

# SARE 2005

Sustainable Agriculture Research & Education Program



**practical new ideas in:**

crop improvement / agroforestry / organic farming  
community development / savvy business planning  
adding value / pest management / soil health



**On the cover:** Nevada rancher Agee Smith's innovative range management strategies were integrated into professional development opportunities for area agricultural educators. Photo by Mona Whalen.

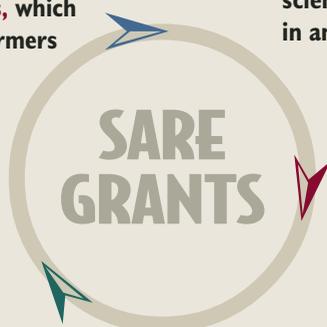
# How SARE works

The Sustainable Agriculture Research and Education (SARE) program works primarily through competitive grants, which are offered through four regions—North Central, Northeast, South, and West—under the direction of councils that include farmers and ranchers along with representatives from universities, government, agribusiness, and nonprofit organizations. Since 1988, SARE has funded more than 3,000 projects, including:

## Farmer/Rancher Grants – (FRGs)

Producers win grants ranging from \$1,000 to \$15,000 to conduct on-site experiments and share results with others.

Their ideas often stimulate more research through SARE's **R&E grants**, which are more effective when farmers and ranchers participate in the project, such as contributing on-farm research plots.



## Research & Education Grants – (R&Es)

Ranging from \$60,000 to \$150,000 or more, these grants fund scientists, producers, and others in an interdisciplinary approach.

Key research findings spread through the agricultural community thanks to agricultural professionals in Extension, NRCS, and other agencies. Some professionals are aided by **PDP grants**.

## Professional Development Grants – (PDPs)

To spread the knowledge about sustainable concepts and practices, these projects educate Cooperative Extension Service staff and other agricultural professionals.

PDP grants help agricultural professionals stay current in the most pressing topics for **farmers and ranchers**.

## Other grant opportunities...

Graduate students, community development practitioners, and educators conducting on-farm research can apply for grants in some SARE regions.

## SARE REGIONAL OFFICES

For requests for proposals, application deadlines, and other information, contact the regional offices. (See map on back cover for regional borders.)

### North Central SARE

(hosted by the University of Nebraska)  
[www.sare.org/ncrsare](http://www.sare.org/ncrsare)  
 (402) 472-7081  
[ncrsare@unl.edu](mailto:ncrsare@unl.edu)

### Northeast SARE

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

### Southern SARE

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

### Western SARE

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

SARE works in partnership with Cooperative Extension and Experiment Stations at land-grant universities to deliver practical information to the agricultural community. Contact your local Extension office for more information.

**Above left:** With a SARE grant, the nonprofit Re-Vision House, Inc. in Dorchester, Mass., is testing compost heating to power its urban greenhouse and create off-season farm products. Photo by Laurell Sims.

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## from the director

OUR COVER PHOTO of Agee Smith on his Elko, Nevada, ranch illustrates some of the best of SARE—producer-led professional development featuring state-of-the-art land stewardship and a profitable new venture.

### Professional Development

SARE is committed to helping agricultural educators stay in step with the latest, most innovative farming and ranching strategies through our professional development program. Regional SARE competitive “PDP” grants provide learning opportunities for agricultural professionals. Competitive grants are complemented by state programs in which SARE coordinators keep people in the know about SARE activities; promote dialog among land-grant universities, NRCS, nonprofit organizations, and others; and refer people to the best information sources in their state.

This dual strategy works. In recent surveys of extension educators in the North Central and Western regions, a great majority of respondents said they are interested in sustainable agriculture. Three-fourths of them have led at least one educational program to share new innovations.

### Range Management & Tourism

Some of those innovations take place in settings like Cottonwood Ranch, our cover photo location. With 88 percent of Nevada owned by federal agencies, most ranchers are trying to raise live-

stock amid a bevy of rules. When public land managers asked the Smith family to cut their herd from 1,200 steers, forward-thinking Agee Smith immersed himself in Holistic Management™ training and emerged with a new plan to run 400 head on 35,000 acres. To learn from Smith’s new system—grazing cattle in higher densities but shorter duration through some 50 pasture areas—SARE’s Nevada professional development program helped bring interested parties, from the Bureau of Land Management to NRCS to Extension, to the ranch.

In Nevada, Smith’s ranching practices became a professional development tool. In fact, we pride ourselves on our producer-driven approach. SARE involves farmers and ranchers in all aspects of the program, from grant reviews to setting priorities.

The Smiths take advantage of their picturesque mountain location by running a successful guest ranch. They combine agriculture and tourism as part of a new wave of entrepreneurs seeking to add value to more traditional farms. Learn more about the Smiths in our upcoming book, *The New American Farmer: Profiles of Agricultural Innovation, 2nd edition*. The book is one of many resources from the Sustainable Agriculture Network (SAN), SARE’s national outreach arm. SAN interprets and delivers cutting-edge SARE research results with books and bulletins

designed for producers, educators, and researchers. See [www.sare.org](http://www.sare.org).

### Adding Value & Other Hot Topics

Both environmentally sound range management and agri-tourism are among the of-the-moment topics in which SARE has invested through its grants. Agri-tourism, along with local processing, direct marketing, organic farming, and community agriculture, represent some of the new approaches that are revving up profits for producers. All ways to “add value” to farming, these technologies make up the primary focus of a large number of SARE grants and are a component of scores of others. SARE’s great advantage comes in its ability—thanks to regional grant-making councils who know the local issues—to fund forward-thinking research and education subjects that keep producers on the cutting edge.

See the 12 project summaries that follow to learn more about what we’re funding now. What’s on the horizon? From bio-energy to food security to new market value chains, stay tuned.



SARE Director  
Cooperative State Research, Education,  
and Extension Service, USDA



CAROL FLAHERTY

## Peas Reduce Fallow in Wheat, Fill Growing Market for Hay

Perry Miller was a few years into his SARE-funded research on diversifying wheat cropping systems in Montana when he discovered a surprising thing: adding winter peas to break up the typical season-long fallow provided a more profitable forage than a food crop.

Most Montana winter wheat growers plant in September, harvest the following July, then leave their fields fallow for 14 months. That wheat/fallow system attempts to eke as much moisture as possible in Montana's dry climate for the wheat crop. Yet, the prolonged fallow encourages erosion, degrades the soil, and requires herbicides to manage weeds. "Fallow is a big negative for soil quality," Miller said.

While dryland researchers and farmers have tested legumes such as peas and lentils during fallow, Miller introduced new winter-hardy varieties that farmers could plant in the fall, with the majority of growth coinciding with spring rains. Adding peas during

the fallow period creates a system that wastes less water, guards against erosion, and—most importantly—feeds biomass to the soil. "Soil contains a living, breathing community that needs to eat regularly," Miller said.

Miller's experiment examined seeding rates, dates, and optimal wheat stubble height for a successful pea crop. Yet, it was the legume's biomass that proved more valuable than the fruit. The peas and lentils didn't yield well, but Miller recognized the potential of peas as a forage thanks to their high protein content and plentiful biomass. Forage can feed a fast-growing market in Montana for quality hay. By harvesting the forage just after flowering, a grower conserves water for the following wheat crop.

"It's looking like a real winner," Miller said. Moreover, adding peas "is a much more sustainable practice, and economically positive, too."

Montana growers support diversifi-

**Seeking a crop to replace fallow in wheat systems, Perry Miller of Montana State University found that winter peas reduce erosion and improve profits.**

cation strategies. A state wheat and barley group funded Miller's continuing research, while the Montana Farm Bureau and Montana Grain Growers Association have formally asked Montana State University to expand organic wheat production research.

For a few years, Mike Greytak of Billings, Mont., has rotated winter peas, canola or lentils with winter wheat, depending on the precipitation that season. He finds the rotation is a triple winner. "Crop rotation always pays," he said. "It gets the disease pressure off my back, it fixes nitrogen and uses less water." Moreover, he says he's producing a "superior" wheat crop by following legumes. "I'm making about as much money and growing better wheat." [For more information, go to [www.sare.org/projects](http://www.sare.org/projects) and search for SW02-005.]

## With New Testing Protocol, New York Research Digs Into Soil Health

For a small fee, New York farmers soon will be able to take a soil sample to a Cornell University lab, where scientists will determine its overall health. The test will go beyond measuring pH to include physical and biological properties, a science-based assessment of how strategies such as reduced tillage and cover cropping can improve soil quality. The soil health test will be one result of SARE-funded participatory research at Cornell that relies on teams of county extension educators and area farmers spread across the state to collect data and demonstrate promising soil management strategies.

“To my surprise, growers want to know the biological composition of their soils,” said George Abawi, a Cornell soil researcher based in Geneva, N.Y., who is heading the project. “The growers are very interested and are asking us: ‘What are my farming practices doing to my soil productivity?’”

Interest in soil management has reached an all-time high, says Abawi, a researcher for 35 years, evidenced by the standing-room-only crowd at the Empire Fruit & Vegetable Expo and a steady influx of questions from farmers throughout the study. On the ground, more farmers are planting longer rotations using cover crops and reduced tillage—a set of strategies encouraged in the project.

As a member of one of the five “ag teams,” Wayne County vegetable grower Elizabeth Henderson’s Peacework Organic Farm demonstrated minimum tillage and nitrogen-rich soil amendments like composted horse manure and cover crops at a fall 2004 field day. Years of such soil-building strategies and minimizing negative impacts on her 18 acres provides eye-opening data to the project. For example, soil compaction, measured using a penetrometer, was minimal. Soil structure, tested

in a sieve in a simulated downpour, proved full of organic material, crumbly and better able to resist erosion than on a farm not using those practices.

The project shows “a rediscovery of the significance of soil quality,” said Henderson, who serves as a farmer-educator for SARE. “They’re interested in what we’re doing on our farm.”

Abawi and his partners are collecting data from Henderson and up to 100 other farmers to synthesize their growing knowledge of how various management practices affect soil health. At the long-term soil health site at Geneva, researchers reported seeing soil improvements after just two seasons of adding a hairy vetch cover crop between cash crops. *[For more information, go to [www.sare.org/projects](http://www.sare.org/projects) and search for LNE03-175.]*

**Cornell researcher George Abawi describes soil health strategies at an Onion Council field day in Wayne County, N.Y.**



CAROL E. MACHIEL

## Ag Education, Community Development Make Good Partners in Texas

It's a familiar tale for countless rural towns across America: Communities with agricultural roots are losing their farms and ranches, and the children of farmers are studying anything but farming. But that's not the story in Canutillo, Texas, where community leaders expect that a proposed agronomics center focusing on youth education also will rejuvenate the economy.

Partly supported by a SARE community innovation grant, Canutillo School District officials set out to garner support for a state-of-the-art center that would provide education for ag students and boost the local economy with horse stables, a show arena, and more.

The SARE grant helped the new Sustainable Texas Agriculture Research (STAR) group test the center concept in five communities and provided a

crucial jumpstart for the project, said Gayla Kessinger, the school district's coordinator for career and technology education. In the information sessions, the group gathered ideas for how to sustain agriculture in their area and prioritized topics for the \$4 million center. Their ideas were written into STAR's economic development plan.

"We can't let ag die in our schools, that was the impetus to develop this," said Kessinger, who laments that just three schools in El Paso County offer agricultural education. "We believe it is going to be the star of the Southwest."

The so-called Agronomics Center on the Rio Grande would highlight one of the most fertile valleys in the world. "Our valley has been compared to the Nile," said Orlando Flores, a community and economic development specialist with Texas A&M Extension in-

involved with STAR, pointing out the area's ideal conditions for growing pecans and pima cotton. "We're contenders in agriculture, but the city is growing rapidly."

STAR envisions providing a full curriculum to agricultural students in western Texas, eastern New Mexico, and even Mexico, thanks to Canutillo's tri-corner location. Center planners led by the school superintendent picture a mix of academic and vocational classes in subjects like horticulture, animal science, and natural resource management. The arena would be complemented by classrooms, labs, animal housing, and a greenhouse. *[For more information, go to [www.sare.org/projects](http://www.sare.org/projects) and search for CS03-012.]*

**Noe Olvera Jr. works in the agriculture greenhouse at Canutillo High School. Agricultural education opportunities will ramp up with a planned Agronomics Center on the Rio Grande.**



ALFREDO VASQUEZ



## Customers Flock to Creative Ranch Products, from Lamb to Pelts

With more than a century of sheep ranching tradition on their 30,000-acre central Oregon ranch, Dan and Jeanne Carver were determined to continue raising sheep—along with 800-1,000 head of cattle, hay, and 3,000 acres of no-till grain—despite declining lamb and wool markets. With a Western SARE farmer/rancher grant, they investigated markets and launched a product line focusing on uniqueness and quality. Today, their sales include lamb for high-end restaurants, wool in yarn-and-pattern kits for hand knitters, and ready-to-wear woolen and lambskin fashions.

With a lack of processors, the Carvers were forced to find custom outfits willing to develop out-of-the-ordinary retail products. They found a small meat processor 160 miles away and captured restaurants by using many messages—fresh, locally grown, “natural” spring lamb from a ranch awarded for its conservation practices. “That’s a lot of sizzle,” said Jeanne Carver.

Annually, the Carvers deliver a sea-

son’s worth of wool to Alberta, Canada, where it’s processed to their specifications. Once washed and dyed, the wool becomes yarn for kits featuring the Carvers’ own knitwear designs. They sell their kits through a dealer who publishes a catalog circulated to 100,000 crafters. Repeated requests for finished garments from their wool encouraged Jeanne to work with area designers and knitters to create handmade woolen clothing sold in resorts and specialty shops. To use the whole animal, they began tanning hides and added lambskin fashion items to their clothing line.

“The marketing project has increased awareness and visibility of what we grow, how we grow it and, most importantly, how we manage the land,” said Dan Carver, referring to a bevy of practices to safeguard the environment, such as installing fencing to reduce herd size, building dams to create watering holes for domestic stock and wildlife, and protecting springs with fences while re-directing water into troughs.

**In a recent marketing success, a national clothing retailer approached Jeanne and Dan Carver (left) to buy and re-sell their woolen garments (below).**



Their project has evolved to an economic force employing regional designers and fiber artisans. The Carvers estimate they clear 30 percent over the price of lamb sold on the generic market, and the profits on the wool are remarkable, while keeping the yarn affordable. “Our customers love the quality of our product, the flavor profile of the meat, the feel of the wool, and the message of the land and sense of place,” Jeanne said. *[For more information, go to [www.sare.org/projects](http://www.sare.org/projects) and search for FW02-206.]*

## N. Dakota Farmer Adds Value to Wheat, Jumpstarts Local Economy

With ingenuity, tenacity, and help from SARE farmer/rancher grants, Dennis Kubischta of Hope, N.D., converted his grain farm into a high-quality flour-producing enterprise that supplies an area bakery and national dough distributor. Now, Kubischta's success will leave a substantial mark on his North Dakota community with the opening of a new \$2 million flour milling plant in mid-2005.

Kubischta's two grants helped him create a marketing, engineering, and business plan for a much larger milling operation for high-end baking flour. "In rural areas, you can find enterprise money for projects, but how do investors know if they are good projects unless the homework has been done?"

**Dennis Kubischta began stone-grinding his wheat using a small flour mill on his Hope, N.D., farm. Now he's building the Summers Harvest Flour Mill capable of processing up to 12,500 bushels a week.**

said Kubischta, who put a priority on developing a credible business plan. The spanking new Summers Harvest Flour Mill, owned by a cooperative of five farmers, will be able to mill up to 12,500 bushels of wheat per week. Area farmers will supply the plant, and the mill will employ at least 10 people at competitive wages.

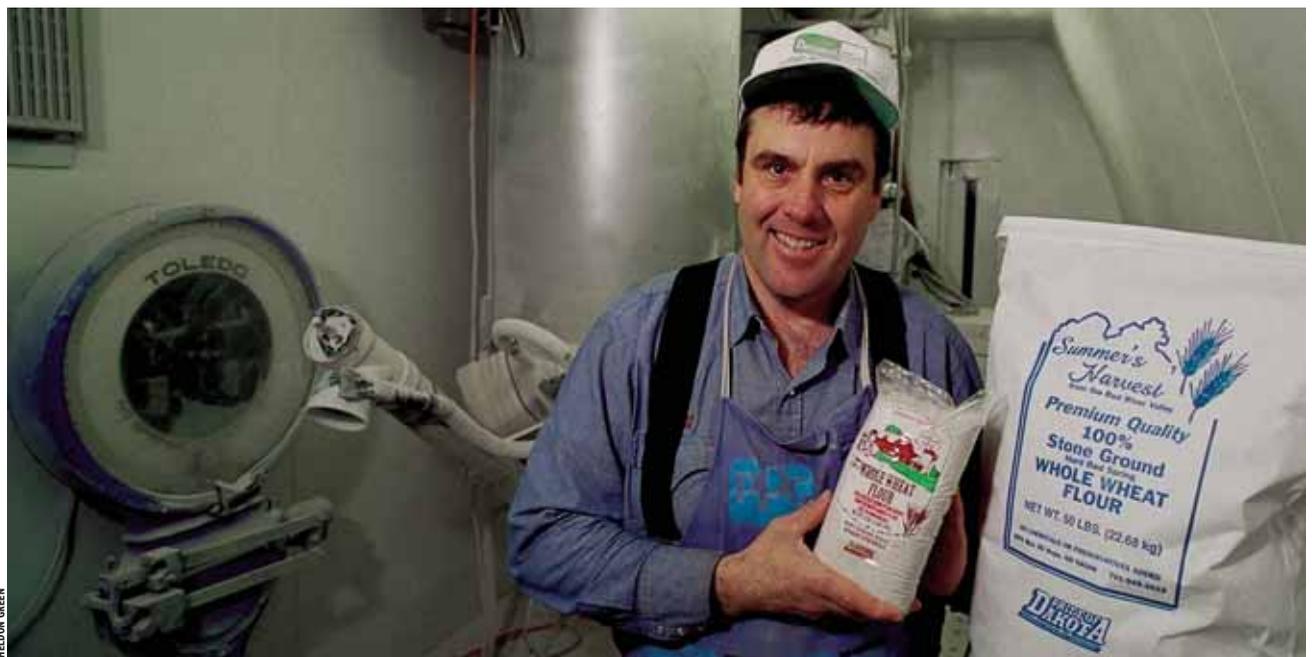
Ten years ago, Kubischta eyed his balance sheet and sought an alternative to renting land to produce more wheat for the commodity market. Kubischta started making stone-ground flour and found a Finley, N.D., bakery that liked the special product and was willing to take a chance on a small supplier. During grinding, stone milling creates heat that essentially cooks the flour, imparting a unique flavor.

He continued to expand, buying more milling equipment until he had the capacity to mill 3,000 pounds per

hour. When he learned that North Dakota State University was looking to sell a commercial-grade mill that makes all grades and types of flour, Kubischta bought a tract in Colgate, N.D., and gathered support from area farmers. He will be the general manager, with overall operations governed by the five farmer-owners.

Kubischta is thrilled to create job opportunities when so many residents have left their farms and the area. "As a direct result of SARE believing in us, we now have certified organic wheat in the bins and new markets for our products," Kubischta said. Milling bakery-quality flour has "made a major difference in our ability to remain on the farm and stay in this area, which is experiencing so much out-migration."

[For more information, go to [www.sare.org/projects](http://www.sare.org/projects) and search for FNC99-259 and FNC01-345.]



SHELDON GREEN



JENNIFER LANIER

## New Processing Plant Creates Profitable Poultry Sales in Mississippi

While farmers across the country, particularly in the mild South, are increasingly interested in profitable pastured poultry enterprises, the limited number of processing houses for small quantities of birds has become a major roadblock. With SARE funds, Heifer Project International has chipped away at that obstacle, creating more processing opportunities in Kentucky, Alabama, and Mississippi by building a unit on wheels, expanding an existing plant to include poultry, and helping streamline state policies restricting processing.

In Mississippi, representatives from Heifer Project International worked with Blackwater Farms of DeKalb to upgrade their plant, which already processed steers and other ruminants, to include poultry. In mid-2004, Blackwater unveiled the new-and-improved plant on the Mississippi-Alabama border. It serves as a hub for a new network of five poultry growers who now process some 500 birds a week and co-market to restaurants in Jackson and

Birmingham. “It fills a need,” said Gus Heard-Hughes, Heifer’s Alabama coordinator, who continues to work with the network on sales options like farmers markets, especially during the winter season when supply continues apace but demand traditionally slackens.

Thanks to Heifer-sponsored meetings with public officials, Mississippi legislators passed a new law that allows poultry processors who follow specific guidelines to be exempt from inspection and process up to 20,000 birds a year, in keeping with federal rules.

In Kentucky, Heifer worked with public health officials to construct a state-approved mobile unit to process poultry, freshwater shrimp, and fish. While they envisioned a unit that would travel from farm to farm, the unit thus far only travels for aquaculture processing—poultry requires more equipment and a more elaborate base station. Poultry processing in the unit has been limited to its home base in Frankfort, with another station under construc-

**More farmers are raising poultry in outdoor day range systems, but lack processing options.**

tion in eastern Kentucky. Farmers have slaughtered a few thousand chickens at the new unit, but aquaculture, with lesser processing restrictions, is its likely future, said Steve Muntz, Heifer’s USA Country Program Director and leader of the SARE-funded project.

“It was a huge accomplishment to get something like this approved and to raise awareness of how big this issue is,” said Muntz, who sees pastured poultry as a lucrative supplemental enterprise, particularly for small-scale or limited-resource farmers. “Small farmers don’t have access to processing.”

The project also spawned publications for farmers about poultry-raising, including an entrepreneur’s “toolbox,” guides to processing and genetics, and poultry nutrition. *[For more information, go to [www.sare.org/projects](http://www.sare.org/projects) and search for LS99-105.]*



T. JUDE BOUCHER

## Building a Fortress: Surrounding Crops With Perimeter Fools Pests

Nelson Cecarelli of Northford, Conn., who often lost an entire season's cucumber crop to voracious cucumber beetles, planted squash around his field perimeter, sprayed minimally, and harvested a bounty of cukes in 2003 and 2004. Cecarelli was one of about 30 farmers in New England to adopt a perimeter trap cropping strategy recommended by a University of Connecticut researcher who, with a SARE grant, tested the theory over two seasons—with terrific results. The system, popular among growers, encircles a vulnerable vegetable with a crop that can attract and better withstand pest pressure, reducing the need for pesticides.

“What you're seeking in a trap crop is something that gets up and out of the ground fast with lots of foliage and won't be over-run easily when beetles come into the field,” said T. Jude

Boucher, Extension Educator and project leader, who recommends a thick-skinned squash called Blue Hubbard. “If we can stop beetles during the seedling stage, we can eliminate most of the damage.”

In 2004, nine New England growers increased yields of crops like cucumbers and summer squash by 18 percent and reduced insecticide use by 96 percent, earning an extra \$11,000 each, on average, Boucher said. The research compared a dozen farms using perimeter trap cropping to farms that used typical spray regimens.

Growers planting perimeters applauded the time savings in pest scouting and pesticide spraying—just patrolling and minimally spraying the perimeter—and the improved economics thanks to lower input costs and higher, better-quality yields. Previously, growers had applied up to four sprays per field.

**Randy Blackmer examines pumpkins planted as a “trap” crop to draw insect pests away from cucumbers and summer and winter squash on his North Grosvenor Dale, Conn., farm.**

Despite pessimism that the Blue Hubbard squash wouldn't appeal to customers, most participating farmers found that Blue Hubbard resisted beetle damage *and* sold at their markets. In post-project surveys, farmers said the system not only saved money, but also that planting a perimeter was simpler than applying multiple full-field insecticide sprays.

“We're trying to get away from the ‘silver bullet’ mentality that you can put on a pesticide and it'll stop your problem,” Boucher said. “We're changing the pest populations' dynamics in the field.” [For more information about this project, go to [www.sare.org/projects](http://www.sare.org/projects) and search for LNE03-177.]

## Cover Crops Lure Beneficial Insects, Improve Bottom Line in Cotton

SARE-funded researchers in Georgia seeking new ways to raise healthy cotton—traditionally one of the most pest-plagued, thus one of the most chemically treated commodities—focused on attracting insects that prey on damaging pests. A group of scientists from USDA’s Agricultural Research Service, the University of Georgia, and Fort Valley State University planted a variety of flowering cover crops amid cotton rows to test whether their blooms would bring earworm- and budworm-killing predators to minimize the need for insecticides.

Working on seven mid- and southern Georgia cotton farms, the team eliminated one insecticide application by planting legume cover crop mixes that brought predators like the pirate bug, big-eyed bug, and fire ants to prey on damaging worms. Using conservation tillage to plant cotton amid the

**Georgia researchers eliminated an insecticide spraying by planting legume cover crop mixes (below) to attract insect predators to prey on cotton worms.**

cover crops also improved yields—on average, 2,300 pounds of seed cotton compared to 1,700 pounds on control plots. (Seed cotton weight includes lint and seed before cleaning.)

Growing a mix of balansa clover, crimson clover, and hairy vetch prolonged cover crop flowering from early March through late April and had the added benefit of out-competing weeds. “With this range of blooming, we’re able to start building the beneficial populations early in the season,” said Harry Schomberg, an ARS ecologist and project leader. “Reducing one application of insecticides could be pretty substantial on a larger scale like 100 acres.”

Glynn Tillman, an ARS entomologist who collaborated on the project, found that predator bugs moved from the cover crops into the cotton early in the season, providing more worm control. Moreover, the conservation tillage and cover crop residue resulted in more beneficial soil organisms that likely contributed to better cotton yields.

To demonstrate their results, the



team went beyond holding field days. Tillman introduced the promising system of cotton, cover crops, and conservation tillage to hundreds of thousands attending the Sun Belt Ag Expo in Moultrie, Ga. “It was well received,” Tillman said, adding that she fielded many questions from growers, some calling later for more information on adopting cover crops into integrated pest management systems for cotton.

Schomberg cautions that the system requires careful management. In the fall, they seeded alternating strips of cereal rye and legume cover crops. In the spring, they killed the 15-inch-wide strips of rye with an herbicide and followed by planting cotton in the same rows, using conservation tillage. “Spacing is key,” he said. “You have to think about and tinker with your planting equipment.” Killing cover crops, he added, is easier than killing a diverse population of winter weeds. [For more information about this project, go to [www.sare.org/projects](http://www.sare.org/projects) and search for LS01-121.]





PHOTOS BY JAMES KOTCON

## Learning What's Possible – WVU Research Farm Goes Organic

With suburban growth creeping into some of West Virginia's farm country, growers who raise vegetables and field crops among the steep slopes of this mountainous state are considering organic production as a way to improve profits and stay in harmony with their new neighbors. Responding to their needs, researchers at West Virginia University launched a comprehensive, SARE-funded study examining best transition strategies, with a focus on soil fertility.

"There's a desire to move to more sustainable practices on some of the farms now surrounded by houses, especially by reducing potential conflicts over pesticide spraying," said James Kotcon, WVU researcher and leader of the project. Since converting to organic requires a 3-year transition, Kotcon set out to research this phase to smooth the way for producers.

With growers' needs in mind, WVU researchers worked throughout the project—from setting objectives to experimental design to farming techniques—with members of the Mountain State Organic Growers and Buyers Association and focused on yields, soil quality, pest management, and

economics. The project converted WVU's 60-acre Horticulture Farm to organic by 2003.

Four field days drew interested growers. "So many people go, and it exposes people to these options—they get a better handle on what's possible," said Susan Sauter, an organic farmer from Bruceton Mills, W.V., who worked on the project's steering committee and benefited from demonstrations of a new pest management product for squash. "It [organic transition] is not so scary."

Scientists tested soil management strategies in two systems—small-scale vegetables and field crops with livestock. Their main thrust was comparing fertility sources: cover crops only versus a combination of cover crops and compost amendments. In the first season of the vegetable trial, they sowed rye, clover, and vetch cover crops and plowed them under as a green manure in the cover-crops-only treatment, followed by a 4-year rotation of legumes, leafy vegetables, tomatoes/peppers, and cucurbits. In the compost-plus-cover-crops treatment, researchers amended the soil with 10 tons of dairy manure compost per acre and began harvesting the first season.

**Above: Visitors to WVU's annual field day prepare for a wagon tour of organic research plots that produced, among other crops, fresh market vegetables (below).**

They mirrored this test on the 3-acre crop-livestock trial, which included wheat, potatoes, soybeans, and lamb.

Adding compost along with cover crops added organic matter to the soil and boosted yields for vegetables, compared to the cover-crops-only plots, with economic returns up to three times greater. Yields for pepper, pumpkin, and spinach were significantly higher, Kotcon said, while yields for other vegetables were comparable to national averages. Field crop yields were inconsistent, although they produced healthy lambs each year. *[For more information, go to [www.sare.org/projects](http://www.sare.org/projects) and search for LNE99-123.]*





ERIC BRENNAN

## Research on Large California Farm Proves Organic Transition Feasible

Flexible management techniques and careful planning helped large-scale central California vegetable farmers participating in a SARE-funded University of California-Davis research project convert to organic production, demonstrating that well-thought-out transitions can be accomplished successfully. Most of the anticipated problems were carefully controlled and, in contrast to many other transition experiments, the organic fields performed as well as the conventional ones.

Tanimura and Antle Inc. converted over 200 acres of their Salinas Valley intensive lettuce, broccoli, spinach, and celery production into 1- to 5-acre parcels of organic production of diverse crops such as specialty greens, leaf lettuce, and herbs. Then researchers took their success to a wider audience of growers, farm consultants, Extension, and other agencies.

The outreach focused on how UC researchers, the farmers, and farm advisers teamed up to develop the experi-

mental design and identify potential problems. Expecting weeds, pests, and soil fertility to be major constraints, researchers monitored changes in the field and provided continuous feedback to the growers. The growers, in turn, adapted their strategies to compensate, in one instance switching from legume cover crops to rye and mustard because weeds became problematic with the legumes.

“What they did was biodiversity based,” said Louise Jackson, UC-Davis extension specialist and project leader. “They planned species mixes and cropping patterns and managed fertility well. They used good organic strategies.”

Frequent hand hoeing kept purslane and groundsel in check, while less susceptible crop varieties and organic pest control reduced impacts of aphids and leaf miners. The growers shifted planting dates to avoid pest problems. They developed a re-useable drip line for irrigation to deliver soluble organic fertilizers, which not only conserved

**Workers harvest celery next to a strip of flowers planted to attract beneficial insects, a key organic management strategy.**

water and cut costs, but also kept the surrounding soil much drier, reducing incidences of weeds and diseases.

Jackson talked to hundreds of people about the project throughout Central California at grower meetings, workshops, field days, and short courses, emphasizing their whole-farm research as a new approach to analyzing organic systems.

Their biggest worry—that the organic fields, set in the middle of a non-organic environment, were going to become oases for large populations of nearby pests—never materialized. “Organic farms are generally on the periphery where they are isolated by grasslands or other ecosystems,” Jackson said, “but this tells me that organic transition is possible in the midst of a conventional growing environment.”

*[For more information, go to [www.sare.org/projects](http://www.sare.org/projects) and search for SW01-057.]*

## Bankers Say Better Farm Records Improve Chances for Loans

Farmers seeking financing for new ventures would fare better if they approached bankers with well-crafted business plans and good records, according to a survey of close to 1,600 bankers, farmers, and agricultural educators in Minnesota and Wisconsin. Today, just one applicant in six prepares the plans they consider integral to a solid loan application, bankers told the Land Stewardship Project (LSP), the SARE-funded organization that coordinated a multi-partner effort to develop, distribute, and analyze the surveys.

To quantify the perceived gulf between creditors and farmers trying

**Jason Penner, a Butterfield, Minn., hog producer, received support from the SARE-funded Land Stewardship Project to enroll in a record-keeping and farm analysis course. Better record-keeping was a key need identified for bankers in an LSP survey.**

alternative enterprises, LSP designed three surveys for lenders, farmers, and agricultural educators and held roundtable discussions. Results confirmed lender needs for “smart” record-keeping that includes 3 or more years of financial statements. For their part, farmers acknowledged what they see as a lack of lender understanding about alternative enterprises, a problem for at least one-half of respondents who said they rely on local banks.

“If you’re coming in with an out-of-the-ordinary idea that will be unfamiliar at best to a lender, it behooves you to bring in something that’s familiar to a lender,” said Caroline van Schaik, the LSP coordinator of the farm credit project. “Numbers are it.”

Following up on the survey results, LSP obtained another SARE grant to run business planning workshops for

farmers, offer scholarships for record-keeping classes, and reach out to lenders. The workshops featured *Building a Sustainable Business*, a guide co-published by SARE’s Sustainable Agriculture Network and the Minnesota Institute for Sustainable Agriculture in 2003.

The surveys opened up an important dialog between groups that have often been at odds, van Schaik said. The surveys “substantiate the conversation and put it on the table where it might not otherwise be,” she said.

Similar conversations took place in Ohio. At the request of Ohio farmers, many of whom are trying new ventures like grass-based dairying and direct-market vegetables, Innovative Farmers of Ohio—armed with a SARE professional development grant—hosted training sessions for lenders about alternative farming systems. Four sessions that attracted more than 100 Ohio lenders to seminars in Ottawa, Wayne, and Holmes Counties sought to transform skepticism about financing diverse agricultural enterprises to optimism that such ventures foster community development.

Innovative workshops included farmer presenters who laid bare their finances. “Farmers were saying they have a hard time with ag lenders understanding their systems,” said Laura Ann Bergman, IFO director. “We tried to really engage in a dialog with lenders.”

[For more information, go to [www.sare.org/projects](http://www.sare.org/projects) and search for LNC00-200, ENC03-073, and ENC02-067.]



BRIAN BEVORE

## Wood Products Open Up Specialty Markets for Farmers



PHOTOS BY SCOTT J. JOSIAH

Farmers on the windy Plains who plant trees as buffers and windbreaks can realize a profit as part of their conservation efforts—and many are starting to explore the options, thanks to Scott Josiah, a state extension forester at the University of Nebraska. With a SARE grant, Josiah gathered a wealth of information about the profit-making potential of trees on farms and taught farmers about how to grow and market new products like berries, nuts, and woody florals in conservation plantings.

“Instead of considering a windbreak or streamside buffer strip as land taken out of production, why not make it a new profit center?” Josiah said.

Josiah’s data, from a survey of SARE producer grant recipients and others, literature searches, and six field trials throughout Nebraska, feeds a website featuring a financial analysis tool and marketing information.

Market research showed the floral industry to be a \$20 million outlet, mainly eye-catching stems from trees and shrubs planted in rows that bring as much as \$5 per linear foot. “Someone is already providing products to these markets, we just have to compete on a different level, with superior quality,” Josiah said. Likewise, nuts can bring high returns, especially hybrid hazelnuts for the confection industry.

Growers flocked to workshops and trainings featuring production, harvest, and post-harvest handling strategies. Bruce Bostelman of Brainard, Neb., learned which plants to grow and how to market them, part of an effort to diversify his 160-acre farm. Today, Bostelman harvests willow and dogwood stems and sells them to wholesalers with farmers who met during the project and formed a cooperative to process and market their products.

Niche agroforestry products like decorative branches for the floral market (left) and choke cherries for fruit wine (below) promise better profits.

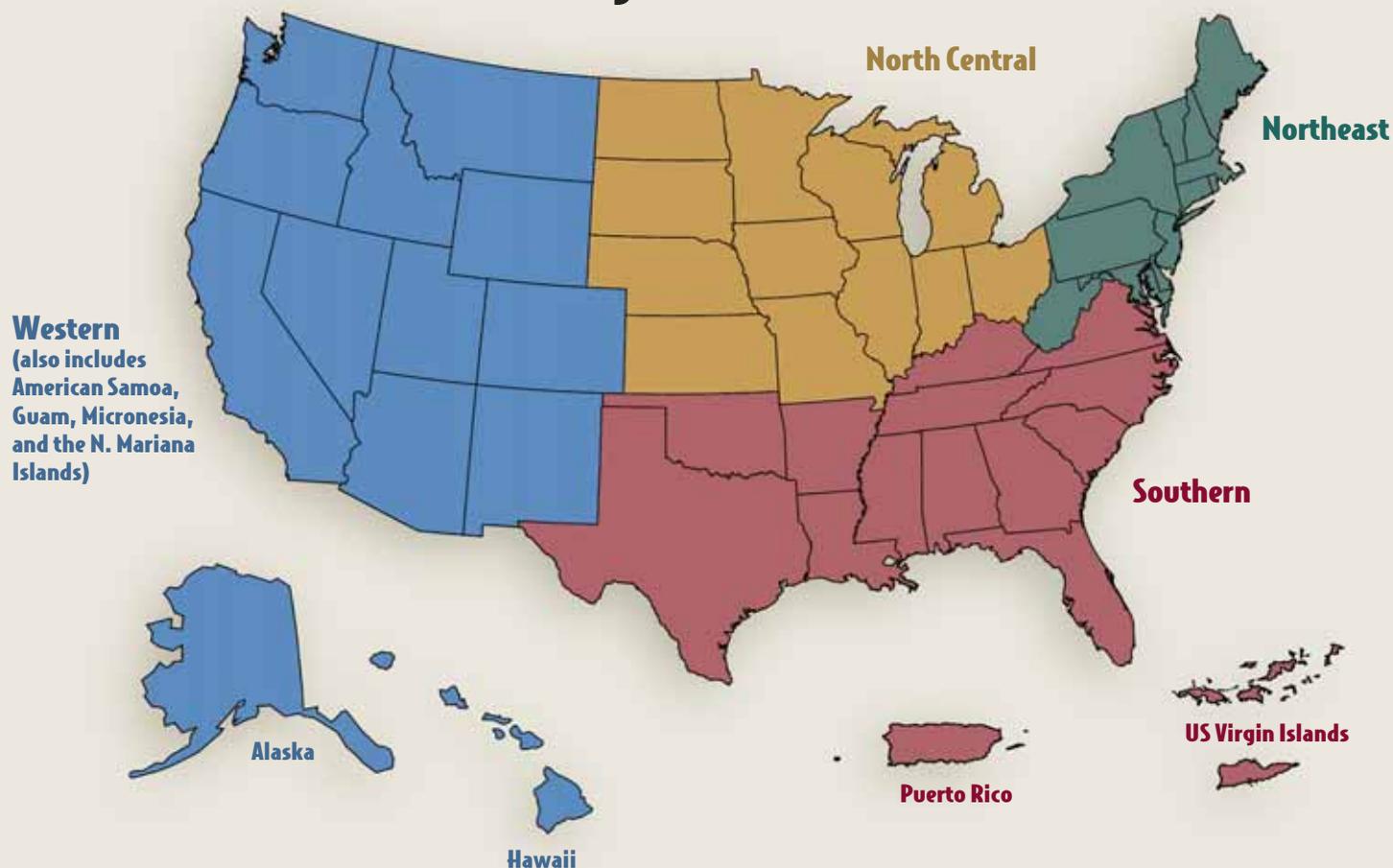
“Without his [Josiah’s] research and everything he’s done in woody floral development, we wouldn’t be where we are today,” said Bostelman, who also raises small fruit for wineries and has started a nut orchard.

A forest products workshop coordinated by the Arbor Day Foundation and supported by a SARE professional development grant drew 70 extension educators and natural resource professionals from 12 states. The most visual aspect of the 2-day workshop was a hazelnut harvest on the Arbor Day Farm. Participants also learned more about incorporating specialty woody crops into conservation strategies such as living snow fences and stream bank buffers. *[For more information, go to [http://snr.unl.edu/forestry/specialty\\_forestproductsintro.htm](http://snr.unl.edu/forestry/specialty_forestproductsintro.htm) or go to [www.sare.org/projects](http://www.sare.org/projects) and search for LNC 01-197 and ENC00-054.]*



**S**ARE works to increase knowledge about—and help farmers and ranchers adopt—practices that are profitable, environmentally sound, and good for communities.

## SARE Regions



Reach SARE and the Sustainable Agriculture Network on the web at [www.sare.org](http://www.sare.org)



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