed Production while Exploring Profitability of Annual Vegetable Seed Crops in West Virginia

Mehmet Oztan, West Virginia University, WV
$16,996

PARTNERSHIP GRANT: ONE21-404

Sycamore syrup: Generating Farm Income and Protecting Riparian Zones in West Virginia

Michael Rechlin, Future Generations University, WV
$29,996

PARTNERSHIP GRANT: ONE21-405

Is Copper Deficiency Killing Our Sheep? Micronutrient Availability and their Effects on Sheep Health and Production

Alexandria Smith, West Virginia University Extension, WV
$29,955

RESEARCH AND EDUCATION GRANT: LNE21-420

Developing an Affordable Soil Health Test for the Appalachian Region to Incentivize Sustainable Agricultural Production

Eugenia Pena-Yewtukhiw, West Virginia University, WV
$248,302

RESEARCH FOR NOVEL APPROACHES GRANT: LNE21-427R

Stacking Robust Resistance to Septoria Leaf Spot from Wild Germplasm Accessions into the Cultivated Tomato

Vagner Benedito, West Virginia University, WV
$198,977

PROFESSIONAL DEVELOPMENT GRANT: ENE21-168

Reading the Woods: Training West Virginia Agricultural Service Providers on Non-Timber Forest Products

Tom Hammett, Future Generations University, WV
$149,878

STATE PROGRAM: SNE21-014-WV

West Virginia Beginning Farmer Training Program

Doolarie Singh-Knights, West Virginia University, WV
$131,983

STATE PROGRAM: SNE21-015-WV

Helping Farmers Grow Their Operations by Improving Coaching and Adult Education Skills of WV Agriculture Service Providers

Barbara Liedl, West Virginia State University, WV
$49,992

Additional Project

PROFESSIONAL DEVELOPMENTGRANT: ENE21-173

Growing Tribal Farming Capacity and Outreach

Lea Zeise, United South and Eastern Tribes, WI
$142,007

Thanks to Northeast SARE staff

As director, I am so grateful for the caring, dedicated, and talented people that work at Northeast SARE. They run our program with efficiency and humanity. We are lucky to have them serving agriculture in our region. Our stakeholders overwhelmingly agree! Below is some of the feedback we have received from applicants, grantees, and reviewers via email and survey responses in the past year.

--Vern Grubinger

"Kudos for being so available and attentive."

"My questions are always answered quickly and comprehensively."

"This is the first time I applied for a NE SARE grant. I found the process to be well explained and easy to complete. Staff were helpful."

"Perhaps because you have focused on creating something for a wide group of users, some of the arcane and awkward details of other funding agencies' application processes are avoided. Thank you!"

"Staff have always been courteous and competent; seem to want to aid project success."

"The grant coordinator is an amazing communicator and excellent organizer."

"Words cannot express how proud we are of [our project trainees'] progress during this pandemic year. Please accept our thanks for your steadfast support for this amazing fledgling program."

"Staff was very supportive and a great resource without inserting opinions into the review discussion. This enabled reviewers to have the resources yet be the deciders."

"Staff are incredibly committed to making NE SARE more accessible and equitable. They are also very supportive of, and intentional with, the relationships that NE SARE has with its reviewers and applicants."

"I have to compliment you on the farmer webinar I just listened to; it was very informative. Your answers to questions were concise and very helpful, and you covered a lot of material. I also thought having a former grant recipient provide some of the training was really helpful."

"The NE SARE staff were very accessible, accommodating, and warm during this process, as always."

"Thanks for the personalized response -- I love that with SARE, you always know somebody's going to have a good look at the report. Knowing that the reader will spend a little extra time on it gives the writer some incentive to spend a little extra time on it, too."

Northeast SARE

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