SARE

Sustainable Agriculture Research & Education Program

2001

practical new ideas in:

- water quality
- pest management
- livestock systems
- marketing
- farm diversification
- organic production
- agroforestry
- range management

How SARE works

The USDA's Sustainable Agriculture Research and Education program works primarily through competitive grants, which are offered through four regions under the direction of regional councils that include farmers and ranchers along with representatives from universities, government, agribusiness and nonprofit organizations. Since 1988, SARE has funded more than 1,800 projects, including:

- **Research and Education Grants**—Ranging from $30,000 to $200,000, these grants fund projects that usually involve scientists, producers and others in an interdisciplinary approach.
- **Professional Development Grants**—To spread the knowledge about sustainable concepts and practices, these projects educate Cooperative Extension Service staff and other ag professionals.
- **Producer Grants**—Producers apply for grants that typically run between $500 and $15,000 to conduct on-site experiments and share the results with other farmers and ranchers.

For more information, visit www.sare.org or call (301) 504-5230.

from the director

SARE works to advance farming and ranching systems that are profitable, good for the environment, and good for families and communities.

We do so primarily by awarding more than 200 grants each year to innovative researchers of all stripes—university scientists, nonprofit organization representatives, agricultural educators and producers carrying out experiments on their farms and ranches. In this annual report, learn more about 12 projects from SARE's portfolio of more than 1,800; they show the diversity and the breadth of our grants and pose some solutions to the many challenges facing agriculture today.

We also promote sustainable agriculture through our communications program, which shines a spotlight on state-of-the-art research and education projects and exemplary producers who put some of those ideas into practice across the country. Those farmers and ranchers, many with help from SARE, have adopted innovative ways to cut production costs or sell their products for a premium, all while taking good care of natural resources like soil and water. Some of them have found ways to manage insect pests and weeds using new crop rotations; others have devised innovative marketing channels for their harvested products.

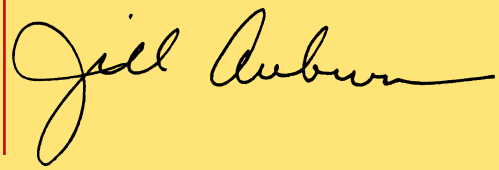
While many are highlighted on the pages that follow, a special foursome who farm in the U.S. prairie region became part of a dramatic, SARE-supported exhibit that debuted at the Smithsonian National Museum of Natural History last November. The exhibit will travel to 20 libraries over the next three years. "Listening to the Prairie: Farming in Nature's Image" describes the history of the vast grasslands region as well as the progressive producers who earn a living there. The four profiled in the exhibit represent the new breed of farmer trying new ways to trim production costs and earn profits in a tough financial climate. USDA's Agricultural Research Service, Forest Service and Natural Resources Conservation Service—as well as the W.K. Kellogg Foundation—partnered with SARE to fund the exhibit. To make the exhibit more relevant to kids, USDA's "Agriculture in the Classroom" program is producing age-specific materials for schools and communities. See www.sare.org/htdocs/events/index.html#exhibit for more information about the exhibit and tour.

The prairie exhibit is just one way SARE is trying to raise public consciousness about agriculture. Many farmers are indeed living up to the expectations the greater public places upon them as stewards of the land. SARE has funded more than 900 of their ideas through our producer grant program; thousands of others have collaborated on SARE research/education or professional development grants. What the producers have in common is a spirit of entrepreneurship that has helped them succeed at farming or ranching despite some of the lowest commodity prices in years.

SARE offers competitive grants—evaluated by diverse teams of producers, researchers, educators, farm consultants, and people from government and nonprofit organizations—in four regions. By accepting and reviewing grants at the regional level, SARE ensures that priorities are set by the people who are closest to the land and the communities the projects affect.

SARE's national outreach arm, the Sustainable Agriculture Network (SAN), combines the results of SARE-funded research with other information to produce practical publications. Recent SAN releases include a book on soil management and bulletins on marketing and pest management. We also produced a slide show of our marketing bulletin on CD-ROM to help educators present timely tips to farmers and ranchers. (See www.sare.org/htdocs/events/pr/oct252000.htm)

SARE's national and regional communications specialists collaborated on a new look for our annual report, formerly called the "SARE Project Highlights." Tell us what you think!



Creeks, Streams Benefit from Careful Farming Practices

A group of researchers, farmers, extension educators and high school students, interested in how farming operations affect water quality in their southern Georgia community, joined a SARE-funded project to assess nutrient levels in streams throughout their watershed. Jean Steiner, a researcher from the USDA Agricultural Research Service, led a wide-ranging water quality sampling project that included 15 farmers to determine practices that minimize the flow of nutrients such as phosphorus and nitrogen into streams and creeks. The group received training in how to take accurate water quality samples and installed monitoring devices at 20 locations. Where the job seemed too onerous for working farmers, groups of high schoolers assisted as part of FFA and 4–H projects. An FFA chapter and a science club chipped in with "adopt-a-stream" projects. Some results, such as finding clear water when farmers retained vegetative buffers at field edges to catch nutrients, were expected. Others were a bit more unusual. A farmer found that fecal coliform bacteria from cattle manure settled out in his pond before reaching a stream; a dairy farmer who spread slurry from his manure lagoon onto a silage field learned that an adjacent hayfield served as an effective riparian buffer. Another SARE water quality project, run by the ARS National Sedimentation Laboratory in Mississippi, showed that vegetative barriers reduce sediment leaving fields by 75 percent. In September 2000, the USDA NRCS placed a national practice standard for the use of grass hedges —such as switchgrass—into the congressional record. Meanwhile, the Georgia project team shared its information as "best management practices" to agricultural educators, partly in a workbook about managing nutrients in farm watersheds. In all, the project helped confirm that creeks and streams benefited from careful farming practices. Water flowing through the watershed, dotted with farms, actually improved. [*For more information, go to www.sare.org/projects/ and search for* LS97-088 or LS96-073]

Above: *Georgia scientists taught farmers and youths how to sample creeks and streams, then documented improved water quality downstream. They published "best management practices," plus sampling procedures, in a workbook sent to every county Extension Service office in the state. Photo by Jean Steiner.*

Broccoli Rotation Reduces Wilt in Strawberries Without Fumigation

Strawberry growers have long relied on the soil fumigant methyl bromide to control soil-borne diseases such as Verticillium wilt that can devastate the valuable crop. As supplies of the chemical—to be pulled off the market by the U.S. EPA in 2005—dwindle and become more expensive, researchers are seeking new environmentally sound, cost-effective ways to control strawberry wilt. Armed with a SARE grant, University of California-Davis researcher Krishna Subbarao has tested a promising rotation using broccoli, a crop he found in earlier research to suppress the disease. In that research, where Subbarao introduced broccoli into cauliflower rotations, he found that growing broccoli and incorporating its residue into the soil suppressed 95 percent of the microsclerotia—structures that cause the disease—and reduced wilt in subsequent cauliflower crops. In his SARE project, Subbarao tested broccoli in rotations with strawberries to see if he would get similar results. He also experimented with lettuce and Brussels sprouts, commonly grown in northern California, in the rotation. Thus far, broccoli rotations look the most promising to control wilt. Researchers found rotations of broccoli-broccoli-strawberries—with broccoli residue incorporated prior to strawberries—exhibited the same suppression abilities as in their earlier work. While growing two crops of broccoli prior to strawberries is less profitable than growing strawberries year round, growers can realize some economic return. Moreover, with methyl bromide costing up to $2,000 an acre, a non-chemical alternative is an attractive solution. Area growers are interested. An organic strawberry grower has adopted the rotation, while three large conventional strawberry growers are testing it. "If growing broccoli reduces Verticillium wilt in the post-methyl bromide era, while giving a reasonably high strawberry yield, it will be a significant boon for the growers," Subbarao says. [*For more information, go to www.sare.org/projects/ and search for* SW99-009]

Below: *A California researcher who tested growing broccoli before strawberries to control wilt—commonly managed with methyl bromide—found he could consistently reduce the disease by diversifying the rotation and incorporating crop residue. A worker at the Monterey Bay Academy managed by the California Strawberry Commission shreds broccoli residue. Photo by Krishna Subbarao.*

To Manage Nematodes in Cotton, Add Beans

Growing cotton in Alabama conjures up images of family farms, rows of white bolls catching southern breezes—and, if you're a cotton farmer, nematodes. These plant-damaging pests especially thrive on continuous cotton crops. For Richard Edgar, who grew season after season of cotton, "reniform" nematodes had become a huge problem. After hearing that Auburn University researchers controlled nematodes by rotating cotton with velvet beans, Edgar received a SARE producer grant to try the rotation on his farm. Grown extensively in Alabama until the advent of commercial fertilizer in the 1940s, velvet beans fix nitrogen in the soil and crowd out weeds. Edgar set aside 10 acres divided into eight plots of 16 rows or more to test rotations of velvet bean alone, and velvet bean grown on trellises of corn and grain sorghum to keep the bean vines off the ground. The velvet beans on corn were a consistent winner, with Edgar recording nematode populations as low as five per 100 cubic centimeters of soil. When he followed with a cotton crop, the young plants were able to establish before the adult nematode populations could rebound and do any damage. Moreover, he found he could sell bean seeds for $2.50 a pound. Edgar now rotates one-third of his 440 acres out of cotton every year—most to corn, some to velvet beans on corn trellises. If the velvet bean market expands, he may find it profitable to plant more. In the meantime, Edgar still grows cotton two years out of three and applies a nematicide, but cut his treatment cost in half from a high of $21 per acre. "This project allowed us to try a number of different scenarios with reduced risk, then choose what would suit our farm situation," Edgar says. [*For more information, go to www.sare.org/projects/ and search for* FS97-049]

Above: *At a field day, Alabama cotton farmer Richard Edgar spread the word about his research into controlling the "reniform" nematode using velvet beans. His results, a dramatic reduction in nematode populations, (see below) were publicized in* Progressive Farmer *magazine. Photos by John Mayne.*

Low-Cost Livestock Systems Offer Profitable Alternatives

Nebraska ranchers raising cattle, dairy cows, poultry and hogs have a new source to tap to learn more about alternative, lower-cost production systems: other farmers. As part of a SARE-funded project at the Center for Rural Affairs, 10 producers opened their enterprises, complete with their hard-won tricks of the trade, to scrutiny by livestock farmers interested in learning about alternative systems, many of them grass-based. Recruiting farmers from throughout the state, the Center asked participants to allow evaluations of their livestock systems, including their costs and returns, and to talk about their practices to their peers. Preliminary economic data measured by project cooperators at the University of Nebraska showed annual net income for a participating dairy farmer who raised cows on well-managed pasture to be $713 per animal, compared to $439 per cow milked in a confinement dairy. While the grazier produced less milk, his feed and fertilizer costs were far lower than his conventional counterpart. Some of the farmers made presentations at well-attended meetings and workshops; others held tours on their farms. Muriel Barrett, a poultry producer who raises 10,000 birds a year on pasture, was happy to open her farm to tours. "We encourage them, let them know our ups and downs, and give them the benefit of our mistakes so their learning curve is less steep," says Barrett, who has reduced feed costs and receives $1.65 a pound for her pastured birds, 76 cents more than grocery store prices. By the second year of the project, about 700 producers and agricultural educators had learned about alternative livestock systems. Many of them were intrigued by cattle grazing systems that reduce both feedlot time and supplemental grain costs. [*For more information, go to www.sare.org/projects/ and search for* LNC98-144]

Below: *Demonstrations at Nebraska farms, including this one where cattle graze standing corn during the pasture's "summer slump," highlighted livestock systems that reduce feeding costs. The systems also require less labor, lessen odor, flies and dust, and minimize manure concerns. Photo by Wyatt Fraas.*

Award-Winning Cheese Brings Premium Prices to Sheep Producers

Left: *Demand for premium farmstead sheep cheese has encouraged the Majors to teach other Vermont farmers how to milk sheep and make raw cheese, which they then ripen in their cheese cave. Photo by Valerie Berton.*

After early, unsuccessful attempts to produce flavorful cheese from their sheep flock, Cynthia and David Major traveled from their Vermont farm to France to learn how to create a tastier product. Now, they not only command high prices from specialty food shops, restaurants, and web and mail order sales for their cave-ripened Vermont Shepherd's sheep cheese, but demand also consistently outstrips their supply. To help fill that breach, they recruited other farmers in hopes that they, too, could add value to sheep dairy products. Using a SARE producer grant, Cynthia Major recruited experts in sheep pasturing and dairying to teach would-be cheese-makers how to create a premium product. Since then, nine producers have sold week-old cheese to the Major farm. The farmers make cheese only during spring and summer when the sheep graze on fresh pasture grasses and herbs, and each follows the same traditional European mountain cheese recipe. Once the cheese reaches the Majors, it is aged in the cheese cave, a 1,500-square-foot cellar, for four to eight months, depending on the cheese. Six farms now collaborate to make Vermont Shepherd cheese, a premium brand that won "best of show" in the American Cheese Society's annual competition in 2000. The labor-intensive process requires the cave's cheese ripener to turn and brush each wheel of cheese every other day. In return for their hard work and attention to detail, the Majors receive up to $18.50 per pound. The Majors developed a guide and resource list, "The Joy of Cheese-Making," and concluded the project with a workshop for other interested sheep farmers. [*For more information, go to www.sare.org/projects/ and search for* FNE97-178]

Chefs, Parks and Festivals Help Promote Ag Products to Tourists

A Kentucky cooperative of former and current tobacco producers, seeking to build new markets for new products, launched a series of public outreach campaigns aimed at capturing tourists, with notable success. Aided by a SARE producer grant, the Commodity Growers Cooperative formed a regional tourism association with growers in six counties that linked a farmers market, Christmas tree farms, organic produce farms, horse farms and the like with a popular state park. The farmers market, part of the booming Mountain Market Festival at Natural Bridge State Park, features chef presentations and live music and strives to educate park visitors about the importance of buying locally produced food. The association also developed a "Christmas in the Mountains" program that paired Christmas tree purchases with bed-and-breakfast visits. Consumer education was also the cornerstone of a SARE professional development project that helped Kentucky farm and rural development organizations teach about local food systems to groups ranging from Kentucky legislators to extension agents. Many of the training activities took place at direct marketing conferences, each including a report from a chef or food buyer explaining their produce purchases or a researcher presenting survey findings about consumer preferences. The spin-off effects have been varied and effective: Community groups have formed to support local farmers, new farmers markets have sprung up throughout the state, and the Lexington market now features monthly festivals where chefs demonstrate recipes made with local food. "Grassroots organizations are among the most effective tools for educating non-farm groups about their food source," says Karen Armstrong-Cummings, director of the Commodity Growers Cooperative. [*For more information, go to www.sare.org/projects/ and search for* FS97-046 or ES97-026]

Above: *A Kentucky "buy local" campaign encouraged the formation of community groups and helped capture part of the tourist market. Mac Stone hawks locally raised beef at a booth sponsored by Stone Grown Organics at the Harvest Festival in Lexington, Ky. Photo courtesy of Commodity Growers Cooperative.*

By Adding Value, Dairy Farmers Develop New Markets for Milk

To counter static dairy prices, a diverse group of Pennsylvania community development and business representatives received a SARE grant to study the feasibility of adding value to milk right in their region. The Union County Chamber of Commerce led a group of central Pennsylvania dairy producers, farmland protection advocates and business leaders in investigating whether producing local milk and cheese—and adding value to it with such techniques as glass bottling—would benefit area farmers. The grant funded market research that helped the group identify a healthy demand for locally produced farm products in the Susquehanna Valley. The researchers turned up information about how many producers might be needed to fill local niches and how farmers might meet the demand—and with what products. As a result, a group of growers opened a producers-only farmers market in Mifflinburg, Pa., while a dairy cooperative received a USDA rural development loan to construct a bottling plant and retail milk market featuring old-style glass bottles. *(See cover photo.)* The SARE research was key to the cooperative's successful application, said project cooperator Bill Deitrick, Union County agricultural land preservation administrator. "The dairy industry is a mature industry," he says. "The only way to develop new marketing potential is to re-invent the wheel. We need to re-train farmers so they develop marketing skills alongside production skills." The group is continuing to identify markets for locally produced farm products and hopes to jointly support a regional ag marketing specialist position. [*For more information, go to www.sare.org/projects/ and search for* LNE98-099]

Below: *Community development specialists in northern Pennsylvania, hoping to boost the local economy, surveyed consumers about their dairy buying preferences. Many Pennsylvania dairy farmers produce milk from cows raised in well-managed pasture systems. Photo by Valerie Berton.*

Innovative Farmer Adds Flax to Sell to Health-Conscious Consumers

Joel Rissman, who raises a variety of crops and livestock on his 370-acre Illinois farm, loves to experiment with new products. To evaluate his latest ideas—selling "low-cholesterol" eggs and flax oil to health-conscious consumers—Rissman applied for a SARE grant to test raising flax. This once-popular oilseed crop, rarely planted in Illinois, may rebound thanks to new nutrition information and forward-thinking farmers like Rissman. Knowing flax is high in cholesterol-reducing omega-3 fatty acid, Rissman also learned of university research showing that eggs from hens fed a partial flax ration contain the omega acid. In his ongoing quest to improve profits, Rissman decided to learn more about processing and harvesting flax. Over the course of the project, Rissman tested 24 acres of flax, evaluating different varieties, seeding rates and other management considerations. His main finding: Cutting the plant with the seed head on, then leaving it in the field to dry, made it easier to harvest. Rissman now feeds flax to his 25-hen flock and the rest of the livestock on his farm. In the future, he plans to press and bottle flax oil with a group of area farmers and hopes to sell it over the Internet to meet increasing interest as more people learn about the benefits of omega acids in their diets. "Flax is an unstable oil that degrades quickly," he explains. "No one can beat on-farm processed oil for freshness." Rissman's new ideas add to his already diverse organic farm—cattle, chickens, turkeys, feed grains and a well-managed manure composting system. His innovative operation on tallgrass prairie soils earned him a prominent spot in an exhibit produced and displayed at the Smithsonian National Museum of Natural History with SARE support. "Listening to the Prairie" will travel to 20 libraries throughout the country over the next three years. See www.sare.org/htdocs/events/index.html#exhibit for library tour sites. [*For more information, go to www.sare.org/projects/ and search for* FNC99-249 or FNC94-079]

Above: *Illinois farmer Joel Rissman holds a handful of flax, an oilseed gaining in popularity for its cholesterol-reducing properties.* **Top:** *Rissman kneels in front of a lagoon he built to capture runoff that he re-uses on his crop fields, just one strategy to make his diverse farm less reliant on outside inputs. Photos by Ken Schneider.*

Production-Oriented Videos Teach Organic Grain-Growing Tips

When a national organic dairy opened on Maryland's Eastern Shore in 1996, mid-Atlantic grain producers realized they had an opportunity to add value to their product. They knew how to grow corn and beans, but now they wanted to do so organically—and needed help. Recognizing that new niche, University of Maryland extension educator John Hall applied for a SARE grant to create tools that agricultural professionals could use to teach farmers the basics of organic grain production. The final product—a three-part video series produced at Cornell University in conjunction with USDA's Agricultural Research Service-Beltsville, Penn State University and the University of Maryland—provides essential production information and a colorful mix of examples from successful organic grain farmers. University researchers explain how to create diverse agricultural systems with innate abilities to combat pests, use minimum tillage to reduce compaction and preserve insect habitats, and plant cover crops to build the soil. The videos chronicle a fictional farm family's transition from conventional grain production to holistic planning and also feature farmers from Maryland to New York attesting to their reasons for choosing organic production. Reviews from grain farmers have been positive. "The video makes a lot of organic production practices more legitimate and makes it easier for farmers to participate and change over," says Richard Winters, a Kennedyville, Md., grain grower. The video series debuted at a professional development training event in Pennsylvania in April 2001. The project has spawned a nonprofit institute in eastern Maryland that is exploring other marketing outlets for organically produced grain to expand beyond animal feed. [*For more information, go to www.sare.org/projects/ and search for* ENE98-038]

Below: *Planting winter cover crops such as hairy vetch and rye provides many benefits to organic grain growers, including providing a non-synthetic source of nitrogen and, after killing, suppressing weeds with a thick blanket of vegetative mulch. Photo by Andy Clark.*

Mixing Trees with Tropical Plants Offers New Revenue

Integrating trees into agricultural operations, particularly in the Tropics, can both lower the cost of production and generate new revenue for farmers. SARE-funded agroforestry experts in Hawaii created a series of eight guides for agricultural educators that explain how to grow valuable timber species, plant profitable niche crops in tree understories and how to design productive and effective windbreaks, among other topics. In 1999, Hawaiian coffee growers earned up to $1.50 a pound; in 2001 they are getting just 80 cents. The handbooks are intended to help them and other farmers and ranchers find new, environmentally sound ways to improve profits. In that vein, the manuals detail how nitrogen-fixing trees and shrubs allow growers to reduce reliance on costly commercial fertilizer imported from the mainland. They explain growing methods for alternative crops such as ginseng and shiitake mushrooms, which thrive in tree stands and bring a premium in the marketplace. They describe how trees such as coral and monkeypod shelter coffee, tea, pineapple, taro and kava from too much sun and wind. Finally, the guides recommend native species, such Hawaiian koa, that yield fine timber, although it takes a few decades to grow to maturity. "Agroforestry Guides for the Pacific Islands" were developed by Permanent Agriculture Resources, an agroforestry educational organization, and are moving quickly through the island extension system. More than 600 have been distributed, with about 150 being downloaded from www.agroforestry.net every month. "Using agroforestry systems to increase the productivity and sustainability of tropical lands will be of increasing importance in the next century," said Bruce Mathews, a University of Hawaii professor. The handbooks "will be of immense use as reference materials to our faculty and students." [*For more information, go to www.sare.org/projects/ and search for* EW98-004]

Above: *Kim Wilkinson of Permanent Agriculture Resources carries a grafted jackfruit tree to a Hawaiian agroforestry demonstration site. Jackfruit acts as an excellent windbreak, provides fodder and timber, and yields abundant fruit for home consumption or market. Photo by Craig Elevitch.*

Ranchers Employ Better Grazing Methods to Protect Public Streams

Providing alternative water sources and salt licks and improving pasture management on rangeland can both improve rancher profits and protect sensitive riparian areas, SARE research in Idaho and Oregon has found. In a project at the University of Idaho, researchers sought ways to keep ranchers raising cattle on public lands while improving their stewardship, particularly their impact upon streams and rivers. With researchers at Oregon State University, they documented how cattle grazing intensity alongside a stream known to support salmon affects water quality and the range. They found that cattle grazing alongside riparian areas late in the summer dropped more manure near the stream, trampled banks and consumed more riparian vegetation than cattle grazing during the midsummer. To counteract that tendency, project leaders recommend creating off-stream water sources and installing salt licks on the upland. To improve range conditions, a rancher might move a herd onto the pasture sooner and stock it at higher rates for a shorter period. With some Westerners calling for permanent removal of cattle from public lands with sensitive habitats, this research provides ranchers a way to graze cattle on productive range while maintaining or improving riparian areas—and possibly saving in feed costs or getting higher returns at market. In Idaho, an extension educator took the project findings and helped a local farmer create an eight-paddock managed grazing system that will serve as a demonstration for other ranchers. In an extended, four-month grazing system, Jim Church found the rancher improved his forage, increased his stocking rate and kept the cattle from the riparian area. "Ranchers are constantly dealing with public land issues," says project leader Patrick Momont. "They need to be proactive with their attitudes and management practices to be good stewards." [*For more information, go to www.sare.org/projects/ and search for* SW97-010]

Above: *Idaho and Oregon researchers explored new ways to graze cattle in sensitive riparian areas and found that careful timing of grazing better protects stream banks. Grazing animals earlier on the upland and better managing the pasture can cut feed costs. Photo courtesy of University of Idaho/Oregon State University.*

Sheep Grazing on American Indian Reservations Control Leafy Spurge

Left: *Connie O'Brien, a former NRCS technician, uses a sweep net to count flea beetles on a North Dakota ranch infested with leafy spurge. The root- and stem-mining beetles provide one way to naturally control the pervasive, yellow-flowering weed; grazing sheep may work just as well or better. Photo by Ken Schneider.*

Sheep grazing on North Dakota ranges can help control leafy spurge, one of the most troublesome weeds of the Great Plains, allowing cattle ranchers to improve their pasture, research at North Dakota State University has found. To spread the word to field professionals and Native Americans on Dakota reservations about the benefits and "how-tos" of grazing sheep alongside cattle, Bill Ferris, formerly of NDSU's Extension American Indian Reservation Program, received a SARE professional development grant to run courses and demonstrations. The courses included presentations on stocking rates, managed grazing systems and predator control through fencing, among other topics. Project participants—specialists from land grant tribal colleges in North Dakota and surrounding states, Cooperative Extension and the Natural Resources Conservation Service—visited a grazing site that range specialists divided into sheep/cattle paddocks and a control area to study the sheep's inclination to graze leafy spurge. Project leaders, who grazed sheep alongside cow/calf pairs, recorded dramatic results in leafy spurge counts. In the first year of the project, the sheep grazed the leafy spurge like champs, reducing the weed population by about 37 percent. While sheep are rarely raised on North Dakota reservations, their effectiveness at controlling leafy spurge may bring a new industry to Native American ranchers. Standing Rock and Fort Berthold reservations are considering forming a sheep cooperative to improve their rangeland and explore products like lamb and wool. "If they put the sheep out there and control spurge, they're increasing the value of the land," Ferris says. [*For more information, go to www.sare.org/projects/ and search for* ENC99-042]

Sustainable Agriculture Research and Education Program
Cooperative State Research Education and Extension Service
U.S. Department of Agriculture

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

Above: *A Louisiana farmer sells produce at the weekly Crescent City Farmers Market in New Orleans, La. Photo by USDA.*

On the Cover: *After SARE-funded market research into consumer preferences turned up a healthy demand for locally produced products, a dairy cooperative received a USDA rural development loan to construct a bottling plant and retail milk market featuring old-style glass bottles. Photo by Tom Gettings.*

- 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.
- Through Agriculture in Concert with the Environment, the U.S. Environmental Protection Agency and USDA have jointly funded selected SARE research and education projects since 1991.
- The National Agroforestry Center, a program of USDA's Forest Service and Natural Resources Conservation Service, co-funds SARE agroforestry grants.