

Learning from Your Own Farm

Farmer/Grower Grant Success Stories



PENNSTATE



College of Agricultural Sciences
Agricultural Research and Cooperative Extension

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INTRODUCTION

Farmers often have questions they want researched, which can best be investigated on their own farms rather than on university research plots. As they watch the results of a research experiment unfold on their own farms, they can gain more valuable information from such experience-based learning than can be conveyed from a workshop or meeting. Farmer involvement in designing and conducting field-based experiments or marketing projects can also help ensure that recommended practice changes are grounded in real-world experience.

For several years, the Northeast Sustainable Agriculture Research and Education (NE-SARE) program from the U.S. Department of Agriculture has provided modest funding to farmers who would like to initiate their own on-farm research on topics related to sustainable agriculture. The purpose of this publication is to provide some examples of how other farmers in Pennsylvania have conducted on-farm research to answer marketing and production questions.

If you are interested in applying for a farmer/grower grant with NE-SARE or would like to find out more information, visit the NE-SARE Web site at www.uvm.edu/~nesare.

The authors would like to express their sincere appreciation to each of the farmers who took time from very busy schedules to help us capture their experiences to share with others.



BIG CREEK VINEYARD

Dominic Strohlein

Kresgeville, Pa.

www.bigcreekvineyard.com

NE-SARE Project Number: FNE01-394

The Use of Corn Gluten Meal for Weed Control in Vineyards

Eleven years ago, Dominic Strohlein was an amateur winemaker growing grapes on his family's farm in northeastern Pennsylvania. After traveling the world talking to people in the industry and researching the wine market, Strohlein turned his part-time hobby into his full-time passion.

Strohlein owns and operates Big Creek Vineyard in Kresgeville, Pennsylvania. He grows twelve varieties of wine grapes and produces fourteen different types of wine for retail distribution. He relies on the Pennsylvania Wine Grape Network, other growers, cooperative extension, and the latest research to make his crop decisions.

Pennsylvania grape growers face many challenges, especially unpredictable weather, which can wreak havoc on the sun-loving grape—too much rain brings fungal diseases, early frosts can kill, and pests and weeds can abound. Strohlein claims he “looks at solid research before attempting new things.” Young grape vines are susceptible to competition, and Strohlein doesn't rely on pesticides; instead, he uses a grape hoe or weeds by hand.

Strohlein heard about the NE-SARE farmer/grower grant program from his extension educator, Mark Chien. “Big Creek is in a remote location of Monroe County, and Mark went out of his region to help me,” said Strohlein. Eager to try new methods of organic weed control, Strohlein talked to his colleagues about investigating the use of corn gluten meal for weed control in vineyards.

The farmer/grower project at Big Creek evaluated the effectiveness of an organic preemergent compound (corn gluten meal) in the vineyard. Following traditional mechanical postemergent weed control or organic burn-down product (Burnout) in the spring, an application of corn gluten meal was evaluated for its effectiveness at suppressing weed seed germination. The study was carried out on one 17-acre and one 5-acre field planted in 25 percent French-American hybrid wine grape varieties and 75 percent European wine grape varieties.

Corn gluten meal efficiency requires an accurate application rate, thoroughness while working into the upper portion of the soil, and wetting of the product. During the project, Strohlein experienced a dry spring and found that the row mulcher did not accurately apply the compound. The need to apply corn gluten meal to bare ground and then work it into the soil in a timely manner indicated to the researchers that mechanical weeding was the most efficient and cost effective.

The NE-SARE farmer/grower grant “was a painless process. . . . The people involved were helpful from the concept stage through the implementation stage. . . . It was a true partnership,” says Strohlein. Rich Tregidgo, a farmer rep, provided information on corn gluten meal, Dr. Nick Christians, professor of horticulture at Iowa State University, worked on the experimental design, and Mark Chien developed the outreach plan. Strohlein's advice to others is to “keep the research design simple, start the process well in advance, and don't try to save the world with one grant. Pick several cooperators to work with, including cooperative extension.”



CEDAR MEADOW FARM

Steve Groff

Holtwood, Pa.

www.cedarmeadowfarm.com

NE-SARE Project: FNE99-250
(one of five SARE grants received)

Economic Impact of No-Till Processing Tomatoes versus Conventional Processing Tomatoes

NE-SARE farmer educator Steve Groff is no stranger to sustainable agriculture. In fact, he considers farming environmentally a lifestyle. Groff, winner of numerous awards, including Mid-Atlantic Master Farmer, Pennsylvania Sustainable Agriculture Leadership awards, and a National No-Till Innovator award, developed the “permanent cover cropping system,” which focuses on using no-tillage, crop rotation, and cover crops to increase soil and water quality, reduce the use of pesticides, and ultimately increase farm profits. His system emphasizes having something living in the soil at all times. The permanent cover system has eliminated the soil erosion problems on his farm’s 3 to 17 percent slopes.

Groff is a third-generation farmer. He and his family own and operate Cedar Meadow Farm in Holtwood, Pennsylvania. The 200-acre farm is a model of sustainable agriculture, producing a mix of no-till corn, soybeans, forage, and market vegetables. The farm also has a small bison herd. Cedar Meadow markets its products at farmers’ markets, restaurants, and a grocery chain. One of the farm’s challenges is managing the crop system while being profitable.

Steve received a NE-SARE grant to study the economic and environmental impact of no-till tomatoes versus conventional processing tomatoes. First, he planted 20 acres of rye and hairy vetch as a cover crop, rolled it with a rolling stalk chopper the following spring, and no-till planted processing tomatoes. An additional 50 acres of tomatoes were planted by conventional methods, which included tillage and no cover crop. Results of the research concluded that the no-till system retained more water, reduced the losses due to fungal rot, and provided weed control.

Data from the NE-SARE grant enabled Groff “to compare, observe, and enable other farmers to learn from it.” Groff speaks at 10 to 15 events per year and hosts several field days at the farm, which also serves as a research site for Penn State, the University of Maryland, and the Rodale Institute. Moving forward, Groff wants to continue to be a good environmental steward and learn new farm management techniques by fine-tuning practices and continuing his research and training.

Groff maintains that NE-SARE farmer/grower grants “enable you to springboard research into other things, validate your gut feelings, and stimulate you to pursue other challenges. The NE-SARE projects provide integrity to your project by providing research-backed conclusions. In addition, the research results come from a functioning farm, and you can share your results with your colleagues.”

Groff’s advice to other NE-SARE applicants is to “pick one area that you personally have an interest in, focus, and get collaborators. Cooperative extension helps disseminate findings, looks at your research design, and provides invaluable advisory support.”



CHARLESTOWN COOPERATIVE FARM

Kathryn Andersen

Phoenixville, Pa.

www.charlestowncooperativefarm.org

NE-SARE Project: FNE03-450

Think Globally, Eat Locally

The NE-SARE farmer/grower grant program was a catalyst for growth for both the Charlestown Cooperative Farm and for the Andersen family. The Andersens submitted their NE-SARE farmer/grower grant application right after they obtained their land. “We were just starting out and looking to raise awareness about locally grown, organic food,” says Liz Andersen.

The Andersen family acquired their 150-acre farm to save the land from pending development. They established the Charlestown Cooperative Farm in 2001 to provide their 175 CSA (community supported agriculture) members with quality naturally grown produce. All of the family members have a role in the farm’s operations. In 2003, daughter and high school student Kathryn Andersen organized a very successful “Think Globally, Eat Locally” food festival, which was funded by SARE. “It was the first time Katy organized such a large-scale event, and she was a little shy when she was contacting local chefs about participating,” says Liz.

An NE-SARE farmer/grower grant provided money for the food festival. The Pennsylvania Association of Sustainable Agriculture (PASA) helped the Andersens identify potential partners for the event, which involved local chefs, farmers, CSA volunteers, and restaurant owners. The festival attracted more than 200 people, increased appreciation and demand for locally grown produce, educated members of CSAs and shoppers at farmers’ markets about ways to use fresh vegetables, and created an event in which members and area residents networked and met others who appreciate fresh food grown in a sustainable way.

Katy moved the festival to the Phoenixville Farmers Market in 2004, where it was renamed “Delish!” “The NE-SARE grant gave Katy the confidence to build on something she believes in and helped grow the leadership within,” says Liz. Katy is now at Princeton University, where she is leading the effort to have the university buy food from local growers.

As a result of the first festival, Charlestown Cooperative Farm hosts other festivals, continues to have cooking demonstrations at the farm, and holds educational classes for children and families. They hold PASA field days and are involved with the “Buy Fresh, Buy Local” campaign, which aims to connect farmers and consumers through a variety of methods (see buylocalpa.org).

“The initial SARE grant changed the way we do things on the farm and at farmers’ markets. We have patrons discovering local restaurants that buy locally, and we think the networking done at these festivals results in other farms increasing their markets too,” notes Liz.

Every year, the Andersens try to assess and respond to the changing needs of their members. Moving forward, the Andersens plan on adding livestock to the 70 acres adjacent to Charlestown Cooperative Farm, which will provide CSA members with organic milk and meat products. The dairy operation will ultimately supply manure for making compost for Charlestown Cooperative Farm and manage cover crops as feed for livestock.

The Andersens’ advice to others: “Do it! Try to come up with something that hasn’t been done before; ask community members to pitch in.”



CORN HILL FARMS

J. Robert Huntsberger

Etters, Pa.

NE-SARE Project: FNE00-306

Establishment of Cover Crops in Corn and Soybeans

J. Robert Huntsberger rejoined his family farming operation near Harrisburg, Pennsylvania, after obtaining his degree in elementary education. He has continued the farming tradition for 26 years.

Corn Hill Farms encompasses nearly 1,000 acres and currently produces hay and straw for auction and feed corn for the mill. Over the years, Huntsberger has experienced the challenges of urban sprawl, rising land taxes and insurance costs, and, more recently, increasing fuel costs, which directly affect the farm's profitability.

Penn State regional agronomy extension educator John Rowehl introduced Huntsberger to the idea of cover crops and to the availability of NE-SARE farmer/grower grants to test no-till farming at Corn Hill Farms. "I provided the site and the plantings, and John designed the research plan," says Huntsberger.

The original goal of the project was to determine if cover crops would work in Huntsberger's cropping system. Would the cover crops enhance the tilth of the soil, increase productivity, and reduce soil erosion? The project plan included planting legume cover crops in imidazolinone-tolerant (IMI) corn at the time of corn planting and seeding over small grain cover crops in standing soybeans at the leaf-drop stage.

A month of rain during the initial corn planting stage caused the research partners to revise the project plan. "I appreciated the willingness of the SARE staff to be flexible. As with many on-farm projects I've done, the weather doesn't always cooperate and our project could not be done as planned. We came up with Plan B, which changed the project from in-crop cover crop establishment to spring planting into a fall-seeded cover crop. Since both ideas had the goal of improving soil quality for increasing the success of no-till corn, SARE approved the change," reflects Rowehl.

Results of the research showed that in every side-by-side comparison, the moisture of the grain was higher for the clover versus the vetch. The yield was higher for the vetch in every field. Huntsberger's project also found that the no-till corn outyielded the conventionally planted corn. Not only did the no-till corn yield better, but also the cost to control weeds and insects with spraying was less than the cost of the labor and fuel to cultivate.

The experiment's conclusions were published by John Rowehl in reports to agricultural newspapers and on the Penn State Cooperative Extension regional Web site. "Extension is right there with the farmer to help them improve their business. . . . They are always willing to help," says Huntsberger.

Huntsberger never continued with his experimental cover crop system. However, he says the SARE grant and cooperative extension "opened his eyes to the possibility of using it because it does save on labor and hold soil moisture."

While Huntsberger admits that cover cropping "wasn't a fit" for his regular farming plan, he advises other grant applicants to "be open to new technology and ideas. . . . Your results may not be what you expect."



GREENSGROW FARMS

Mary Seton Corboy and Tom Sereduk

Philadelphia, Pa.

www.greensgrow.org

NE-SARE Project: FNE01-359

Design and Preparation of Raised Beds for Year-Round Vegetable Production in Urban Agriculture

Mary Seton Corboy and Tom Sereduk started Greensgrow Farms with the goal of providing fresh, organic lettuce to local restaurants in Philadelphia. Today, they still sell to local restaurants, but Greensgrow has grown exponentially. Greensgrow Farms, once an abandoned city block, is now a model for urban agriculture, encompassing a farm market, nursery, and 85-member community supported agriculture (CSA) operation.

Greensgrow Farms is a “good neighbor.” They have a rolling farm market that visits senior citizen centers in the area, and they cater to neighborhood needs, growing special varieties of peppers for the Hispanic market and vegetables that can’t be found in stores. “I’ve had people drive up and hand me seeds,” Corboy says. Every spring, they offer flats of vegetable plants for their patrons.

“When I told people my idea of using a former brown field site for a green business location, they just laughed,” she says. “Penn State Cooperative Extension educators were our first big backers, helping us to look at everything from airborne contaminants to insect control. . . . You wouldn’t think an urban setting would have insect problems, but they find you!”

At first, Greensgrow was raising vegetables in hydroponic bags without cover. The initial raised bed constructed at Greensgrow had “terrible drainage problems,” and the crops didn’t perform well. They applied for a NE-SARE farmer/grower grant to learn what design would work best for an urban brown field with an impermeable concrete slab.

Mat Brener and Jerry Naples from React Environmental Services assisted Greensgrow with the design of a 1,500-square-foot raised bed with a drainage system, drip irrigation, and groundcover for weed control. The bed was built with the drainage system acting as dividers down the length of the bed, creating three 3-foot-wide beds.

The raised bed was filled with compost from the City of Philadelphia, manure from local stables, and soil fill. All components were mixed, analyzed, and amended with sulfur and fertilizer. Mike Orzolek and Peter Ferretti, both professors of vegetable crops at Penn State, helped analyze the initial soil and nutrient uptake in the vegetables to make sure everything grown was “clean.”

During the first season with the raised bed, Greensgrow grew and marketed spinach, beets, chard, potatoes, mâche, and arugula. The crops were so successful that they later added a plastic-covered hoop house to extend the growing season in the spring and fall.

Greensgrow developed two additional designs for constructing a raised bed and included them in a manual that was written as part of skills training for urban farmers.

“We see ourselves as food gatherers,” says Corboy. Greensgrow partners with area businesses to provide the best local products at their farm stand—they bring in homemade cheeses, meats, fresh breads and make organic “honey from the hood” and other products for their customers. “What we don’t grow, we purchase locally, that day, for the market.

Corboy’s advice to others is that it takes years to reach your goal—find answers beyond what is answered in a grant, and look at the long-term payoff. “Land is only abandoned if we choose to leave it that way.”



LANDEY VINEYARDS

R. Martin Keen

Lancaster, Pa.

NE-SARE Project: FNE06-576

Control of the Grape Root Borer

R. Martin Keen has researched the control of the grape root borer for more than 20 years, but it was an NE-SARE grant that helped him test his initial theories.

Keen owns and operates Landey Vineyards in Lancaster, Pennsylvania. He grows 3 acres of French hybrid wine grapes, which he sells to Pennsylvania winemakers. Keen is also testing six varieties of French grape clones on the site.

The grape root borer is a pest native to the eastern United States that can cause major damage and kill mature vines. The borer remains underground during its larvae stage, and growers can't see the devastation until it's too late. Keen saw borer damage on his grapevines in the early 1980s. Since organophosphate was the only registered treatment for the pest, he began experimenting on his own to trap and control the grape root borer.

Keen heard about the NE-SARE farmer/grower grant through the publication *The Small Farm Digest* and contacted Mike Saunders, professor of entomology at Penn State, about setting up the experimental design. Keen's experiment used a high number of pheromone traps to test the mating disruption of the grape root borer. He used a randomized complete block design to test trap color and height. The results from his first SARE experiment indicated that there was a statistical significance in color of the trap used.

Keen applied for three more SARE farmer/grower grants and was funded each time. "The research results showed that we needed to find out more. . . . The borer has a three-year life cycle, and one season's results are not enough," says Keen. He has tested for trap color, height, and insect counts and is now testing in different regions to determine the extent of grape root borer infestation.

"Martin Keen has done a lot to educate the public about a major pest in the industry—every grape grower has it and needs to be mindful of its control," notes Saunders.

Keen has good subjective data from his experiments. He has reduced vine damage, increased better yields, and produced more vigorous plants. He plans to keep the pheromone traps up until his trap numbers decrease. He has many more questions about the male grape borer behavior, possible weather impact, and the spikes in his trap counts.

Keen speaks at outreach events throughout the country, taking samples of dead vines, devastated roots, and insects to share with fellow growers. "Most growers call and ask what they should spray on their plants; Keen wanted to understand the problem and conduct further research," says Mark Chien, wine grape educator with Penn State Cooperative Extension. "He has an encyclopedic knowledge of the grape root borer and can quote the latest research."

Keen has a good working relationship with his research partners at Penn State and the NE-SARE staff. His advice to others is to "keep your focus on the sustainability of agriculture—the more scientific the better . . . and don't forget the outreach program."



NEW MORNING FARM

James Crawford

Hustontown, Pa.

www.newmorningfarm.net

NE-SARE Project: FNE02-407

*Use of Parasitic Wasp (*Trichogramma ostrinae*) for Biocontrol of European Corn Borer (*Ostrinia nubilalis*) in Sweet Corn*

"I was impressed by the SARE staff—the people were very helpful, flexible, and understanding," says Jim Crawford of New Morning Farm.

Jim Crawford and his wife, Moie, have grown organic crops for more than 30 years. The SARE farmer/grower grant they received was part of an ongoing effort to control pests on their certified organic farm.

New Morning Farm produces 50 mixed varieties of vegetables with nearly 200 plantings per year to keep up with the fresh vegetable market. The vegetables are direct-marketed at two farmers' markets in Washington, D.C., and through the Tuscarora Organic Growers Cooperative, which helps them obtain the premium prices farmers need for economic success.

The Crawfords are founding members of the Pennsylvania Association of Sustainable Agriculture (PASA) and the Tuscarora Organic Growers, a wholesale marketing cooperative. New Morning Farm is highlighted in the second edition of the SARE publication *The New American Farmer*. Jim and Moie have discussed sustainable agriculture on National Public Radio and in publications, including the *New York Times* and *Washington Post*.

Encouraged and assisted by Ron Hoover, on-farm research coordinator with Penn State Cooperative Extension, to apply for the SARE farmer/grower grant, Crawford's study involved using the parasitic wasp (*Trichogramma ostrinae*) for the biocontrol of the European corn borer (*Ostrinia nubilalis*) in sweet corn. The European corn borer can cause significant yield losses in corn and can also increase farmers' control costs.

Penn State entomologist Shelby Fleisher helped design the research project, which included controlled releases of the wasp that parasitizes the eggs of the corn borer.

The study attempted to monitor the presence of the corn borer in a research plot versus a control plot. Due to the time constraints of New Morning Farm's harvesting schedules and production, insufficient data were collected. Although the results of the study were inconclusive, Crawford believes that both the research and the wasp were beneficial—he still releases the parasitic wasp today to control the European corn borer.

Crawford's advice to other SARE farmer/grower applicants is that "you need to prepare to devote enough time to a research project and prioritize it within your schedule. Through observation, I noticed that the wasp worked, and the research was still important to our farm," says Crawford. "You just need to schedule your data collection when you are not at a critical time in production."



**QUIET CREEK HERB FARM AND
SCHOOL OF COUNTRY LIVING**

Claire and Rusty Orner

Brookville, Pa.

www.quietcreekherbfarm.com

NE-SARE Project: FNE03-486

Effects of Vermicompost Applied in a High Tunnel

Claire and Rusty Orner bought their 30-acre farm 11 years ago with a plan to become a self-sustaining organic farm. After 8 years of part-time farming, technical advice from Penn State Cooperative Extension, and research grants like the NE-SARE farmer/grower program, Quiet Creek Herb Farm and School of Country Living is dedicated to educating the public about organic farming, conservation, and sustainable living.

The Orners developed their grant proposal with local Penn State county extension educator Mark Douglass. They worked closely with Mark on farm management issues and proposals and have become good friends. "We work with Mark all of the time; he's like one of the family now," says Claire.

The Orner's SARE grant measured the effects of vermicompost (worm compost) compared to dairy manure applied to tomatoes, peppers, and herbs in a high tunnel. Data included yield, weight, quality, health, and time to maturity. The research plan included an evaluation of the effectiveness of vermicompost versus the justification for the cost of the production of it. "At the time of the grant, there wasn't much data available on the effectiveness of vermicompost," notes Douglass.

Research results indicated a slight trend toward higher yields in the beds treated with vermicompost, but no definitive conclusions could be drawn due to lack of replication. Plant health was not affected. The herb crops treated with vermicompost yielded a higher financial return than the vegetables:

- The herb crops seemed to have a more favorable response to the vermicompost than dairy manure, resulting in larger profits.
- The financial results in the vegetable crops showed a loss, which was larger than when dairy manure was used.

The results of the SARE research did change the way the Orners farm. Claire and Rusty proceeded to study the effects of vermicompost tea, and they now make their own vermicompost instead of purchasing it. "Even today, several years later, I can tell which soil has vermicompost treatment—it looks much healthier," says Rusty.

Farm visitors actually help in the vermicompost cycle. "The students learn about where their food comes from and where it ends up," Rusty says. Local students spend a day at the farm learning about growing food organically, and after lunch, they go through a "waste stream" and have to sort their food by "land-fill," "recycle," or "worm-bin."

Through research efforts like SARE and the desire to educate, Claire and Rusty Orner continue to find innovative methods of outreach. Quiet Creek serves five area school districts and local colleges and holds weekend classes on country living. They also help educate other farmers and growers through field days and cooperative extension communications. "People are losing contact with the food cycle. Our long-term goal is to continue to educate people about sustainable practices," notes Rusty.



SINGING CREEK FARM

Maryann Frazier

Mount Union, Pa.

NE-SARE Project: FNE02-411

Developing Sustainable Management Systems for Native Pollinators

As a senior extension associate at Penn State and part-time herb farmer, Maryann Frazier knows the importance of sharing research success stories with colleagues, and she thinks that SARE grants are a great idea. "SARE grant applications are not highly technical or difficult to complete. You can look at what was previously funded, and the information that results from the research is very useful," says Frazier. Frazier and her husband, Jim, have been involved with SARE grants as coordinators, partners, and as researchers.

In her role as an extension educator, Frazier's research in apiculture helps growers with selecting the types and numbers of bees to use, controlling parasitic mites, and improving pollination efficiency. "I often encourage the farmers I work with to apply for NE-SARE grants," says Frazier. Maryann also works in public science education, running several insect camps and fairs for children, teachers, and families. In addition, she has worked with African bees and beekeepers in Sudan, Uganda, Costa Rica, and Panama.

Frazier's first farmer/grower grant with NE-SARE involved developing a sustainable management system for native pollinators. "We were trying to see if growers could assess their native pollinator needs for domestic raspberries by comparing two organic farms and seeing if we could encourage native pollinators by creating artificial nesting sites," she says.

By counting and collecting samples at various times and locations, the study found that wild raspberries had more native pollinators than the domestic raspberry varieties. This was due, in part, by the variety of domestic raspberry, which bloomed later than the wild raspberry, and the fact that the growers had cut the canes back. The artificial nesting sites or "tubes" were created and tested to see if the pollinators would successfully overwinter. "The artificial nesting site concept worked; however, we had problems with mites getting into the tubes and causing destruction," said Frazier. "We needed to do more research."

The results of the first SARE grant led Frazier to apply for a SARE partnership grant, which was funded. Frazier is currently involved with a SARE partnership grant with three other beekeepers to evaluate two-colony hives for increased productivity and varroa mite control.

Frazier and her husband, a faculty member and entomologist at Penn State, own Singing Creek Farm, where they grow a variety of herbs that are marketed to a local grocery chain store and to caterers. At some point, they would like to increase their distribution and product line to become full-time farmers. They eventually want to make and market flavored goat cheese using the herbs from their farm.

Jim Frazier was just awarded a SARE farmer/grower grant with another farmer to investigate the feasibility and profitability of modifying springhouses with high-efficiency insulation and solar-powered fans to create high-humidity cold storage with consistent conditions for vegetables and herbs. They will provide outreach through field days and publications, continuing their work and research with NE-SARE.



WAY FRUIT FARM

Brooks Way

Port Matilda, Pa.

NE-SARE Project: FNE03-500,
FNE02-446

Sweet Corn Nitrogen Recommendations

Mid-Atlantic Master Farmer Brooks Way contributes his farm's success to ongoing education and research. "I'm constantly reading and talking to other growers," notes Brooks. "A successful farm is always evolving."

Brooks Way and his wife, Sharon, retail strawberries, cherries, peaches, apples, sweet corn, and pumpkins at their 370-acre farm and at local farmers' markets. In addition to "pick-your-own" strawberries and pumpkins, the Ways also host educational field days for students and apple harvest festivals in the fall. Brooks feels that one of the biggest challenges on the farm, as well as the most rewarding, is teaching customers and their children where their food comes from.

Way's desire to expand his early sweet corn production led him to apply for a NE-SARE farmer/grower grant with Penn State Cooperative Extension. His comparison of fertility treatments on sweet corn yielded results he still uses today. "The SARE grant was a pleasurable experience for all of us—we learned much more than we were initially looking for," Way says.

Way received a NE-SARE farmer/grower grant to compare fertility treatments in one variety of sweet corn planted and harvested at two separate times during the growing season. The evaluation cited which treatment was most economical, had the best soil nutrient utilization, and had the highest ear sugar content.

Treatments in the study consisted of (1) 50 pounds of nitrogen applied just prior to planting as a broadcast and incorporated; (2) nitrogen recommendation based on presidedress nitrate soil test (PSNT) when corn was 8 to 12 inches tall; and (3) a foliar nutrient treatment.

The three treatments were repeated four times in each of the two plantings. Way's sweet corn that received the PSNT yielded almost 200 dozen more ears of corn per acre than the other treatments, and the net return was more than \$650 higher per acre using PSNT. The research concluded that there was no difference in kernel sugar content. Way shared his findings with other growers through two field days and in several grower publications.

The research team that worked on the NE-SARE grant remains in close contact today. Thomas M. Butzler and Mark Douglass from Penn State Cooperative Extension were also involved with the experimental design, implementation, data collection, outreach, and the grant summary report. Craig Altemose, director of agronomy for Penn State Cooperative Extension in Centre County, was one of three technical advisers for the project. "This project was important to sweet corn research because there is no standard recommendation for nitrogen ratings in sweet corn," explains Altemose. Way's advice to other NE-SARE applicants is "to have a concept, be realistic, and have a time line. The actual project development may take several months, but it's worth it." Because of their positive experience with this first grant, Way and Altemose plan to apply for another NE-SARE grant in the future.

Prepared by Jack Watson, professor of soil science, and Susan K. Oram.
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Farmer/Grower Grant Recipients

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