
innovations

IN SUSTAINABLE AGRICULTURE

NORTHEAST REGION SUSTAINABLE AGRICULTURE RESEARCH AND EDUCATION

**2015 grant awards:
\$2.6 million for
sustainable
agriculture**

**Deadlines for
2016 awards**

**Full disclosure:
Where the money
comes from,
where the
money goes**



Spring/Summer 2015

INNOVATIONS

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THE NORTHEAST REGION is made up of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia, and Washington, D.C.

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Full disclosure:

Where the money comes from, Where the money goes

In this newsletter you'll read about the many interesting grants awarded by Northeast SARE in this spring's round of funding; we will have a second round in the fall. Funding these projects is the primary function of our organization, and the work our grantees do, and the results they generate, are front-and-center topics of conversation for us.

However, there's a lot of work and a certain amount of expense incurred behind the scenes in order to make these grants happen. That work and those expenses are overseen by the Northeast SARE Administrative Council but, in the interest of transparency, I'd like to pull back the curtain for the rest of you and share some information about the allocation of Northeast SARE funds.

For the past couple of years, the nationwide SARE program has been funded by Congress at about \$21 million per year. About \$1 million of that is used for national-level activities, partly for administration but mostly for SARE Outreach, which produces many online and in-print publications as well as managing the national SARE web presence at www.sare.org.

The remaining funds are made

available to the four SARE regions, each of which applies to USDA's National Institute of Food and Agriculture for just over \$5 million to make and manage grants. Once approved, each region's host institution (University of Vermont is the host in the Northeast) has a contract to use those funds within five years.

Northeast SARE uses most of its funds to support six different grant programs. In 2014, we made grants to support a total of 107 different projects across these programs. About 42 percent of the grant funds went to Research and Education projects, 13 percent to Professional Development projects, 17 percent to State Program projects, 8 percent to Farmer Grants, 12 percent to Partnership Grants, and 8 percent to Graduate Student grants. You can learn more about these grant programs, and the projects within them, at www.nesare.org.

Of course, some money is needed to administer all these grant programs, as well as providing oversight and support to individual awards. Administration includes outreach about the programs—through this newsletter, our web site, webinars and the like—as well as managing the recruitment, review, and reporting processes for each grant program. Administration also deals with grant contracts, invoic-

es, and assorted requirements of the academic and federal institutions we work under, and provides logistical support for our Administrative Council and Professional Development Program meetings, to name a few key activities.

All these tasks require 6.5 full-time people at the University of Vermont and 1.5 full-time people at the University of Connecticut. In addition, there's a relatively modest overhead charge for use of the University's facilities (office space, copiers, etc.) and services (sponsored programs, tech



support, etc.). Total administrative tab? About \$1 million annually.

That sounds like a lot of administration. "Why so much?" you might ask. Here are the reasons—and the main one is that we make a lot of small grants. But we are also decentralized, and we put considerable time and effort into engaging our advisors, our partners on the ground, and our grant reviewers.

Making many small grants is es-

pecially costly, but also especially worthwhile in my view. The bulk of our awards—86 percent of our 2014 competitive grants—were for \$15,000 or less; this is the cap for the Farmer, Partnership, and Graduate Student grants. These small grants allow us to spread the wealth to many worthy projects of relatively short duration, and this approach means we can invest in a wide range of topics with diverse potential benefits to our region's food system. But small grants still require rigorous review and plenty of institutional paperwork.

Our decentralized approach includes providing some funding for SARE coordinators in every state in the region. These folks deliver training and support that meet the unique needs of their local constituencies, while also conducting outreach about SARE grant programs. The state-based programs require coordination and support that's provided by our staff at the University of Connecticut.

We invest in a robust review process that includes many reviewers and many opportunities for those reviewers to interact, both through our online grants management system and through conference calls facilitated by SARE staff. The review process for our larger grants also includes back-and-forth with applicants to

obtain additional information that reviewers may request.

We also invest in making the most of the rich intellectual capacity found in our 20-member Administrative Council. Their twice-yearly meetings are multiday affairs where they not only make grant decisions, but also guide policy and ask questions about the strategic direction of the organization. The council hears presentations from grantees and subject-matter experts at these meetings, and the summer meeting always includes a day-long bus tour of funded projects. A different state hosts the tour and the meeting each year.

Northeast SARE aims to use every dollar it can for making grants. That said, an effective grant program also invests in engaging its stakeholders, sharing the information it generates, and of course, fulfilling its institutional obligations.

—*Regional Coordinator*
Vern Grubinger



This past spring, Northeast SARE awarded \$1,074,836 for five Research and Education projects. Awards ranged from \$177,442 for best management practices for malting grain production to \$249,539 to improve nutrient and pest management in high-tunnel tomatoes.

A long-term Agroecosystems Research Grant was also extended for three years to complete work on a closed-system, energy independent organic dairy farm.



Research and

LNE15-339
Developing Best Management Practices for growing grain suitable for malt in the Northeast

Heather Darby, University of Vermont, Burlington VT
 The demand for local grain exceeds supply, and grains suitable for malting grow well in the Northeast, but farmers lack the information they need to meet quality standards. The project manager will work with farmers to identify disease-resistant varieties, planting dates, optimum nitrogen rates, and seeding rates. Small-plot and on-farm research will develop and evaluate best practices for growing barley for malting and identify commercially available and heirloom germplasm adapted to the Northeast. As a result, 25 farms will implement new production strategies on 500 acres of grain for malting that will result in 450,000 pounds of marketable malt with a value of \$160,000, while the remaining 300,000 pounds of grain will be feed grade with a value of \$45,000.
 \$177,442

LNE15-340
Building resilience and sustainability in dairy forage systems in New England

Masoud Hashemi, University of Massachusetts, Amherst MA
 The timing and types of cover crops make for big differences in benefit—research indicates that winter rye planted by September 1 could take up as much as 120 lbs. N/acre, but a mere two-week planting delay resulted in recovery of only 60 lbs. N/acre. Often it's full-season corn hybrids that trigger planting delay. Using small-grain cover crops for forage and new management strategies, farmers have shown they are interested in learning about optimal species, planting dates, fertil-

ity, and harvest strategies to maximize both crop and soil productivity. The project manager will research and assess the realistic integration of alternative systems on working farms. As a result, 24 dairy farmers in four states will adopt alternative forage production practices on 1,000 acres, increasing forage production by 3 to 4 tons/acre, reducing N applications an average of 60 lbs./acre, and increasing profitability per acre by at least \$450 while reducing erosion, improving soil health, and providing resilience in a changing climate.
 \$194,161

LNE15-341
Quantifying and demonstrating scrubbing hydrogen sulfide from farm-based anaerobic digestion systems

Stephanie Lansing, University of Maryland, College Park MD
 Anaerobic digesters are a promising renewable energy technology that reduces greenhouse gas and odor and improves water quality, and the resultant gas can be used to generate electricity. Yet the generators are also prone to damage from hydrogen sulfide, leading to high maintenance and lost revenue. The project manager will evaluate selected biogas scrubbers on five farms and develop and deliver outreach on dairy-derived biogas production. As a result, ten dairy farmers managing more than 5,000 cows will install new biogas scrubbers, and ten farmers will also improve or update existing scrubbers, realizing 6 MWh of additional generation capacity. This will result in at least \$4,500,000 a year in gross revenue or electricity value due to new capacity and improved generator production.
 \$216,879

Education Grants

LNE15-342

New approaches for improving integrated parasite control strategies in the Northeast

Katherine Petersson, University of Rhode Island, Kingston RI

Gastrointestinal nematodes, especially *Haemonchus contortus*, limit small ruminant production on pasture and are one of the top three health concerns of sheep and goat producers in the Northeast. Online resources for parasite control training, alternative dewormers, and genetic selection for resistance are lacking, and the project manager will develop and deliver online education and certification in parasite management and offer workshops on alternative wormers and selective breeding for parasite resistance. As a result, 340 producers with an average of 30 lambs or 20 kids who have reported problems with parasites in the past five years will introduce or improve integrated parasite management practices; these behaviors will result in improved herd health and productivity that will reduce losses by \$700,000.

\$236,815

LNE15-343

Improving nutrient and pest management in high-tunnel tomato production

Rebecca Sideman, University of New Hampshire, Durham NH

High-tunnel production is expanding rapidly in the Northeast, but little has been done to develop soil testing and fertilization guidelines for them; what's more, the use of IPM to manage arthropod pests, which thrive in tunnels lacking natural enemies, has been hampered by limited knowledge and a lack of confidence that IPM will work. The project manager will develop and deliver workshops, conferences, demonstrations, twilight meetings, and web-based materials on nutrient and pest management in high-tunnel tomatoes supported by concurrent on-farm trials. As a result, 150 growers with an aggregate of 15 covered acres will improve soil fertility and pest management in their high-tunnel tomatoes, 75 growers will increase their annual crop revenues by an average of \$1,000 per farm, and 75 growers will reduce pesticide use by at least one application per year.

\$249,539

Agroecosystems research

LNE15-344

UNH Organic Dairy Farm agroecosystem study, phase III: A closed system, energy independent organic dairy farm for Northeastern U.S.

John Aber, University of New Hampshire, Durham NH

This project advances agroecosystem research by bringing well-developed concepts derived from the study of native ecosystems to bear on this 300-acre managed system. A primary goal is to enhance long-term sustainability of this integrated agroecosystem through innovative management practices and systems designed to reduce energy demand, close nutrient cycles, and enhance production and economic return using methods available to practicing farmers. In the final three years of funding, the focus will be on communicating experimental results via technical and professional outlets, peer-reviewed journals, farm tours, meetings, and presentations. There will also be one new area of research: Using energy and exhaust gases from the composting facility to support greenhouse production. The research results could have a significant impact on the economic vitality of agricultural animal and plant production in New England and beyond.

\$389,118



Professional

Professional Development Grants use a train-the-trainer model to improve understanding of sustainable agriculture practices.

In 2015, Northeast SARE awarded \$568,029 for seven projects that ranged from \$54,434 to proactively include more Hispanic farmers in Cooperative Extension programming to \$97,097 to deliver training in biological control using beneficial insects.



- ENE15-134
- **Advanced agroforestry training for natural resource and agricultural educators**
- Tracey Coulter, Pennsylvania Department of Conservation and Natural Resources, Harrisburg PA
- Agroforestry offers multiple benefits for soil, livestock, crops, and wildlife, and requests for information from farmers is growing.
- Regional adoption has been limited, in part, because few natural resource advisors and educators have specific training to support landowners and practitioners, and most existing agroforestry materials are designed for the Southeast and Midwest. The project manager will develop and deliver training in key topics specific to windbreaks and living fences, riparian and upland buffers, silvopasture, alley cropping using high-value trees and shrubs, and forest farming. Project staff will adapt or develop materials for practices compatible with Northeast conditions and farming traditions. Staff will also identify or develop five regional agroforestry demonstration sites and offer workshops and webinars reaching 150 Northeast service providers and peer educators; these educators will provide agroforestry assistance to 1,000 farmers and landowners.
- \$96,497
- ENE15-135
- **Research and problem solving on the farm**
- Laurie Drinkwater, Cornell University, Ithaca NY
- Effective farm management involves the ability to modify practices in response to environmental and economic conditions, but there are barriers of skill, time, and technical advice that discourage on-farm problem solving through on-farm trials and research. Yet
- there is a core group of farmer innovators who do take on farm-based inquiries, and the goal is to use those experiences to enhance advisor training. The project manager will work with these innovators to develop a how-to guide for conducting on-farm inquiries and deliver training to extension educators. As a result, 30 educators will teach 600 farmers to improve their operations using on-farm problem solving and experimentation developed by expert farmers, and 200 farmers managing 20,000 acres will use these techniques to solve problems and improve their management practices.
- \$90,268
- ENE15-136
- **The impact of corn silage harvesting and feeding decisions on income over feed costs**
- Virginia Ishler, Pennsylvania State University, University Park PA
- This project builds on long-term economic and crop production data about income over feed costs and cost of production from 143 dairy farms; this data demonstrates how corn silage quality affects farm profitability. The project manager will evaluate and train extension staff on a whole-farm approach to corn hybrids, cover crops, practices affecting silage quality and quantity, interpreting a forage analysis report, and how to evaluate income over feed costs. Workshops and follow-up webinars will address the agronomic, nutritional, and financial components, and, as a result, 12 crop and 12 dairy educators will work in pairs to implement systems improvements on two farms each for at least one year. In year three, participating producers will be surveyed and eight extension educators will present the summarized results to consultants and producers at field days, winter meetings, and conferences.
- \$48,873

Development Grants

ENE15-137

The Conservation Biological Control Short Course

Eric Lee-Mader, Xerces Society for Invertebrate Conservation, Portland OR

Native wild insects that attack crop pests are an overlooked resource—even though vast numbers of beneficial insects are at work on farms across the world, they are eclipsed in farm education by a much smaller diversity of pest species. A large body of research confirms that farmers as diverse as apple growers, Christmas tree farmers, and soybean producers can all benefit from natural pest control, but few farmers know much about the beneficial insects around them, and even fewer know how to accelerate beneficial insect populations to maximize pest control. The Conservation Biological Control Short Course synthesizes the latest beneficial insect research and offers realistic solutions for enhancing beneficial insect populations on farms. Course topics include beneficial insect biology, habitat design, pesticide risk mitigation, financial support available through USDA conservation programs, and real-world case studies. As a result, 350 participating educators and farm agency professionals in the Northeast will go on to support conservation biological control efforts on at least 3,500 acres.

\$97,097

ENE15-138

Farm-to-institution market readiness training program

Glenda Neff, American Farmland Trust, Saratoga Springs NY

Institutional food service buyers are looking to purchase more locally grown food in New York, especially fresh and minimally-processed fruits and vegetables but also meat and dairy. At the same time, many small- and medium-sized farms want to expand beyond labor-intensive direct marketing to

wholesale markets that will value their identity as local and sustainable. The project manager will train extension educators and other service providers to help farmers assess institutional opportunities and identify changes that could be required in their production and management systems. Training will include a mix of webinars, presentations, and experiential learning through institutional site visits. As a result, 25 service providers in New York will provide education and support for 120 fruit, vegetable, and livestock producers, and 75 of these producers will begin or expand sales to institutions within two years.

\$89,348

ENE15-139

Creating a sense of belonging for Hispanic farmers in extension programming

Elsa Sanchez, Pennsylvania State University, University Park PA

According to the 2012 Census of Agriculture, the average age of farmers has increased while the number of new farmers has decreased; at the same time, though, the number of Hispanic farmers increased 21 percent between 2007 and 2012. In 2014, a Pennsylvania Cooperative Extension survey indicated that Hispanic farmers are not well represented at extension events, which led to a desire to proactively develop programming to include more Hispanic farmers. The project manager will work with extension educators and specialists in Pennsylvania in three in-person training sessions, facilitate one-on-one visits with Hispanic farmers, provide a comprehensive packet of training materials, and use a case study to evaluate existing programs and brainstorm new ones. As a result, 20 extension educators and specialists will increase their understanding of the challenges and

concerns of Hispanic farmers, and 15 will develop specific strategies that engage 65 Hispanic farmers who cultivate approximately 6,370 acres in extension programs for sustainable vegetable and fruit production and pesticide education.

\$54,434

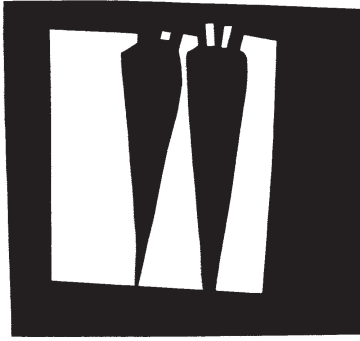
ENE15-140

Unifying resistance management education for vegetable and fruit production in the Northeast

Hilary Sandler, University of Massachusetts Cranberry Station, East Wareham MA

Northeast fruit and vegetable production, valued at \$1.73 billion, depends on the ability of growers to manage pests. Selection and use of available pesticides, with various modes of action, must be judicious so as to avoid resistance development. In a 2014 survey of 41 growers, all 16 respondents were concerned that pesticide use will increase due to resistance problems; 13 were concerned about the environmental impacts of marginal or ineffective controls. These growers get management information from various advisors, but this information is not necessarily consistent or comprehensive, and growers' knowledge is especially lacking in the area of pesticide modes of action. The project manager will deliver resistance management education through train-the-trainer webinars, resource platforms, and a core module that can be adapted on a local, state, and regional basis. As a result, 25 extension and agricultural industry personnel from eight northeastern states will develop and deliver crop-specific training to 800 specialty crop growers who farm 36,000 acres.

\$91,512



Partnership Grants

Partnership Grants support collaboration among extension, farmers, and community organizations on topics that are important to the sustainable farming community.

In 2015, Northeast SARE awarded \$327,498 to fund 24 Partnership projects. Awards ranged from \$9,427 to see if on-farm events attract new customers to \$15,000 to monitor and improve food hub product safety and crop quality.



- ONE15-228
- **Evaluation of tillage and manure application practices on soil quality and greenhouse gas emissions**
- E. Carol Adair, University of Vermont, Burlington VT
- Minimum- and no-tillage practices can reduce farmer expenses and greenhouse gas emissions, but a persistent problem is how to apply and retain nutrients stored in manure: Without incorporation; more than 50 percent of manure nitrogen may be lost through runoff and volatilization. The project manager will work with one farmer to study the benefits and drawbacks of four different tillage (conventional, vertical, strip, and no till) and two different manure application (injection and broadcast) methods to determine the practices best suited for reducing greenhouse gas emissions, carbon storage, and nitrogen losses.
- Outreach will be through extension and academic publications as well as field days.
- \$12,940
- ONE15-229
- **Gaining and retaining consumers from on-farm special events**
- Marie Anselm, Cornell Cooperative Extension Madison County, Morrisville NY
- Farms use a number of marketing strategies to attract and retain customers, including hosting on-farm events that offer visitors an authentic farm experience. These events can attract new customers, but also require a significant time investment. There is no research that confirms these events actually lead to long-term customer gain. The project manager will conduct consumer surveys that document consumer purchasing habits of farm products before and after certain farm events to see if consumer behavior changed. With on-farm special events increasing in popularity,

this study will help farms and organizations understand the effectiveness of events as a marketing tool. Outreach will be through online media and workshops.
\$9,427

ONE15-230
Impact assessment of farm and food innovations
Christopher Callahan, University of Vermont Extension, Rutland VT

The Farm Hack website is an open-source community for farm tool innovation; since 2011, it has hosted more than 159 farm and food innovations—including the results of many SARE projects—in biofuels, planting and cultivation equipment, monitoring, and processing equipment. The project manager will explore improved website functionality, including metrics on tool views, downloads, discussion forums, and impact, and will provide a platform for enhanced SARE project distribution beyond the life of a given project. The overall goal is to provide a perpetual home for SARE project results that will allow them to circulate in a way consistent with the open-source philosophy shared by farmers, Farm Hack, SARE, and other funding programs. Outreach will be through a series of educational events, webinars, and conferences.
\$14,999

ONE15-231
Evaluation of biological fungicides to control diseases of spinach in winter high tunnels
Katherine Campbell-Nelson, University of Massachusetts Extension, Amherst MA
High tunnels allow for year-round production, but disease management presents real challenges. Reduced germination can be caused by damping off, seedling blight caused by Rhizoctonia, and leaf spot like

Cercospora and Cladosporium, which tend to build up in high tunnels where spinach grows year after year. The project manager will partner with an experienced winter greens producer to evaluate the efficacy of soil biopesticides used preventively as pre-plant soil drenches to improve germination, reduce disease severity, and improve yields. Outreach will be through grower and extension newsletters, fact sheets, grower talks, and regional meetings.
\$14,982

ONE15-232

Increasing farmer participation in local government

Judy Chambers, Pennsylvania State University, Gettysburg PA

Understanding among local elected officials, planning commissioners, and others in local government about the needs of agriculture, the impact of land use, and other regulations can be difficult—farmers often struggle to remain viable in the face of legislation that, intended or not, has adverse impacts on farming operations. Working with cooperating farmers and collaborating organizations, the project manager will identify real and perceived barriers to farmer involvement in local government and develop programming—workshop presentations and outreach materials—to address those concerns. The goals are to increase the number of farmers running for local office, increase civic participation, and build farmer participation in legislative advocacy on behalf of their professional affiliations.
\$14,999

ONE15-233

Supplying demand: Optimizing improvements to the local food value chain in western Massachusetts

Margaret Christie, Community Involved in Sustaining Agriculture, South Deerfield MA

The Pioneer Valley has a well-established local food economy, with farmers, food business entrepreneurs, an engaged public, a successful incubator kitchen, and a network of agencies providing technical assistance and financing. Demand for local food continues to climb and restaurants, retailers, and institutions are sourcing food locally. That said, distribution, aggregation, and ordering issues prevent larger buyers from doing more. The project manager will identify improvements, after understanding exist-

ing distribution patterns, that will increase supply and improve the profitability of farm sales to large buyers. Outreach will include stakeholders, technical service providers, nonprofits, agencies involved in the local food movement, and colleagues interested in infrastructure assessment and need identification.
\$14,974

ONE15-234

Increasing the viability of heirloom dry bean production in the Northeast

Heather Darby, University of Vermont Extension, St. Albans VT

Dry beans, a high-protein pulse crop, have been grown in the Northeast since the 1800s, and the local food movement has led to increased demand for heirloom crops—dry beans are no exception. Demand exceeds supply, seeds are difficult to get, and farmers struggle to produce consistently high yields and good quality. Production issues include stand establishment, disease control, and reaching proper maturity at harvest. The project manager will explore regionally adapted production practices with two farmers to help them produce heirloom dry beans as a high-value legume crop, including seed sourcing and seed saving, heirloom varieties, optimal planting and seeding dates, pest management, and biological seed treatments to prevent early season diseases. Outreach will be through bulletins, web-based materials, workshops, conferences, and farmer-to-farmer interactions.
\$14,998

ONE15-235

Evaluating water quality benefits from soil aeration

Laura Dlugolecki, Winooski Natural Resources Conservation District, Williston VT

Even though aeration of hay land is a well-known conservation practice, its adoption is not widespread in Vermont and the link between aeration and phosphorus pollution reduction is poorly understood. The project manager is already doing research on how a range of conservation practices affect nutrient loss and runoff on agricultural soils around Lake Champlain. Outreach will be through farmer-friendly handouts and displays, on-farm demonstrations, and direct contact with farmers in the Lake Champlain basin.
\$14,877

ONE15-236

Crop quality and food safety support for World PEAS Food Hub participants

Jennifer Hashley, New Entry Sustainable Farming Project, Lowell MA

New Entry operates the World PEAS Food Hub, which aggregates and distributes produce and fruit sourced from 30-plus New Entry farmer graduates to CSA, university dining, elder services, and other wholesale partners. Each year there are significant crop quality concerns that can limit which items can be sold. The project manager will deliver training to farmers on crop quality, food safety, and practical strategies to improve crop health, harvest readiness, post-harvest handling, and other quality issues. Outreach will be via statewide meetings, a website, newsletters, and an existing farmer network.
\$15,000

ONE15-237

Optimizing management of a new invasive species, swede midge, on small-scale organic farms

Christine Hoepting, Cornell University Cooperative Extension Vegetable Program, Albion NY

Swede midge is an invasive insect pest that is threatening the viability of organic production of Brassica crops in the Northeast. The midge is quite small and its damage difficult to identify, so it is commonly misdiagnosed; currently, there are no organic methods that provide effective control. The project manager will develop and deliver education and outreach to at-risk, small-scale organic growers on the best management practices to protect them from devastating swede midge outbreaks, and also work with six partnering farms to understand the population dynamics of this pest and disruption tactics like exclusion netting and garlic oil repellent. Outreach will be through on-farm demonstrations, a website, newsletters, and presentations.
\$14,994

continued on next page

ONE15-238

Variation in milk proteins across a contemporary group of Holstein cattle

Erika Huyck, TP Cattle Services, Forestville NY

Milk proteins are commonly quantified as crude protein—a measurement of nitrogen content—and crude protein is used to inform genetic selection decisions. Yet little is known about the variation of milk true protein between cows, and research on this topic would help dairy farmers determine whether selection for individual proteins can improve efficiency. The project leader will sample a herd at one dairy farm to determine the variability of milk protein fractions across a contemporary group, and outreach will be through producer groups, vets, and dairy co-ops.
\$14,726

ONE15-239

Development of tools and procedures to improve the consistency of farmstead cheeses

Kerry Kaylegian, Pennsylvania State University, University Park PA

Variations in milk composition, processing, and environmental conditions in cheese manufacture can lead to inconsistent and poor quality cheese, which can affect sales and increase labor for troubleshooting. The project manager will help farmstead cheesemakers define and measure quality, understand how variations impact products and adjust their practices to consistently make better cheese. Two cheesemaker collaborators will provide their cheeses as models—a mozzarella and a raw milk soft cheese—to be tracked to see what factors have the most influence on quality and consistency. Outreach will be through cheesemaker collaborators, fact sheets, and model data collection and tracking templates that can be used by other cheesemakers.
\$14,999

ONE15-240

Using heat recovery ventilation systems in high tunnels to increase winter crop production

Chris Lent, National Center for Appropriate Technology, Forty Fort PA

A heat recovery ventilator could increase the average daily temperature in a high tunnel and increase crop production and profitability as well. The project manager will work with an organic farm with experience in winter production to test this nontraditional ventilation system. A comparative analysis of temperature and relative humidity will confirm whether the new ventilation system affects production and profitability in winter growing. Outreach will be through a field day and a webinar that will be archived on a website.
\$9,782

ONE15-241

Binghamton farm share capacity building project

Amelia LoDolce, Volunteers Improving Neighborhood Environments, Inc., Binghamton NY

Binghamton farmers are interested in expanding their direct sales to consumers in a way that increases revenue, and consumers are increasingly interested in buying direct from producers. However, the traditional models for direct sales—CSAs, farmers markets, and farm stands—have not done a satisfactory job of serving the moderate- and low-income market, and issues of supply and quality have also been a barrier. The project manager will help five producers improve marketing skills, quality control, and address other challenges that they have identified. Outreach will be through conferences, publications, and educational materials.
\$15,000

ONE15-242

Mechanical blossom thinning effects on Gala and Honey-crisp apples

Mario Miranda Sazo, Cornell Cooperative Extension, Lake Ontario Fruit Program, Newark NY

The economic impacts of achieving optimal crop load can affect revenue by \$5,000 to \$10,000 an acre, and there is concern that a carbamate insecticide, which has been an essential component of chemical thinning for more than 40 years, be removed from the

market by regulatory action. There is also interest in economical and safe nonchemical thinning strategies. The project manager will work on one farm to test the impacts of mechanical blossom thinning on yield, return bloom, and fire blight, and do a specific economic analysis of the value of using a string thinner to improve profitability and sustainability. Outreach will be through winter farmer-to-farmer meetings, field days, extension, and producer newsletters.
\$9,541

ONE15-243

Rediscovering the Rutgers tomato

Peter Nitzsche, Rutgers NJAES Cooperative Extension, Morristown NJ

The Rutgers New Jersey Agricultural Experiment Station has worked to revive flavorful tomato varieties that are no longer in the marketplace, including the once popular and widely planted 'Rutgers' tomato. After several years of selection and refinement, the research team now has three advanced 'Rutgers' selections for final evaluation. The project manager will partner with farmers and Master Gardeners to encourage firsthand experience growing the advanced selections and allow for valuable data to be collected on yield and taste performance. Outreach will be through tasting events, conferences, trade journals, and refereed publications.
\$14,900

ONE15-244

Value-added products from urine: Enriched compost and stabilized liquid fertilizer

Abraham Noe-Hays, Rich Earth Institute, Putney VT

Reclaiming the nutrients in human waste means sustainable fertilizer for farmers while reducing nutrient pollution in our waterways. The project manager will do a third year of field trials on two farms exploring the capital and labor costs of using urine fertilizer via existing on-farm composting. The practice has implications for water quality and wastewater treatment, and is of interest to agronomists and EPA researchers. Outreach will include conferences, panel presentations, farm visits, and a website.
\$14,833

ONE15-245

Management of soil-borne diseases in small farms with eco-friendly treatment options

Mahfuz Rahman, West Virginia University, Morgantown WV

West Virginia is dominated by small-scale vegetable growers; because farms are small, rotation schemes are hard to manage and soil-borne diseases become a significant problem. The project manager will work with two farmers to see if custom applications of biofumigants will reduce crop losses from wilt causing organisms and also identify the prevalent strains of these soil pathogens to see if an organically acceptable control can be identified that can work within an IPM system. Outreach will be through farmer-to-farmer events, conferences, and the agricultural media. \$14,792

ONE15-246

Farmers as makers: An inquiry into the viability of developing a MakerSpace in the Albany County hill towns

April Roggio, Medusa General Store, Medusa NY

The Maker Movement is a grassroots initiative that assumes that everyone should have the opportunity to design, create, build, hack, and innovate, and not be mere consumers. The project manager will test the feasibility of a MakerSpace that supports farmers, and especially farmers in a region that has not yet recovered from a recession economy. The project will include outreach, community surveys, education, and outreach, and may include new resource libraries and space dedicated to sharing and collaborating between farmers and small business. Outreach will be through a community conference and local media. \$4,366

ONE15-247

Establishment and marketing of hops production in the mid-Atlantic

James Simon, Rutgers University, New Brunswick NJ

As craft brewing builds traction with consumers, the interest in sourcing local hops also increases; farmers have an opportunity to respond to demand, but there is an information gap about best practices and industry standards for essential oil content and alpha acid. The project manager will survey industry demand, set up a demonstration hops plot and

collect data from two hop farms, provide a chemical analysis service to growers, and determine best management practices to optimize hop production and quality. Outreach will be via a video, a webpage, grower meetings, and a fact sheet. \$14,956

ONE15-248

Making it happen: Profitability and success

Dorothy Suput, The Carrot Project, Boston MA

Many early-stage farmers do not effectively use financial management strategies important to their long-term success, often because it's hard to choose among the range of financial tools which is a good fit for their operation. Building on existing case studies and data from a previous SARE grant, LNE11-310, the project manager will evaluate the range of financial management tools and their usefulness at different levels of business maturity, when and how these tools are integrated into practice, and develop and test whether a customized seminar will contribute to improved decision making on 50 to 75 farms. Outreach will be through farm organizations, list serves, conferences, newsletters, and one-to-one contact. \$14,973

ONE15-249

Evaluation of novel bird repellants in vegetable crops

Darcy Telenko, Cornell Cooperative Extension, East Aurora NY

Bird damage in sweet corn reduces yield, profits, and also affects food safety, to the point where birds can cost \$10,000 per 20 acres of corn. Measures to reduce bird predation have had mixed results. The project manager will partner with four farms to test three control measures: a chemical deterrent recently registered for use in New York, low-cost helium hawk balloons, and a novel but expensive air dancer, a disturbing and noisy inflatable presence in the field designed to scare birds away. Outreach will be through a research summary, field days, extension, and professional meetings. \$14,908

ONE15-250

Developing an IPM program against slugs in mid-Atlantic no-till grain fields

John Tooker, Pennsylvania State University, University Park, PA

Since their introduction in 1991, neonicotinoids have quickly become the most popular insecticides worldwide, and their use as preventative seed coatings has expanded enormously, but evidence suggests that these treated seeds affect wildlife and pollinators and pollute surface water and may exacerbate slug problems in no-till crops. The project manager will work with four collaborating farmers to test whether avoiding treated seeds and using fall rye cover crops will encourage enhanced slug predation and also compare corn productivity and biological control in the presence and absence of neonicotinoid seed treatments. Outreach will be through a crop management newsletter, field days, and national professional meetings. \$ 12,714

ONE15-251

Priming for production: A podcast on soil health

Ray Weil, University of Maryland, College Park MD

Farmers want to understand the science behind soil management, but often report that standard outreach methods are time consuming and hard to understand. With farmer input, the project manager will develop and test whether podcasts that make soil science concepts accessible and entertaining through interviews with farmers and soil specialists can empower farmers to improve their scientific understanding of soil health. To complement the podcast, a companion website will have photos, transcripts, and links to more information on the topic of each episode. The podcast will be available through iTunes for easy downloading onto smartphones and on the website, and outreach will be through meetings, social media, and agricultural service provider networks. \$14,818



Farmer Grants

This year, Northeast SARE awarded \$240,472 for 20 Farmer grants. Awards ranged from \$2,600 to compare a centrifuge extractor to a maple syrup press to \$15,000 to test honeybee IPM in blueberries.

These awards support farm-based inquiries and experiments with potential to improve profits, stewardship, and the vibrancy of the wider farm community.



FNE15-816

Wet rice organic weed control trials

Erik Andrus, Boundbrook Farm, Vergennes VT

This project builds on FNE08-624 and FNE09-653, which explored the viability of rice as a commercial crop in the Northeast. The farmer has seen weed issues in his wet rice paddies, where aggressive wetland sedges and grasses easily outcompete slow-growing rice, and he will conduct trials of ecological weed control, evaluating the costs and benefits of weed control using ducks, floating cover (azolla filiculoides), hand and mechanical strategies. Outreach will be via grower conferences and an online publication. \$13,128

FNE15-817

Mustard cover crops as biofumigants for organic strawberry production

Rico Balzano, Little Lake Orchard, Wells VT

There is growing interest in using mustard as a cover crop preceding strawberries to help control nematodes, weeds, and soil-borne diseases, since specific mustards produce glucosinolates that act as biofumigants after mowing and incorporation into the soil. The farmer will test six varieties of mustard for glucosinolate and biomass, follow with strawberries, and compare yield among the different plots. Outreach will be through producer meetings, conferences, the agricultural media, and newsletters. \$10,688

FNE15-818

A performance comparison of three honeybee nucleus colony configurations in Massachusetts

Daniel Berry, Invisible Cities Apiary, Amherst MA

Nucleus colonies are small, viable colonies of honeybees created during the late spring and early summer from full-sized hives, and they function as a reserve stock of locally raised bees that can be used to replenish any winter losses. Demand for northern raised nucleus colonies outstrips the supply, offering an attractive business opportunity to apiaries in the region. The farmer will compare the performance of three different nucleus colony hive configurations by measuring strength, winter survival, and the time and steps required to maintain them over a year, resulting in a model that beekeepers in western Massachusetts can adopt. Outreach will be via an illustrated handout for beekeepers and presentations to interested bee clubs and associations. \$14,987

FNE15-819

Pennsylvania queen bee improvement program and the Heartland Honey Bee Breeders Coop: Testing for mite-biting behavior

Jeffrey Berta, Always Summer Herbs Co. LLC, Slippery Rock PA

Several recent SARE grants in the Northeast and North Central regions measured Varroa-sensitive hygienic behavior and found value for mite resistance. This project will measure a recently identified new grooming behavior, mite-biting behavior and its relationship to overall mite counts. If mite biting can reduce mite counts, it follows that it will also in-

crease the sustainability of beekeeping by reducing the use of miticides to control Varroa populations and also reduce associated labor inputs. This project will involve queen breeders, bee clubs, beekeepers in several states, as well as two universities and the extension service as cooperators, and outreach will be through beekeeper organizations, conferences, and workshops.

\$14,999

FNE15-820

Evaluating sheep as a sustainable approach to reducing reliance on herbicides, fungicides, and commercial fertilizer in hopyards

Peter Busque, the Hop Yard, Portland ME

One of the major constraints to growing hops in fields that have been converted from long-term hay production is the impact of perennial grasses and weeds on the health of the overall yard. The farmer will research the effectiveness of grazing sheep on mature hop plants to see if the practice will reduce reliance on conventional weed, pest, and fungus control methods. The goal is to reduce labor, material costs, and potential groundwater effects while maintaining or increasing effective yields. If successful, there is an added benefit to creating a dual-use property with a net positive impact on both crops and the herd. Outreach will be through social media, a blog, and a grower conference.

\$6,954.

FNE15-821

Design and construction of a low-impact amphibious vehicle for efficient and sustainable oyster farming

Gustavo Calvo, Sweet Amalia Oyster Farm, Newfield NJ

Many oyster farms are in intertidal zones—covered at high tide and exposed when the tide is low. The result is a shortened work window for harvest and husbandry, and the intertidal zones are also environmentally sensitive. The farmer will build and test a new, low-impact, amphibious machine vehicle that can provide transport and a working platform maximizing efficient operation working in the beds without disrupting the fragile shoreline ecology. Outreach will be through on-farm demonstrations, list serves, a short video, and the availability of plans through extension.

\$15,000

FNE15-822

Pastured rabbit for profit

Nichole Carangelo, Letterbox Farm Collective, Hudson NY

Rabbit meat is gaining attention as a sustainable source of protein, yet few farmers are taking on rabbit production, most likely through lack of research and production information. The farmer will research and document current practices on multiple farms to address the feasibility of raising rabbits in the context of a small sustainable farm with an emphasis on high animal-welfare standards and economic viability. Outreach will be through a practical production guide that will include enterprise budgets, hutch design, pasture rotation, and sample breeding guidelines.

\$12,694

FNE15-823

Comparing a centrifuge to a maple syrup filter press

Charlie Chase, Charlie's Sugarhouse, Coventry RI

Maple sap contains naturally occurring minerals that concentrate in maple syrup, and these excess minerals are normally filtered out during production. Filter presses are most commonly used, but they can be difficult to operate; preferably, farmers would have more choices. The farmer will test a small-scale centrifuge to determine whether this filtering method can compare by effectiveness of filtering, economics and labor to the standard filter press on two maple sugar operations. Outreach will be through maple producer news outlets, a video, and annual producer meetings and conferences.

\$2,600

FNE15-824

Development of Good Food Farmers Network: A replicable model of farmer-owned joint marketing and sales

Hilary Corsun, Dog Wood Farm, Ghent NY

Joint marketing and sales expand markets and increase sales volume; these combined efforts also tend to be more profitable than wholesale and less time-consuming than direct marketing. The farmer will build on a recently created joint marketing enterprise that specifically mixes new and beginning farmer products with anchoring from established farm enterprises. The goal is to build an existing joint effort from six farms to twelve, serving 300 customers and generating \$250,000 in revenue, and to develop how-to guides that are scaleable and support wider replication. Outreach will be through conferences, winter meetings, and the web.

\$14,140

continued on next page

FNE15-825

Alternative growing practices for oyster mushroom cultivation in the Northeast

Willie Crosby, Fungi Ally, Hadley MA

Mushroom cultivation is expanding, and the most accessible and economic method of oyster mushroom cultivation is growing on straw. A key part of this process is treating the straw to allow aggressive colonization and high yields; past studies have suggested that pasteurization, the most commonly used treatment method on small-scale farms, may not be optimal. The farmer will compare pasteurization to three alternative treatment methods—cold fermentation, wood ash to treat straw for oyster mushroom cultivation, and hydrated lime. Project results will be published in a guide to oyster mushroom cultivation in the Northeast and will be distributed through grower networks, conferences, and the web.

\$14,095

FNE15-826

Viability of integrating field peas into organic cereal grain rotations in Maine

Jake Dyer, Benedicta Grain Co., Stillwater ME

The demand for local and organically produced cereal grains is growing, and the common crop rotations used in organic grain systems rely on legume cover crops such as clover to provide fertility, break pest cycles, and reduce erosion. Clover has many benefits, but it also requires a full growing season; field peas have the potential to reap many of same benefits with lower input costs and the opportunity for revenue. The farmer will explore the viability of four varieties of field peas through field-scale trials that specifically monitor weed pressure, disease, and ease of harvest; outreach will be via field days and an annual grain conference.

\$11,365

FNE15-827

Bringing local back to kosher: A new pathway for sustainable poultry processing

Robert Friedman, Robariah Farms, South Deerfield MA

The market demand for sustainably raised, locally produced kosher meat is rising, but there are issues of cost that small-scale commercial producers might face in adopting local kosher processing. The farmer will test a model for kosher poultry that incorporates the elements of traditional kosher processing and will also be scaled to small commercial volumes. The emphasis will be on comparing the efficiency and effectiveness of a non-local kosher facility and a local non-kosher one. Outreach will include a case study, which will be disseminated via non-profits and extension, and potential audiences will include poultry producers, processors, and consumers.

\$13,475

FNE15-828

Methods for improving quality and conditions of ground cherry production

Lisa Garfield, Calliope Farm, Salisbury MD

Ground cherries have potential as a fresh market and a value-added crop, but harvesting can be difficult. The farmer will explore whether a combination of grafting, pruning, and trellising will create a more upright habit that reduces time and labor, and also see whether a net trough can be used to catch fruit, eliminating contact with the soil. Data on time spent installing infrastructure, harvest times, quantity, and quality will be collected and analyzed to determine the usefulness of these methods, and outreach will be through an on-farm field day and a conference specific to small farm practices.

\$6,889

FNE15-829

Melon and watermelon grafting for disease resistance in hoop houses

Matthew Goldfarb, Fruition Seeds, Canandaigua NY

Hoop-house production of high value crops is expanding in the region, but with it is an increased risk of crop loss due to the buildup of soil pathogens, particularly *Fusarium* and *Alternaria*. Grafting disease-resistant rootstock to high-value and quality fruit scions has been successful elsewhere, and the farmer will see if this grafting technique will work on organic melon and watermelon grown in hoop houses. One challenge with grafting is identifying suitable rootstocks with scions, and different grafting combinations will be tested. Outreach will be through a printed results guide and workshops.

\$13,483

FNE15-830

Developing criteria to select colostrum samples of poor quality

Sarah Hazelton, Hazel-Rod Farm, Mansfield PA

Successful heifer raising is key to internal dairy herd growth, which is an indicator of profitability. Good colostrum management is also essential to the health and immunity of newborn animals. Optimal intestinal absorption of immunoglobulin G, the main antibody in blood, provides the calf with a defense against pathogens in the first two months. Despite the availability of on-farm measurement tools such as the colostrometer or refractometer, the majority of small dairy producers fail to assess colostrum quality. The farmer will assess the accuracy of the colostrometer and the Brix refractometer in a small farm setting and create guidelines for identifying animals with exceptionally poor colostrum that can be discarded or supplemented. Outreach efforts will include on-farm training and guidelines to identify colostrum of inferior quality.

\$4,644

FNE15-831

West Virginia Pollen Project 2015

Michael Staddon, Honey Glen LLC, Salem WV

As part of a larger effort to understand the natural nutritional income of honeybees through pollen intake, seven collaborating West Virginia beekeepers will collect and submit 229 pollen samples from eight locations around the state and also include pollen from two previous years. The farmer will collect 80 samples to identify pollen types, percentage of each type, high and low quantities, variables by location, variables from year to year, and wild plant sources. The goal is to lay a foundation for understanding pollinator health and which pollen types need evaluation for protein content and effect on bee health over time. Results will be disseminated through beekeeper associations and the internet.

\$14,990

FNE15-832

Exploring dryland rice production in the mid-Atlantic

Heinz Thomet, Next Step Produce, Newburg MD

Rice is the world's most common staple crop, and traditional production methods demand more water than any other agricultural enterprise. In the face of increasing water scarcity, the UN and the International Rice Research Institute have been encouraging farmers to explore higher yielding varieties in dryland systems, and suitable varieties have been identified. More trials are needed, and the farmer will develop guidelines for growing rice in an organic, biologically active system, and also identify higher yielding marketable varieties suitable to the mid-Atlantic. Outreach will be through on-farm workshops, taste trials, conferences, and social media.

\$11,405

FNE15-833

A honeybee IPM program for pollinator health in blueberry production

Dennis Wright, Fruitwood Apiaries, Monroeville NJ

New Jersey experienced serious bee mortality in 2014, affecting beekeepers and blueberry producers. The farmer, who had up to 40 percent brood death along with queenless hives that needed to be rebuilt throughout the season, will work with IPM staff to monitor bee mortality, pesticide use, brood health, and pesticide residues in hives as contributing factors to colony decline. He will break down hives shortly after they are removed from blueberries, assess brood health, and send samples for pesticide residue analyses; pesticide records will also be collected from other blueberry growers for correlations to decreased colony health. The goal is to identify practices that might minimize negative impacts on honeybees. Outreach will be through extension, grower meetings, newsletters, and an online poster.

\$15,000

FNE15-834

The implementation of barrier strip cropping to mitigate bird damage on organic oilseed sunflowers

Samuel Yoder, Green Alchemy LLC, Kutztown PA

Bird damage affects all crops, and particularly organic sunflowers grown for biodiesel, human consumption, and birdseed; effective deterrents are limited. The farmer will disrupt feeding patterns using high barrier strips of agriculturally useful crops like organic corn and sorghum-sudangrass to channel and decrease flock size, reduce visibility, increase bird exposure to predation, and make feeding on sunflowers inefficient and confusing. Outreach will be via organic conferences and through material for an oilseed handbook for organic farmers.

\$15,000

FNE15-835

Evaluating malting barley production in New England using a winterkilled cover crop cocktail combined with flame weeding and no till

Matthew Zarif, Carter & Stevens Farm LLC, Barre MA

There is growing interest in malting barley production, but the product is subject to specific quality constraints that can be challenging to meet. The farmer will test a winterkilled cover crop cocktail combined with no-till planting and flame weeding, specifically looking at the nitrogen contribution of winterkilled cover crops, the effects of seeding rates on quality, and whether barley straw has potential as livestock bedding. A farm-based brewery will incorporate estate-grown and local ingredients. Outreach will be through an extension website, a farm field day, the media, and refereed publications.

\$14,936



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Deadlines for 2016 awards

June 30, 2015: Research and Education and Professional Development preproposal deadline

October 6, 2015: Partnership Grant proposal deadline

November 12, 2015: Farmer Grant proposal deadline