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innovations

in sustainable agriculture



"This project led to my development of a new chapter in my thesis, and will definitely shape future projects and practices in the field of aquaculture."

Harrison Tobi

University of Massachusetts--Dartmouth, Falmouth MA Graduate Student Grant Recipient: *"Parasite mitigation strategies in bay scallop aquaculture"* (GNE17-161)

Tobi, University of Mass

Northeast SARE Staff

Vern Grubinger director

David Holm ssociate director

Katie Campbell-Nelson professional development program coordinator

Nevin Dawson professional development program associate

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Our programs are offered to all without regard to race, color.

national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or familial status. SARE is funded by USDA NIFA. USDA is an equal opportunity provider and employer.

About Us

The Northeast Sustainable Agriculture Research and Education (SARE) Program offers grants to farmers, educators, service providers, researchers and others to address key issues affecting the sustainability of agriculture throughout 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
- Partnership
- Professional Development Program
- Research and Education
- Research for Novel Approaches
- 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 its customers; it will be conducted by farmers who manage resources wisely, are satisfied with their lifestyles, and have a positive influence on their communities and the environment.





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FROM OUR DIRECTOR

Succession news at Northeast SARE

Cuccession planning is critical to the Sustainability of businesses and nonprofits. That's also true for Northeast SARE, even though we're a somewhat unusual organization that's 'owned and operated' by a blend of university, government and citizen stakeholders. So when it came time to deal with the retirement of two key leaders on our team, David Holm and Janet McAllister, I thought about some advice that's given to farmers when they face succession planning: Don't put it off. Clarify your goals. Get support. Embrace change ... of course, that was after my initial panic attack.

Why did I panic at first? Well, David has been the heart and soul of Northeast SARE for almost two decades. As program manager, he's worked with Administrative Councils over the years to develop most of our grant programs, define the procedures that make them run smoothly, and create the policies needed to clarify any concerns. Janet hasn't been with SARE for quite so long, but she's been central to the positive transformation of our Professional Development Program. In the past, it focused on educational activities and program content; now it focuses on educational outcomes and supporting agricultural service providers in the design and delivery of effective programs. In short, two pairs of big shoes to fill. Thankfully, they both gave us a lot of notice before retiring.



Associate director David Holm and PDP Coordinator Janet McAllister served on Northeast SARE's leadership team for a combined 30+ years before stepping into retirement.

So we got to work, revising the position descriptions to clearly reflect our goals for new hires. We had support from our Administrative Council and staff, both of whom helped draft search plans and offered up nominees to serve on search committees. And after making two excellent hires, I find myself embracing their questions, looking at some new ways of doing things, and, along with the outgoing folks, mentoring the next generation of leadership.

That next generation is Katie Campbell-Nelson, who's been on the job as Professional Development Coordinator since September 1, and Heather Omand, who starts as Associate Director at the beginning of February.

Katie has spent over a decade in adult education. Most recently, she served as the vegetable extension educator and state coordinator of the SARE PDP program in Massachusetts. She has taught college students, beginning farmer programs, served as a mentor for a whole farm planning course for women, helped dairy farmers with manure management, and even worked with golf course superintendents on fungicide resistance management. Katie holds an M.S. in Plant and Soil Science from UMass Amherst. She recently acquired 84 acres of land to steward with her partner in Greene County, NY.

Heather has served as the Marketing and Business Specialist for the Maine Organic Farmers and Gardeners Association since 2014. In that role, she developed and managed farm viability education



Left: Northeast SARE's PDP team, Katie Campbell-Nelson and Nevin Dawson. Right: Heather Omand, incoming associate director. Photo courtesy of Heather Omand.

and outreach programs, including a technical assistance grant program for farmers. She has also served on the leadership and grant review committees for statewide food system organizations such as Slow Money Maine and the Maine Technology Institute. Heather holds an M.B.A. from the University of Maine. Heather, her husband, Tyler, and young son, Atom, have a small farm that produces fruits, nuts, and a variety of specialty crops.

Please join me in welcoming the new members of Northeast SARE's leadership team!

Vem Grubinger

FARMER GRANT PROJECT: FNE19-919

Sustainable wine course goes online

In the vineyard industry, the task of communicating to customers is often left to winerv sales and hospitality staff who may not know much about the farming end of the business. Whitney Beaman of Bedell Cellars in Cutchogue, NY recognized that educating winery employees who hold customer-facing roles (including tasting room, wine club and wholesale staff) is key to engaging consumers on the environmental practices behind sustainable winegrowing.

With funds from a Northeast SARE Farmer Grant, Whitney created an online Sustainable Wine Professional course as a method to train wine professionals and interested consumers about sustainable winegrowing. She worked closely with Long Island Sustainable Winegrowing, a nonprofit that provides education and third-party certification for sustainably farmed vineyards on Long Island, that includes 23 producers and over 1,000 acres of vineyard (half of the Long Island wine region).



The online course was modeled after California's Sustainable Winegrowing Ambassador Course and builds upon VineBalance, the NY Guide to Sustainable Viticulture Practices. Course content was written at an introductory level and includes information on sustainable viticulture, organic and biodynamic farming practices.

Employees on 12 Long Island farms took the course. All farms said the course changed the way these wineries train their sales and hospitality staff. Four of the vineyards now require sustainability training for all of their staff. One participant, Ami Opisso, General Manager at Lieb Cellars, said, "The training was overwhelmingly effective at demystifying



Above: Whitney Beaman, creator and instructor of the Sustainable Wine Professional online course. Left: Bedell Cellars crew on the sorting table. Photos courtesy of Steve Carlson, Bedell Cellars.

the standards and benefits of sustainable winegrowing, and I can already see my staff communicating and educating about it in a more informed and confident manner."



"The most valuable result of this project was the relationships, conversations, and connections that happened as part of this food hub work...A major lesson learned from this project is that collaborating with important stakeholders, like the Co-op Food Stores, actively participating in the project means that tangible action steps were possible."

Beth Roy

Vital Communities Partnership Grant Recipient: *"A farmer collaboration initiative"* (ONE17-305)

Photo courtesy of Nancy LaRowe, Vital Communities

INNOVATIONS

GRADUATE STUDENT GRANT PROJECT: GNE17-150

UMD student studies the intersection of food safety and irrigation water

Salmonella enterica is the most common cause of foodborne illness in the United States. Since Salmonella has been a food safety concern for vegetables produced on the Eastern Shore of Maryland with surface water and sediments identified as possible reservoirs for these bacteria, University of Maryland student Angela Ferelli conducted a Northeast SARE Graduate Student Grant project to better understand the food safety risks of Salmonella



presence in irrigation water for vegetable crops.

Angela was particularly interested in learning about the ability of *Salmonella* to survive in irrigation water over time and its potential to transfer from water to crops.

She collected water samples from local non-tidal rivers, tidal rivers, ponds, and reclaimed waste water sources, recorded their physicochemical characteristics (like pH, dissolved oxygen level, oxidation reduction potential, etc.), and inoculated them with several strains of *Salmonella* to assess bacteria survivability over a 90-day period.

To determine the potential of Salmonella transfer from water to vegetables, tomatoes were used as the study crop. Salmonella was inoculated into non-tidal fresh water samples that were then inoculated onto tomatoes and monitored over time.

Results suggested that Salmonella persistence in water was driven by water type. In her study, Angela found that *Salmonella* can enter into "viable but nonculturable" (VBNC) states in nontidal fresh water samples as well as with some types of Salmonella enterica (called "serovars") in reclaimed wastewater and pond water samples. VBNC is one type of survival mode for Salmonella when it becomes stressed. Essentially, the bacteria becomes dormant or "sleeps" until environmental conditions (some of which are unknown) become ideal for its growth, making it more tricky to detect Salmonella levels in water.

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She found that *Salmonella* transfer from water to tomato was driven by *Salmonella* type, suggesting that individual strains of the bacteria act differently. By correlating physicochemical measurements of the water with *Salmonella* results, her research also revealed potential opportunities for physicochemical measurements to be used as indicators of foodborne pathogen transfer success onto tomato.

Angela suggested that more research is needed to evaluate the factors that influence *Salmonella's* ability to transfer to tomatoes, including environmental triggers that may increase the risks of the transfer to occur. She also proposed that additional research is needed to develop rapid tests and other methods to predict food safety risks to crops.

Angela said, "This project continued to reinforce our belief that the 'one size fits all' approach [to implement food safety practices on the farm] is not stringent enough to adequately curb food safety risk for fresh fruit and vegetable production. The various factors that influence the variability of Salmonella enterica persistence in the environment do so in a serovar specific manner, and this differential effect extends not only to survival in the primary reservoir (in this cases water) but also to niche transfer (in this case tomato). We must continue to investigate Salmonella ecology and Salmonella enterica movement through the farmto-fork continuum in a more nuanced fashion, to devise strategies that are effective to the most successful serovars under given environmental conditions in various ecological niches."

Angela received her PhD in 2019 and now works as a University of Maryland Agent Associate. She plans to continue this research to complement her work conducting farmer education programs and providing technical assistance to farmers in the areas of Good Agricultural Practices and Food Safety Modernization Act Produce Safety Rule compliance.



Left: Water sample collection equipment; Angela created a short video demonstrating how to use this equipment for her UMD colleagues. Above: Angela Ferelli conducting her research back in the lab. Below: tomatoes inoculated with water infected with Salmonella. Photos courtesy of Angela Ferelli, University of Maryland.



INNOVATIONS

RESEARCH & EDUCATION PROJECT: LNE14-337

Maine leads project using winter ecology to manage small ruminant parasites

For many small ruminant operations, grazing is central to farm profitability. However, grazing livestock increases risks of losses due to parasite-infested pastures. *Haemonchus contortus*, Barber pole worm, is a particular threat to sheep and goat farms throughout the Northeast region.

Although *H. contortus* (as a subtropical parasite) has adapted to northern climates, Jim Weber of the University of Maine conducted a <u>Northeast</u> <u>SARE Research and</u> <u>Education Grant</u> project to determine if northern New England farmers could use winter ecology to better manage this pest. The team conducted a cold-tolerance study of *H. contortus* and found that parasites originating from sheep living in northern climates were more tolerant of cold conditions than parasites from sheep on farms in the Deep South, indicating that these parasites are indeed adapting to local conditions. To help producers better manage these parasites, Jim and his team tested a number of control measures including adjusting dewormer timing, simulating reduced photoperiods, increasing parasite monitoring, and evaluating livestock stocking rates and grazing management.



Small ruminant producers learn how to use FAMACHA and fecal egg counts to determine H. contortus parasite loads in their sheep and goats with guidance from Jim Weber (appears in the photo above on right) and his team. Photo courtesty of Jim Weber, University of Maine.



A major emphasis of the project was teaching farmers methods to measure and effectively manage parasite populations on their farms. More than 400 farmers from Maine. New Hampshire and Vermont participated in the project's seminars, workshops and field days where they learned reseach results and received hands-on microscope training to identify and count parasite species in manure samples from their livestock. They also learned how to use FAMACHA, a technique to easily identify animals that may have *H*. contortus infestations.

122 farmers implemented non-chemical methods --improving rotational grazing systems, using Spring-time determinations of dewormer efficacy, and basing use of dewormers on individual fecal egg counts--to control H. *contortus* infestations in their flocks during the grazing season. As a result, the project team estimated that over 4,000 lambs on farms in northen New England had reduced exposure to H. contortus parasitism, reducing rates of lamb death, and likely increasing weight gain for lambs destined for the meat market.

Three experts join Northeast SARE's administrative council

In 2019, three professionals joined Northeast SARE's Administrative Council (AC), the leadership team that makes policy and grant decisions for the program.

Deb Grantham of the Northeastern Integrated Pest Management (NE-IPM) Center, Marian Jordan of the USDA Natural Resources Conservation Service (NRCS), and Alex Soroka of the US Geological Survey (USGS) filled AC seats that have affiliations set by statute.

After 25 years as an Extension educator at Cornell University, Deb was named director of NE-IPM in 2018 where she provides leadership for the Center and works closely with its stakeholders to advance IPM throughout the region.

Marian has worked for NRCS across the U.S. and is currently an NRCS District Conservationist in Vermont where she works with local conservation partners to promote the NRCS conservation programs and to implement conservation practices. She also conducts quality assurance reviews for program compliance.

As a physical scientist at the USGS Maryland-Delaware-DC Water Science Center in Baltimore, Alex primarily focuses on the interactions between agricultural practices and water quality.

Northeast SARE staff are thrilled to have these experienced professionals on the AC.

INNOVATIONS

PROFESSIONAL DEVELOPMENT PROJECT: ENE15-139

PA Extension reaches out to Hispanic and Latinx farming communities

A s more people of color choose farming and agricultural careers, Cooperative Extension and other agricultural service organizations must expand their ability to serve culturally diverse groups. Pennsylvania saw a 16% increase in Hispanic and Latinx farmers and farmworkers, inspiring Elsa Sanchez

of Pennsylvania State University to conduct a Northeast <u>SARE Professional</u> <u>Development</u> <u>Grant project</u> aimed at increasing understanding of the challenges and concerns these farmers face and developing strategies to better engage this community in Extension agricultural programs.



Twenty-five Extension educators, included those pictured above, took part in the project aimed at overcoming educational program participation barriers experienced by Hispanic farmers. Photo courtesy of Elsa Sanchez, Pennsylvania State University.

Twenty-five Extension agricultural educators participated in a series of three professional development trainings taught by a social psychologist, a specialist in Latinx community studies, and a panel of service providers that work closely with the Latinx community.

Participants also visited farms, met one-onone with Hispanic and Latinx farmers and farmworkers, and surveyed participants of the Spanish session of a regional fruit and vegetable conference to better understand farmer needs and learn ways to make them feel more welcome at Extension programs.

As a result of the project, 15 educators learned new information to better serve Hispanic and Latinx clientele and 12 educators were able to connect with 65 farmers and farmworkers during the project period.

Guidance on strategies to effectively connect with Hispanic farmers_ was published in a journal article, expanding the reach of project lessons learned to educators and agricultural service providers across the U.S.

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PARTNERSHIP PROJECT: ONE16-264

Project expands leafy green production in WV's Eastern panhandle

The Eastern Panhandle region of West Virginia is the fastest growing area in the state and is adjacent to large, diverse populations like Washington, D.C. and Baltimore. To meet the emerging demand for fresh produce from regional wholesale markets like hospitals, school districts and other institutional buyers, Lewis Jett of West Virginia University conducted a <u>Northeast SARE Partnership Grant</u> project to evaluate the feasibility of year-round leafy green production.

During the two-year project, 90 varieties of bibb, romaine and crisphead lettuces and 20 varieties of spinach were evaluated for marketable yield, quality, color and stress tolerance. To provide better control over growing conditions (especially given the challenges of field production in an erratic climate observed in the Mid-Atlantic region during spring through fall), all trials were conducted in unheated high tunnels located at the university research center as well as on two collaborating farms. As a result of the trials, Lewis and the team identified cultivars that work best for yearround production of lettuce and fall-spring production of spinach. Fact sheets were created that include best management practices for Mid-Atlantic <u>production of</u> <u>lettuce</u> and <u>spinach</u>, including cultivar selection, row cover management, economics and pest management.

The project also established connections with institutional markets, namely a local Veterans' Administration Hospital and WV's Hardy County School District. By working closely with institutional buyers, the team learned that sequential lettuce plantings (every 3 to 4 weeks) are key to meeting the ongoing needs of these markets. Lewis and the team plan to use lessons learned from the project to improve the efficiency of leafy green production and expand this model to additional growers and institutional buyers throughout West Virginia.









Left: The project identified promising lettuce cultivars for year-round production, including, from top to bottom, Sierra, Cherokee, Magenta and Monte Carlo, among others. Photos courtesy of Lewis Jett, West Virginia University.

INNOVATIONS

FARMER PROJECT HIGHLIGHT: FNE17-873

Pollinator buffers improve poultry farm sustainability & neighbor relations

Like many farms Jacross the region, Hill Farms, Inc. in Houston, Delaware has seen in increase in residential development surrounding their farm. Because maintaining positive neighbor

relations is important to this poultry operation, owner Tina Hill conducted a <u>Northeast</u> <u>SARE Farmer Grant</u> project to install a mixed vegetative buffer adjacent their poultry



Tina Hill of Hills Farms, Inc. shows pollinator house in vegetative buffer installed outside of her poultry houses to Michael Scuse, Delaware Secretary of Agriculture. Photo courtesy of Tina Hill.

houses. Tina was interested in creating a buffer that was costeffective, provided habitat for pollinators, was aesthetically pleasing and reduced odor, dust and noise from the poultry houses. Because the Hills raise vegetables, Tina was also interested in ways to attract native pollinators to the farm in lieu of renting honeybee hives.

A number of early-, mid- and late-season ornamental perennials were installed to provide nectar throughout the season. Clover and sunflowers were also planted to provide additional pollinator habitat and floral resources. During spring establishment, the plantings were irrigated, mowed and weeded, but were maintenance-free during the rest of the season.

A group of FFA students were recruited to provide pollinator counts and found that the number and diversity of pollinators in the vegetative buffer exceeded those found in the grass only control.

Tina said, "The results of the pollinator plot have been mostly positive. Many visitors to the farm have commented on the pretty wildflowers and

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Birds' eye view of Hills Farms, Inc. with vegetative buffer installed on three sides of the irrigation pond. Photo courtesy of Tina Hill, Hill Farms Inc.

habitat that have been created by the planting of the wildflowers. Bees, butterflies, and many different types of insects are visiting... [and] the pollinator patch has become the main attraction, not the poultry houses."

While Tina suggests that professional installation of vegetative buffers may be cost prohibitive to many Delmarva farmers, she believes the benefits outweigh the costs over the long haul.

The economics of cover cropping

In 2019, the national SARE Outreach office published the technical bulletin, *Cover Crop Economics: Opportunities to Improve Your Bottom Line in Row Crops.*

The 24-page document draws on yield and economic data gathered through five years of national cover crop surveys to address economic returns that may be expected from cover crops on commodity farms under various management scenarios.

The bulletin is available online at: www.sare.org/Learning-Center/Bulletins/Cover-Crop-Economics.



Year-end program results

Each year, Northeast SARE grant coordinators take stock of competitive grant projects completed from October 1 to September 30 to assess project outputs and outcomes. In 2019, eighty-seven projects were completed, totaling \$3,635,319. They included 31 Farmer Grant projects, 24 Graduate Student Grant projects, 15 Partnership Grant projects, 10 Research and Education projects, and 7 Professional Development Grant projects.

Because farmers are core to our competitive grants, staff calcuated that 476 farmers were directly involved in project research conducted, primarily hosting research trials on their farms. Collectively, the projects created 295 fact sheets, articles, curricula and other educational tools. They offered 221 workshops and field days, 131 online trainings, 381 on-farm demonstrations and tours, and provided 2,179 consultations to farmers.

In total, these projects trained 11,682 farmers and 4,045 agricultural service providers. As a result, 2,656 farmers made on-farm changes based on what they learned.

Through their efforts, project leaders formed 332 new collaborations and working partnerships, strengthening our sustainable agriculture community. And they secured 51 new grants, totaling \$7.1 million, to build on their work in the future.

projects completed in 2019, totaling \$3.6 million **11,682** agricultural service providers learned about sustainable agriculture practices and concepts through project activities

farmers changed the way they farm as a result of these projects

new grants secured that invest an million to expand on project efforts

farmers directly involved with research

2,656 farmers

verified gains in their knowledge, awareness, skills and attitudes resulting from what they learned

new collaborations and working partnerships formed

additional \$7.1

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2019 project awards

During the 2019 grant cycle, Northeast SARE funded 120 new competitive grant projects throughout the Northeast, totaling \$5,928,748. An additional \$646,588 was awarded to State SARE programs housed at land grant universities across the region to conduct professional development and SARE outreach. See the following 2019 awards, listed by state of project coordinators (note that many projects involve multi-state programming). Find more information about these and other SARE-funded projects by searching project name, number or coordinator on SARE's national database at: projects.sare.org/search-projects.

2019 awards on the map

- Farmer Grant
- Partnership Grant
- Graduate Student Grant
- Research and Education Grant
- Research for Novel Approaches Grant
- Professional Development Program Grant
- State Program

Connecticut

FARMER GRANT: FNE19-925

Honey Plant Intercropping on Christmas Tree Farms

Richard Cowles, Humming Grove Farm, Broad Brook CT \$10,032

FARMER GRANT: FNE19-939

Tree Regeneration and Establishment Strategies in Silvopasture and Sugarbush Systems

Joseph Orefice, Hidden Blossom Farm, Union CT \$13,450

FARMER GRANT: FNE19-944

Winter Triticale and Red Clover Double Cropping Field Trials for a 3-Year Production Cycle

Craig Stearns, Willard J. Stearns & Sons Inc., Storrs CT \$14,824

GRADUATE STUDENT GRANT: GNE19-213

Use of Lactic Acid Bacteria to Control *L. monocytogenes* on Apples under Simulated Commercial Conditions

Deepa Kuttappan, University of Connecticut, Storrs CT Advisor: Mary Anne Amalaradjou \$15,000

GRADUATE STUDENT GRANT: GNE19-221

Importance of Environmental Factors on Plantings of Wild-Simulated American Ginseng

Karam Sheban, Yale University, New Haven CT Advisor: Marlyse Duguid \$15,000

STATE PROGRAM: NECT17-001

Nutrition's Role in Sustainable Livestock Production Practices

Joe Bonelli, University of Connecticut, Storrs CT; Program Associates: Rachel Bespuda and Jean King \$75,110

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Delaware

GRADUATE STUDENT GRANT: GNE19-203

Improving Limitations to Market Growth of Biodiesel and Renewable Hydrocarbon Diesel Produced from Low- value Feedstocks

Shehu Isah, Delaware State University, Dover DE Advisor: Gulnihal Ozbay \$15,000

GRADUATE STUDENT GRANT: GNE19-210

Do Soil Health Practices Impact Subsurface "Legacy" Phosphorus Losses from Soils on the Delmarva Peninsula?

Lauren Mosesso, University of Delaware, Newark DE Advisor: Amy Shober \$14,713

GRADUATE STUDENT GRANT: GNE19-217

Microbial Inoculants for the Improvement of Alfalfa Crop Productivity and Health

Amanda Rosier, University of Delaware, Newark DE Advisor: Harsh Bais \$12,453

GRADUATE STUDENT GRANT: GNE19-219

Soil Microbiome Impacts on Floral Rewards and Implications for Pollinator Nutrition

Grace Savoy-Burke, University of Delaware, Newark DE Advisor: Deborah Delaney \$14,984

PARTNERSHIP GRANT: ONE19-344

Cost Benefits of Common Insecticide Practices Used to Prevent Soybean Pest Problems in Delaware

David Owens, University of Delaware, Georgetown DE \$28,221

STATE PROGRAM: NEDE17-001

Beginning Farmer Workshops

Dan Severson, University of Delaware, Newark, DE \$16,321

STATE PROGRAM: NEDSU17-001

Cover Crop and Soil Health Training for Agriculture Service Providers in Delaware and the Eastern Shore of Maryland

John Clendaniel, Delaware State University, Dover, DE Program Associate: Jason Challandes \$83.332

Maine

FARMER GRANT: FNE19-921 Evaluating Alternative Malting

Barley Varieties and their Acceptance in the Northeast Craft Brewing Community

Jacob Buck, Buck Farms, Mapleton ME \$14,509

FARMER GRANT: FNE19-932

European Corn Borer Detection in Local Hopyards

Ryan Houghton, The Hop Yard, Portland ME \$6,247

FARMER GRANT: FNE19-936

Using Shading to Control Algal Biofouling on a Floating Oyster Farm

Jordan Kramer, Winnegance Oyster Farm, Portland ME \$12,805

FARMER GRANT: FNE19-940

Development of a New Seaweed Growing System for Nori Production in the Northeast

Sarah Redmond, Springtide Seaweed LLC, Gouldsboro ME \$15,000

FARMER GRANT: FNE19-946

Developing Management Options for *Staph aureus* on Organic Dairies

Katie Webb Clark, Reed Farm, Windsor ME \$13,157

GRADUATE STUDENT GRANT: GNE19-194

Analyzing Early Growth Characteristics and Anchorage Force to Improve Cultivation Tolerance in Carrots

Rebecca Champagne, University of Maine, Orono ME Advisor: Eric Gallandt \$14,683

GRADUATE STUDENT GRANT: GNE19-218

Automated Net Return Mapping: Using Inexpensive Technology for Maximizing Profit of Small-Scale Farms

Johnny Sanchez, University of Maine, Orono ME Advisor: Eric Gallandt \$14,806

PARTNERSHIP GRANT: ONE19-334

Maine Climate Resilience Training Program

Ryan Dennett, Maine Organic Farmers and Gardeners Association, Unity ME \$29,787

PARTNERSHIP GRANT: ONE19-341

Expanding Quahog and Oyster Polyculture in Maine

Marissa McMahan, Manomet, Brunswick ME \$29,575

RESEARCH AND EDUCATION GRANT: LNE19-374

Nutrient and Weed Management Strategies for Organic Wild Blueberry Growers

Lily Calderwood, University of Maine, Orono ME \$199,828

RESEARCH AND EDUCATION GRANT: LNE19-377

Building Social Sustainability on Farms through Online and In-Person Education

Leslie Forstadt, University of Maine, Orono ME \$197,676

STATE PROGRAM: NEME17-001

Strengthening Knowledge, Skills and Networks for Soil Security in Maine

Ellen Mallory, University of Maine, Orono ME Program Associate: Tom Molloy \$46,663



Massachusetts

FARMER GRANT: FNE19-916

Evaluation of Electrolyzed Water as a Low-Cost, Organic Method to Reduce Contamination in Indoor Production of Gourmet Mushrooms

Elizabeth Almeida, Fat Moon Mushrooms, Westford MA \$15,000

FARMER GRANT: FNE19-926

The Impact of Mushroom Extracts on Honey Bee Health Willie Crosby, Fungi Ally, Hadley MA \$15.000

FARMER GRANT: FNE19-929

Bringing Local Back to Kosher: Continuing Pioneering Research to Create a Commercial Processing Facility

Robert Friedman, Robariah Farms, Deerfield MA \$15,000

FARMER GRANT: FNE19-934

Determining Growth Potential of the Eastern Oyster by Volumetric Comparison Utilizing Soda Bottle Upwellers

Cheryl James, Aquacultural Research Corporation, Dennis MA \$14,294

GRADUATE STUDENT GRANT: GNE19-193

Understanding Agrihoods: An Exploration into the Growing Trend of Farm-to-Table Communities across the United States

Benjamin Breger, University of Massachusetts, Amherst MA \$14,932

GRADUATE STUDENT GRANT: GNE19-200

Identifying Mechanisms behind Interacting Stressors on Wild Bees to Inform Pollinator-Friendly Agricultural Landscapes

Alison Fowler, University of Massachusetts, Amherst MA Advisor: Lynn Adler \$14,932

PARTNERSHIP GRANT: ONE19-326

Identifying the Most Effective and Accessible Queen Rearing Method to Strengthen Northeast Beekeeping Practices

Hannah Whitehead, University of Massachusetts, Amherst MA \$17,879



Robert Friedman of Robariah Farm discusses kosher poultry processing with CT-MA-RI SARE project coordinator Rachel Bespuda.

PARTNERSHIP GRANT: ONE19-332

Improving Producer Cooperatives: Best Practices in Marketing, Distribution and Governance

Margaret Christie, Community Involved in Sustaining Agriculture, South Deerfield MA \$23,750

PARTNERSHIP GRANT: ONE19-354

Measuring Soil Health and Carbon Sequestration in an Emerging Chestnut Agroforestry System

Keith Zaltzberg, Regenerative Design Group, Greenfield MA \$18,700

RESEARCH AND EDUCATION GRANT: LNE19-376

Growing the Specialty Mushroom Industry in the Northeast

Willie Crosby, Fungi Ally, Montague MA \$98,796

RESEARCH FOR NOVEL APPROACHES GRANT: LNE19-386R

Creative Farm Business Models to Address Employee Hiring, Training and Management Barriers

Kevin Cody, New Entry Sustainable Farming Project, Beverly MA \$159.988

RESEARCH FOR NOVEL APPROACHES GRANT: LNE19-390R

Reframing the Sustainable Farming Narrative to Help Northeast Farmers Effectively Activate Consumers

Michael Rozyne, Red Tomato, Plainville MA \$175.412

RESEARCH FOR NOVEL APPROACHES GRANT: LNE19-393R

Farming Tautog as a High Value Fish while Reducing Invasive Crab Populations

Daniel Ward, Ward Aquafarms, North Falmouth MA \$149,179

Maryland

GRADUATE STUDENT GRANT: GNE19-197

Farming in the Face of Climate Change: Planting Alternative Crops in Salt-intruded Fields

Elizabeth de la Reguera, University of Maryland, College Park MD Advisor: Katherine Tully \$14,995

GRADUATE STUDENT GRANT: GNE19-206

Novel Application of Existing Beekeeping Equipment to Combat Inter-colony Transmission of the Varroa Honey Bee Parasite

Kelly Kulhanek, University of Maryland, College Park MD Advisor: Dennis van Engelsdorp \$14,976

GRADUATE STUDENT GRANT: GNE19-207

Plant Growth Promoting Rhizobacteria to Benefit Kale Production: Resilience to Drought Stress, Salinity and Microbial Food Safety

Xingchen Liu, University of Maryland, College Park MD Advisor: Shirley Micallef \$15,000

GRADUATE STUDENT GRANT: GNE19-209

Healthy Soils, Healthy Farmers: Assessing Farmers' Soil Contact Activities and Soil Contamination on Urban and Rural Farms

Sara Lupolt, Johns Hopkins University, Baltimore MD Advisor: Keeve Nachman \$15,000



Naveen Kumar, Maryland SARE coordinator with University of Maryland--Eastern Shore, gives a demonstration in the orchard. Photo credit: Naveen Kumar

GRADUATE STUDENT GRANT: GNE19-211

Honey Bee Pathophysiology as a Predictive Measure of Overwinter Colony Loss

Anthony Nearman, University of Maryland, College Park MD Advisor: Dennis van Engelsdorp \$14,506

GRADUATE STUDENT GRANT: GNE19-224

Effects of Living Mulch and Cover Crop Residues on Natural Enemy Abundance and Efficacy in Sweet Corn

Veronica Yurchak, University of Maryland, College Park MD Advisor: Cerruti Hooks \$14,009

RESEARCH FOR NOVEL APPROACHES GRANT: LNE19-392R

Improving Honey Bee Health and Crop Visitation during Pollination

Kirsten Traynor, University of Maryland, College Park MD \$148.827

STATE PROGRAM: NEUMD17-001

Building Soil Health in Maryland through Agricultural Service Provider Education

Nevin Dawson, University of Maryland, Denton MD \$79,724

STATE PROGRAM: NEUMES17-001

Demonstration of Successful Apple Orchard Establishment on the Eastern Shore of Maryland

Naveen Kumar, University of Maryland--Eastern Shore, Princess Anne MD \$16,666



New Hampshire

GRADUATE STUDENT GRANT: GNE19-198

Improving Biopesticide Efficacy of Apple Diseases through Co-application with Natural Products

Liza DeGenring, University of New Hampshire, Durham NH Advisor: Anissa Poleatewich \$14.685

PARTNERSHIP GRANT: ONE19-349

NH Community Food Ambassadors for Mobile Farmers Markets

Matthew Thorne, Organization for Refugee and Immigrant Success Manchester NH \$30.000

PROFESSIONAL DEVELOPMENT GRANT: ENE19-155

Improving Professional Capacity to Deliver Farm Succession Planning Assistance in New England

Shemariah Blum-Evitts, Land for Good, Keene NH \$101,021

STATE PROGRAM: NENH17-001

Tech-transfer for NH Beekeepers

Olivia Saunders, University of New Hampshire, Conway NH Program Associate: Jill Tomlinson \$44,381

New Jersey

FARMER GRANT: FNE19-931

Cold Storage of Eastern Oysters, Crassostrea virginca, to Reduce Winter Mortality in an Increasingly Variable Environment

Elizabeth Haskin, Betsy's Cape Shore Salts, Cape May Court House NJ \$14.845

GRADUATE STUDENT GRANT: GNE19-212

Increasing Consumer Acceptance of Baby Leafy Greens Grown in a Controlled Environment

Regina O'Brien, Rutgers University, New Brunswick NJ Advisor: Beverly Tepper \$15,000

PARTNERSHIP GRANT: ONE19-345

Alternative and Organic Management Practices to Control Oriental Beetle in Commercial Blueberries

Dean Polk, Rutgers University, Bridgeton NJ \$29,848

PROFESSIONAL DEVELOPMENT GRANT: ENE19-157

Training Agriculture Service Providers on the Nitty-Gritty Details of No-Till and Cover Crop Practices for Greater Implementation

Bridgett Hilshey, North Jersey Resource Conservation and Development, Asbury NJ \$148,966

STATE PROGRAM: NENJ17-001

Using Demographic Information to Identify Specialty Crop Markets

Michelle Infante-Casella, Rutgers University, Clarksboro NJ \$40,000

New York

FARMER GRANT: FNE19-917

Ecological Urban Farming: Adaptation of No-Till, Compost Mulching and Perennial Hedgerows for the NYC Ecosystem

Orion Ashmore, Project EATS Help Sec Farm, New York NY \$14,987

FARMER GRANT: FNE19-918

Establishing a Cooperative Business Model for Marketing and Selling Kunekune Pork Products

Jennifer Bassman, Heritage Haus Farm, Berkshire NY \$13.807

FARMER GRANT: FNE19-919 Sustainable Wine Professional Course

Whitney Beaman, Bedell Cellars, Cutchogue NY \$14.842

FARMER GRANT: FNE19-922

Sweet Potato Production: Growing Slips/Cuttings For Distribution to Local Farmers

Peter Bump, Pete's Plentiful Produce, Sodus NY \$2,302

FARMER GRANT: FNE19-924

Reduced Till and No-Till Planting of Vegetables in a Vetch/ Triticale Cover Crop

Jean-Paul Courtens, Roxbury Farm, Johnstown NY \$15,000

FARMER GRANT: FNE19-930

Quantifying Nutritional Value and Best Practices for Woody Fodder Management in Ruminant Grazing Systems

Steve Gabriel, Wellspring Forest Farm, Trumansburg NY \$14,920

FARMER GRANT: FNE19-933

Evaluation of Nursery Methods on Plant Development and Grain Yield of Rice

Dawn Hoyte, Ever-Growing Family Farm, Ulster Park NY \$14,487

FARMER GRANT: FNE19-938

Addressing Labor Shortages in the Northeast: A Mechanical Vegetable Harvester for Small and Mid-scale Farms

Joseph Morgiewicz, Morgiewicz Produce, Goshen NY \$14,978

FARMER GRANT: FNE19-942

Healthy Soil for Urban Farm Production: Building from Scratch

Kyle Rittenburg, VINES Urban Farm, Binghamton NY \$13,624

GRADUATE STUDENT GRANT: GNE19-201

Antibiotics in the Dairy Farm Environment: Understanding Antibiotic Transport to Improve Farm Sustainability

Christine Georgakakos, Cornell University, Ithaca NY Advisor: Todd Walter \$11,782

GRADUATE STUDENT GRANT: GNE19-204

Elucidating the Role of Microarthropods in Nitrogen Cycling

Ashley Jernigan, Cornell University, Geneva NY Advisor: Kyle Wickings \$14,715

GRADUATE STUDENT GRANT: GNE19-208

Characterization of Diversity in Traditional Northeastern Dry Bean Varieties and Potential for Genetic Improvement

Kristen Loria, Cornell University, Ithaca NY Advisor: Michael Mazourek \$14.932

GRADUATE STUDENT GRANT: GNE19-220

Maximizing Colostrum's Benefits and Reducing Antibiotic Use through Physiological Feeding Management of Dairy Calves

Kasey Schalich, Cornell University, Ithaca NY Advisor: Vimal Selvaraj \$14,877

GRADUATE STUDENT GRANT: GNE19-223

Identifying Tomato Varieties with Resistance to Current Aggressive Strains of the Leaf Mold Pathogen

Martha Sudermann, Cornell University, Geneva NY Advisor: Christine Smart \$14,797

PARTNERSHIP GRANT: ONE19-327

Two-spotted Spider Mite IPM for Urban Agriculture

Samuel Anderson, Cornell University, Brooklyn NY \$20,836

PARTNERSHIP GRANT: ONE19-328

Training Northeast Farmers to Confront and Dismantle Racism and Inequity in Food and Farming Systems

Caitlin Arnold, National Young Farmers Coalition, Hudson NY \$26,712

PARTNERSHIP GRANT: ONE19-330

Demonstrating Soil Health Improvements through Adoption of Interseeded Cover Crops and Grazing

Janet Britt, Agricultural Stewardship Association, Greenwich NY \$28,600

PARTNERSHIP GRANT: ONE19-336

Developing Integrated Pest Management Strategies to Reduce Damage from the Invasive Allium Leafminer on Organic Farms

Ethan Grundberg, Cornell University, Middletown NY \$29,943

PARTNERSHIP GRANT: ONE19-337

Creating Goat Artificial Insemination Video Training Materials

Betsy Hodge, Cornell Cooperative Extension, Canton NY \$9,086

PARTNERSHIP GRANT: ONE19-351

Postharvest Handling of Garlic for Control of Pests and Disease Crystal Stewart. Cornell

University, Johnstown NY \$29,968

PARTNERSHIP GRANT: ONE19-353 Biological Control of Chestnut Weevil

Denis Willett, Cornell University, Geneva NY \$29.684

RESEARCH AND EDUCATION GRANT: LNE19-372

Identification and Remediation of Compaction on Northeast Pasture Soils

Fay Benson, Cornell Cooperative Extension, Cortland NY \$95.906

RESEARCH AND EDUCATION GRANT: LNE19-382

Tarping to Advance Reduced Tillage Systems on Small-Scale Vegetable Farms

Anusuya Rangarajan, Cornell University, Ithaca NY \$199.962

RESEARCH AND EDUCATION GRANT: LNE19-383

Biological Control of Corn Rootworm in Conventional and Organic Corn Production

Elson Shields, Cornell University, Ithaca NY \$199,199

RESEARCH FOR NOVEL APPROACHES GRANT: LNE19-384R

Impact of Biochar on Moisture and Nutrient Retention in Long Island Nurseries

Deborah Aller, Cornell Cooperative Extension, Riverhead NY \$83,949

RESEARCH FOR NOVEL APPROACHES GRANT: LNE19-385R

Sustainable Management of Fire Blight in Apples using Plant Growth Regulators and Plant Defense Activators

Kerik Cox, Cornell University, Geneva NY \$118,125

RESEARCH FOR NOVEL APPROACHES GRANT: LNE19-388R

Control of Cucumber Downy Mildew through Nighttime Application of Ultraviolet Light Before and After Infection

Mark Rea, Rensselaer Polytechnic Institute, Troy NY \$198,745

PROFESSIONAL DEVELOPMENT GRANT: ENE19-156

Spawning a Network of Northeast Mushroom Educators serving Urban and Rural Farmer Audiences

Yolanda Gonzalez, Cornell Cooperative Extension, Brooklyn NY \$144,938

STATE PROGRAM: NENY17-001

Baskets to Pallets II: Establishing a NYS Leadership Team of Wholesale Marketing Specialists

Violet Stone, Cornell University, Ithaca NY \$55,555



Pennsylvania

FARMER GRANT: FNE19-945 Farmer-Built Grain Pearling Machine

Nigel Tudor, Weatherbury Farm, Avella PA \$14,748

GRADUATE STUDENT GRANT: GNE19-195

Purification and Testing of Corn-based Biopesticide

Debamalya Chatterjee Pennsylvania State University, State College PA Advisor: Surinder Chopra \$15,000

GRADUATE STUDENT GRANT: GNE19-199

Development of Microbial Communities to Suppress Tomato Foliar Pathogens

Hanareia Ehau-Taumaunu, Pennsylvania State University, University Park PA Advisor: Kevin Hockett \$15,000

"What started as the advisory board for the [project] has become a region-wide network of technical service providers, researchers educators and practitioners convening around support for the development of agoforestry systems in the Northeast and mid-Atlantic regions."

Tracey Coulter

PA DCNR Bureau of Forestry Professional Development Project Co-Recipient: *"Northeast* Advanced Agroforestry Training for Natural Resource and Agricultural Educators" (ENE15-134)

GRADUATE STUDENT GRANT: GNE19-202

Mitigation of Heat Stress in Dairy Cattle by Dietary Supplementation of Octanoic Acid

Longfei Han, Pennsylvania State University, University Park PA Advisor: Chad Dechow \$15,000

GRADUATE STUDENT GRANT: GNE19-214

Defining Mechanisms Underlying Mite Tolerance and Honey Bee Survival

Allyson Ray, Pennsylvania State University, University Park PA Advisor: Christina Grozinger \$14,998

GRADUATE STUDENT GRANT: GNE19-215

Using Protective Cultures to Control *Listeria monocytogenes* in Microbiomes from Small-Scale Dairy Production Facilities

Maria Laura Rolon, Pennsylvania State University, University Park PA Advisor: Jasna Kovac \$14,940

GRADUATE STUDENT GRANT: GNE19-216

Assessing the Effects of Neonicotinoid Treatments on Pumpkin on Bee Visitation and Pathogen Transmission

Ginamaria Roman Echevarria, Pennsylvania State University, University Park PA Advisor: Margarita Lopez-Uribe \$11,435

GRADUATE STUDENT GRANT: GNE19-222

Optimization of Greenhouse Crop Pollination through Artificial Homeostatic Control of Bumblebee Hive Temperature

Hannah Stewart, Pennsylvania State University, University Park PA Advisor: Rudolf Schilder \$13,931

GRADUATE STUDENT GRANT: GNE19-225

Development of a Robotic Pruning System for Sustainable Apple Production

Azlan Zahid, Pennsylvania State University, Biglerville PA Advisor: Long He \$15,000

PARTNERSHIP GRANT: ONE19-339

Planting Green Strategies for Maximizing Corn Emergence

Zachary Larson, Pennsylvania State University, Martinsburg PA \$29,526

PARTNERSHIP GRANT: ONE19-340

Maximizing Pollination Services for Blueberry Production in Pennsylvania

Margarita Lopez-Uribe, Pennsylvania State University, University Park PA \$29,575

PARTNERSHIP GRANT: ONE19-346

Producing Quality Poultry Bedding with a Trailer Mounted System

Wesley Ramsey, Penn Soil RC&D Council, Warren PA \$29,993

PARTNERSHIP GRANT: ONE19-352

Does Artificial Feed Impact Health and Survival of Honey Bee Colonies?

Robyn Underwood, Pennsylvania State University, University Park PA \$22.695

RESEARCH AND EDUCATION GRANT: LNE19-378

Sensor-Based Precision Irrigation Systems for Tree Fruit and Vegetable Crops

Long He, Pennsylvania State University, Biglerville PA \$199,936

RESEARCH AND EDUCATION GRANT: LNE19-380

Biological Control Options for Fly Control in Poultry Facilities

Erika Machtinger, Pennsylvania State University, University Park PA \$224,003

RESEARCH FOR NOVEL APPROACHES GRANT: LNE19-389R

Adapting Chinese Morel Cultivation Strategies for Farmers in the Northeast

John Pecchia, Pennsylvania State University, University Park PA \$140,581

STATE PROGRAM: NEPA17-001

Establishing a Service Provider Network for Alternative Grain Crops in Pennsylvania

Kristy Borrelli, Pennsylvania State University, University Park PA \$44,695

Rhode Island

FARMER GRANT: FNE19-923

Viability of Hogging Down Corn and Peas as Swine Feedstock

Ben Coerper, Wild Harmony Farm, Exeter RI \$9.673

FARMER GRANT: FNE19-927

Evaluation of Microclover Black Beauty as a Semi-Permanent Cover

Crop and Living Mulch in Organic Tomato Production

John Eidson, Sodco Inc., Slocum RI \$4,228

FARMER GRANT: FNE19-943

Effect of an Indigenous Soil Microbial Inoculant on Soil, Soil Microbial Community and Leaf Nutrient Density

Rebecca Roberts, Endless Farm, Johnston RI \$12.323

GRADUATE STUDENT GRANT: GNE19-192

Best Management Practices for Small-scale Egg Producers

Julie Bosland, University of Rhode Island, Kingston RI Advisor: Becky Sartini \$14,901

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RESEARCH AND EDUCATION GRANT: LNE19-381

Expanding Opportunities for Sustainable Management of Small Ruminant Gastrointestinal Parasites

Katherine Petersson, University of Rhode Island, Kingston RI \$242,071

STATE PROGRAM: NERI17-001

Season Extension with Caterpillar Tunnels on Rhode Island Farms

Heather Faubert, University of Rhode Island, Kingston RI \$20,500



Vermont

FARMER GRANT: FNE19-920

Comparing Management-Intensive Rotational Grazing Strategies to Enhance Land Regeneration and Farmer Livelihood

Brandon Bless, Bread and Butter Farm, Shelburne VT \$13,108

FARMER GRANT: FNE19-935

Feasibility of Integrating Sheep into Vermont Vineyards: An Initial Look at Ecologic & Economic Benefits

Ethan Joseph, Shelburne Vineyard Shelburne VT \$6,419

FARMER GRANT: FNE19-937

Modular Meat Processing Facility for Small Grazing Operations

Brian Leach, Haystack Farmstead, Pawlet VT \$14,745

FARMER GRANT: FNE19-941

Nutritional Contribution of Forage on Pasture-Raised Pigs

Alessandra Rellini, Agricola Farm Panton VT \$3,328

GRADUATE STUDENT GRANT: GNE19-205 Impacts of Silage

Tarps on Soil Arthropods, Soil Properties and Crop Yields

Eva Kinnebrew, University of Vermont, Burlington VT Advisor: Gillian Galford \$15.000

PARTNERSHIP GRANT: ONE19-329

Increasing Yield and Carbon Sequestration of Hemp Production with Understory Companion Crops

Eric Bishop-von Wettberg, University of Vermont, Burlington VT \$20,224

PARTNERSHIP GRANT: ONE19-331

The Ag Engineering Podcast: Tools, Tips and Techniques for Improving Sustainability on Your Farm

Andrew Chamberlin, University of Vermont, South Burlington VT \$27,280

PARTNERSHIP GRANT: ONE19-333

Developing Pest and Fertility Best Practices for Industrial Hemp

Heather Darby, University of Vermont, Saint Albans VT \$29.973

PARTNERSHIP GRANT: ONE19-335

Mycoremediation of Phosphorus in Agricultural Runoff using Mycorrhizal-Plant Associations

Josef Gorres, University of Vermont, Burlington VT \$29,981

PARTNERSHIP GRANT: ONE19-343

Anaerobic Soil Disinfestation to Control Soilborne Pathogen *Rhizoctonia solani* in VT Field Conditions

Deborah Neher, University of Vermont, Burlington VT \$30,000

PARTNERSHIP GRANT: ONE19-348

Building a Resilient Farmer Network in the Face of Climate Disruption

Beth Roy, Vital Communities, White River Junction VT \$29,917

PARTNERSHIP GRANT: ONE19-350

Supporting Local

Agriculture via Clinical Research: Human Studies with Elderberries to Improve Biomarkers of Obesity

Patrick Solverson, University of Vermont, Burlington VT \$29,998

RESEARCH AND EDUCATION GRANT: LNE19-373

New England Cider Apple Program: Optimizing Production for High-Value Markets

Terence Bradshaw, University of Vermont, Burlington VT \$229,314



Andrew Chamberlin of the University of Vermont records an ag engineering podcast with farmers. Photo credit: Andrew Chamberlin



"We have demonstrated that by replacing insecticide sprays with long-lasting insecticide-treated nets on pheromone-baited apple trees, we eliminate the need for insecticide applications and protect apple fruit from injury at least as well as, and in some cases better than, standard grower programs. Pheromone lures used in these trials are now commercially available as well."

Tracy Leskey

USDA Agricultural Research Service Research and Education Grant Recipient:

"Building attract-and-kill systems for management of the brown marmorated stink bug in apple orchards" (LNE14-334)

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RESEARCH AND EDUCATION GRANT: LNE19-375

Staying Ahead in the Packshed: Improving Postharvest Equipment and Building Guidance for Fruit and Vegetable Farms

Christopher Callahan, University of Vermont, Bennington VT \$129,567

RESEARCH AND EDUCATION GRANT: LNE19-379

Pre- and Post-Harvest Strategies for Leek Moth Control on Diversified Vegetable Farms

Victor Izzo, University of Vermont, Burlington VT \$102,799

RESEARCH FOR NOVEL APPROACHES GRANT: LNE19-391R

Turn the Tap: Integrated Research to Support Sustainable Irrigation Practices on Northeast Vegetable Farms

Rachel Schattman, University of Vermont, Burlington VT \$124,982

STATE PROGRAM: NEVT17-001

Enhancing Evaluation Capacity to Improve Sustainable Agriculture Programs and Outcomes in VT

Beth Holtzman, University of Vermont Extension, Barre VT \$46,111

Washington, DC

STATE PROGRAM: NEDC18-001

Enabling New Agripreneurs through UDC's Farmer and Service Provider Training Program

Mamatha Hanumappa, University of the District of Columbia, Washington DC \$16,666

West Virginia

GRADUATE STUDENT GRANT: GNE19-196

Characterization of Novel Long Noncoding RNAs and Their Roles as Indicators of Oocyte Quality in Cattle

Jaelyn Current, West Virginia University, Morgantown WV Advisor: Jianbo Yao \$14,884

PARTNERSHIP GRANT: ONE19-338

Preserving the Past for the Future: Evaluating Production, Processing and Marketing of Appalachian Heritage Beans

Lisa Jones, West Virginia University, Morgantown WV \$29,356

PARTNERSHIP GRANT: ONE19-342

Implementing Beginning Farmer Training in Geographic Areas via WV Collaborative Regional Alliance for Farmer Training

Spencer Moss, West Virginia Food & Farm Coalition, Charleston WV \$29,067

PARTNERSHIP GRANT: ONE19-347

Advancing Walnut Syrup Production for Increased Profitability and Farm Income Diversification

Michael Rechlin, Future Generations University, Franklin WV \$26.685

RESEARCH FOR NOVEL APPROACHES GRANT: LNE19-387R

A Novel Phosphate Sorbent to Reduce Non-point Source Pollution and Increase Plant Production

Lian-Shin (Lance) Lin, West Virginia University, Morgantown WV \$199.813

STATE PROGRAM: NEWVU17-001

Enhancing the Viability and Profitability of Direct Sales and Agritourism Agripreneurs through Education, Clustering and Networking Opportunities

Doolaire Singh-Knights, West Virginia University, Morgantown WV \$44.200

STATE PROGRAM: NEWVSU17-001

Growing Grant Writing and Management Capacity with WV Ag Service Providers to Support Our Ag Community

Barbara Liedl, West Virginia State University, Institute WV \$16,664



Additional Projects

PROFESSIONAL DEVELOPMENT GRANT: ENE19-154

Building the Resiliency of Farms through Farm Law Education of Agriculture Professionals

Rachel Armstrong, Farm Commons, Duluth MN \$155,725

PROFESSIONAL DEVELOPMENT GRANT: ENE19-158

The Soil Life Short Course: Empowering Agriculture Professionals to Recognize, Quantify and Conserve Beneficial Soil Animals

Eric Lee-Mader, The Xerces Society, Portland OR \$114,618





Northeast SARE

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