

# OUR FARMS, OUR FUTURE



INSIDE: Soil health (Minn.) • Grazing (N.Y.) • Water (Texas) • People (Calif.)  
Pests (Wash.) • Biodiversity (Ga.) • Specialty crops (Mass.) • Marketing (Mo.)

“This project was the starting point for a very strong network of farmers who are innovating, experimenting and finding their work to be rewarding both intellectually and financially.”

Robin Moore  
Land Stewardship Project  
(See story on page 5.)



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## LETTER FROM THE DIRECTOR

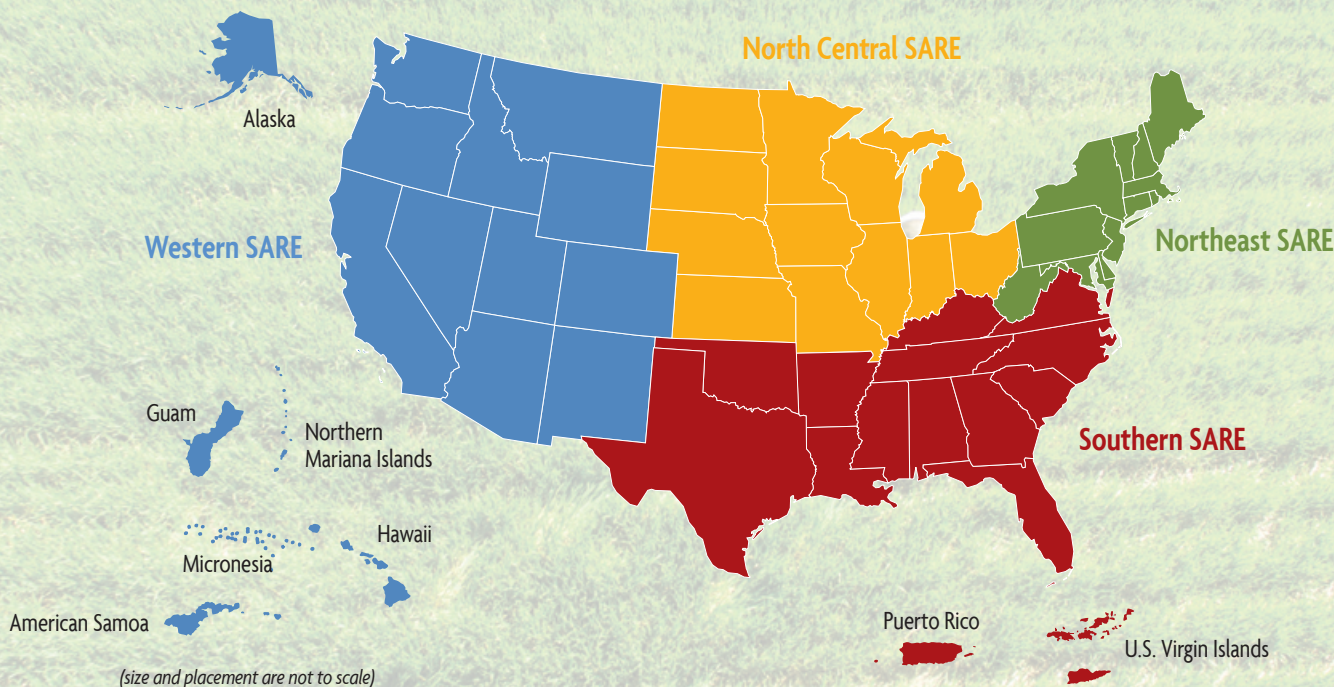


The above comments by Robin Moore of the Land Stewardship Project in Minnesota refer specifically to a SARE-funded network of farmers using cover crops to improve soil health, but they could just as easily apply to the whole SARE program. Since 1988, USDA's Sustainable Agriculture Research and Education (SARE) has been a farmer-driven research and knowledge-sharing program, and among our greatest achievements is that we encourage farmers, ranchers, educators and researchers who are passionate about innovating, experimenting and finding ways to make growing food more rewarding for themselves, the environment and their communities.

The theme of this 30<sup>th</sup> anniversary report is "Our Farms, Our Future." Taken together, the thousands of men and women who have received SARE grants and shaped SARE priorities over the years have one objective in common: making American agriculture stronger and more sustainable. There are as many ways to do this as there are farmers and ranchers in this country, so I invite you to read on for a glimpse at some ways motivated people are using SARE grants to make a difference both locally and nationally.

In this issue you will see how SARE investments are contributing in such critical areas as water conservation, grazing management, soil health, local market opportunities and the human dimensions of food production.

Rob Hedberg  
SARE Director  
2018



# SARE is...

## INVESTMENT IN SUSTAINABLE FARMING AND RANCHING

Since 1988, more than \$21 million in research funds have gone directly to America's most innovative farmers and ranchers. In total, SARE has invested over \$251 million in more than 6,300 projects.

## GRANTS FOR INNOVATIVE RESEARCH AND EDUCATION

SARE offers grants to farmers, ranchers, educators, researchers, graduate students and others for on-farm research, education, and professional and community development.

## LOCAL LEADERSHIP, NATIONAL IMPACT

Four regional administrative councils—including farmers, educators, scientists, government, NGOs and other stakeholders—set priorities and make grant award decisions.

## FARMER LEADERSHIP

As grantees and administrative council members, hundreds of farmers and ranchers from all corners of the nation share their on-farm research results and advise SARE.

## EDUCATION AND TRAINING

SARE shares research results by funding trainings, requiring project outreach and producing a library of practical, how-to books, bulletins and other information products.

Learn more at [www.sare.org](http://www.sare.org).

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United States  
Department of  
Agriculture

National Institute  
of Food and  
Agriculture



Photo by Edwin Remsberg

## Building Soil Health With Cover Crops and Other Strategies

The age-old practice of building soil with cover crops was just resurfacing when SARE first started offering grants in 1988, and the program dug right in. Nearly a quarter of SARE funding in that first year supported projects to improve soil health and nutrient availability, mostly through cover crops.

SARE's investment has continued through the years. The use of cover crops, conservation tillage, diverse crop rotations, composts and even the integration of livestock and manure into cropping systems all contribute to overall soil health and crop yield, and have been the focus of hundreds SARE grants. (See story, right.)

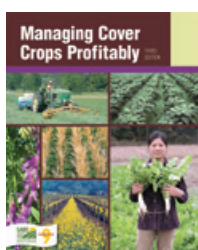
Lost soil is lost money, and investments in soil health can yield significant economic

returns through better soil conservation, nutrient efficiency, water availability, pest management and overall plant health. Cover crops have been shown to protect anywhere from \$5 to \$50 per acre in crop productivity by preventing soil erosion. During the severe 2012 drought, corn and soybean fields where cover crops had been planted were more productive than fields where they had not been, according to a national SARE survey.

Now that the strong link between soil health and farm profitability has been established, more and more farmers and ranchers are turning to practices that protect and enhance the soil, one of our country's most vital natural resources.

### GETTING THE WORD OUT [www.SARE.org/Learning-Center](http://www.SARE.org/Learning-Center)

SARE produces dozens of educational resources on a range of sustainable agriculture topics. Grantees produce even more with SARE funding. Here are just a few examples:











*Managing Cover Crops Profitably* (2000, now in its third edition)  
Print: 55,225 | Online: 189,357

*Cover Cropping for Pollinators and Beneficial Insects* (2015)  
Print: 16,401 | Online: 11,657

*Cover Crops for Sustainable Crop Rotations* (2013)  
Print: 22,222 | Online: 32,397

*Managing Cover Crops Profitably* (1998, now in its third edition)  
Print: 61,315 | Online: 1.2 million

"Print" is copies distributed since the date of publication. "Online" is combined downloads and unique page views over a recent six-year period.

BY THE NUMBERS	
SARE Grants on Soil Health, 1988–2017	
NUMBER OF GRANTS	TOTAL AMOUNT
 CONSERVATION TILLAGE	411   \$20.6 MILLION
 COVER CROPS	822   \$39.5 MILLION
 CROP ROTATION	318   \$16.4 MILLION
 INTEGRATED CROP/LIVESTOCK	259   \$9 MILLION
 NUTRIENT MANAGEMENT	265   \$15.4 MILLION
 SOIL HEALTH	600   \$31.9 MILLION
 SOIL MICROBIOLOGY	229   \$12.3 MILLION
 SOIL MOISTURE	460   \$14.4 MILLION
<b>TOTAL</b>	<b>1,778   \$76.7 MILLION</b>

Because some projects address more than one topic, the total is adjusted to remove duplicates.

## Farmer Network Fosters a Lasting Commitment to Cover Crops

“We need to change the regional conversation around cover crops, farming ‘norms’ and soil health. The best way to do that is to support people willing to experiment.”

*Robin Moore, Land Stewardship Project*

### THE CHALLENGE

Cover crops are increasingly recognized as one of the most indispensable soil health tools available to farmers. A national survey of farmers funded in part by SARE found that of those who use cover crops, 86 percent see an improvement to soil health, and that yields of corn, soybeans and wheat are all higher following cover crops. Yet cover crop adoption in northern Minnesota has lagged behind other parts of the Midwest, mostly due to a difficult climate and lack of local demonstration and knowledge of how to use cover crops effectively. Is the added expense and time of growing cover crops worth it? Will the effort and cost pay off in soil health, organic matter, forage and soil retention? Can farmers work together to answer these questions?

### THE ACTIONS TAKEN

Using a 2014 SARE Farmer/Rancher grant, eight western Minnesota farmers willing to experiment with cover crops set out to answer these tough questions. The network split the grant funds to cover the cost of cover crop seed and Haney soil testing, as well as their time hosting educational field days. Each farmer planted cover crops to determine if the added time and expense would result in better soil health, reduced tillage, and better soil retention and water management. Some of the farmers who raise livestock looked at the forage benefit of cover crops. Robin Moore of the Land Stewardship Project worked with the network to help them understand the soil test results and to organize field days and meetings.

### THE IMPACTS

Through their SARE-funded project, the farmer participants learned through trial and error what does and does not work for their own operations. They gained knowledge on how to build soil health with the guidance of soil testing. “The grant took a little bit of risk off our plate and allowed us

to experiment on more acres,” said Taylor Morical, a farmer participant who has moved to North Dakota since the completion of the project and is now a rancher. “We were willing to try a few more things and reach outside the box with species we wouldn’t have used otherwise.”

- **Profitability:** Farmers reported financial benefits. Greater use of the land generates more dollars, especially when cattle can graze longer and require less supplemental feed.
- **Outreach and adoption:** Participants hosted three field days, with a total of more than 100 attendees, 70 percent of whom indicated they intend to experiment with cover crops on their operations.
- **Long-term commitment:** Six of the eight original farmer participants purchased their own drill, signaling their commitment to continue cover cropping.
- **A growing network:** By the end of 2016, the network had expanded from eight to 21 farms.

**Learn More:** Visit [www.sare.org/project-reports](http://www.sare.org/project-reports) and search for project FNC14-964.



ABOVE: USDA Agricultural Research Service soil scientist Sharon Weyers (left) looks at different soils’ ability to withstand erosion with farmer Jerry Morical at a cover crops field day on his farm. *Photo by Robin Moore, Land Stewardship Project*

LEFT: Farmers near Sundberg, Minn., are extending their grazing season with a brassica cover crop mix planted after a small grain. *Photo by Brian Devore*



Photo by Alice Welch, USDA

**BY THE NUMBERS**  
SARE Grants on Grazing, 1988–2017

NUMBER OF GRANTS | TOTAL AMOUNT

	<b>ECONOMICS OF GRAZING</b>	<b>194</b>	<b>\$9</b> MILLION
	<b>FORAGE PRODUCTION</b>	<b>487</b>	<b>\$20.9</b> MILLION
	<b>INTEGRATED CROP/LIVESTOCK</b>	<b>259</b>	<b>\$9</b> MILLION
	<b>MANURE MANAGEMENT</b>	<b>365</b>	<b>\$11.2</b> MILLION
	<b>MARKETING</b>	<b>56</b>	<b>\$1.9</b> MILLION
	<b>PASTURE MANAGEMENT</b>	<b>573</b>	<b>\$17.3</b> MILLION
	<b>RANGELAND MANAGEMENT</b>	<b>99</b>	<b>\$4.6</b> MILLION
	<b>ROTATIONAL GRAZING</b>	<b>146</b>	<b>\$3.3</b> MILLION
<b>TOTAL</b>		<b>1,122</b>	<b>\$41.4</b> MILLION

Because some projects address more than one topic, the total is adjusted to remove duplicates.

## Ecology and Economics of Grazing for Beef and Dairy

Price volatility, environmental concerns and new technologies are driving considerable change in the beef and dairy industries. Changing economic conditions have pushed many out of business: The number of dairy farms in the United States has decreased by 40 percent and the number of beef cow operations dropped 5 percent between 2007 and 2012.

There is a bright spot. Pasture-based systems, once the norm, are regaining ground as a way for farmers to reduce input costs and to capture high-value markets, and they have long been a focus of SARE funding. (See story, right.) For example, results from SARE grants indicate that grazing increases the profit per cow per year by \$100 to \$200 when compared to confined feeding systems. Savings in feed costs likely

account for at least half of the decrease in total costs.

SARE-funded producers, researchers and educators are exploring the economic and environmental benefits of grazing from many angles. Their work is advancing our understanding and use of alternative forage crops, market chains for grass-finished beef, a grass-fed milk market and manure management.

Consumer demand has also been a driving force for ranchers to switch to raising cows on pasture alone. Industry experts maintain that growth in grass-fed beef is very stable, and the market has increased 25–30 percent annually over the past decade. Again, SARE-funded research helps bear this out: In one Michigan project, farmers captured a 25 percent premium by raising grass-fed beef.

### GETTING THE WORD OUT [www.SARE.org/Learning-Center](http://www.SARE.org/Learning-Center)

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*Alternative Continuous-Cover Dairy Forage System for Profitability, Flexibility and Soil Health* (2012)  
Online only: 3,256

*How to Direct Market Your Beef* (2006)  
Print: 14,999 | Online: 33,586

*Rangeland Management Strategies* (2007)  
Print: 14,456 | Online: 6,046

“Print” is copies distributed since the date of publication. “Online” is combined downloads and unique page views over a recent six-year period.

## Achieving the Triple Bottom Line Through Holistic Planned Grazing

“I was able to spend time with these producers and really get to know them. They have found a way to manage their grazing system that works for them personally, environmentally and financially.”

*Tricia LaValley, Franklin County Soil and Water Conservation District, New York*

### THE CHALLENGE

The rising costs of energy, feed and fertilizers are slimming margins in the beef and dairy industries. That, plus the willingness of many consumers to pay more for pasture-raised meat and dairy products, is causing Northeast farmers to think more about adopting grazing systems. A main appeal is that these systems typically have a higher profit margin than confinement systems.

But the number of service providers who have the knowledge to assist these farmers with holistic grazing planning and management strategies is at an all-time low. To keep up the momentum toward adoption of pasture-based systems, more service providers need training and tools to assist farmers in creating tailored plans.

### THE ACTIONS TAKEN

A SARE-funded team of service providers trained 35 colleagues throughout New York, Pennsylvania and Vermont to become “local grazing champions” qualified and confident to help beef and dairy producers discover the benefits of planned grazing with the goal of increasing on-farm profitability, ecological health and quality of life.

The team developed a curriculum and teaching materials—including a comprehensive grazing chart—on communication, pasture infrastructure, animal behavior and nutrition, weed management, estimating pasture production and implementing a grazing chart. Training occurred over three years through 94 unique venues, including workshops, field days, pasture walks, conferences, in-field consultations and videos. Each participating service provider committed to six training sessions and to working with three farmers to develop holistic grazing plans for their operations.

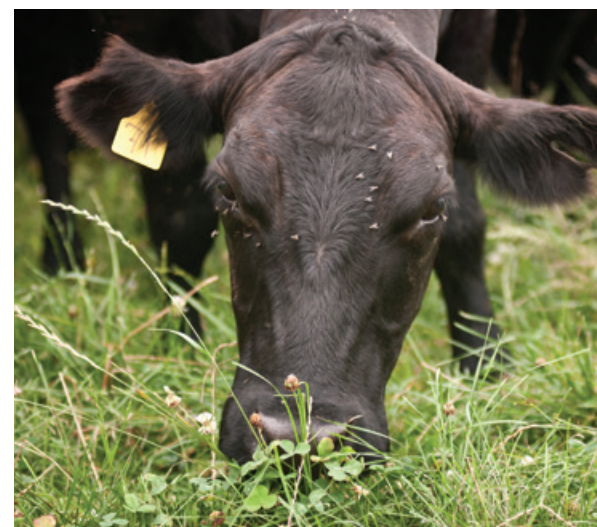
### THE IMPACTS

This SARE Professional Development Program grant, led by Troy Bishopp of the Madison County Soil and Water Conservation District in New York, had a

tremendous impact on both participating service providers and farmers. Participants, armed with new knowledge and planning strategies, reported changing their approach to working with farmers, and farmers achieved positive outcomes for their operations.

- **Widespread adoption:** The 35 participants completed grazing plans on a combined 70 farms. More than 1,040 people, including 794 farmers, benefited from the training in some capacity.
- **New tools:** More than 600 grazing charts were downloaded or delivered to farmers.
- **Profitability and conservation:** Farmers reported economic benefits, such as increased revenue or savings resulting from more careful planning, as well as environmental benefits, including increases in ground cover and biological activity, and improved soil and forage health.

**Learn More:** Visit [www.sare.org/project-reports](http://www.sare.org/project-reports) and search for project ENE10-115.



LEFT: Troy Bishopp on his 100-acre farm in Deansboro, N.Y., where he custom grazes dairy heifers using holistic planned grazing. Photo by Jamie Storrow, SARE Outreach

ABOVE: Photo by Lance Cheung, USDA



Photo by Edwin Remsberg

**BY THE NUMBERS**  
SARE Grants on Water, 1988–2017

NUMBER OF GRANTS | TOTAL AMOUNT



**CONSERVATION TILLAGE**  
**411** | **\$20.6**  
MILLION



**DROUGHT-TOLERANT SPECIES**  
**23** | **\$901,323**



**DRYLAND FARMING**  
**73** | **\$6**  
MILLION



**IRRIGATION EFFICIENCY**  
**219** | **\$6.5**  
MILLION



**SOIL MOISTURE**  
**460** | **\$14.4**  
MILLION



**WATER CAPTURE**  
**89** | **\$3.1**  
MILLION



**WATER CONSERVATION**  
**184** | **\$6.5**  
MILLION



**WATER QUALITY**  
**265** | **\$11**  
MILLION

**TOTAL**  
**1,100** | **\$45**  
MILLION

Because some projects address more than one topic, the total is adjusted to remove duplicates.

## Water Challenges for the Coming Decades

Extreme drought. Intense rainfall and flooding. Algal blooms. Dwindling aquifers. Urban competition. When it comes to farmers and ranchers' management of water, this most critical of natural resources, the pressure is on.

Yet, as agriculture's relationship to water is redefined by changing weather patterns, intensification and urban growth, sustainable paths forward are emerging. They draw from both modern technologies and age-old practices, and have involved innovative research by SARE grantees at every step. Take cover crops and reduced tillage, for example. These two practices, long championed by SARE-funded researchers and farmers for their capacity to reduce erosion during heavy storms and keep excess nitrate

out of waterways, can be effective water-management tools as well. They protect the soil from the impact of raindrops and improve water infiltration during intense rainfall events.

In areas where water is increasingly scarce, SARE grantees are turning to the principle of diversification by adding low-water-use crops and forages to production systems. (See story, right.) They are also restoring native grasslands and more carefully managing livestock grazing.

SARE grantees are helping producers conserve water by implementing and refining more efficient irrigation systems like deficit irrigation and subsurface micro-irrigation, and by using soil moisture data to determine how much water to apply and when.

### GETTING THE WORD OUT [www.SARE.org/Learning-Center](http://www.SARE.org/Learning-Center)

SARE produces dozens of educational resources on a range of sustainable agriculture topics. Grantees produce even more with SARE funding. Here are just a few examples:



*Cover Crops for Sustainable Crop Rotations* (2013)  
Print: 22,222 | Online: 32,397

*The Ogallala Aquifer of the Texas High Plains: A Race Against Time* (2012)  
Online only: 4,506

*Smart Water Use on Your Farm or Ranch* (2003)  
Print: 34,928 | Online: 10,775

"Print" is copies distributed since the date of publication. "Online" is combined downloads and unique page views over a recent six-year period.



## As the Ogallala Aquifer Dwindles, Long-Term Research Seeks a New Future

“We’ve come up with some profitable production systems that help the farm stay in business.”

*Charles West, Texas Tech University*

### THE CHALLENGE

Agriculture in the Texas High Plains is a big deal; with a productive mix of crops and livestock, it accounts for 40 percent of the regional economy and 59,000 jobs. Yet the future of farming in the High Plains is in doubt because of how heavily it relies on—and depletes—the Ogallala Aquifer. Studies have indicated that water levels in the Ogallala are dropping at an alarming rate. Many wells no longer pump enough to irrigate a crop, and large areas could run dry in just 50 years. Finding new production systems that are profitable and use less water is critical to keeping High Plains farms in business for future generations.

### THE ACTIONS TAKEN

A coalition of farmers, researchers, educators and others has taken up the challenge. Over the past 20 years, SARE has awarded

nearly \$1.5 million in grants to Texas Tech University (TTU), Texas Coalition for Sustainable Integrated Systems (TeCSIS) and Texas Alliance for Water Conservation (TAWC) to develop alternatives to water-intensive monoculture production systems. A primary focus is adding perennial forages to cotton and corn.

The idea is that as the aquifer declines, farmers can use a small amount of water to establish fields of grasses and legumes that require very little or no irrigation. Diversifying the types of crops with such forages lowers water use on the farm while improving soil water-holding capacity and providing profitable marketing of beef, said Charles West, a TTU forage researcher. Farmers can graze beef cattle on those fields and sell them at a profit to nearby feedlots for finishing, or they can finish the cattle on grass.

### THE IMPACTS

SARE’s support for this long-term research effort began in 1997, and to date it includes nine grants to Texas Tech researchers and graduate students. Selected results include:

- **Water conservation:** An early finding was that a system integrating perennial grasses uses 24 percent less water than a cotton monoculture, while profitability per unit of irrigation is equal. Recent work demonstrated that interseeding alfalfa requires no additional water and increases daily weight gain for cattle compared to grass alone.
- **Leveraged funding expands outreach:** SARE’s early support helped the coalition earn a \$6.2 million grant from the state of Texas in 2004. This led to the creation of TAWC, a producer-led effort that demonstrates the use of efficient irrigation technologies.
- **Regional leadership in sustainability:** “The Texas Tech University TeCSIS-TAWC program has gained a regional reputation for reliable information on forage and livestock productivity in the face of declining water supply,” West said.

**Learn More:** To read more about this research including SARE project reports, visit [www.southern sare.org/HighPlainsWaterConservation](http://www.southern sare.org/HighPlainsWaterConservation).



Livestock at Texas Tech University’s New Deal Research Farm. Photo by Samantha Borgstedt, Texas Alliance for Water Conservation



Photo by Preston Keres, USDA

**BY THE NUMBERS**  
SARE Grants on People, 1988–2017

	NUMBER OF GRANTS	TOTAL AMOUNT
<b>BUSINESS AND FINANCIAL PLANNING</b>	281	\$4.6 MILLION
<b>COMMUNITY ENGAGEMENT</b>	226	\$7.5 MILLION
<b>MINORITY, LIMITED-RESOURCE, UNDER-SERVED FARMERS</b>	289	\$11.7 MILLION
<b>NETWORKING</b>	62	\$3.4 MILLION
<b>LAND ACCESS</b>	30 PROJECTS	\$1.6 MILLION
<b>QUALITY OF LIFE</b>	129	\$5.9 MILLION
<b>WOMEN FARMERS</b>	97	\$2.8 MILLION
<b>YOUNG/BEGINNING FARMERS</b>	133	\$4.7 MILLION
<b>TOTAL</b>	<b>1,002</b>	<b>\$33.6 MILLION</b>

Because some projects address more than one topic, the total is adjusted to remove duplicates.

## The Social Components of Sustainable Agriculture

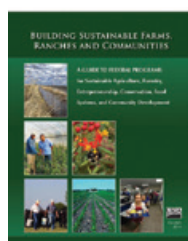
Across the country, the farmer population is aging and the number of new farmers is shrinking. Compared to their male counterparts, fewer women are principal farm operators and they earn less. Minorities are farming in greater numbers but likewise have below-average incomes. Overall, the number of farms and farmland acreage are both steadily declining.

Farmers and their land are an integral part of the social fabric in communities across the country, so these trends matter to us all. Since 1988, SARE grantees have studied ways to advance the social dimension of sustainability. Some address the unique needs of particular farmer groups such as women farmers or those with limited resources. Some improve quality of life. Others strengthen the connection between farmers and their local communities.

For example, SARE-funded organizations provide valuable education and assistance to beginning, minority and immigrant farmers through workshops and incubator programs. (See story, right.) Participants gain critical knowledge in production, business management and marketing. From western tribal reservations to rural Appalachia, other SARE grantees seek to build community by reviving engagement with food production and local foodways. Still more SARE grantees have sought to strengthen rural communities for farmers and others through initiatives that address community engagement, public policy and planning, land access, cooperatives and grower networks, and succession planning.

### GETTING THE WORD OUT [www.SARE.org/Learning-Center](http://www.SARE.org/Learning-Center)

SARE produces dozens of educational resources on a range of sustainable agriculture topics. Grantees produce even more with SARE funding. Here are just a few examples:



*Avicultura Rentable: Criando Aves en Pasturas* (2014)  
Print: 1,362 | Online: 5,565

*Meeting the Diverse Needs of Limited-Resource Producers* (2002)  
Print: 40,000 | Online: 5,565

*Building Sustainable Farms, Ranches and Communities* (2014, now in its fourth edition)  
Online only: 30,370

*Youth Renewing the Countryside* (2009)  
Print: 3,174 | Online: 3,440

“Print” is copies distributed since the date of publication. “Online” is combined downloads and unique page views over a recent six-year period.

## Giving Limited-Resource Growers Tools to Manage Nitrogen and Succeed

“What I learned from the training is that sometimes we over-apply fertilizers and sometimes we under-apply. We must know what’s in the soil before we plant.”

*Javier Zamora, JSM Organics*

### THE CHALLENGE

Managing nitrogen (N) effectively helps farmers raise a high-quality crop, avoid wasting dollars and protect water quality. Yet in the highly productive Salinas Valley of Monterey County, Calif., many farmers who use organic practices lack complete information on effective N management. This is particularly true of beginning farmers and those who have a language barrier or otherwise have limited access to support services. Organic agriculture is big business in Monterey County—the county’s organic sales volume was \$151 million in 2012, higher than most states. The challenge, then, is ensuring that all organic growers in the area have the best opportunity to succeed.

### THE ACTIONS TAKEN

Educators with the Agriculture and Land-Based Training Association (ALBA) used a 2013 SARE Professional/Producer grant to help fill this knowledge gap for area farmers. ALBA collaborated with experienced farmers and Extension specialists to hold workshops on organic N management and on-farm research principles. They stressed the importance of soil testing and synchronizing the supply of N with the needs of the crop throughout its growing season.

Using English and Spanish, the educators also provided in-depth training and support to nine beginning farmers participating in ALBA’s incubator program. The nine farmers, many of them Latino and former fieldworkers, conducted their own trials to compare kale and cilantro yields at different fertilization rates.

### THE IMPACTS

ALBA reached 500 growers and educators with N management information through workshops and distribution of new

publications. As a result of participating in an ALBA workshop, surveyed farmers reported:

- 91 percent adopted at least one new practice
- 84 percent took steps to diversify their operation
- 73 percent reduced their use of off-farm inputs
- 82 percent increased their networking with fellow producers
- **Farmer success:** Javier Zamora, one of the nine farmers who received the in-depth training, said ALBA’s support has helped get him where he is now. Starting his farm in 2012 on fewer than two acres, he now manages 60 acres, has 25 employees and got his land certified organic. “I feel really blessed that we’re surrounded by so many organizations and people willing to help small growers succeed,” he said.

**Learn More:** Visit [www.sare.org/project-reports](http://www.sare.org/project-reports) and search for project OW13-062.



LEFT: Roman Camacho (left) and Chrissy Yenke are better equipped to run a profitable farm business, thanks to training programs offered by the Agriculture and Land-Based Training Association (ALBA).

ABOVE: ALBA training program participant Berta Mendoza.

*Photos by Nathan Harkleroad, ALBA*



Photo by Marie Flanagan, North Central SARE

## Integrated Approaches for Managing Crop Pests

Worldwide, pests damage more than 30 percent of crops, and due to ever-changing dynamics such as invasive species and pesticide resistance, the task of managing them remains difficult. In the United States, invasive species alone cause \$13 billion in crop damage each year, and 160 herbicide-resistant weed species have been identified, the most of any country.

There is no silver bullet in pest management; to meet pest challenges, producers must employ an integrated range of tactics, many of which have benefits that extend beyond pest control and improve overall farm sustainability. Refining those practices that are successful, cost effective and less reliant on purchased inputs has long been a core focus of SARE-funded research.

One sustainable strategy is biological pest control, or creating an environment that supports the natural predators of pests.

SARE-funded producers, researchers and educators are advancing biological control in both row crop and specialty crop systems, typically by promoting biodiversity in fields and field margins. (See story, right.)

Over the years, SARE grantees have also extensively researched cultural control practices—those that modify the growing environment to create disadvantages for pests. Key practices include crop rotation, intercropping, cover crops, selecting pest-resistant varieties and precision application of nutrients and water.

Other tools in the sustainable pest management toolbox include cultivation, mulching and other forms of physical control, and integrated pest management. Many SARE grantees are seeking to solve the unique challenges of organic no-till systems, which build soil health and control weeds without synthetic herbicides or cultivation.

### GETTING THE WORD OUT [www.SARE.org/Learning-Center](http://www.SARE.org/Learning-Center)

SARE produces dozens of educational resources on a range of sustainable agriculture topics. Grantees produce even more with SARE funding. Here are just a few examples:



*Manage Insects On Your Farm* (2005)

Print: 8,935 | Online: 59,089

*Steel in the Field* (1997)

Print: 13,000 | Online: 128,109









*Sustainable Pest Management in Greenhouses and High Tunnels* (2014)

Online only: 3,727

“Print” is copies distributed since the date of publication. “Online” is combined downloads and unique page views over a recent six-year period.

### BY THE NUMBERS SARE Grants on Pests, 1988–2017

NUMBER OF GRANTS | TOTAL AMOUNT

	<b>BIOLOGICAL CONTROL</b> <b>491</b>	<b>\$17.9</b> MILLION
	<b>CULTURAL CONTROL</b> <b>517</b>	<b>\$24</b> MILLION
	<b>HERBICIDE RESISTANCE AND INVASIVES</b> <b>122</b>	<b>\$3.8</b> MILLION
	<b>IPM</b> <b>288</b>	<b>\$14.2</b> MILLION
	<b>MULCH</b> <b>171</b>	<b>\$4</b> MILLION
	<b>ORGANIC NO-TILL</b> <b>181</b>	<b>\$7.1</b> MILLION
	<b>PEST-RESISTANT SPECIES</b> <b>141</b>	<b>\$6.1</b> MILLION
	<b>PHYSICAL CONTROL</b> <b>287</b>	<b>\$8.5</b> MILLION
	<b>TOTAL</b> <b>1,412</b>	<b>\$55.5</b> MILLION

Because some projects address more than one topic, the total is adjusted to remove duplicates.

# Habitat Restoration Brings Beneficial Insects and Fewer Pests to the Vineyard

“The ecosystem services alone are of such a high value to our greater agricultural system that this approach should become the norm, not the exception.”

*Robin Dobson, Meadowlark Vineyard*

## THE CHALLENGE

Over the past decade, winegrape growers in Eastern Washington—which produces more wine than every state but California—have dramatically cut their use of insecticides and miticides, largely thanks to general improvements in integrated pest management (IPM) techniques. But to further reduce their use of pesticides and to enhance the image of Washington wine as a “green industry,” growers are seeking more information about conservation biological control strategies, namely how to incorporate wildflower habitat on their vineyards to attract beneficial insects, pollinators and butterflies. Knowledge of native plant species that best attract these beneficial organisms is limited, leaving farmers guessing what to plant when

they want to further improve the ecological sustainability of their vineyard.

## THE ACTIONS TAKEN

Partnering with 10 producers in four wine-growing regions, Washington State University researcher David James led a four-year SARE Research and Education grant project to study the role of native habitat restoration (NHR) in attracting beneficial organisms, and to identify the flowering plant species best suited to do the job.

The team monitored vineyards with natural or restored native habitat and compared them to others with little or no natural habitat that served as controls. They monitored arthropod populations to compare the abundance and seasonality of pests, natural enemies, butterflies and bees. They also evaluated more than 100 native flowering plant species for their attractiveness to beneficial organisms in order to support grape growers in making informed choices on what to plant to improve efficacy and sustainability of biological control and IPM while supporting pollinators, predators and parasitoids.

## THE IMPACTS

- **More beneficial organisms:** Data shows that beneficial insect and mite abundance is greater in vineyards that have enhanced native flora and habitats than in those that do not encourage native plants.
- **Lower pesticide use:** Habitat-enhanced vineyards did not need to spray insecticides or miticides during the course of the study, whereas control vineyards required one to two sprays. The cost per spray was at least \$50 per acre.
- **Access to new information:** A native plant manual for Washington winegrape growers is now in the works to assist them in choosing the right plants for their vineyard NHR plans. Numerous conference sessions, field days, seminars and articles have spread the word about the efficacy of NHR on winegrape vineyards to improve IPM and conserve specific butterfly and bee species, among other beneficial insects.

**Learn More:** Visit [www.sare.org/project-reports](http://www.sare.org/project-reports) and search for project SW10-052.



LEFT: Blanket flower (*Gaillardia aristata*) is one of many species that can be grown near vineyards to attract beneficial insects and improve biological control of insect and mite pests.

ABOVE: Washington State University researcher David James.

*Photos by Lorraine Seymour*



Photo by Stacie Clary, Western SARE

## Pollinators, Wildlife and Biodiversity on Farms

From changing market forces to weather variability to the never-ending struggle with pests, farming is fraught with risk. To cope, farmers and ranchers need to be expert risk managers. What holds true in financial planning holds true in agriculture as well: Good risk management requires diversification.

Enhancing biodiversity on the farm is one of the best ways that producers can deal with risk. A biodiverse farm incorporates a wide variety of plant and animal species into production, thus spreading out risk and creating a resilient system that can remain profitable and productive despite unexpected shocks. For 30 years, SARE grantees have led the way by advancing the use of heirloom and native species, cover crops, long-term crop rotations, multi-species grazing and integrated crop/livestock systems.

Enhanced biodiversity on the farm also benefits honeybees and other pollinators, which provide an essential service to a vast segment

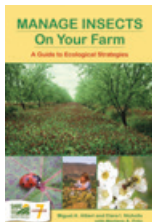
of agriculture but face serious threats. For example, many SARE grantees are studying native pollinators and how diverse flowering plant species can support them and increase crop yield. (See story, right.)

Even when producers are not dealing with risk, biodiversity provides many advantages: It often allows them to cut costs, improve productivity and bring intrinsic value to local communities through clean air and water, and the preservation of wildlife. For example, SARE-funded projects often address how a farm's field margins are managed—areas that can protect water quality, bring recreational value to communities and provide habitat for pollinators, wildlife and beneficial insects.

Biodiversity above ground leads to biodiversity within the soil. Billions of organisms contribute to soil health and can play a vital role in cycling nutrients, storing water, controlling pests and boosting productivity.

### GETTING THE WORD OUT [www.SARE.org/Learning-Center](http://www.SARE.org/Learning-Center)

SARE produces dozens of educational resources on a range of sustainable agriculture topics. Grantees produce even more with SARE funding. Here are just a few examples:



*Cover Cropping for Pollinators and Beneficial Insects* (2015)  
Print: 16,401 | Online: 11,657

*Diversifying Cropping Systems* (1999)  
Print: 74,000 | Online: 14,619

*Crop Rotation on Organic Farms* (2009)  
Print: 7,223 | Online: 106,408

*Manage Insects On Your Farm* (2005)  
Print: 8,935 | Online: 59,089

"Print" is copies distributed since the date of publication. "Online" is combined downloads and unique page views over a recent six-year period.

### BY THE NUMBERS SARE Grants on Biodiversity, 1988–2017

NUMBER OF GRANTS | TOTAL AMOUNT

	<b>AGROFORESTRY</b> <b>103</b>	<b>\$4.8</b> MILLION
	<b>BIODIVERSITY</b> <b>123</b>	<b>\$5.7</b> MILLION
	<b>FIELD MARGINS</b> <b>155</b>	<b>\$4.3</b> MILLION
	<b>HEIRLOOMS AND NATIVE PLANTS</b> <b>139</b>	<b>\$2.8</b> MILLION
	<b>MULTI-SPECIES GRAZING</b> <b>32</b>	<b>\$700,106</b>
	<b>POLLINATORS</b> <b>431</b>	<b>\$10.5</b> MILLION
	<b>WETLANDS</b> <b>75</b>	<b>\$1.2</b> MILLION
	<b>WILDLIFE</b> <b>281</b>	<b>\$7.1</b> MILLION
	<b>TOTAL</b> <b>1,118</b>	<b>\$33.5</b> MILLION

Because some projects address more than one topic, the total is adjusted to remove duplicates.

## Producing Better Apples, and More of Them, with Native Bees

“By establishing a strong network of native bees, we can make Georgia agriculture more secure and sustainable.”

*Mark Schlueter, Georgia Gwinnett College*

### THE CHALLENGE

Honeybees play a critical role in agriculture by pollinating one third of the food we eat, yet our reliance on them creates considerable risk for both farmers and consumers. Disease, habitat loss and pesticide exposure contribute to extensive honeybee hive losses. The plight of the honeybee has increased the production cost for farmers who must rent hives and has created public concern about the security of our food system.

### THE ACTIONS TAKEN

Farmers, beekeepers, researchers and others are tackling this challenge from many angles. One approach, which is the focus of

Georgia Gwinnett College's Mark Schlueter, is to better understand local native bee species and to support them on farms as alternative pollinators. Partnering with four Georgia apple growers, including the largest producer in the state, Schlueter has received five SARE grants to identify which native bees are best at pollinating apples and how farmers can manage habitat that helps them thrive. The strategies he is evaluating are to improve nesting habitat and to use wildflower plantings that provide bees with a year-round food source.

One of the farmers, Joe Dickey, has received two SARE grants to further study whether taking steps to support native bees on his 15-acre orchard will increase apple yields. So far, the answer has been yes.

### THE IMPACTS

A major impact of this research, Schlueter said, has been learning how native bees can stand in as alternative pollinators should honeybees become further imperiled.

Specific impacts include:

- **Increased production:** In 2016, after establishing wildflower plots and seeing that they attracted a large number of native bees, Dickey's harvest surged to 3,150 bushels from an average of 2,200 to 2,300 bushels the previous two years.
- **The Georgia apple bee:** After identifying dozens of bee species present in apple orchards and evaluating their effectiveness as pollinators, Schlueter found “the Georgia apple bee”—a mining bee that is the ideal pollinator for apple growers.
- **Improved fruit quality:** This mining bee spends up to 15 seconds at each apple blossom compared to the five seconds that a honeybee spends, according to Schlueter. “The better the pollination that apples get, the larger they grow and the higher their value,” he said.

**Learn More:** Visit [www.sare.org/project-reports](http://www.sare.org/project-reports) and run a people search for “Schlueter” and “Dickey.”



LEFT: Georgia apple grower Joe Dickey (pictured) collaborated with biologist Mark Schlueter to survey native pollinators and develop strategies to support them in his orchards. He has seen increased crop yields as a result.

ABOVE: The wildflowers that Joe Dickey maintains on his Georgia farm to provide habitat for alternative pollinators.

*Photos by Candace Pollock-Moore, Southern SARE*



Photo by Stacie Clary, Western SARE

## Surviving and Thriving with Vegetable and Fruit Production

Just as fresh fruits and vegetables are part of a balanced diet, they are also an essential part of a diverse, resilient and secure food system. Specialty crops are produced on nearly a quarter-of-a-million U.S. farms, with a market value of \$63 billion per year and rising steadily in recent years.

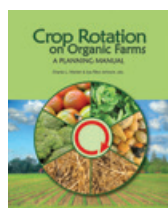
Although fruit and vegetable revenue represents a relatively small portion of the farm economy, these crops provide young and beginning farmers an opportunity to overcome barriers to entry by producing high-value crops that require relatively low investments of capital. Fruit and vegetable crops also offer row crop producers an opportunity to increase the economic and biological resilience of their operations. Introducing fruit and vegetables into traditional crop rotations diversifies the

farmscape, providing new sources of income, interrupting pest and weed cycles, and conserving natural resources. Farmers who respond to the growing consumer demand for fresh, healthy products strengthen socio-economic bonds with local communities and improve domestic food security in the process.

SARE grantees are leading the way by exploring innovative, research-based models for fruit and vegetable production and marketing. In concert with land-grant researchers and Cooperative Extension agents, and with support from SARE, sustainable farmers are expanding production capacity and marketing networks through hard work and entrepreneurship to improve the profitability and sustainability of agriculture.

### GETTING THE WORD OUT [www.SARE.org/Learning-Center](http://www.SARE.org/Learning-Center)

SARE produces dozens of educational resources on a range of sustainable agriculture topics. Grantees produce even more with SARE funding. Here are just a few examples:











*Building a Sustainable Business* (2004)  
Print: 25,005 | Online: 92,106

*Crop Rotation on Organic Farms* (2009)  
Print: 7,223 | Online: 106,408

*High Tunnels and Other Season Extension Techniques* (2013)  
Print: 7,643 | Online: 21,921

*Organic Transition* (2015)  
Print: 3,461 | Online: 8,991

“Print” is copies distributed since the date of publication. “Online” is combined downloads and unique page views over a recent six-year period.

BY THE NUMBERS		
SARE Grants on Specialty Crops, 1988–2017		
	NUMBER OF GRANTS	TOTAL AMOUNT
	<b>485</b>	<b>\$12.5 MILLION</b>
<b>BERRIES</b>		
	<b>156</b>	<b>\$4 MILLION</b>
<b>GRAPES</b>		
	<b>315</b>	<b>\$4.8 MILLION</b>
<b>HERBS</b>		
	<b>324</b>	<b>\$8.1 MILLION</b>
<b>LEAFY GREENS</b>		
	<b>142</b>	<b>\$3.5 MILLION</b>
<b>NUTS</b>		
	<b>543</b>	<b>\$12.7 MILLION</b>
<b>OTHER SPECIALTY CROPS</b>		
	<b>493</b>	<b>\$14 MILLION</b>
<b>TREE FRUIT</b>		
	<b>1,266</b>	<b>\$38.5 MILLION</b>
<b>VEGETABLES</b>		
	<b>2,431</b>	<b>\$74.6 MILLION</b>
<b>TOTAL</b>		

Because some projects address more than one topic, the total is adjusted to remove duplicates.



## Financial Management Training Cultivates Farm Business Success

“One really rewarding aspect of the project has been following up with participants a year later and finding lasting effects on their financial management practices.”

*Kira Bennett Hamilton, The Carrot Project*

### THE CHALLENGE

It's not easy to make a living running a farm. Most farms, particularly smaller-scale operations, struggle to be profitable, according to the USDA Economic Research Service. Many farmers learn the hard way that successful financial management requires good tools, strategy and organization. Those at particular risk are beginning farmers, who struggle with the financial aspect of running their businesses and lack the necessary business management tools to choose the right strategies for their unique operations.

### THE ACTIONS TAKEN

Primed with an existing data set of detailed financial records from 30 farms and four technical service providers collected through

a previous SARE grant, The Carrot Project, a Massachusetts-based nonprofit, conducted a detailed analysis of what financial management practices are critical to help farms succeed, and how service providers can best support farmers in implementing those practices. From there, the team developed and implemented a financial-management training program, “Making it Happen: Profitability and Success,” that included case studies, hands-on activities and learning aids.

### THE IMPACTS

Eighty-nine farmers participated in six trainings in Massachusetts, New York and Vermont in 2016. The long-lasting effects of the training on its participants were remarkable.

- **Increased financial acuity:** Fifty farmer trainees growing fruits and vegetables better understood the importance of using financial statements when comparing direct-market sales channels and when evaluating what crops to grow.
- **Improved confidence:** Eighty-seven percent of trainees expressed confidence in their preparedness because the

program taught them job-related management tasks.

- **Increased adoption:** The percentage of trainees who used accounting software for their farm at least quarterly increased from 64 percent to 81 percent in the months following the training. The majority of trainees are now seeking outside financial advice and are reviewing their financial statements more frequently than before.
- **Improved profit margins:** Hannah and Ben Wolbach of Skinny Dip Farm in Westport, Mass., are one example of how participating farmers improved their profit margins. Learning to prioritize financial management helped them increase their gross sales by 65 percent and grow their income from \$0 to \$35,000.

Due to its success, organizers are planning more workshops in 2018 that go into greater detail on financial management.

**Learn More:** Visit [www.sare.org/project-reports](http://www.sare.org/project-reports) and search for projects ONE15-248 and LNE11-310.



LEFT: Newcastle, Maine, farmer Lee Straw (left) and the Carrot Project's Dorothy Suput. *Photo by Melody Ko*  
MIDDLE: *Photo by Preston Keres, USDA*  
ABOVE: *Photo by Marie Flanagan, North Central SARE*



Photo by Lance Cheung, USDA

## Sustaining Communities Through Local Foods and Marketing

For decades now, the opportunity to earn a premium through local sales has been a boon for U.S. farmers and ranchers. Nearly 164,000 farms generated \$6.1 billion in direct-market sales in 2012, according to USDA statistics.

Local sales are made through a variety of marketing avenues that SARE grantees have been implementing, evaluating and refining since the program's beginning. In the early days, the focus was on farmers' markets, community-supported agriculture (CSAs), sales to retailers and restaurants, unique specialty products, and value-added processing. (See story, right.)

Today, producers are seeking to keep even more dollars in their communities by scaling up local and regional marketing channels. SARE grantees are keeping pace with this

evolution. For example, they are building cooperative distribution and marketing models such as food hubs; navigating the unique requirements for institutional sales; and filling the rural gap in small-scale, USDA-inspected meat processing. SARE-funded educators are creating tools and training programs that help producers develop profitable marketing strategies.

Furthermore, SARE grantees are helping their communities realize the social benefits of the local food economy. They are establishing farmers' markets and reviving traditional crops on tribal lands, starting innovative urban farms and gardens, and bringing food education to grade schools.

### GETTING THE WORD OUT [www.SARE.org/Learning-Center](http://www.SARE.org/Learning-Center)

SARE produces dozens of educational resources on a range of sustainable agriculture topics. Grantees produce even more with SARE funding. Here are just a few examples:



*Farm to Table: Building Local and Regional Food Systems* (2014)

Print: 9,627 | Online: 26,532

*How to Direct Market Your Beef* (2006)

Print: 14,999 | Online: 33,586

*Marketing Strategies for Farmers and Ranchers* (2006)

Print: 35,000 | Online: 14,321

"Print" is copies distributed since the date of publication. "Online" is combined downloads and unique page views over a recent six-year period.

### BY THE NUMBERS

#### SARE Grants on Marketing, 1988–2017

NUMBER OF PROJECTS | TOTAL AMOUNT



240

CSAs

\$5.2  
MILLION



235

DIRECT MARKETING

\$5.6  
MILLION



330

FARMERS' MARKETS

\$5.5  
MILLION



468

FARM TO SCHOOL

\$9.8  
MILLION

#### LOCAL AND REGIONAL FOOD SYSTEMS



350

\$10.4  
MILLION



264

MARKETING TO INSTITUTIONS

\$8.2  
MILLION



50

MEAT PROCESSING

\$1.3  
MILLION



97

URBAN AG

\$1.9  
MILLION

TOTAL

1,277

\$34.5  
MILLION

Because some projects address more than one topic, the total is adjusted to remove duplicates.

## Third-Generation Dairy Thrives In New Kansas City Markets

“I wanted to know where the biggest bang for my buck would be, where I could spend my money and be the most successful.”

*Janet Smith, Borgman's Farmstead Dairy*

### THE CHALLENGE

With the number of Missouri dairies steadily declining, Janet Smith, the third-generation owner of Borgman's Farmstead Dairy, has positioned her business for success. In 2006, she took ownership and switched her Holden, Mo., dairy entirely from cows to goats, and it now occupies an enviable niche as the only Grade A goat dairy in the Kansas City area at a time when goat milk products are increasingly popular. Yet with the exhaustive demands of running the operation and slim profit margins, Smith did not have a clear idea of which marketing channels yielded the best returns on all her hard work. “Marketing was just elusive to me,” she said. “I was spending all this time and

money at the farmers' markets and at the retail outlets, and I couldn't figure out where I should be.”

### THE ACTIONS TAKEN

In 2016, Smith received a SARE Farmer/Rancher grant to get a definitive answer. She conducted a market study that compared the return on investment of selling her products at a farmers' market and at a retail outlet. During the peak sales season of April through September, she maintained a consistent presence at Kansas City's largest farmers' market and at a grocery store that sources local products. Smith's sales staff offered marketing materials, farm information and product samples at both locations, and they tracked data on customer demographics and preferences, sales and costs.

### THE IMPACTS

Overall, Smith found that retail sales were slightly higher than the farmers' market. But when factoring in the time investment and costs, it became clear that retail stores

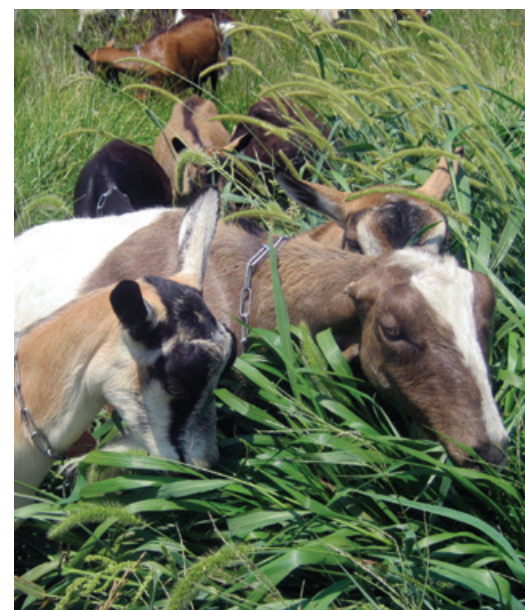
provided the greater economic value. “The study gave me legs to stand on,” Smith said. “It gave me more time in my life because I could say more people buy my cheese at retail outlets than anywhere else.” Today, Smith is taking the following steps to continue growing her business:

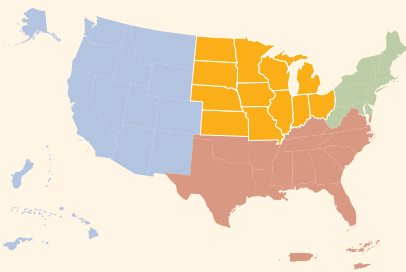
- She has cut back to one farmers' market and instead has made “a big push on retail.” Her products now appear in 60 regional grocery stores, including Whole Foods.
- She has hired a food distributor and is in the process of building an online store.
- She is partnering with a cheese industry consultant to establish an artisan cheese-makers guild in Kansas City. “What I want to do is help other farmers and cheese-makers if they want to get started in the business,” Smith said.

**Learn More:** Visit [www.sare.org/project-reports](http://www.sare.org/project-reports) and search for project FNC16-1058.



LEFT: Janet Smith used to rely heavily on farmers' markets to sell her goat dairy products, until she conducted a SARE-funded market study that convinced her retail was more profitable. *Photo by Pete Dulin*  
BELOW: *Courtesy Borgman's Farmstead Dairy*





# NORTH CENTRAL SARE [www.NorthCentralSARE.org](http://www.NorthCentralSARE.org)

## STORIES FROM THE REGION

Find out what North Central SARE grantees are doing:

Farmer network commits to cover crops, pg. 5

Goat dairy thrives in new retail markets, pg. 19

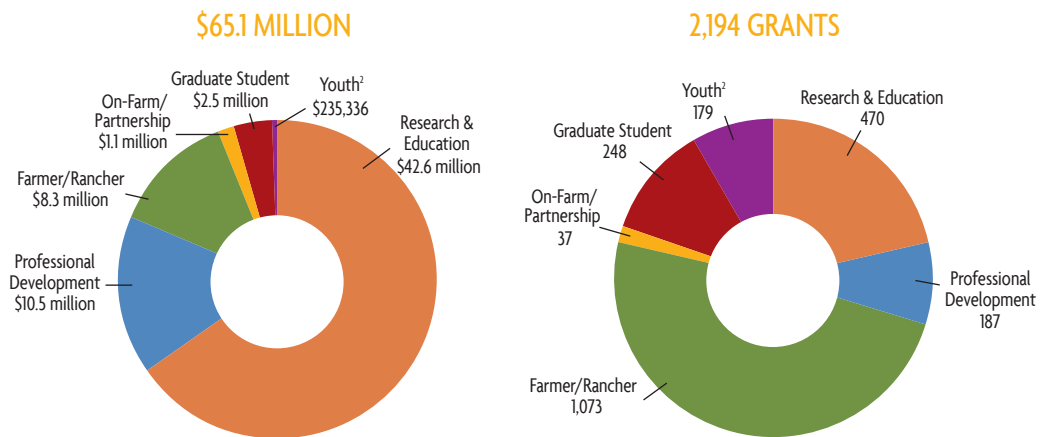
Photos by Marie Flanagan, North Central SARE

## Grant Proposals and Awards, 2016–2017

Grant Type	Preproposals Received <sup>1</sup>	Full Proposals Invited	Full Proposals Received	Proposals Funded	Funding Total
Research and Education	321	60	55	24	\$4.4 million
Professional Development	N/A	N/A	47	13	\$949,122
Farmer/Rancher	N/A	N/A	210	84	\$874,463
On-Farm/Partnership	N/A	N/A	67	24	\$641,555
Graduate Student	N/A	N/A	100	35	\$410,287

<sup>1</sup> The use of a preproposal process varies by region. It serves to screen project ideas for the larger and more complex grant programs, to reduce applicants' proposal preparation burden and the proposal review burden for SARE's volunteer reviewers.

## Total Grant Awards, 1988–2017<sup>1</sup>



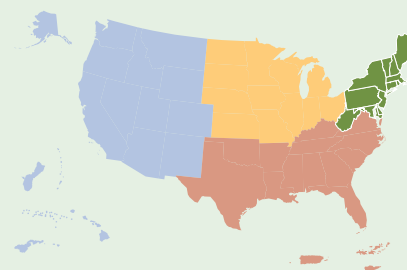
<sup>1</sup> These totals do not include additional direct funding given each year to Cooperative Extension in each state to support state-level programming on sustainable agriculture.

<sup>2</sup> A combination of separate Youth and Youth Educator grant programs.



# NORTHEAST SARE

www.NortheastSARE.org



## STORIES FROM THE REGION

Find out what Northeast SARE grantees are doing:

Planned grazing boosts the triple bottom line, pg. 7

Financial training improves chance of success, pg. 17



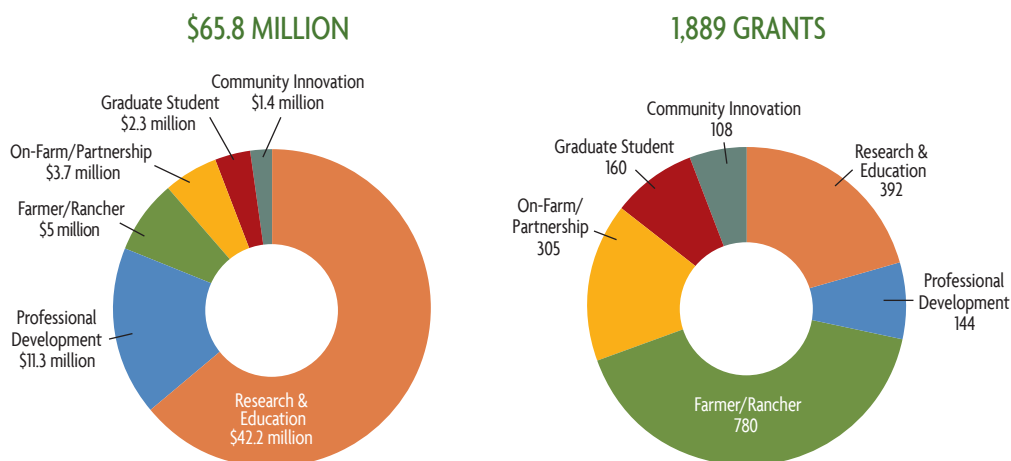
Photo by Jamie Storrow, SARE Outreach

## Grant Proposals and Awards, 2016–2017

Grant Type	Preproposals Received <sup>1</sup>	Full Proposals Invited	Full Proposals Received	Proposals Funded	Funding Total
Research and Education	146	63	44	15	\$2.4 million
Professional Development	29	20	14	7	\$635,224
Farmer/Rancher	N/A	N/A	93	49	\$615,705
On-Farm/Partnership	N/A	N/A	96	57	\$802,628
Graduate Student	N/A	N/A	114	50	\$728,049

<sup>1</sup> The use of a preproposal process varies by region. It serves to screen project ideas for the larger and more complex grant programs, to reduce applicants' proposal preparation burden and the proposal review burden for SARE's volunteer reviewers.

## Total Grant Awards, 1988–2017<sup>1</sup>



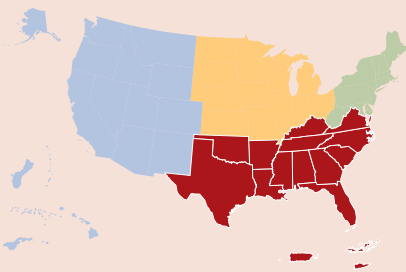
<sup>1</sup> These totals do not include additional direct funding given each year to Cooperative Extension in each state to support state-level programming on sustainable agriculture.



Photo by Edwin Remsberg



Photo by Bob Nichols, USDA



# SOUTHERN SARE

www.SouthernSARE.org

## STORIES FROM THE REGION

Find out what Southern SARE grantees are doing:

Profitable production systems for a shrinking aquifer, pg. 9

Finding native pollinators that boost apple yields, pg. 15

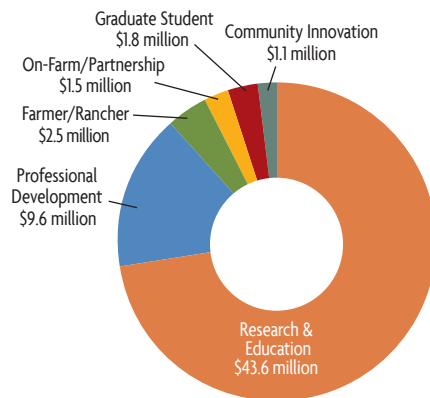
## Grant Proposals and Awards, 2016–2017

Grant Type	Preproposals Received <sup>1</sup>	Full Proposals Invited	Full Proposals Received	Proposals Funded	Funding Total
Research and Education	122	48	42	17	\$3.9 million
Professional Development	31	20	19	13	\$998,353
Farmer/Rancher	N/A	N/A	76	18	\$167,890
On-Farm/Partnership	N/A	N/A	74	19	\$267,189
Graduate Student	N/A	N/A	99	23	\$325,609

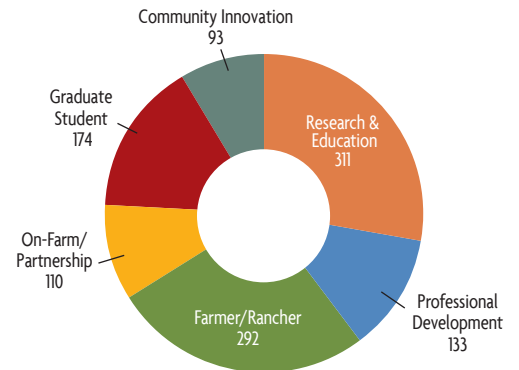
<sup>1</sup> The use of a preproposal process varies by region. It serves to screen project ideas for the larger and more complex grant programs, to reduce applicants' proposal preparation burden and the proposal review burden for SARE's volunteer reviewers.

## Total Grant Awards, 1988–2017<sup>1</sup>

**\$60.2 MILLION**



**1,113 GRANTS**



<sup>1</sup> These totals do not include additional direct funding given each year to Cooperative Extension in each state to support state-level programming on sustainable agriculture.



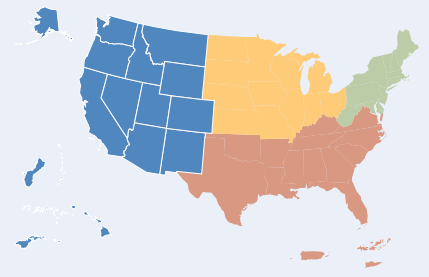
Photo by Edwin Remsberg



Photo by Preston Keres, USDA



Photo by Candace Pollock-Moore, Southern SARE



## STORIES FROM THE REGION

Find out what Western SARE grantees are doing:

Economic opportunity for socially disadvantaged farmers, pg. 11

Habitat enhancement reduces pesticide use, pg. 13

*Photos by Stacie Clary, Western SARE*



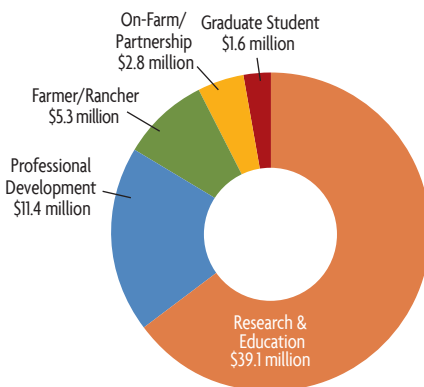
## Grant Proposals and Awards, 2016–2017

Grant Type	Preproposals Received <sup>1</sup>	Full Proposals Invited	Full Proposals Received	Proposals Funded	Funding Total
Research and Education	186	42	36	12	\$3.3 million
Professional Development	N/A	N/A	48	18	\$1.1 million
Farmer/Rancher	N/A	N/A	79	20	\$452,017
On-Farm/Partnership	N/A	N/A	62	18	\$704,277
Graduate Student	N/A	N/A	112	16	\$391,901

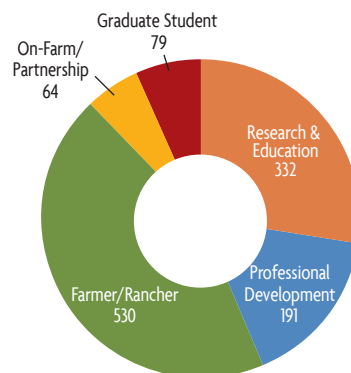
<sup>1</sup>The use of a preproposal process varies by region. It serves to screen project ideas for the larger and more complex grant programs, to reduce applicants' proposal preparation burden and the proposal review burden for SARE's volunteer reviewers.

## Total Grant Awards, 1988–2017<sup>1</sup>

\$60.2 MILLION



1,196 GRANTS



<sup>1</sup>These totals do not include additional direct funding given each year to Cooperative Extension in each state to support state-level programming on sustainable agriculture.



# SARE Shares

SARE's work does not stop when it awards a grant; SARE follows through with a robust regional and national outreach effort to share useful findings with farmers and ranchers, researchers, and ag educators. Here are some of the ways SARE shares.

## THE LEARNING CENTER

[www.SARE.org/Learning-Center](http://www.SARE.org/Learning-Center)  
Hundreds of educational resources on dozens of topics.

## DATABASE OF PROJECT REPORTS

[www.SARE.org/Project-Reports](http://www.SARE.org/Project-Reports)  
Results from more than 6,300 SARE-funded research and education projects.

## STATE PROGRAMS

[www.SARE.org/State-Programs](http://www.SARE.org/State-Programs)  
SARE coordinators in every state and island protectorate offer learning opportunities.



Photo by Jamie Storrow, SARE Outreach

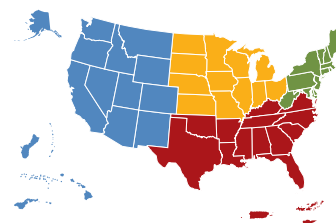


## HOW TO ORDER SARE PUBLICATIONS

Books and bulletins are free to view online at [www.sare.org/Learning-Center](http://www.sare.org/Learning-Center). To buy books or order free print bulletins, visit [www.sare.org/WebStore](http://www.sare.org/WebStore) or call (301) 779-1007.

## SARE OFFICES

Contact your regional office or visit its website for requests for proposals, application deadlines and other grant information. Contact SARE Outreach or visit [www.sare.org](http://www.sare.org) for questions about SARE publications.



**NORTH CENTRAL SARE**  
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[nrcsare@umn.edu](mailto:nrcsare@umn.edu)

**WESTERN SARE**  
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<sup>1</sup>The Western SARE host institution is transitioning to Montana State University in summer 2018.

Visit SARE on the web at [www.sare.org](http://www.sare.org)

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