New York State
SARE Farmer Grant Profiles
How NY farmers use SARE funding to test new ideas.

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Kingbird Farm

Karma and Michael Glos researched the options for treating health problems in organic laying flocks, and created a handbook for fellow producers.

SARE GRANT FNE02-415

The Farm

Whether chatting with customers at the Ithaca Farmers Market, feeding pigs, moving electric fence, or weeding the herb beds, Karma and Michael Glos radiate energy, good humor, and a passion for the life they’ve created for themselves and their daughter Rosie on this diversified Tioga County farm.

The Glos’s 100 acres include about 20 acres of pasture and 75+ acres of managed woodland. They intensively cultivate about an acre and a half of vegetable, herbs, berries, and flowers. These are sold fresh, dried, and as valued added products on the farm, at the Ithaca Farmers Market, and at select seasonal festivals. They have a heated greenhouse for propagation and two high tunnels for season extension and over-wintering of selected crops. All fieldwork is done with draft horses and ponies.

The couple also raises, processes and direct-markets almost a thousand free range broilers each year, as well as turkeys, geese, and ducks. They raise Tamworth pigs on pasture for sale as certified organic piglets and pork, and for the production of high quality compost for field and greenhouse use. A few beef cattle round out the livestock inventory. Karma spends full-time on the farm while Michael additionally works half time at an outside job.

The SARE Project

Karma and Michael had kept organic laying hens since they started farming in 1997. Although flock health was usually good under their organic management, they had trouble finding information to solve the occasional health problem. So they applied for a 2002 SARE Farmer Grant to gather information on organic remedies for common layer health problems and produce a concise handbook for fellow producers.
“We put together a poultry layer healthcare survey to ask other organic producers how they raise their birds and how they prevent and treat health problems,” says Karma. “Our focus was on what methods they used to manage the health care of their flock.” They got lists of organic layer producers from organic organizations and certifiers in Maine, Vermont, Pennsylvania, New York, and New Hampshire.

They also searched the literature to find research on layer health management that could be used by organic producers. “We scoured libraries and the internet for relevant information,” says Michael. “And we spoke to a lot of poultry researchers at local land grant universities, cooperative extension, and professional organizations.”

Results
Karma and Michael’s SARE grant allowed them to produce, print, and distribute 250 copies of Remedies for Health Problems of the Organic Laying Flock: A Compendium and Workbook of Management, Nutritional, Herbal, and Homeopathic Remedies. It includes a section on how to give herbal and homeopathic remedies. This is followed by a section on specific health issues. For each issue the handbook covers: Other names; Organism or Mechanism; Preventative Measures; Management Techniques; Physical Treatments; Nutritional Treatments; Herbal Treatments; and Homeopathic Treatments. The information includes both what is known through research and what is done by fellow organic egg producers.

“I think we’re taking better care of our animals as a result of this project,” says Karma. “I use the book whenever we have a problem. Instead of going to 5 or 6 books, I now have one source.” She says she hears back frequently from growers who are using the handbook. “I’m getting some feedback on what’s been left out,” she laughs. Karma and Michael have made the Compendium available online at no cost at their website at www.kingbirdfarm.com.

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Finger Lakes Dexter Creamery

Rose Marie Belforti scaled up a home recipe for raw milk kefir cheese to a documented commercial process.

SARE GRANT FNE06-595

The Farm

Finger Lakes Dexter Creamery begins its story when two town dwellers with a passion for farming, a lot of patience, a thirst for knowledge and an empty nest find their way back to the country. In 1999 Rose Marie Belforti and her husband purchased a 12 acre farm in Ledyard, NY and acquired a little dun heifer from a distant neighbor. Their one cow grew into a small herd and Rose’s small farm dream evolved into a business plan for a small-scale cheese company. When her farmstead cheese plant became certified in 2006, she started producing the first known commercially available kefir cheese cultured with authentic living kefir grains. This unique cheese is made even more novel by its main ingredient: the rich, creamy milk from her small herd of rare heritage Dexter cattle. To her knowledge, Rose operates the only commercial Dexter creamery in the United States.

The SARE Grant

Rose received a SARE grant in July of 2006 to fund the transformation of her home recipe for an aged raw milk kefir cheese to a commercial standard. According to Rose, “Kefir grains have been used for centuries to culture milk by traditional peoples, promoting good health and longevity”. Although there are kefir products available on the market, they are not made with kefir grains and therefore lack the beneficial probiotic organisms. She worked with the Cornell University Food Processing and Development Laboratory to create, record and document the kefir cheese recipe as it materialized.

Rose stressed the importance of carefully reviewing a grant’s requirements when considering applying. She felt that her project – scaling up a healthy home recipe for a new micro-dairy -- was a good match for SARE with its emphasis on innovation and sustainability. She also attributed her success to thorough attention to detail in
explaining her project. “As you plan your outline for meeting the requirements of the grant, make lots of notes, make sure you answer questions very specifically, and write very clear and concise sentences” says Rose.

**Results**
In summer of 2007, Rose and Cornell Food Processing had completed the brand new raw milk kefir cheese which is aged at least 60 days and contains full cream. Her next goal is to grow her small Dexter herd to a maximum of six milking cows. Rose and her husband continue to rely on ingenuity to source the equipment they need as appropriate technology for micro-dairies is not widely available in the United States. Currently they employ a refrigerator/freezer as a bulk tank and use a couple old jacketed steam kettles to warm the milk and start the kefir culture. The cheese is aged in several refrigerators, but plans are already underway to expand to a bigger space.

**Starring Dexter Cattle**
Rose has an enthusiastic appreciation for the Dexter Cattle that have come to be the foundation of both her business and way of life. She describes the thick, creamy, butterfat rich milk they produce as “exquisite” and although Dexters are naturally small in size, praises their “work power”. Her cattle mother their calves as long as possible and have plenty of access to pasture. She believes providing the best care for her cows equates to the best quality milk and wellbeing of everyone involved. She stresses her humane approach as “very important in a world where dairying seems to forget the value of the very one that gives us the treasure she has”.

**Reviving the Art**
Perhaps the most remarkable aspect of Finger Lakes Dexter Creamery is its perseverance in a business that virtually no one remembers – the small farmstead dairy made up of breeds modern agriculture left behind. With only a few websites and a handful of published resources, Rose was grateful to the few Dexter “experts” she made acquaintance with. Beryl Rutherford, a life-long Dexter breeder in England now in her eighties, provided sanity-saving advice in every facet of training, treating, hand-milking and dairying from across the seas. “She was always getting me out of troubles – I owe her a lot!” says Rose.
Despite the steep learning curve, Rose and her husband are as determined as ever to continue developing the niche dairy they dreamed of. She insists that they have found success working with even the most stubborn of cows; “Don’t let anyone ever tell you a Dexter cannot be milked!” It is her hope that Finger Lakes Dexter Creamery serves as an inspiring example to other artisanal cheese start-up operations looking to incorporate heritage breeds. And if her energetic spirit and reverence for Dexters hasn’t caught your interest yet, taste the cheese – it is certainly destined to set a trend.

To see a step by step documentation of the creation of Rose’s Kefir cheese, visit the SARE final report at:

To learn more about Finger Lakes Dexter Creamery, visit their website:
www.kefircheese.com

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Grass Farming Internship Program

Four Schoharie County farms joined forces to create a livestock internship program devoted exclusively to pasture-based agriculture.

SARE GRANT PNE06-568

As frozen fields give way to thaw, a small group of pasture-based livestock farmers in Schoharie County, NY, settle down at a table stacked with applications. It’s the beginning of a new farm season and time to sort through candidates for another round of the MADE in Schoharie County Livestock Internship Program. The program, developed in 2006, sprung from the group’s dual goal to train aspiring farmers while at the same time fill the demand for farm labor with enthusiastic and dedicated workers.

The MADE (Marketing Agricultural Diversity and Excellence) in Schoharie County consortium of livestock farmers first came together a decade ago to share resources and knowledge and to lobby for their collective needs. Their cooperative approach proved successful for the group as each enterprise slowly grew and flourished. But as farmers became more experienced, a lack of competent farm labor became a rising concern. “The trouble we face is that, while we’ve grown wise and experienced in our work, we’re not getting any younger”, said Carol Clement of Heather Ridge Farm. In 2005, the group decided to develop a collaborative internship program that would provide comprehensive hands-on training to students in the many topics related to pasture-based livestock farming.

The SARE Grant

With the help of a SARE award in 2006, the MADE in Schoharie County farmers accomplished the design of a rich educational program complete with 7 in-depth workshops on subjects including holistic resource management, grazing land management, business planning and marketing. The greater portion of the SARE grant
reimbursed workshop leaders for their time and expenses, including travel, supplies, photocopying, and food (usually a meal was included). SARE funds also paid staff Shannon Hayes, Education Coordinator, and Carol Clement, Project Leader, for their time lining up the educational components, organizing the workshops, advertising the programs, and soliciting intern applications. Finally, SARE funding compensated Mick Bessire, Agricultural Program leader of Greene County, for advising the program as a non-farmer knowledgeable of the topics and an intern advocate/mediator in the event of problems between the farm host and the interns.

To attract the most serious candidates, the farmer group circulated application materials through an extensive list of agricultural networks. Out of 16 applicants, 7 were invited to tour the farms and meet the hosts. In the final steps of the process, 5 interns were paired with farms according to their specific agricultural interests, goals, housing and stipend needs.

The MADE Internship
Interns worked individually with their host farm to develop a work schedule and incorporate learning opportunities. On Heather Ridge Farm, a typical day in the life of an intern started around 6 am with letting the hens out to pasture, feeding the pigs and chickens, and watering the cattle. After chores, Carol often joined the intern for a mentoring walk in which they looked closely at pasture conditions. They decided when and where to move the cattle and sheep depending upon the weather and previous day’s vegetative growth. Lunch brought a different kind of learning opportunity. Carol and her intern took turns experimenting with recipes for the many different cuts of pastured meats available from the farm and prepared a meal for the entire farm staff. The afternoon was spent on activities such as moving feed, processing chickens, bottling honey or working with the bees.

On-Farm Processing
One of the most unique features of the MADE in Schoharie County livestock internship program is the chance to practice meat processing right on the farm alongside a certified butcher. Prior to the internship program, the MADE consortium had worked with an independent butcher to create the only mobile meat processing unit in New York. Carol explains the many benefits of processing her own meat on the farm: “I can work alongside the butcher and get advice about which are the most advantageous cuts for that particular animal. It’s improved my ability to look at an animal in the field and know when it’s ready to be processed.”
The interns share this rare chance to draw connections between an animal and the type and quality of meat it will produce. It also trains students to appreciate the value of the whole animal. Carol uses the bones to make a beef soup stock in her certified commercial kitchen that she then sells at the farm store.

**Results**

Now going into its third season, Carol and the MADE group have received overwhelmingly positive comments about the internship experience. All interns report having gained a deep appreciation for the labor and skill needed to produce pastured meats, and some have begun the process of planning their own farm business. For example, one recent graduate entered the program with a dairy farming background and the goal of one day taking over the family farm business. She finished the season with new ideas for diversifying the family enterprise and more prepared for the management responsibilities that will some day be transferred to her. Another graduate is hoping to eventually buy a farm from an older dairy farmer who is looking to retire. For now, he plans to work and learn beside the farmer while breathing fresh ideas, such as a pastured chicken operation, into the business.

An unexpected benefit of the program is the learning opportunity it gives the farmers themselves. According to Carol, “Farmers say that having to teach interns makes them notice their own shortcomings on the farm, and inspires them to work toward improving their own stewardship and marketing skills.” The farmers have also enjoyed the increased social opportunities at intern work days and learning even more about each other’s businesses.

The MADE consortium hopes to eventually expand the internship to several other regional farms, but members are cautious about jeopardizing the high quality reputation of the program. “We are an unusual group in that we’ve worked together for 9 years now. All farms rely on one another to share information, respond to family and farm emergencies, source feed and various farm products and implements, and discuss our troubles and successes. In short, we are like family. We trust each other implicitly, and are able to speak freely,” says Carol.

**Training Future Farmers**

Through the livestock internship program, Carol and the MADE consortium are addressing one of the most critical questions facing the country today: Who will grow our food when our aging farmer population retires? In an era when young people have hundreds of academic programs and job training opportunities to choose from, there are very few role
models showing them that farming is a viable option. Carol says, “Confronted with the reality that we cannot steward our land forever, we now wish to help a new generation of farmers find their place on green pastures.” One by one, the MADE program sends graduates off with living proof that farming can be a viable and rewarding way of life. And after just two seasons, some are already responding to the calling.

For more information about the MADE in Schoharie County Livestock Internship Program, please visit [www.grassfedinterns.com](http://www.grassfedinterns.com) or contact Carol Clement at Heather Ridge Farm by calling 518-239-6234 or e-mailing HeatherRidgeFarm@aol.com.

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Ambrosia Farms

Nina Bruno of Ambrosia Farms created a brand new frozen food label based on locally grown heirloom vegetables.

SARE GRANT FNE06-566

Farmers age-old practice of carting their fresh-picked vegetables to the market square to sell to neighbors has experienced a popular revival in recent decades. But, as Saturday morning foot-traffic shifts from old main street shopping districts to big groceries and box stores at the edge of town, many village farmers markets still don’t generate the crowds needed to support farmers’ livelihoods. With the help of SARE funding, Nina Bruno of Ambrosia Farms (Bridgewater, NY) re-invented the farmers market concept, creating a brand new marketplace for small farmers to sell their vegetables in the form of a pure and natural frozen food line.

The SARE Project

Nina used the SARE funding to off-set the cost of purchasing heirloom fruits and vegetables from neighboring farms in addition to increased production at her home farm. All farmers were paid farmers market prices for their “raw materials”, an important factor in determining whether the product could successfully provide a viable wage to participating farmers. As vegetables came in to season, Ambrosia Farms staff worked in the on-site commercial kitchen to lightly cook and freeze them in small packages. The vegetables were then stored for packing and distribution. The resulting product, called Farmers Market Frozen Foods, enables locally grown produce to be sold in regional stores year-round. “Frozen food is logical for Northeast farms, enabling preservation of abundant harvests in the short growing season”, says Nina. Frozen food is also one of the fastest growing sectors of the processed food market.

Preserving Farming Traditions

Any farmer interested in selling produce to Farmers Market Frozen Foods must grow heirloom varieties. Heirloom vegetables are grown from seeds that are open pollinated, meaning the seeds may be collected at the end of the harvest season and planted the following year. Many of these excellent tasting varieties -- prized for providing pleasure to
the palate -- have been left behind as hybrid or genetically altered breeds selected for grocery shelf life and shipping durability better meet the needs of a mass-transit agriculture. Nina hopes that marketing heirloom vegetables on the retail and institutional level will generate greater demand, ensuring these rare, genetically diverse varieties remain in circulation.

Another key goal of the SARE grant was to preserve the cultural authenticity of the seed’s origin by packaging it with other heirloom vegetables paired in traditional recipes. Nina created a prototype frozen meal combination, called “Tuscan Soup”, which includes Pantano Romanesco tomatoes, Cannelloni beans, and Tuscan kale. As the product line expands, she plans to create other meal combinations based on heirloom varieties and the cultural cuisine from which they originated.

Meeting Farmers Needs
One of the most unique aspects of Nina’s plan to bring the farmers market concept into the frozen food realm is the flexibility it gives to farmers. As Nina says, “Farmers are independent people -- they want flexibility in growing different vegetables each year and a stable market for their fluctuating yields”. If local farmers have an outstanding heirloom tomato season, Nina intends to simply market more authentic Italian dishes. If there is a crop failure on heirloom cabbages, traditional Russian combinations might be limited in supply. And farmers are welcome to tweak their crop plans every year to include new heirloom varieties. In addition to combination packages, part of the plan for Farmers Market Frozen Foods is to sell individual bags of frozen vegetables – a locally grown, heirloom version of the common frozen peas or corn.

Results
Nina has accomplished her SARE project goal of selling 1000 Tuscan Soup prototypes to her existing customer base. Her next step is to pursue additional business opportunities, such as restaurant quantity packaging. In preliminary research, she found that some chefs are accustomed to the instant accessibility of canned vegetables, but it is her hope that educating clients about the higher nutrition of a frozen product and the benefits of supporting local farms will cancel out any preparation inconvenience. Several years from now, she envisions farmers dropping off regular deliveries of heirloom vegetables at a much larger, centrally located commercial kitchen for processing. She believes firmly in continuing to pay farmers market prices for heirloom fruits and vegetables and expects to pass on the costs of processing and distribution to the consumer.
Nina is just getting started with the Farmers Market Frozen Food label, but her business is already remarkably accomplished in that it creates a model to unite two distinct and diverging food movements -- the slow and the fast -- capturing the best of both. With frozen meal combinations such as “Tuscan Soup”, she has found a way to supply the increasing demand for fast and easy-to-prepare meals while also providing local farms a fair payment for their product and preserving disappearing farming and cooking traditions.

Ambrosia Farms is currently taking advance orders on next season’s product line. To place an order or to learn more about Farmers Market Frozen Foods, please contact Nina Bruno at 1.800.221.9755, 212.330.7272 (Business Office) or farmersmarketfrozenfoods@gmail.com.

To learn more about heirloom seeds, Nina recommends the site: www.rareseeds.com

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Windflower Farm

Jan Blomgren evaluated the performance of 10 high-value organic cut flower varieties grown in five kinds of tunnels.

SARE GRANT FNE04-503

The Farm
Jan and Ted Blomgren have been growing organic vegetables and cut flowers on their 15 acre farm in the Taconic hills of Washington County for over a decade. As experienced farmers, they are skilled in the cultural practices of ecological farming and have developed a substantial customer base at the Saratoga Springs Farmers Market and in NYC, where they ship weekly vegetable and bouquet deliveries to 350 shareholders.

But any farmer, no matter how practiced or popular, still struggles with the inevitable drought or flood, hot or cold, hail or wind that imperils the most vulnerable crops every growing season. Today, a myriad of technological innovations designed to shield crops from nature’s volatility are available at low cost to the farmer. One of these, the hoop house, has been a critical tool for Windflower Farm, aiding in not just season extension, but allowing Jan to raise cut flowers under optimal growing conditions for most or all of their life cycle. Realizing the importance of the hoop structure to the economics of her flower operation, Jan planned an experiment to trial a selection of her highest value cut flowers in 5 different hoop structures, hoping to gather data on how the unique conditions each structure created enhanced or hindered the desired traits of the flower.

The SARE Grant
In 2004, Jan received a SARE grant to fund the salary of a field employee to assist with planning, planting, data collection and photography, and to reimburse her efforts as the project’s supervisor and facilitator. They drew upon the experience of Laura McDermott, a horticulture agent with Cornell Cooperative Extension (CCE) in Washington County, as an advisor to the project. Specifically, the goal was to determine how the temperature and relative
humidity inside each hoop structure affected stem and inflorescence (flowering part) length, stem number per plant, and stem girth (circumference). Because Jan plants many of the varieties in succession to ensure a long, uninterrupted flow of harvest, she recorded data for the first, second and often third sowing of a variety. The flowers selected for comprehensive data measurement were: Stock, Godetia, Larkspur, Snapdragon, and Bells of Ireland. Additionally, Jan made visual notes on the productivity of China aster, Asiatic lily, Delphinium, Sunflower and Lisianthus.

Tunnel structures can be configured in as many different shapes and sizes as the imagination allows. The architecture of a tunnel is designed to trap heat and humidity inside to hasten the growth of a plant relative to outside conditions. Stagnant air and overheating issues are often overcome with fans, vents, or roll up side flaps that allow heat to escape and fresh air to pass through. The types of tunnels that Jan and Ted used in the SARE experiment included variations on both the “high tunnel”, a permanent structure of curved PVC or hollow metal piping covered in a polyethylene plastic, and the ‘field tunnel’, a structure erected quickly and seasonally by inserting hoops in to the ground over a designated series of beds. The field tunnels in the experiment were either “walk-in” or low to the ground, hovering just over the blossoms. The covers ranged from opaque, light-weight, permeable commercial fabrics such as Typar and Covertan to single layer plastic.

Results
While further trials are needed to clarify results, information emerged in the 2004 data that will help the Blomgren’s determine how to match tunnel structures, covers and crops in the future. They concluded that plastic tunnels were generally superior to Typar and Covertan tunnels, regardless of the structure. In turn, Covertan and Typar were superior to growing plants in the out-of-doors. Covertan was found to provide less warming and wind protection than its counterpart, Typar. Some warm-loving flowers, such as China aster, Lisianthus, and Bells of Ireland, were better suited to the warm Typar tunnel than cool-loving crops such as stock, larkspur, and
snapdragon. The date of seeding added yet another variable in determining which covers complimented cool or warm-loving crops.

The experiment pointed to better and worse combinations of covers and structures. Low tunnels covered with plastic became too hot. Even the walk-in tunnels covered with plastic over-heated, indicating that the high tunnel with its larger airspace and roll-up walls was best suited for a plastic cover. Low tunnels covered with Covertan didn’t’ create enough warmth during the unusually cold and windy spring, but could perhaps offer more favorable conditions in more average temperatures. Taking all factors into account, the high tunnels provided the best overall horticultural results. Jan explains the likely reasons: “This may have had most to do with the high quality of the material used to cover them, but the slightly superior results of these units compared to plastic-covered walk-ins shows that the size of the structure is important”.

Another advantage of high tunnels over plastic-covered field tunnels is the capacity of the high tunnel to withstand significant snow loads in the winter. Covers from less permanent field structures are removed in the fall and re-applied before planting in the spring.

Jan and Ted were pleased with their initial observations, but as in any farming venture, they have a lot of learning and exploring ahead. They continue to search for the most economical hoop-house structures, taking expense and labor into account, for the highest quality cut-flowers and vegetables. Their next pursuit will be experimenting with various walk-in and drive-in (or tractor-accessible) single and multi-bay structures. To check with Jan and Ted on their latest research, contact Windflower Farm at 518-692-3188.

For more specific results on variety performance, download the Blomgren’s final report at: www.sare.org/reporting/report_viewer.asp?pn=FNE04-503. To obtain a copy of the Windflower Farm power-point photo narration of the results, please contact the Small Farms Program at 607-255-9227.

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Hunt Country Vineyards

Art Hunt established two species of ground cover beneath his grapes, significantly reducing the need for under-the-row herbicide use and between-the-row mowing.

SARE GRANT FNE05-547

The Farm

When Joyce and Art Hunt began farming Hunt Country Vineyards in Branchport, NY, in 1973, they became the fifth generation to steward the land. Knowing that their farm had provided livelihoods for their ancestors dating back to the mid eighteen hundreds, they adopted a personal mission to manage the land with long-term productivity and sustainability in mind. The Hunts utilize a compost program in which they mix grape pomace from the fall’s pressings with horse manure and wood chips, applying the resulting nutrient-rich soils to young or weak vines. They are producing biodiesel to fuel their farm equipment on-site with a simple processor in a section of their original 1860’s barn. And, in 2005, a SARE Grant helped the Hunts launch a multi-year trial in which they are assessing the use of permanent ground cover on their vineyard floor to reduce the need for under-the-row herbicide use and between-the-row mowing.

The SARE Trial

The first step in preparing the trial was to identify cover species that would spread aggressively without robbing sunlight, water or nutrients from the vines. The Hunts had observed that ground ivy (Glechoma hederacea), a common weed in their vineyard, had persevered for decades despite herbicide use. Aside from being hardy, ground ivy grows to a maximum height of four or five inches, maintains a relatively shallow root system, and tends to crowd out other weeds. There was plenty already available on the farm for propagation, so the Hunt’s collected cuttings in the winter and used a portion of their SARE funding to hire a local greenhouse operation to root them in plugs for spring planting. As a second ground cover, they selected Tall Fescue (Festuca arundinacea), a species of grass also characterized by hardiness and shallow roots. Fescue had
an additional advantage of dying off in the late fall, decomposing into a carpet of natural mulch by the spring.

The Hunts mapped out many variable planting combinations for the ivy and fescue in a designated research plot containing 17 rows (about 2 acres) of concord grapes. Planting combinations included ivy beneath the vines with fescue between the rows; fescue beneath the vines with fescue between the rows; ivy beneath the vines with mowed grass between the rows; and fescue beneath the vines and mowed grass between the rows. Several rows were set aside as ‘controls’, replicating the Hunt’s standard practice of bare earth beneath the vines with mowed grass between the rows.

By spring, the fescue they had no-till drilled before the ground froze was sprouting on the vineyard floor. A crew funded partially by the SARE grant set to work digging holes, adding compost and planting the plugs of ivy into the bare ground. Space constraints in the greenhouse meant the ivy plugs only filled in about one third of the area needed, so the crew transplanted ivy from elsewhere in the vineyard to fill in the empty spaces. To further encourage establishment, the ivy was watered once and hand-weeded twice over the course of the summer.

Results
As the season progressed, Project Coordinator Jamie Hawk collected measurements of the percent cover of ivy, vine pruning weights, and grape yield. Both the ivy and fescue rooted better than expected considering the herbicide residue in the soil and an especially warm, dry season. By the end of the growing season, the ivy had covered over 40% of the bare earth under the vines. The Hunts did not notice any considerable difference in the growth rate of ivy raised in the greenhouse compared to the ivy they transplanted directly from other areas in the vineyard. The ivy transplanted directly from wild patches didn’t suffer as much burning but was slower growing.

After three years, the Hunts haven’t observed any significant adverse effects of the ground cover on the health or vigor of the Concord grapes, as indicated by grape yield or vine pruning weights. They have
continued to improve the density of the cover through spot planting the ivy and seeding the fescue in areas of low concentrations. They anticipate that the competition could actually help to curtail excessive vigor on some varieties. Vinifera, for example, tends to be overly-vigorous and slower growth could help the species to harden off and better withstand the winter.

If the Hunts continue to observe positive inter-relationships between the vines and the ground covers over the next few seasons, they plan to establish variations on the ground covers in many more mature areas of their 50 acre vineyard. They anticipate that incorporating ground covers on a larger scale will lead to significant economic savings in reduced herbicide costs, labor, and farm machinery use. And they hope that by limiting herbicide usage, they will be able to minimize soil erosion and compaction and reduce soil and groundwater pollution. If the Hunts can demonstrate their success with permanent ground covers, vineyards all over the Finger Lakes could become more economically viable while also improving the health and productivity of the land for the next generation.

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Flower City Mushrooms

John Morelli experimented with different substrate materials for growing King Oyster mushrooms in order to maximize production.

SARE GRANT FNEo6-584

The Farm
Inside two wings of a barn in Rochester, mushroom production comes to life. There, John Morelli from Flower City Mushrooms has been producing mushrooms since 2001. The farm became NOFA certified organic in 2003, though John pursued organic practices from the start. Now the farm produces about seventy pounds of shiitake mushrooms every week. Periodically, John grows crops of maitake or "hen of the woods" and several varieties of oyster mushrooms: phoenix tail, common tree oysters, and king oysters. Flower City Mushrooms has a year round season, with each crop taking three to four months, and new plantings every week.

While producing mushrooms, John and a student intern, Melissa Lamphron, became interested in a project where agriculture waste could be used as a substrate for mushroom growth. Using leftover agriculture materials, like corn cobs and sawdust, the farm could save on substrate expenses and recycle byproducts. John and Melissa (who became a partner in the farm) applied for a SARE grant to trial the idea and increase the production of king oyster mushrooms, in specific. The king oyster mushroom is very popular in Europe and is known for its great flavor and texture. John describes the mushroom to be, “interesting, a different kind of mushroom. You can sauté them and its like eating scallops, very nice.” And with a taste for scallops leading the way, the project on the king oyster mushroom began.

The SARE Project
When John first investigated king oyster mushroom production in literature, he found that typically only a half a pound of mushrooms could be grown from six pounds of substrate within a five to six week period. In order for king oyster mushroom production to be profitable, John knew the yield needed to increase and was very interested in using local, leftover materials
Farmer Innovators
Profiles of NY SARE Farmer Grant Recipients

as the substrate. Therefore, as the focus of the SARE project, John sought to create a formulation of substrate using mostly local materials that would increase yields and produce high quality mushrooms. John considered high quality to be when 90% of the harvested crop is sellable.

After researching different types of formulations used for growing king oysters, John came up with fifteen different formulations on his own, using ground corncobs, hardwood sawdust, wheat straw, wheat bran, soy meal, millet spent brewery grains, grape pomace, and a small amount of sugar. John combined the materials in varying proportions in order to increase the fiber, protein, cellulose, hemicelluloses, and lignin components of each formulation. The formulations were then sterilized, or cooked for hours in a steam boiler so that only the inoculated mushrooms would grow off the materials. The inoculated formulations were left to grow in identical temperature and moisture conditions. The process was very labor and fuel intensive, which is where most of the funding from the SARE grant was used.

**Results**
During the experimental process, John found it difficult to procure local ingredients that were also certified organic. John described that, “first choice was local and organic, second was local, and third was organic substrate materials.” After the trials of different formulations were completed, John found that the formulation with 1% sugar added had worked best. John read that the sugar helps degrade lignin and when in the formulation, produced 1.3 pounds of high quality mushrooms from six pounds of substrate over a period of five weeks. “It was less scientific, I just added a spoonful of sugar based on some literature,” says John about the success. He was ecstatic to see the results and now can produce king oyster mushrooms in a commercially viable way. Third party assessments were done by the chefs of four top Rochester restaurants and the produce buyer for a large, local natural food store all of whom gave positive remarks based on size, weight, shape, texture, flavor, ease of preparation, and culinary versatility of the mushrooms. John has slowly seen consumer interest grow in the King Oyster Mushroom. He has presented the findings of this project at the 9th Annual Organic Production and Marketing Program Work Team Meeting at Cornell University in 2006. The findings have also been published in Mushworld, an electronic newsletter published in Korea, and the Mushroom Growers Newsletters.

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Bringing Organic Sweet Corn Back to Long Island

Eve and Chris Walbrecht from Garden of Eve Organic Farm experimented with pheromone trapping and fertilizers to grow organic corn.

SARE GRANT FNE04-534

Since 2001, when Eve and Chris Walbrecht broke ground on their 80-acre Long Island property, they have grown in many directions. By 2004, the Walbrechts were cultivating 5-8 acres of vegetables and flowers for their 150+ member community-shared agriculture, selling at their farm stand and multiple farmers markets, and raising both 200 laying hens and a son and daughter. Yet, even with a bustling, diversified farm and family to tend to, these new farmers have maintained a vivacity for experimentation. “We’re always willing to try something once,” described Eve. And with that notion, the Walbrechts were ready to attempt growing organic sweet corn in 2004. Given the pest problems and challenge of organic nutrient intake, very few farmers in Long Island were raising sweet corn organically. The farmers sought assistance through a SARE grant to fund their organic sweet corn trial plots.

The SARE Trial

Eve and Chris set out to deter the European corn borer moth and corn earworm from pestering their 4 plantings of organic sweet corn. They chose Silver Queen white and Quickie bicolor sweet corn and directly seeded the corn in the warm late-May soil. The couple selected Entrust as a pest deterrent, which was recommended by their technical advisor, Dan Gilrhein, Extension Entomologist for Cornell Cooperative Extension at the Long Island Horticulture Research and Extension Center. Entrust is made through the fermentation of living organisms and will kill pests upon ingestion or contact. The Walbrechts mixed the Entrust with an organic corn oil and used a backpack sprayer to apply it.
To address the issue of nutrient deficiency, the farm selected an Organic Materials Review Institute (OMRI) –certified powdered fertilizer from the organic fertilizer producer company, Fertrell. Fowl friends also helped with fertilizer, as the Walbrechts used their composted chicken manure on the crop as well.

Chris monitored the crop for pests using methods that Dan suggested. Dan helped set up pheromone traps with pheromone lures to attract the pests and therefore help determine the level of threat to the crop and the timing of appropriate responses.

**Results**

Growing the corn proved to be challenging, but not quite as hard as the Walbrechts had expected. The pheromone traps were helpful in showing Chris when the corn borers were present and therefore spraying was needed. The corn plantings proved to be successful as damage was low early in the season, at approximately 20%. Damage increased with the later plantings, however, overall the Walbrechts and their customers were pleased with the results. The corn was a big crowd pleaser in the CSA box. “Corn is a vegetable with which our CSA customers are very familiar, know how to cook with, and popular with kids”, said Chris.”

Since the first trial year of growing corn, the Walbrechts have expanded their production. They have experimented with more effective fertilizers, natural predators against the corn borer moth like bats and barn owls, and a tractor mounted sprayer, which is more efficient than the backpack sprayer. As Chris and Eve brought organic corn to Long Island, they shared their knowledge on the crop with other farmers during a field day in 2005. With the barbecue grill going, the Walbrechts told farmers about the techniques they used for this well-received crop. Since then, most other farmers began including corn in their CSA. And the customers keep eating up the sweetness.

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Two-colony Hive Productivity Trials

Beekeeper Michael Johnston built innovative bee boxes and compared them to standard boxes.

SARE GRANT FNE00-308

Beekeepers in North America are facing increasing challenges from the introduction of pests and exotic diseases. According to the Mid Atlantic Apiculture Research and Extension Consortium, there are less than half as many managed beehives in the United States as there were 25 years ago. In most recent news, migratory beekeepers across the country have been experiencing “colony collapse disorder,” suffering losses from 30% to nearly 100%. This problem is still under study. Africanized bees continue to spread across the south and west and are now established in nine states, areas that formerly produced queens and package bees. And yet, demand for bees and their vital role in pollinating crops, especially California almond trees, is only increasing. Furthermore, as sugar products are diverted out of the food chain toward ethanol production, the price of all sweeteners is expected to rise, making honey a more competitive choice.

The SARE Grant

While working for two large package bee producers in California, Michael Johnston started experimenting with building bee equipment. He jokes that, “as a young single man with no TV, living at the farm, building bee equipment and stocking it with bees was a pretty good form of entertainment.” His creative construction resulted in a Two Colony Hive, an adaptation from a standard hive. The Two Colony Hive has a partition down the middle, which allows for five frames on each side. The hive is intended to produce “nucs” (nucleus hives) which are 3 to 5 frames of brood, or unhatched bees, and bees with a queen. These nucs are used to restock standard hives that have died during the previous winter.

In 2000, Mike applied for a SARE grant to compare the benefits of the Two Colony Hive versus the standard Langstroth hive. He worked with college students at the Wood Technology Department of
Morrisville State College to produce 50 hives for the trial. Mike collected comparison data on overwintering, nuc production, pollination, and honey production. Results from 2001-2004 showed that the two-colony hive consistently overwintered more clusters and on average overwintered 1.49 clusters per hive, while a standard hive overwintered 0.71 clusters. Also, the two-colony hive produced a larger spring income, sometimes three times as much, from selling nucs and brood as compared with the money earned by standard hives. As for honey production, the two-colony hives that had been nuked out and then requeened produced a respectable amount of honey. Overall, Mike concluded that the two-colony hive can produce, “exceptionally well, but requires exceptional management.” The hive is more prone to swarming and can easily fill with honey, so it not best for the “let alone” beekeeper.

**Ongoing Results**
Mike has continued working with his two colony hives in his warehouse that was built in 2001 with a very large addition 2008. In 2005, Mike received a second SARE grant to study another hive that he invented and patented in 1991, the Combination Queen Rearing Nucleus and Comb Honey Beehive. This beehive will serve two purposes. In the spring, it can be used to produce queen bees for sale to other beekeepers and in the summer it can be used to produce comb honey for sale to consumers.

These innovative beehives may be just what the beekeepers in the Northeast need. This equipment allows them to produce their own winter hardy and locally adapted bees. In the process, beekeepers can be saved from the major expense of replacing overwintering losses and from importing new pests and possibly Africanized stock. This bee equipment certainly requires a higher level of management but yields higher rewards. Michael Johnston plans on selling this innovative equipment in the near future.

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