

2009-2010

# SARE



WEST



NORTHEAST

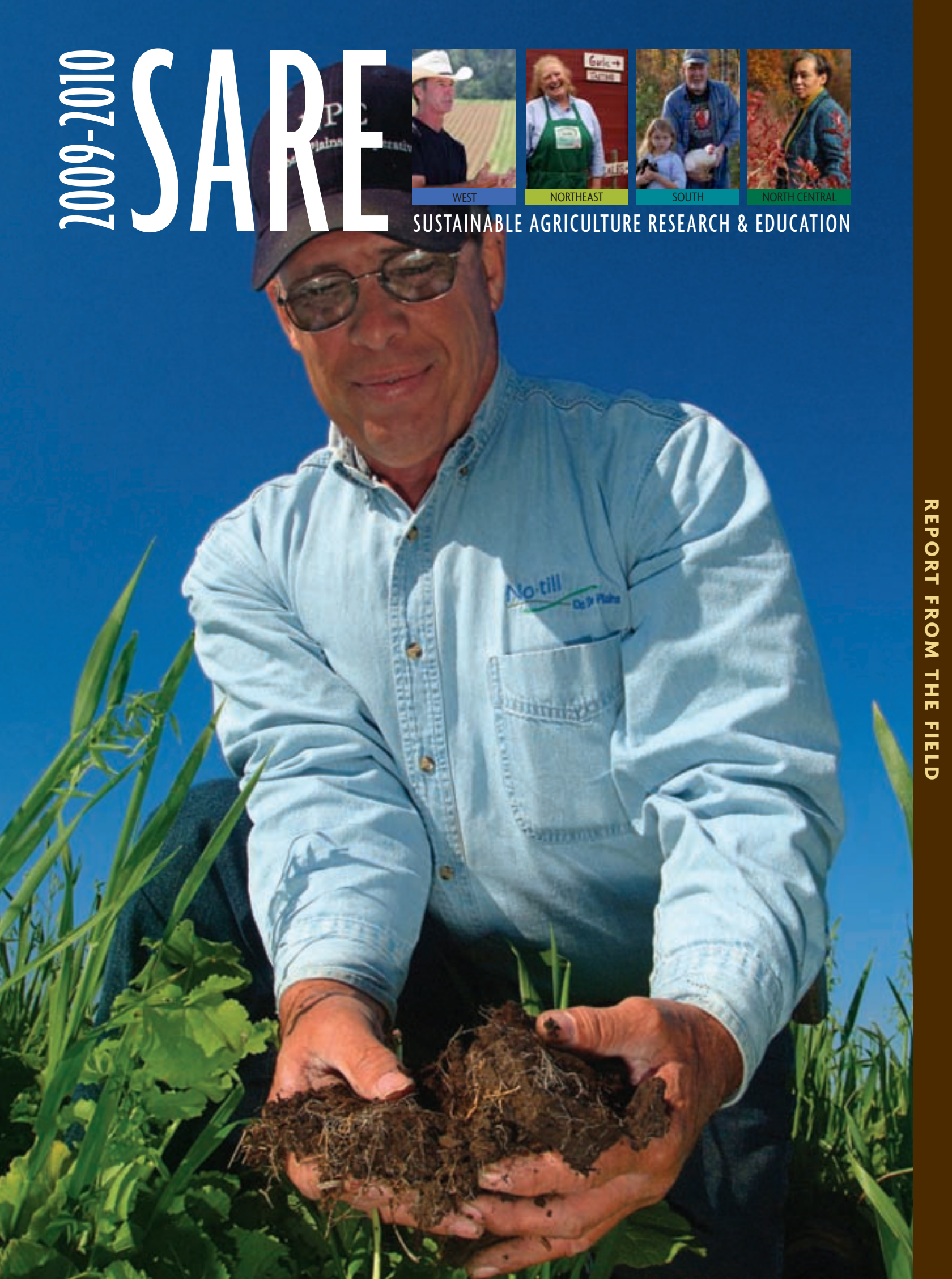


SOUTH



NORTH CENTRAL

SUSTAINABLE AGRICULTURE RESEARCH & EDUCATION



REPORT FROM THE FIELD

# SARE is...



## GRANT MAKING .....

**SARE offers grants to farmers, ranchers and ag professionals for on-farm research, education, and professional and community development. SARE-supported projects address pest management, energy, stewardship, marketing, systems research and much more.**



## LOCAL LEADERSHIP, NATIONAL IMPACT .....

**Four regional councils—including farmers, educators, scientists, government, NGOs and other stakeholders—set priorities and make grants.**

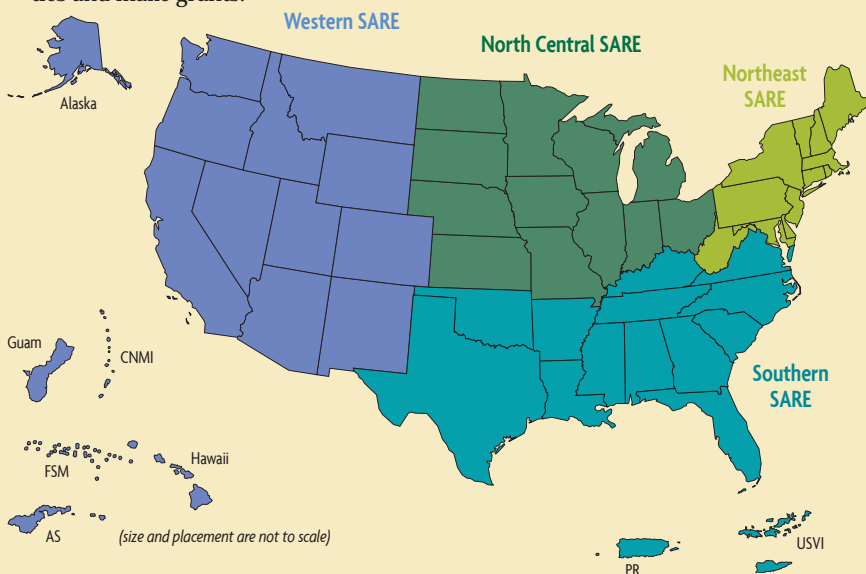
## ENGAGEMENT .....

**SARE shares research results by funding trainings, requiring project outreach, and producing a library of practical, how-to books and bulletins (see back cover).**



## FARMER LEADERSHIP .....

**Hundreds of producers from all corners of the nation advise SARE.**



## SARE Offices

Contact your regional office, or visit its Web site, 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 information materials.

**North Central SARE**  
(hosted by the University of Minnesota)  
[www.sare.org/ncrsare](http://www.sare.org/ncrsare)  
(612) 626-3113  
[ncrsare@umn.edu](mailto:ncrsare@umn.edu)

**Northeast SARE**  
(hosted by the University of Vermont)  
[www.nesare.org](http://www.nesare.org)  
(802) 656-0471  
[nesare@uvm.edu](mailto:nesare@uvm.edu)

**Southern SARE**  
(hosted by the University of Georgia and Fort Valley State University)  
[www.southernshare.org](http://www.southernshare.org)  
(770) 412-4787  
[info@southernshare.org](mailto:info@southernshare.org)

**Western SARE**  
(hosted by Utah State University)  
[wsare.usu.edu](http://wsare.usu.edu)  
(435) 797-2257  
[wsare@usu.edu](mailto:wsare@usu.edu)

**SARE Outreach**  
(hosted by the University of Maryland and University of Vermont)  
[www.sare.org](http://www.sare.org)  
(301) 405-8020  
[info@sare.org](mailto:info@sare.org)



Robert Hedberg, Interim SARE Director.  
Photo by Ron Daines

## Letter from the Director

It has been a real privilege to be involved with SARE as it enters its third decade of agricultural research and education dedicated to improving the long-term profitability of American farms, conserving and enhancing our natural resources, and strengthening farm and ranch communities across the country.

Certainly the program has been successful. Dr. Kathleen Merrigan, Deputy Secretary of USDA, recently described the SARE program as a “jewel in the crown” of the department’s research portfolio.

Several attributes contribute to this success. First and foremost is the active involvement of the many people who give their time, ideas and enthusiasm to the process of improving agricultural systems across the country.

A special nod goes to farmers and ranchers. A cornerstone of SARE’s success is farmers and ranchers working collaboratively with researchers and educators on almost all aspects of the SARE program, from conceiving and implementing individual projects and reviewing project proposals to conducting educational outreach to other producers to serving active leadership roles on each of SARE’s four regional Administrative Councils.

The involvement of producers has also contributed greatly to the relevancy of SARE-supported applied research and education projects. It has kept us focused on research that farmers and ranchers can see, appreciate and implement profitably—in short, research that makes a difference.

Producers are a rich source of innovation. Time and again a SARE Farmer/Rancher Grant has proven a concept that snowballs into a new farm operation, market opportunity or even a farm cooperative that is building new production and marketing systems. SARE is one of very few research programs that has the flexibility to serve as both idea incubator—by funding this type of high-risk, low-cost and potentially rewarding pilot projects—and supporter of larger, long-term research projects.

The following pages include profiles of 12 of SARE’s most impressive projects, as well as a more complete picture of the work being led by SARE’s four regional Administrative Councils, comprised of experts from many disciplines who guide regional grant programs and policies. Council activity ranges from in-depth listening sessions across SARE’s western region to engaging underserved audiences in the north central region to building new long-term, agro-ecosystem research capacity in the Northeast. Southern SARE’s council is supporting research looking at all components of the food system, and offering continual support to its most successful projects.

I hope you enjoy these highlights of the SARE program and if you have not done so before, please visit [www.sare.org](http://www.sare.org) to view the projects database, a treasure trove of information gleaned from the more than 4,000 projects that SARE has supported to date. Or look for our latest books and bulletins, produced by SARE Outreach, all available for free download.

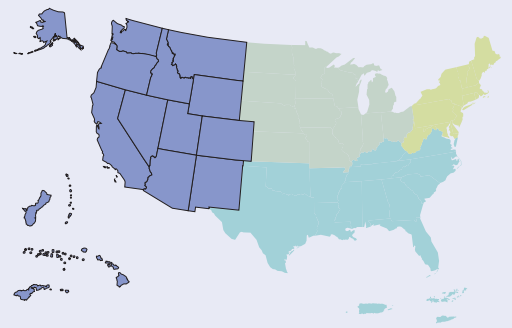
I look forward to your continued interest and involvement in the SARE program and I encourage you to contact me with your thoughts at [rhedberg@nifa.usda.gov](mailto:rhedberg@nifa.usda.gov).

Robert Hedberg  
Interim SARE Director

Read on to learn about SARE’s work across America > > >

**Cover photo:** South Dakota farmer Dan Forgey has seen dramatic improvements in his soil quality after implementing no-till and using cover crops (page 19). Photo courtesy of *The Furrow* magazine (The John Deere Co.). **Credits:** Design, Kirsten Ankers. Editing/Production, Dena Leibman. Writing/Production, Andy Zieminski. Printing: Jarboe Printing Co. Printed on paper that is 100 percent post-consumer waste and process chlorine free.

“Time and again a SARE Farmer/Rancher Grant has proven a concept that snowballs into a new farm operation, market opportunity or even a farm cooperative that is building new production and marketing systems.”



## WESTERN SARE

**W**ith the West's varied terrain and climate—wet and dry, mountain and desert, tropical and sub-Arctic—Western SARE embarked on a mission two years ago to hone in on emerging needs and issues within subregions. These listening sessions are engaging stakeholders of many disciplines and perspectives—from Guam to Cheyenne, from Spokane to Albuquerque. The goal: showcase SARE successes and learn firsthand how to best use grant making and outreach to advance sustainable agriculture across this vast and varied landscape.

Feedback from the facilitated, recorded conferences shows many common issues across all subregions:

- Revitalize or strengthen the weak links (processing, distribution) in getting fresh, locally grown foods to schools, businesses and individual consumers.
- Extend agricultural opportunities to youth and minorities.
- Increase sustainable biofuel production and energy self-sufficiency.

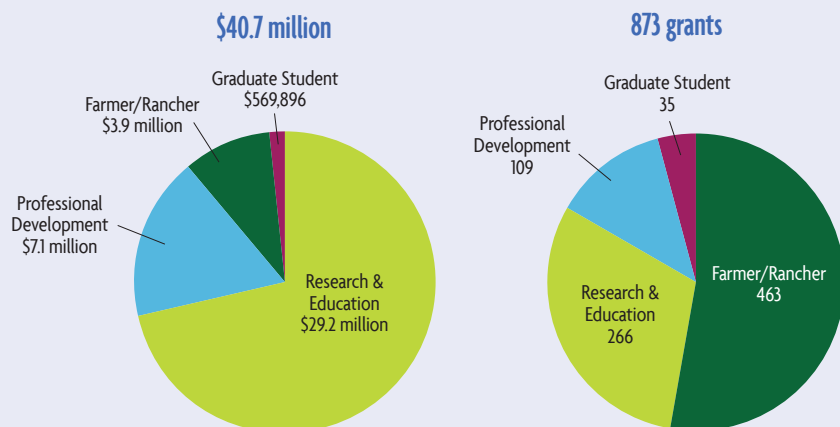
To address local needs, competitive grants up to \$50,000 are being funded from each conference for research and education that targets a subregional priority:

- In Oregon, producer Maud Powell is using her grant to educate growers on red wheat varieties that fit the needs of local bakers.
- In Colorado, educator Tisha Casida is teaching grade school youth the values of sustaining agriculture and producing and consuming nutritious local food.
- On the island of Molokai, Hawaii, extension agent Glenn Teves is training farmers to grow cover crops and harness local resources as crop nutrients.
- In Montana, meat scientist Jan Boles is providing food safety support and training for small, local meat processors.
- On Guam, extension veterinarian Manuel Duguies is researching replacing costly imported feed with local feed sources.

These conferences have elicited valuable feedback and propelled participants toward greater sustainability. Nearly all said they gained new knowledge. Most plan to share that knowledge with hundreds more. And 95 percent proclaimed “aspirations to do more in sustaining agriculture.”

Findings from these grassroots listening sessions are feeding into the critical decisions Western SARE Administrative Council members will make on funding projects that nourish American agriculture.

### From 1988 to 2009, Western SARE has awarded...



Farmers like Larry Thompson of Damascus, Ore., help lead the way for SARE by serving on SARE's regional Administrative Councils, advising the program in other ways, and acting as spokespeople for sustainable ag.  
*Photo by Ron Daines*

## Montana Ranchers Embrace New Winter Forage

Montana producers have long been eager to take advantage of viable fall-planted winter cereals. Now, with help from two SARE grants, they are starting to plant the first state-recommended winter wheat variety that offers just what they have been looking for: a forage that can take some of the heavy labor and cost burden off spring planting while efficiently capturing precious winter and spring moisture.



Vern Pluhar of Cohagen, Mont., has noticed a benefit to using Willow Creek awnless winter wheat as a livestock feed: His cattle almost fully consume Willow Creek stems, whereas they refuse some stem material of spring wheat. Photo by Eric Miller, Garfield County Extension Agriculture Agent

From 2004 to 2006, SARE funded on-farm demonstration trials, workshops and other outreach efforts to show hundreds of growers across the state how they can successfully incorporate Willow Creek awnless winter wheat into their operation. The forage is now being planted on an estimated 20,000-25,000 acres in the state,

farmers to maintain good yields when rotating out of alfalfa.

Producer George Reich sees a major benefit in the way Willow Creek maximizes available moisture because Montana is in a semi-arid region that gets about 12-15 inches of precipitation per year, most of it in the winter and spring. "It takes advan-

forage tested high for crude protein and digestibility with a low risk for nitrate toxicity. In backgrounding trials, Cash found that cattle gained 2.5 pounds per day on a high-roughage diet of Willow Creek.

Forage specialists encourage growers to take their fields out of alfalfa every five to six years in order to keep weeds and soil-borne diseases at bay. Willow Creek represents a good stand-in because it allows growers to maintain consistent forage yields, an important financial consideration. "When your hay fields go down to two tons per acre or under, if you can get three tons on forage, you're still gaining and breaking up that cycle," Reich says.

Because most producers interested in Willow Creek raise livestock, fall planting is a big plus for another reason—it shifts some of the workload and operating costs off springtime, when there is plenty of calving, field work and other important chores to be done. "All things being equal, that was one of the big messages that came in loud and clear," Cash says.

**“Cash and others demonstrated that this early exposure to rainfall helped Willow Creek outperform spring-planted cereals like barley and oats, while maintaining similar feed quality.”**

according to Montana State University forage specialist Dennis Cash. That number is expected to increase as more seed becomes available.

Cash and other researchers have found that Willow Creek outperforms many spring-planted forages because it makes excellent use of the region's minimal precipitation. It also contributes significantly to farmers' bottom line because it requires less irrigation, is fall-planted, and allows

tage of the rain, which we get early, so it cuts down on the irrigation bill," says Reich, who helped lead demonstration trials on his 5,000-acre crop and livestock farm in the town of Willow Creek.

Cash and others demonstrated that this early exposure to rainfall helped Willow Creek outperform spring-planted cereals like barley and oats, while maintaining similar feed quality. In trials, it was yielding 2.2 to 4.1 tons of hay per acre by early July. The

For more information, go to [www.sare.org/projects](http://www.sare.org/projects) and search for FW04-018 and FW05-012.



Montana farmers are planting Willow Creek awnless winter wheat on 20,000-25,000 acres, like this operation near Angela. Photo by Mark Helland

# America's Fastest Growing Farmer Group Receives Land Management Training

In recent decades, the United States has seen a new migration—from urban centers to cities' verdant fringes. Modern-day homesteaders are settling on relatively small plots carved from larger-acreage farms and ranches—a trend borne out by the 2007 Census of Agriculture, which showed that from 1997 to 2007 the amount of land occupied by farms of less than 50 acres grew an impressive 46 percent.



Photo by Melissa Fery, Oregon State University Extension Service

But owning land does not always mean knowing the land—and how to manage it properly. That is where Living on the Land comes in. The SARE-funded curriculum, one of the most comprehensive and adaptable tools of its kind, is being used across

the country to train natural resource professionals to, in turn, teach new stewards of the land how to care for their soil, air and water while maximizing the land's value.

The curriculum has proven highly effective: For example, of the 240 landowners in Oregon's Willamette River Basin who have taken Living on the Land classes since 2006, 91 percent went on to implement at least one new land management practice, 61 percent at least three practices, and 89 percent shared how-to information with neighbors.

Practices included protecting riparian buffers, testing soil to avoid over-applying fertilizer, managing invasive weeds and composting livestock manure.

To date, natural resource educators in 42 states have requested more than 2,000 copies of the curriculum. "Educators are hungry for

the materials. They really want to know how to use this stuff successfully," says University of Nevada water quality specialist Susan Donaldson, who produced the curriculum.

Donaldson, who has done small-acreage programming for Nevada extension since 1994, saw a growing need: The "exurban" demographic was on the rise with few resources to guide its stewardship of the land. In 1999, she and natural resources professionals from eight western states used a SARE grant to create Living on the Land and accompanying workshops.

Along with a teacher's manual, online resources and other materials, Living on the Land now includes 23 lessons on eight topics that relate to goal-setting, soil and water quality, managing pastures and protecting

## DID YOU KNOW?

From 1997 to 2007, the number of U.S. farms less than 50 acres in size increased 16 percent, while the number of farms 50 acres or more fell by 9 percent. In 2007, farms of less than 50 acres accounted for 17 million acres, an increase of 5.4 million acres—or 46 percent—from 1997.

(2007 USDA Census of Agriculture)

wildlife. A 2006 SARE grant was used to add lessons on wildfire control and entrepreneurship, and to expand outreach.

The entire curriculum is 2,400 pages long, but according to its users, it remains a flexible tool. The teacher's manual encourages educators to choose locale-specific lessons, insert their own photographs and statistics, and list local resources.

Melissa Fery, the Oregon State University Extension Service agent who organizes the Willamette River Basin classes, has gotten her results using only about half the curriculum. "A great thing about it is that you can take bits and pieces that make sense for your area without feeling obligated to complete the whole thing," she says.

For more information, go to [www.sare.org/projects](http://www.sare.org/projects) and search for EW99-003 and EW06-001.



Homeowners conduct a property inventory exercise during a Living on the Land site visit in Bozeman, Mont., in 2006. Photo by Sue Donaldson, University of Nevada Cooperative Extension

### FREE RESOURCE!

SARE bulletins: *Smart Water Use on Your Farm or Ranch* and *Rangeland Management Strategies*. To order free copies or download:

[www.sare.org](http://www.sare.org).

*Living on the Land*: For more information and to view the curriculum, see [www.unce.unr.edu/programs/sites/livingontheland/](http://www.unce.unr.edu/programs/sites/livingontheland/).

# Wiser Wine: California Grape Growers Adopt Innovative System to Evaluate Sustainability

The California wine industry is booming: The number of wineries in the state has more than tripled since 1990, bringing California to fourth-ranking producer in the world behind France, Italy and Spain. Keeping pace with that growth is a burgeoning sustainable viticulture movement, led, with others, by the SARE-supported Central Coast Vineyard Team (CCVT).



Goats provide some weed management support at Central Coast Vineyard Team-certified Laetitia Vineyards in Arroyo Grande, Calif. Photo by Gaylene Ewing, Central Coast Vineyard Team

CCVT—a collaborative since 1994 of growers, wineries, researchers and others—promotes sustainable practices through a comprehensive self assessment, regular on-farm workshops and, more recently, third-party certification. The group started small, but has evolved into a vital force in the state’s wine industry: Its 300 members represent 11 percent of California’s total vineyard acreage, about 60,000 acres.

Over the years, the group has received two SARE grants that proved crucial in expanding participation in its signature self assessment program, a largely unheard of tool when CCVT members implemented it in 1996.

During a 1999 SARE grant, CCVT leaders increased the number of acres evaluated with self assessments by 70 percent; during a 2003 grant, the number of assessments increased by 27 percent.

“Some of the earlier SARE grants were key in the early development of this very small group,” says CCVT Executive Director Kris O’Connor.

The self assessment, known as the Positive Points System, involves extensive evaluation of a vineyard’s practices to conserve water and protect water quality, minimize erosion, reduce pesticide risks, protect worker safety and conserve wildlife habitat.

The assessments have proven effective. In 2003, for example, one grower managed to reduce soil erosion from 38 tons per year to two-tenths of a ton per year by following the recommendations that emerged from a self assessment. The group’s on-farm workshops regularly encourage more than half of attendees to change their practices based on what they learn, according to post-workshop surveys.

The Positive Points System has appealed

to growers because of its flexibility, says Dana Merrill, a vineyard owner and founding CCVT member. “Since it is a positive system, as opposed to a regulatory system, it became something growers wanted to do, rather than were forced to do.”

Today, CCVT is continuing to evolve. Like other sustainable viticulture organizations in the state, its members are shifting their focus from self assessments to third-party certification.

“The Positive Points System works fine as an internal system in our industry or on our farm,” Merrill says. “But if we are going to talk about it to consumers, then it means more to have a third party ratify what we are achieving.”

Working with a broad range of advisors, members began devising the Sustainability in Practice program’s rigorous standards in 2003, and a pilot group of 14 vineyards on a combined 10,000 acres received certification in 2008.

**FREE RESOURCE!**  
 SARE book: *Manage Insects on Your Farm*. Download for free or purchase hard copy: [www.sare.org](http://www.sare.org).  
 SARE bulletin: *Smart Water Use on Your Farm or Ranch*. To order free copies or download: [www.sare.org](http://www.sare.org).

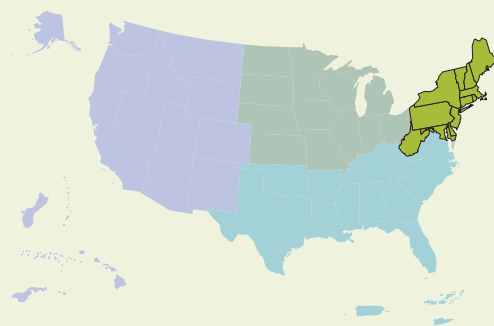
For more information, go to [www.sare.org/projects](http://www.sare.org/projects) and search for FW99-108 and FW03-010.



Jean-Pierre Wolff, whose vineyards in Edna Valley are Central Coast Vineyard Team-certified, is proud of the creek restoration projects that have helped improve local steelhead populations. Photo by Gaylene Ewing, Central Coast Vineyard Team



SARE targets many resources to farmers who, like New Hampshire garlic farmer Naomi Scanlon, pursue a variety of marketing channels.  
Photo by Melissa Hemken



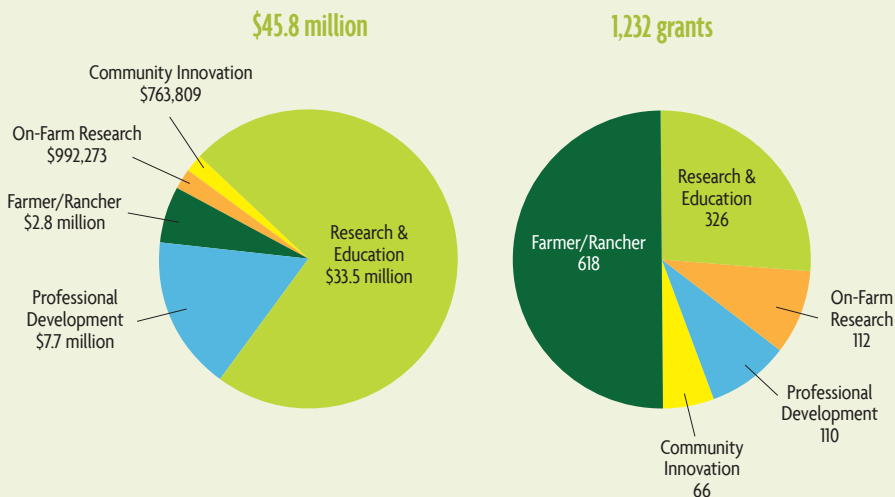
## NORTHEAST SARE

**N**ortheast SARE is expanding—on top of the five grant offerings already in place, the region now offers support for holistic, long-term research into the agroecology of farming systems and recently added a program, already in place in other regions, for graduate students who want to research key topics in sustainable agriculture. All programs continue to address issues facing Northeast farmers: climate change, farmland conservation, sustainable food production, community development, profitable marketing techniques, and conserving and producing energy on the farm.

Adding new grant programs is a little bit like having a growing family: Northeast SARE suddenly has new constituents, new focus areas and new communications challenges. This is why a new full-time staff position supports outreach specifically for the region’s “mini-grant” offerings—the Farmer, Partnership, Community and Graduate Student Grants—and also why the region now offers more grant writing workshops, including workshops held on the campuses of the historically black 1890 land grant institutions. The result is a marked increase in preproposals this past summer, many of very high quality.

As Northeast SARE expands its constituencies, it is also focusing on individual states and their capacity for outreach. The Northeast may be geographically small, but its agricultural profile is complex—farms tend to be more diverse, closer to urban markets and often involved with direct marketing or cooperative economic models like CSAs. Strong state programs need responsive, vibrant and decentralized networks where information flows both ways, with news about SARE going out into the community and news about the community flowing back to SARE. This effort is an integral part of the region’s Professional Development Program, and 11 of the 13 states in the Northeast have used SARE funds to support part-time staff or to share dedicated staff with a neighboring state.

From 1988 to 2009, Northeast SARE has awarded...





## Large-Scale Help for Small-Scale Farmers

Lydia Sisson had worked on farms before, but when it came to taking the next step—going into business for herself—she hesitated, unsure of how to navigate the complexities of acquiring land, keeping the books, analyzing the market and more. But after taking a business training course through the New Entry Sustainable Farming Project in early 2008 and drawing up a detailed business plan, she felt ready to try, and today, with demand for her produce growing, she is glad she did.



New Entry Farm Manager Don Couture (left) helps Nikki Makarutsa set up an irrigation system at a New Entry training farm. After spending two years at a New Entry site, Makarutsa found land for an independent farm in Littleton, Mass., through New Entry's land match program. Photo courtesy New Entry Sustainable Farming Project

In her first year as an independent farmer on five acres in North Reading, Mass., Sisson has made about \$36,000 in sales through a 50-member community supported agriculture (CSA) program and a local co-op. And there is room for growth: Next year, she expects to expand her CSA to 75 members, begin selling at farmers' markets and even hire temporary workers.

"If it wasn't for writing that business plan, I probably wouldn't have felt confident in starting this," says Sisson, who

grows a wide variety of produce using organic and sustainable methods.

Hundreds of beginning and limited-resource farmers in northeastern Massachusetts like Sisson have received assistance from New Entry, a Tufts University program started in 1998 and recipient of three SARE grants. While it originally served as a resource for the Lowell area's large immigrant population, New Entry has expanded to provide equal support to U.S.-born farmers like Sisson,

### SARE'S CONTINUING SUPPORT

Interested in offering more livestock and poultry programming, New Entry received a 2009 SARE grant to teach farmers how to use mobile poultry processing units (MPPUs), and navigate the regulatory and food safety issues associated with them. Three farms using MPPUs in a pilot program are expected to exceed \$51,000 in total revenue. "There's a huge market for this, and it presents an opportunity to diversify from vegetables," says New Entry Director Jennifer Hashley.

**FREE RESOURCE!**  
SARE book: *Building a Sustainable Business*. Download for free or purchase hard copy: [www.sare.org](http://www.sare.org).  
SARE bulletin: *Meeting the Diverse Needs of Limited Resource Farmers*. To order free copies or download: [www.sare.org](http://www.sare.org).

and has become a regional leader among organizations assisting beginning and immigrant farmers.

Most of the people New Entry helps have a farming background but know little about running a farm in the United States. New Entry's offerings include the six-week business course, regular technical workshops, a three-year, on-farm training program where participants pay New Entry for land, equipment and materials, and a transitioning program aimed at moving farmers to independence.

The transitioning program, launched in 2005 with funding from SARE and other sources, has helped a dozen farmers start small-acreage operations to supplement off-farm incomes, generally earning them between \$5,000 and \$10,000 per year.

The program helps with all aspects of starting a farm business: finding land and negotiating contracts, getting equipment, managing a farm, acquiring loans and insurance, and more. "It's a little more big picture, sitting down with a farmer and really planning their next move," says New Entry Director Jennifer Hashley.

Seona Ban, a transitioning program graduate, is now farming on 1.5 acres and helping to support family members through fresh produce and extra income. Along with business advice, New Entry helped Ban adjust to the growing conditions in Massachusetts, which are far different in her native Cameroon.

"They helped with a lot of things, like how to do irrigation. That was something we never do back in Cameroon, where it's always raining," Ban says.

For more information, go to [www.sare.org/projects](http://www.sare.org/projects) and search for ENE05-092, LNE05-223 and LNE09-284.

## On-Farm Biodiesel 101

In Thurmont, Md., farmer Charlie Kolb produced about 5,000 gallons of biodiesel in 2009, and he is teaching a neighbor how to do the same. Sebastian Kretschmer makes biodiesel at a nonprofit farm in Kimberton, Penn., where he holds biodiesel production demonstrations for visitors. Staff at Greensgrow Farm in Philadelphia save thousands each year by producing up to 200 gallons of biodiesel per week, and they serve as an important biodiesel resource for other area farmers.

### FREE RESOURCE!

Steiman's manual on small-scale biodiesel: <http://pubs.cas.psu.edu/FreePubs/pdfs/agrs103.pdf>.

SARE bulletin: *Clean Energy Farming: Cutting Costs, Improving Efficiencies, Harnessing Renewables*. To order free copies or download: [www.sare.org](http://www.sare.org).



Farmers learn biodiesel production during a SARE-funded workshop organized by educators at Wilson College in Pennsylvania. Photo by Sally Colby

Kolb, Kretschmer and the Greensgrow Farm staff are three examples of farmers who, after participating in a SARE-funded workshop series at Wilson College in Chambersburg, Penn., learned how to generate clean energy, reduce their dependence on fossil fuels, and play the role of biodiesel mentor to their peers.

The regional workshop series, begun in 2006 and attended by about 100 farmers, included hands-on demonstrations of how to set up and operate small-scale biodiesel operations, with an emphasis on personal and environmental safety. Project organizers then provided mini-grants of \$1,500 to 10 farmers to help them establish their own on-farm production using recycled vegetable oil.

From the time the SARE grant began in 2006, until 2009, participating farmers produced a combined 11,000 gallons of biodiesel—worth about \$44,000—and had

developed the on-farm capacity to produce up to 1,700 gallons each week.

Along with making their own biodiesel, farmers were encouraged to help others with alternative fuel. “We wanted to train farmers to be regional ambassadors for

“ By using biodiesel in their farm equipment and delivery truck, Greensgrow—a nonprofit farm in urban Philadelphia—saves up to \$200 per week in fuel costs and earns about \$50 per week by giving leftover biodiesel to a local co-op. ”

biodiesel,” says Matt Steiman, who coordinated the program as then-farm manager of Wilson College’s Fulton Center for Sustainable Living.

By using biodiesel in their farm equipment and delivery truck, Greensgrow—a nonprofit farm in urban Philadelphia—saves up to \$200 per week in fuel costs and

earns about \$50 per week by giving leftover biodiesel to a local co-op, says Ryan Kuck, Greensgrow’s sustainability coordinator.

Kolb became interested in the Wilson College program because, after conducting some Internet research on biodiesel production, he felt he needed to see it done in order to do it himself. “Once I went through the program and got an overview of what I was trying to accomplish, it was a lot easier for me to duplicate that,” says Kolb, who has almost eliminated conventional diesel from his 140-acre farm.

It costs Kolb about \$2 to make a gallon of biodiesel, and he invested nearly \$20,000 in his high-capacity, high-efficiency equipment. He expects his operation to become profitable in the future after he recoups his initial investment. Meanwhile, he is happy to be energy independent.

Because on-farm biodiesel production is a small-scale industrial process, the Wilson College program showed farmers how to handle the ingredients and byproducts safely. Steiman, now at Dickinson College

in Pennsylvania, and others are researching effective ways of extracting methanol from the glycerol byproduct and using what remains as an on-farm compost.

For more information, go to [www.sare.org/projects](http://www.sare.org/projects) and search for LNE06-247.

## Simple P Test Yields Millions in Savings

John Maxwell, a Geneseo, N.Y., dairy farmer, used to apply more than 60 pounds of phosphorus per acre when planting his 250 acres of corn. But after participating in a SARE-funded, statewide research project aimed at helping growers fine-tune their use of starter phosphorus fertilizers, he has reduced that to about 20 pounds per acre, allowing him to save \$5,000 per year.

“We have continued the lower rates and are not seeing any yield loss,” Maxwell told the Cornell University researchers and educators who led the multi-year project.

Maxwell is one of hundreds of corn growers across New York who together slashed their use of phosphorus-based fertilizers by tens of millions of pounds from 2000 to 2006 without losing anything in yields, a move that allowed them to save a staggering \$30 million. These huge savings—which have significant environmental and economic implications—occurred in large part because of the Cornell project, which drew on a broad spectrum of collaborators and included dozens of trials on farms like Maxwell’s.

The research started in 2000 and eventually included 65 on-farm and 13 research-station trials conducted through 2003.

Ultimately, researchers used the trials

to demonstrate that growers could get customary yields with little or no phosphorus applications when planting corn in soil that already tests high for the nutrient.

In some cases, like Maxwell’s, that meant going from seasonal applications of 50 or 70 pounds of phosphorus per acre to 25

pounds or less, the rate that experts recommend. When growers used manure and had phosphorus-rich soil, no additional phosphorus was needed, researchers found.

The project yielded such convincing

data and involved such a large number of stakeholders—including growers, consultants, educators and scientists—that it led almost instantly to widespread changes in behavior. From 2000 to 2006, the most recent years that data is available, growers cut their use of phosphorus by a total 165 million pounds from previous years.

“It was basically a wave going through the state of the message that you don’t need that much phosphorus for these fields. A lot of farmers caught on to this. A lot of people started shifting to either low phosphorus or phosphorus-free fertilizers for corn, and fertilizer dealers joined in by offering lower phosphorus blends,” says Quirine

“Maxwell is one of hundreds of corn growers across New York who together slashed their use of phosphorus-based fertilizers by tens of millions of pounds from 2000 to 2006 without losing anything in yields, a move that allowed them to save a staggering \$30 million.”

Ketterings, associate professor of nutrient management at Cornell University and the project’s lead organizer.

While Cornell nutrient management specialists had long recommended that farmers lower their use of phosphorus fertilizers, they launched this project because they were lacking strong test results to support their recommendations. Also, with New York’s livestock operations facing new regulations, it was important to find effective ways of reducing on-farm nutrient levels. Through the project, “we acquired statistically robust information and, more importantly, helped farmers to have the confidence to adopt the practice, and these farmers convinced others to try,” says Karl Czymmek, a project leader and nutrient management educator with Cornell’s PRO-DAIRY program.

For more information, go to [www.sare.org/projects](http://www.sare.org/projects) and search for LNE02-173.

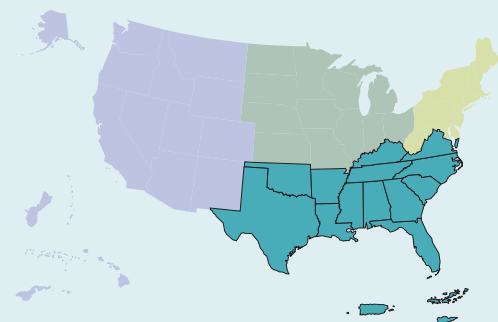
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Cornell scientists hold a field day at a research farm in Aurora, N.Y., to show local farmers that corn yields vary little when starter phosphorus is reduced or withheld. Photo by Karl Czymmek, Cornell University PRO-DAIRY Program



## SOUTHERN SARE



**S**outhern SARE—covering a region of great diversity from the Georgia coast to the Texas Panhandle—has built a rich cache of research results on everything from sustainable and affordable innovations for limited-resource farmers to rural community development to long-term, on-farm research. Today, the region is building on these projects—offering follow-up grants to extend the projects’ reach and effectiveness. The region is also supporting critical “systems” research, which studies the components of food production in their interrelated entirety rather than in isolation.

In 1997—a decade before local food became a household word—Anthony Flaccavento was awarded a SARE grant to create a regional food system in central Appalachia. Over the years, his group, Appalachian Sustainable Development, received more SARE grants to build a local certified organic supply chain that is yielding healthier foods, better profits for farmers and a smaller carbon footprint (page 13).

A project led by Heifer International in 1996 established a scientific base for the pastured poultry system used in the South today. Because of that original research, and other projects that spun out of it, the most recent Heifer-led project awarded in 2005 trained dozens of agricultural professionals in pastured poultry production in several states (page 15).

Occasionally systems research results spur researchers to address one or more parts of a system, such as a 2005 project that produced Georgia’s first commercial crop of organic peanuts. When results indicated that seed stand, weed control and processing infrastructure were the primary barriers to an organic peanut industry, a new project was started in 2008 to address those problems (page 14).

Systems research is emerging as a key methodology in agricultural research. In 2009 Southern SARE introduced two new grant programs for researchers interested in systems projects but not yet ready to submit a full-fledged proposal. The grants are for planning a systems project or conducting preliminary research to form the basis of a full systems proposal.

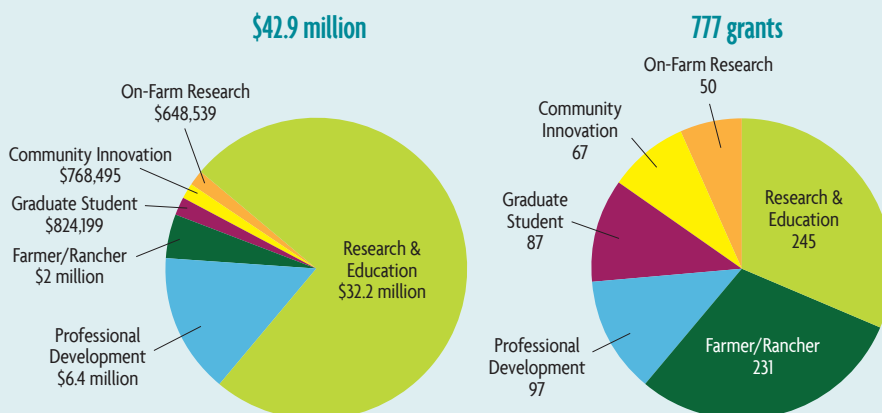
Acknowledging that funding is needed to maintain a systems project once it is set up, Southern SARE established Long-Term Grants, with the first call for proposals expected in 2010. Southern SARE also introduced Matching Planning Grants to prepare for the eventuality that SARE will reach a funding threshold allowing it to match \$1 million state grants dollar for dollar.

### GETTING THE WORD OUT

A collection of papers from the Southern SARE-sponsored Black Environmental Thought Conference was published jointly by Southern SARE and SARE Outreach as the book *Land and Power: Sustainable Agriculture and African Americans*.

Jim Formby and a young visitor check out the size differences between a Black Australorp and a Cornish Cross, both eight weeks old. Formby and his wife Jayne Midura, both educators, combine their passion for teaching and farming in Pike County, Ga., where they are involved with Georgia Organics, a nonprofit that benefits from SARE grants.  
Photo by Preston Roland

### From 1988 to 2009, Southern SARE has awarded\* ...



\*These figures exclude 2009 Community Innovation Grants.

# Helping Appalachian Farmers Tap New Markets

**G**ary and Cindy Laws' journey to successful organic farming started in the tobacco fields of western Virginia's hill country. Both raised on tobacco farms, they saw the crop's pitfalls firsthand: a declining market, health risks associated with smoking and, most importantly to the Laws, the myriad chemicals used in tobacco production.



Appalachian Sustainable Development Executive Director Anthony Flaccavento drives a tractor during a farm tour, one of the many ways ASD helps local farmers convert to sustainable production. *Photo courtesy Appalachian Sustainable Development*

But, like hundreds of other farmers in Appalachia interested in tapping the organic market, the Laws family needed help learning new methods. That is where Appalachian Sustainable Development (ASD) came in, an innovative rural development nonprofit that helps about 100 former tobacco growers and others make a living off sustainably grown food.

Now, the Laws family sells produce grown on four acres to local and regional grocery stores under the Appalachian Harvest label, an ASD organic marketing program that receives SARE support.

Don Kiser, another Appalachian Harvest grower, added \$6,000 to his family's income in 2008 by growing organic bell peppers on a quarter acre. Along with technical help, fellow program members shared equipment with him, keeping his costs low.

"That was something very refreshing about ASD—they recognize that if you don't

at least make a little money on it, you can't keep it up," says Kiser.

This is one of ASD's key premises: Families in the economically depressed region of western Virginia and eastern Tennessee must have an alternative to tobacco production that benefits not only the environment but also profits. So they turned to certified organics, an industry worth \$1.7 billion in 2007, according to the USDA.

Appalachian Harvest, one of ASD's two signature "field to table" programs, removes two major barriers for growers who want to sell organic produce locally—the lack of value-adding infrastructure and access to local markets, says ASD Executive Director Anthony Flaccavento.

Along with technical assistance, Appalachian Harvest handles every aspect of marketing, from processing and transportation to contracting with area

supermarkets, to public outreach. ASD's other "field to table" program, Sustainable Woods, involves buying trees from landowners who practice ecological forest management and processing the wood into high-end furniture that is sold regionally. ASD owns a sawmill, and through Sustainable Woods pays loggers 20-30 percent more for their trees than other processors would.

ASD has received two SARE grants over the years: one in 1999 to recruit interested growers and conduct an educational campaign laying the foundation for a local organics market; and another in 2008 to expand Appalachian Harvest.

Appalachian Harvest now supplies produce to seven regional and national grocery chains that represent a combined 600 stores. Last year's sales totaled more than \$500,000. With lots of unmet demand remaining, the program continues to grow.

"Our whole effort is predicated on the idea that if we can get regular people to recognize the value of locally grown produce and pay a little more for it, it'll create a market pull for farmers to make the transition," Flaccavento says.

For more information, go to [www.sare.org/projects](http://www.sare.org/projects) and search for LS97-084 and CS06-047.

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SARE bulletin: *Marketing Strategies for Farmers and Ranchers*. To order free copies or download: [www.sare.org](http://www.sare.org).



Appalachian Sustainable Development's Sustainable Woods mill can process about 500,000 board feet per year and helps ASD pay loggers 20-30 percent more than other mills. *Photo courtesy Appalachian Sustainable Development*

# Farmer/Researcher Team Makes Organic Peanut Breakthrough

In 2007, Georgia organic grower Relinda Walker produced a historic crop of peanuts. The bounty—6,000 pounds grown on two acres—was significant because it represented the first crop of certified organic peanuts raised in the Southeast. Even though the Southeast produces 79 percent of the country’s peanuts, more than 99 percent of organic varieties are raised in Southwestern states.



Relinda Walker overcame weed and disease pressures to produce Georgia’s first-ever organic peanut crop in 2007. Walker is working with researchers to identify strategies for successfully growing peanuts organically in the South. *Photo courtesy the Sylvania Telephone*

Recognizing that Southeastern growers are missing out on a lucrative market, Mark Boudreau of Hebert Green Agroecology in Asheville, N.C., assembled a team of researchers and growers, including Walker, to focus on carving out an organic peanut industry for the region.

“The demand is high, and the price is premium,” says Boudreau, whose work has been funded by two SARE grants. “Most processors pay twice as much for organic peanuts, and I’ve seen it as high as five times as much.”

Since beginning their multi-state research in 2005, the team has made important strides toward overcoming the weed, disease and insect problems

associated with organic peanuts. They are problems farmers do not generally face in the Southwest, where the climate is drier.

**“When enough conventional and small-scale growers begin to appreciate the economic value of a local organic industry, then many infrastructure issues will get resolved.”**

In its first three years of trials, the group found it could significantly reduce insect problems and post-emergence diseases. But weeds, seed rot and poor stand development have emerged as persistent problems, according to Boudreau. They are caused primarily by the region’s wet growing

conditions, a short planting window and a lack of the right seeds. “If your peanuts aren’t up and running quickly, then they aren’t going to compete with the weeds,” he says.

Boudreau’s team is now focused on determining what organic seed treatments and planting conditions are ideal for rapid early growth and stand establishment, as well as outlining successful weed management strategies. The team includes agronomists, plant pathologists, weed scientists and others based in Georgia, North Carolina and South Carolina.

Along with building up a strong stand, cultivating with a tine weeder is

emerging as the best weed-

control strategy, according to Carroll Johnson, a USDA Agricultural Research Service weed scientist involved with the project.

Another major hurdle involves the lack of regional infrastructure to handle a large

organic crop. For example, there are no organic peanut shellers in the Southeast.

When enough conventional and small-scale growers begin to appreciate the economic value of a local organic industry, then many infrastructure issues will get resolved, says Carroll. “I think there’s a lot interest in this. I think a lot of farmers want this to work.”

Boudreau admits that establishing an organic peanut industry in the Southeast

will take more time, but he feels growers and researchers are on the right track. “We have a lot of information we can give farmers about what the problems are going to be and the best ways of tackling them.”

For more information, go to [www.sare.org/projects](http://www.sare.org/projects) and search for LS05-169 and LS08-203.

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SARE bulletin:  
*Transitioning to Organic Production*. To order free copies or download:  
[www.sare.org](http://www.sare.org).

## Bringing Viable Pastured Poultry to the South

**Y**aSin Muhaimin started farming late in life after Hurricane Katrina ended his career as an educator. At a time when he should have been looking at retirement, this urban dweller took his insurance money and bought a few rural acres to start an organic farm. In a few years, he went from novice to savvy farmer direct marketing vegetables and about 5,000 chickens annually.



Photo by Frank T. Jones, University of Arkansas

He credits his rapid and successful career switch to technical assistance from two SARE state coordinators, who gave Muhaimin one-on-one attention.

Also critical to his success was a SARE-funded business planning toolkit for small-scale poultry production. “It helped me analyze everything I was dealing with, and helped me work through the process and determine the feasibility of doing this,” Muhaimin says.

The poultry production toolkit is one of many invaluable resources arising from three SARE grants benefiting small-scale commercial poultry producers across the southern United States. The projects, organized by the Arkansas-based nonprofit Heifer International in partnership with the National Center for Appropriate Technology (NCAT) and the University of Arkansas, have created the first comprehensive body of educational resources and training opportunities specifically targeting small-scale commercial poultry producers.

“I would say that over time there’s been more developed on small-scale poultry, but Heifer and NCAT, thanks to SARE funding, are leaders on this,” says Anne Fanatico, a researcher on alternative poultry production who helped develop most of NCAT’s poultry publications.

Interest in raising pastured poultry has grown significantly in recent decades because it is often an inexpensive way to add supplemental revenue and diversification to small farms, especially ones with limited resources, Fanatico says.

An experienced producer raising 1,000 birds annually—a commercial flock is generally considered small until about 5,000 birds—can net \$3,000, according to a University of Wisconsin study. The Muhaimin family earns \$12,000 yearly from their chickens, and they plan to quadruple the operation over time.

The SARE-funded projects began with hands-on training for more than 200 families and 39 educators. Project leaders then developed educational materials on a wide range of topics, including business

planning, breed selection, nutrition and processing. Most recently, they have aggregated dozens of resources at an NCAT Web page—including multimedia and Spanish-language offerings—and provided intensive training to more than 100 county extension agents and other educators from across the South, many of whom are now helping local farmers manage small-scale poultry operations.

The projects have made particularly important contributions to understanding the technical, safety and regulatory aspects of meat processing. Depending on local laws, producers can generally process up to 1,000 birds on-farm, but facilities willing to handle small flocks larger than that are scarce, creating a major gap. Along with helping producers understand local regulations, project leaders built a certified, small-scale mobile processing unit in Kentucky, where no on-farm processing is allowed.

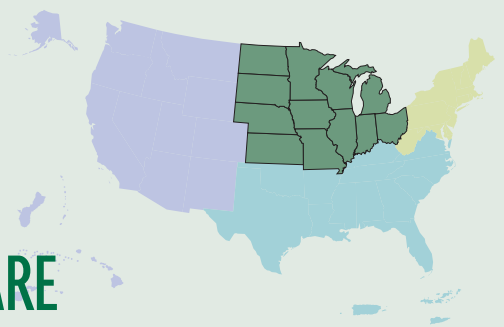
“It has broken a lot of ground for other folks who may want to deal with the legal issues and develop mobile processing units,” says Steve Muntz, who helped lead the grant projects as a then-Heifer International employee.

For more information, go to [www.sare.org/projects](http://www.sare.org/projects) and search for LS96-076, LS99-105 and ES05-080.

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SARE bulletin: *Profitable Poultry: Raising Birds on Pasture*. To order free copies or download: [www.sare.org](http://www.sare.org).  
  
For general information: [www.sustainablepoultry.ncat.org](http://www.sustainablepoultry.ncat.org).



YaSin and Elaine Muhaimin started a diversified vegetable and poultry farm near Baton Rouge, La., after fleeing New Orleans in the wake of Hurricane Katrina. They credit much of their farming success to SARE-supported programs, including Heifer International’s work on pastured poultry. Photo courtesy YaSin Muhaimin



## NORTH CENTRAL SARE

**N**orth Central Region SARE (NCR-SARE) is opening up new frontiers in its grant programs by reaching out to youth, graduate students and groups previously underserved by NCR-SARE such as minorities and corn and soybean farmers—all of whom are vital to the region's agriculture now and in the future.

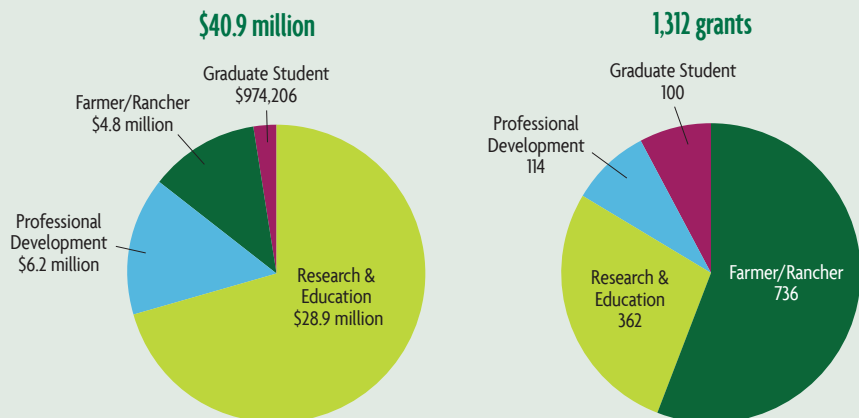
Before NCR-SARE developed new grant programs and communications initiatives, it conducted meetings with farmers from these groups to ensure new programs would effectively meet their needs. In summer 2008, staff held sessions on North and South Dakota reservations; and in summer 2009, with corn and soybean farmers in Minnesota. The result: NCR-SARE has added a new Youth Grant Program and released special calls for a Diversity Grant Program and a Native American Sustainable Agriculture Grant Program. The region's first Diversity Grant recipient, Michigan farmer Barbara Norman, is mentoring black and Hispanic farmers in Illinois, Kansas and Michigan to help them better advocate for themselves and their communities.

Another top priority for the region is supporting tomorrow's sustainable agriculture leaders. Graduate students with NCR-SARE grants have conducted cutting-edge research and gone on to faculty positions at land grant universities. Shoshanah Inwood, profiled in this report, gained enough experience with her SARE grant to land a research associate position at The Ohio State University's Social Responsibility Initiative (page 17). Another NCR-SARE-funded grad student has obtained a faculty position at Ohio State and asks students to write SARE proposals for an assignment.

NCR-SARE is also breaking new ground with the projects it funds, supporting research to advance clean energy farming—especially in renewable energy production such as wind power; urban agriculture to help revitalize neighborhoods in America's heartland cities (page 18); direct marketing to boost farm income; and cover cropping and no-tillage on large-acre farms (page 19).

Listening and adapting programs accordingly will be NCR-SARE's mantra for the future. That way it can continue to reach further and farther, and ensure that today's innovation becomes tomorrow's commonplace practice. Read on to learn how NCR-SARE's cream-of-the-crop grantees are doing an exceptional job of advancing sustainable agriculture across America's heartland.

### From 1988 to 2009, North Central SARE has awarded\*...



Barbara Norman, a blueberry farmer in Covert, Mich., embodies SARE's efforts to reach underserved audiences: Along with being a vocal SARE spokesperson, Norman received North Central Region SARE's first Diversity Grant to mentor black and Hispanic farmers in three states. *Photo by Kelly Weber*

\*These figures exclude 2009 Professional Development and Farmer/Rancher Grants.



## Land Grant Student Makes Key Discoveries in Exurban Farming

Defying conventional wisdom, researchers have discovered that the majority of our nation's crop sales come not from America's storied "fruited plains," but from smaller farms tucked between developments just beyond our cities' limits. Seventy nine percent of the nation's fruit crop sales and 68 percent of vegetable crop sales come from what policymakers are calling the Rural-Urban Interface (RUI), or exurbia.



Ohio State University researcher and SARE grantee Shoshanah Inwood (far right) stands with Ben and Lisa Sippel of Sippel Family Farm in Mount Gilead, Ohio, at the Clintonville Farmers Market in Columbus. Inwood interviewed farmers like the Sippels as she studied the effect of land use policies on farms at the rural fringes of urban centers. Photo by Christopher Whaley

This emerging, economically important demographic was the focus of Ohio State graduate student Shoshanah Inwood's research. Most RUI research has focused on land use policies' effect on RUI farms' viability. But Inwood used a SARE Graduate Student Grant to look further, at how social pressures such as health care costs, ability to afford retirement, and succession—the ability of one generation to pass down the farm to the next—influence an RUI farm's ability to survive. What she and fellow Ohio State researchers found has profound implications for government farm policy.

Inwood interviewed RUI farm families outside of Columbus, Ohio, and Grand Rapids, Mich. Across kitchen tables she heard their stories: Health care is one of the top threats to the farm, learned Inwood, forcing many farmers to work at other jobs. Many farmers cannot afford retirement.

But one of the biggest factors influencing an RUI farm's long-term survival was whether or not a farm had an heir to whom the farm would transfer.

Succession, discovered Inwood, plays a key role in determining if a farm is going to

**“But one of the biggest factors influencing an RUI farm's long-term survival was whether or not a farm had an heir to whom the farm would transfer.”**

be a dynamic, entrepreneurial operation or a sell-off to land developers. Farms without an apparent heir are more likely to be in decline and more likely to be transferred to non-farm development. Those with an heir usually are in a stage of growth, not always by buying more land—often expensive at the RUI—but more likely by “stacking”

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Check out USDA's new Web site: [www.usda.gov/knowyourfarmer](http://www.usda.gov/knowyourfarmer).

enterprises, such as direct marketing and value-added products. Stacking allows additional family members to earn a living from the same land base.

Counties, states and the federal government would be well advised, says Inwood, to develop a host of social policies, including those that account for the succession process, farm-transfer support for heirless farmers, business planning programs, lower-cost health care and other policies that address additional pressures at the RUI. Inwood cites USDA's new program Know Your Farmer, Know Your Food—which encourages local and regional food systems—as one federal program poised to address RUI farmers' special needs.

“There is the generalization that agriculture will decline in the face of development pressure,” says Inwood. “But with the right policies that encourage the creativity and entrepreneurship that these families are exhibiting, these families can restructure to survive the pressures of farming at the RUI.”

Inwood's SARE-funded research has had implications for her own career as well as government policy: She was able

to use her work as a stepping stone to a post-doctoral position at Ohio State's Social Responsibility Initiative, where she'll continue to examine and promote the important agriculture just beyond our city limits.

For more information, go to [www.sare.org/projects](http://www.sare.org/projects) and search for GNC06-070.

## Turning Urban Lots into Lots of Food

**W**ill Allen knows how to squeeze \$200,000-worth of sustainably grown produce from an acre of poor-quality, inner-city land, and he is using this talent to lead a nationwide movement that is improving the lives of urban dwellers by putting wholesome foods within their reach. With minimal land, his nonprofit, Growing Power, makes fresh produce available on a regular basis to about 10,000 Milwaukee residents, many living in the city's poorest neighborhoods where supermarkets are few and far between.



Will Allen, co-founder and chief executive officer of Growing Power, has become a national leader in urban agriculture. His innovative educational programs and growing techniques help provide fresh foods to thousands in Milwaukee and Chicago. Photo courtesy Growing Power

"A lot of what we do is social justice and making sure everybody has access to good, healthy food," Allen says. "To me, that's at the basis of community development. Good food makes people happy."

Growing Power, established by Allen in 1993, received SARE grants in 2001, 2003 and 2005 to create an educational component for its Farm City Market Basket program—in which discounted deliveries of fresh produce are made to poor urban families—and to conduct "train the trainer" workshops in Milwaukee that have helped urban farmers, educators, city officials and others build a community-based food system.

This work helped Allen win a \$500,000 MacArthur Foundation "genius" grant in

2008, which has launched him into the national spotlight as a preeminent leader in the urban food-access movement. It has prompted articles about him in national news outlets, including *The New York Times*, and led to regular requests for his appearance at conferences. Today, along with maintaining a handful of farms in Milwaukee and Chicago, Growing Power offers training and outreach opportunities through partnerships in six states, including Kentucky, Arkansas and Mississippi.

With thousands of pots and seed beds crammed into every available square inch of its greenhouses and hoop structures, Growing Power's production techniques are as ambitious as its community vision. And with the notoriously poor quality of urban

soil, they rely heavily on one ingredient: compost.

Each week, Growing Power workers collect about 100,000 pounds of organic waste from city businesses and—with the help of soil-building worms—they create mountains of rich compost. What they do not use on their own farms they bag and sell.

"Composting is the main thing," Allen says. "You've got to grow new soil. Not just little bits, but hundreds of yards of soil if we're going to grow this urban food revolution."

For Allen, a community-based food system is more than just farmers selling their crops at urban markets. It includes teaching people how to grow their own produce in community plots, tiny backyard gardens or on balconies and porches. It also involves making sure that everybody—but especially the youth—understands what healthy food is. That is why, along with supplying produce to schools, Growing Power operates school gardens, offers youth apprenticeships and encourages children to volunteer at its farms.

"To be looked at as an asset in the community, it helps if you can work with kids in a meaningful way," Allen says.

For more information, go to [www.sare.org/projects](http://www.sare.org/projects) and search for FNC01-359, ENC03-071 and ENC05-087.

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SARE book: *Building Soils for Better Crops*, 3rd edition. Download for free or purchase hard copy: [www.sare.org](http://www.sare.org).



At Growing Power's Community Food Center every inch of space is used for growing a variety of crops. This is a highly productive space selling a variety of greens to individuals and restaurants, including watercress, which can be sold for \$17 per pound. Photo by Andrea Godshalk

## Dakota Farmer's Success Catches On

Dan Forgey has always had an abiding respect for the land that he has farmed for more than 40 years, which is why, as manager of the 8,500-acre Cronin Farms in Gettysburg, S.D., he strives to build soil health—and yields—sustainably. First, he shifted the farm to 100 percent no-till in 1993, around the time that other innovative growers in his area were doing the same. Then in 2006, after spending years developing diverse crop rotations, he received a SARE grant to test the introduction of cover crops into his system, a move that has given him higher yields with fewer inputs, and therefore better profits. Now that he has found success with these methods, he is showing his neighbors how to do the same.

“This is what the country needs. Between cover crops and no-till we are doing things to better the soil nature’s way,” Forgey says. Over the years, he has diversified the farm to include 12 crops—including grains, oilseed crops and forages for his 750-head cow-calf operation. He plants them in long rotations in order to combat weeds, which present a major challenge in no-till systems.

Assisted by researchers from USDA Agricultural Research Service, South Dakota State University and other institutions, Forgey used SARE funds to conduct field trials of different cover crop mixes planted in the fall before no-till corn. For each mix, the group took numerous measurements, tracking moisture use, carbon sequestration, weed suppression, nitrogen availability, biomass and subsequent corn yields.

They found that a mix of turnips, cowpeas and lentils increased corn yields by 18-20 bushels per acre compared to control plots. This translated to increased revenue of \$14 per acre, minus the cost of cover crop seeds.

Encouraged by the small-scale results, Forgey has since begun planting cover crops on hundreds of acres. “We are just finding out what the potentials are,” he says.

Now, Forgey is helping other growers adopt the soil-building strategies. Potter County, where Forgey lives, and nearby Sully County have become a

hotbed of no-till in the last 20 years, where an estimated 80-90 percent of growers now use the practice. But cover crops have been slower to catch on, partly because

“ They found that a mix of turnips, cowpeas and lentils increased corn yields by 18-20 bushels per acre compared to control plots. This translated to increased revenue of \$14 per acre, minus the cost of cover crop seeds. ”

not enough growers have demonstrated which covers work well in local growing conditions.

Forgey has worked hard to share his success with cover crops with neighbors. He



This cover crop mix of turnips, cowpeas and lentils allowed Dan Forgey to increase corn yields by 18-20 bushels per acre in SARE-funded trials. Photo by Dan Forgey

has conducted on-farm tours, held field days, spoken at regional conferences and recently been profiled in the national agricultural media. Many of his neighbors have taken notice.

Seven producers—their operations ranging in size from 3,500 to 18,000 acres—planted cover crops for the first time in 2008 after seeing Forgey’s plots. “They see and hear the benefit of cover crops in a no-

till environment and it helps them understand the soil health aspect,” he says.

For more information, go to [www.sare.org/projects](http://www.sare.org/projects) and search for FNC06-615.

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SARE books: *Building Soil for Better Crops*, 3rd edition and *Managing Cover Crops Profitably*, 3rd edition. Download for free or purchase hard copy: [www.sare.org](http://www.sare.org).



Dan Forgey, who uses no-till, crop rotations and cover crops, is working to show other local growers how they can improve soil quality and yields through natural farming methods. Photo by Cindi Forgey

# SARE Shares

Sharing research results is critical to putting the “applied” in applied research. That is why at SARE, outreach and education go hand in hand with research support. SARE invests in farmers talking to farmers about new innovations, project leaders showcasing results, and training ag educators in the latest practices. All the while, SARE itself is skimming the cream of its research crop for results to include in its learning center of books, bulletins, online resources and other materials.

## Local Learning

SARE grants require project leaders—from farmers and ranchers to university researchers and others—to include outreach initiatives that ensure results are shared with the ag community.

## Training Trainers through the Professional Development Program (PDP)

SARE Coordinators in every state and island protectorate train ag professionals in sustainable practices and share SARE project results with them. The PDP program also gives grants for the development of training curricula, outreach efforts, communication products and more.



New Mexico SARE state coordinator Stephanie Walker, a vegetable specialist, organizes many research and education projects on sustainable topics, including an annual workshop to train fellow extension agents and other ag professionals. Photo by J. Victor Espinoza

## The SARE Learning Center

SARE Outreach—located in Maryland—and communications specialists in the four SARE regions translate more than 20 years of applied research into newsletters, practical books, bulletins and online resources for farmers, ranchers and ag professionals.



## Books

Sixteen practical books impart knowledge about best practices and the latest research.

## [www.sare.org](http://www.sare.org)

A treasure of online resources includes a searchable database of SARE project reports, regional newsletters, books, bulletins and more.



## Bulletins and Other Short-Format Materials

- Clean Energy Farming
- Rangeland Management Strategies
- Diversifying Cropping Systems
- How to Conduct Research on Your Farm or Ranch
- Marketing Strategies for Farmers and Ranchers
- Transitioning to Organic Production
- A Whole-Farm Approach to Managing Pests
- Smart Water Use on Your Farm or Ranch
- Meeting the Diverse Needs of Limited-Resource Producers
- Profitable Pork: Strategies for Hog Producers (*También disponible en español*)
- Profitable Poultry: Raising Birds on Pasture
- SARE 2009/10 Report from the Field

## How to Order SARE Publications:

Books and bulletins are free to view online at [www.sare.org/Publications](http://www.sare.org/Publications). To buy books or order free print bulletins, visit [www.sare.org/WebStore](http://www.sare.org/WebStore) or call (301) 374-9696.

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