SARE
Sustainable Agriculture
Research and Education Program

1998 PROJECT HIGHLIGHTS

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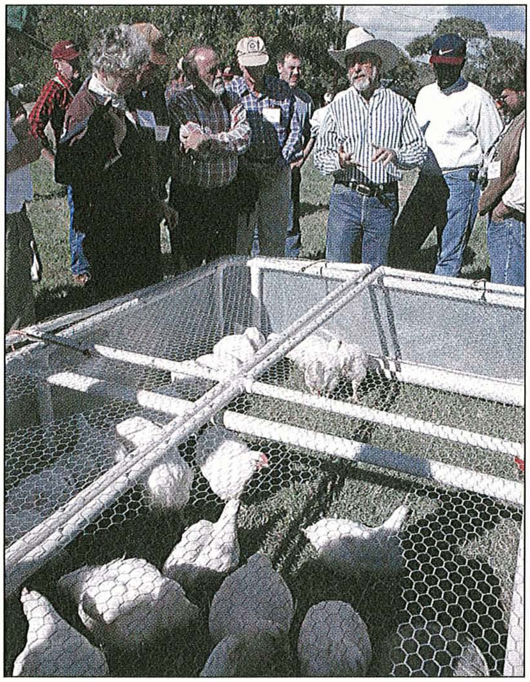
TEN YEARS OF SARE:
A Decade of Programs, Partnership and Progress in Sustainable Agriculture Research and Education



Participants in SARE's farm tour—which capped three days of reflection and networking at the "10 Years of SARE" conference—viewed pastured poultry at the Sechrist Ranch in Fredericksburg, Texas.

Photo by Jerry DeWitt

Reaching a decade is a significant milestone for USDA's Sustainable Agriculture Research and Education (SARE) program. Authorized in the 1985 Farm Bill, SARE began funding competitive grants in 1988 for agricultural research and education with a $3.9 million budget.

Ten years later, SARE administers grants that advance sustainable agriculture systems in partnership with producers, farm consultants, university researchers and educators, state and federal government agency staff and representatives from nonprofit organizations. Some of those partners lead SARE grant projects; others serve on regional technical committees and administrative councils to provide policy direction, identify information needs and, above all, select projects on a competitive basis.

The inclusive nature of SARE in its strong regional structure, producer involvement and input from the grassroots in policy-setting and awarding of grants makes it a program others point to as worthy of emulation. "The development of an effective sustainable agriculture research and outreach model is a miracle when we consider that, in the beginning, diversity frightened some of us," says Jim Horne of the Kerr Center for Sustainable Agriculture. "Today, through SARE, we are finding strength, energy and creativity in that same diversity."

By 1997, Congress had increased SARE's annual appropriation to $11.3 million. Over the decade, $80.6 million funneled to SARE has supported nearly 1,200 projects that examine how to improve profitability, protect natural resources and foster more viable communities across the nation and U.S. Island Protectorates.

Originally, most SARE projects were led by university-based researchers or private, nonprofit organizations working in concert with farmers, ranchers and Extension educators. More recently, SARE launched an innovative Producer Grant Program geared at on-farm research and a Professional Development Program targeted at Extension and the Natural Resources Conservation Service.

SARE's work in soil management, cover crops, integrated crop and livestock systems, management-intensive grazing, pest management and innovative marketing practices truly has made a difference on the agricultural landscape and in people's lives.

To celebrate the achievements of the program and its partners—and to look ahead at the next decade of progress in sustainable agriculture—SARE sponsored a national conference that attracted 450 to Austin, Texas, in early March. The conference brought together researchers, farmers and ranchers, sustainable agriculture advocates, agricultural extension agents and other educators in a collaborative learning environment. The gathering featured a day-long farm tour, poster sessions allowing participants to interact

(continued on page 2)

What is SARE?

- The USDA's Sustainable Agriculture Research and Education program is a federal competitive grants program with regional leadership and decision-making structures.
- Authorized by the 1985 Farm Bill, SARE was first funded in 1988. FY98 funding totals $11.4 million.
- SARE's mission is to increase knowledge about — and help farmers and ranchers adopt — more sustainable practices that are profitable, environmentally sound and beneficial to local communities and society in general.
- SARE provides funding for research, demonstration, education and extension projects carried out by scientists, producers, educators and private sector representatives.

How SARE Works

SARE has funded nearly 1,200 projects to explore and apply economically profitable, environmentally sound and socially supporting farming systems. Three types of grants currently fund SARE projects:

1) SARE Research and Education Grants: Since 1988, competitive grants for sustainable agriculture research and education have been awarded by four regional administrative councils. Generally ranging from $30,000 to $200,000, they fund projects that usually involve scientists, producers and others in an interdisciplinary approach. Successful proposals typically include economic analysis and outreach components.

2) SARE Professional Development Grants: To spread the knowledge about sustainable concepts and practices gained from SARE projects, Congress began appropriating funds for professional development for Cooperative Extension Service staff and other ag professionals in 1994. In the first four years, funds have been used for competitive grants and state-level programs. SARE professional development grants are used for a variety of approaches, ranging from conducting workshops to creating educational videos to hosting on-farm training sessions for extension workers.

3) SARE Producer Grants: In 1992, the North Central Region initiated a small grants program for farmers and ranchers to run on-site research experiments. By 1995, each SARE administrative council had picked up the idea. Producers apply for grants that typically run between $500 and $10,000.

For information on grant applications and procedures, contact your region's communications specialist listed on page 8.

TEN YEARS OF SARE—*continued*

one-on-one with project leaders and two days of concurrent sessions on such topics as how improving soil quality can boost profits and how savvy marketing strategies can add value to all kinds of commodities.

"We felt the conference was an ideal setting for people involved in sustainable agriculture across the nation to get together and learn from one another," says SARE Director Jill Auburn.

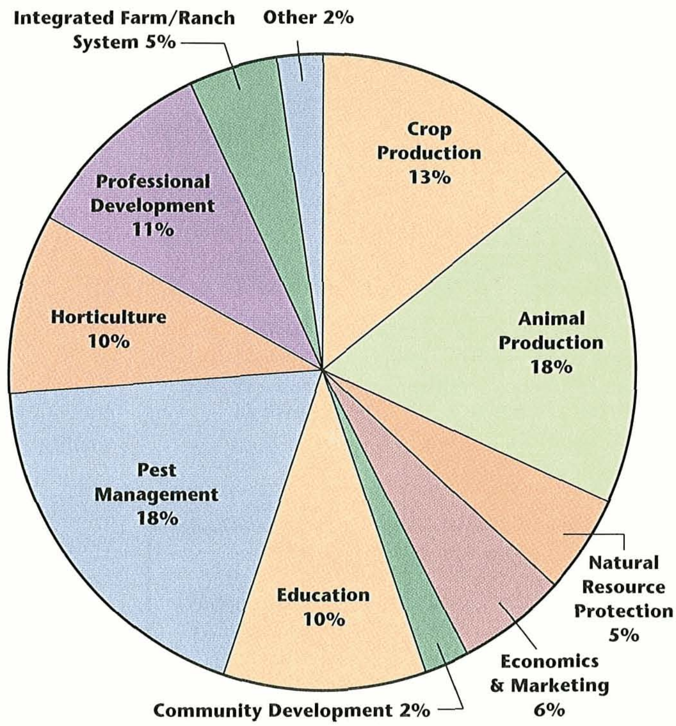
SARE's 10th anniversary is both a time for some well-deserved praise to the hundreds of people who have been involved with the program and an opportunity to explore the many challenges remaining on the path toward agricultural sustainability. In Austin, just as at universities, within the USDA and on farms and ranches around the country, people were asking how to make sustainability an integral goal of American agriculture well into the future. Some of the opportunities facing SARE include:

- Expanding outreach to family farmers, as recommended by the National Commission on Small Farms in January. Tailoring information on more sustainable systems for "on the-ground" use that spans the diverse needs of America's small farmers promises to be a tall order.

- Improving communication with mainstream producers, emphasizing profitability as a tangible benefit without neglecting the environmental stewardship and quality of life issues that make the sustainability concept so appealing.

- Identifying SARE's role in evaluating new technologies such as precision agriculture, genetic engineering and the Internet, and assessing their potential contributions—both positive and negative—to the profitability of farms and ranches and the health of the environment and communities.

- Addressing issues beyond the farm gate that increasingly drive agriculture's future—such as marketing, consumer preferences concerning the food supply and the environment, community food security and issues raised where cities and suburbs meet farmland—without neglecting continued research into questions about soil quality, biologically based pest management and other on-farm production concerns.



Since 1988, SARE has funded close to 1,200 projects. This chart categorizes that list to demonstrate the diversity of projects SARE has undertaken to advance sustainable agriculture research and education.

Sustainable Agriculture Research and Education (SARE) program
CSREES, U.S. Department of Agriculture

RESEARCH ROUNDUP

Here's how some SARE projects are helping farmers and ranchers increase profits, protect the environment and improve communities across the country.

Cover Crops, Strip Tillage Build Soil

Strip-till—working a narrow band of soil in between strips of residue—attracts beneficial insects, and, combined with cover crops, brings better yields.

Photo by John Luna

A SARE project testing cover crops and new tillage regimes in Oregon has helped vegetable farmers improve crop yields, beat weeds, lower input costs and reduce agricultural runoff. Researchers worked with several growers in the Willamette Valley to fine-tune their use of cover crops. Legumes add nitrogen to the soil; grains capture excess nitrogen. The long-term project measures those environmental benefits plus profit potential against cover crop costs. Wet springs and a strict planting schedule dictated by vegetable processing companies pose challenges to growers trying to incorporate cover crops. Researchers sought a combination of covers that can fix nitrogen and add organic matter but be killed in early spring. A winter cover of oats, vetch and Austrian winter peas, followed by strip-tilling sweet corn, brought better yields. Strip-till—working a narrow band in between wider strips of residue-covered soil—helps address moisture concerns and enables farmers to prepare a seedbed in just one tractor pass. In three fields enrolled in those trials, the strip-tillage system returned $100 per acre more than the standard tillage system in increased yield and cost savings from reduced tillage. On one farm, tillage savings equalled about $30 per acre. Not tilling the ground also keeps habitat in place for beneficial insects, reducing the need for pesticides for growers trying to combat cutworm in corn. (SW94-29)

Better Pastures Increase Production, Improve Habitat

A SARE producer grant helped a North Dakota ranching couple convert to management-intensive grazing while protecting wildlife habitat on native prairie. Even running 29 percent more cattle than the year before, they noted marked improvement in range condition and wildlife habitat on their land and also on a parcel they lease in the Sheyenne National Grasslands. Before changing their traditional operation—a 175-pair cow/calf herd with 270 yearling bred heifers—to 958 yearling heifers rotated among 17 pastures, they worried about the bottom line as well as the condition of the range. Cool-season grasses and undesirable forbs were invading the pastures, crowding out warm-season natives. Pasture management enabled the Woodburys to increase their livestock while leaving enough grass to maintain and improve the prairie, allowing them to make a profit when most cow-calf operations were losing money. Cattle spend two to 11 days in each pasture, giving grazed plants 60 to 80 days to recover. The system not only lets the grass renew the food reserves in its roots, but also gives other prairie plants time to complete their life cycles. In 1996, a naturalist counted 1,200 endangered native orchids on the couple's leased land, up from six in 1994, and noted the benefits of leaving some habitat undisturbed for birds like the prairie chicken. (FNC95-120)

Producer grant recipients Larry and Judy Woodbury increased their cattle herd size using grazing, but manage their pasture carefully to maintain and improve the prairie.

Photo by Ken Schneider

Food Processing Boosts Profits, Communities

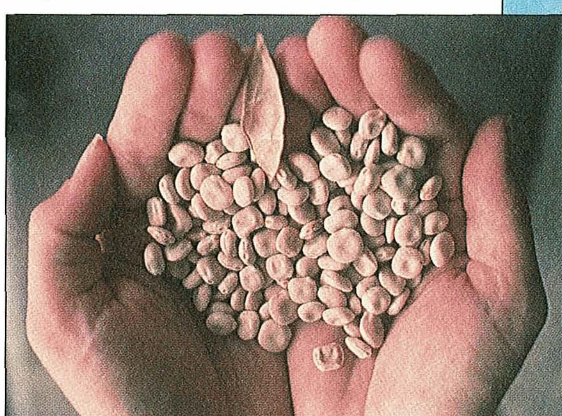
Rita Kellogg's 140 dairy goats provide the raw material for the family to run their own cheese-making business, bringing them higher profits and a better quality of life.

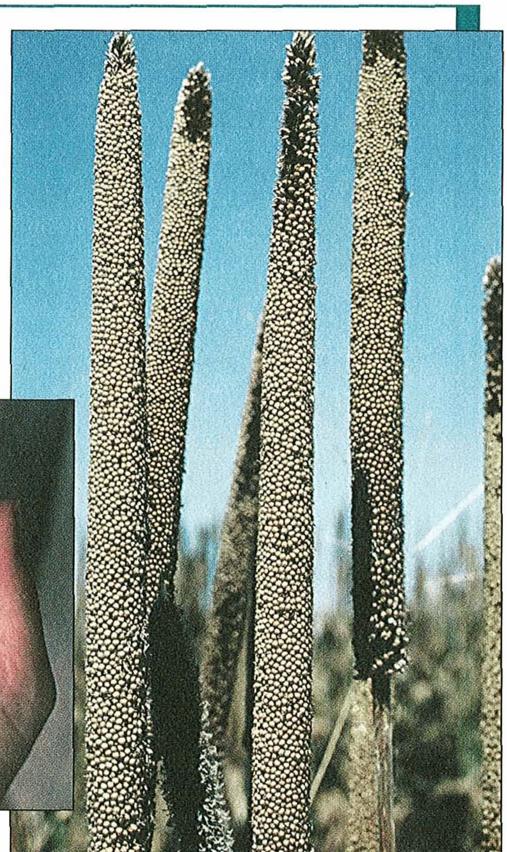
Photo by Valerie Berton

With a growing number of Northeast producers establishing on-farm processing as a way to boost income, a SARE-supported project is helping sort out the technical and public policy issues crucial to their success. The New York project aims to help sustain small- and medium-sized farms by building market opportunities and enabling farmers to capture more of the consumer food dollar. The project's initial survey of 600 small-scale food processors found advertising, insurance costs, employee costs and taxes often pose greater challenges for fledgling producer-processors than complying with food safety regulations. Project participants organized a statewide conference to bring together producers, processors, regulators, researchers and others to discuss ways to address those issues. The 230-plus participants also launched the formation of a new statewide small-scale food processors' organization. The organization's regional chapters have begun facilitating cooperation among processors, developing a mentoring program and providing educational services about start-up, food technology and food safety issues. Participants say project benefits likely will extend well beyond the farms involved. Research suggests that small-scale processing creates rural jobs and keeps money circulating in local economies. "We're fostering a growing industry that can help farmers revitalize their farms and rural communities," says project participant Allison Clarke. (LNE95-60)

Crop Alternatives Benefit Traditional Rotations

Planting lupin, tropical corn and hybrid pearl millet can improve yields and extend the growing season when used in rotation with wheat and soybeans. A SARE grant tested the viability, profitability and resource-conserving potential of these field crops for silage and grain feed in six southern cropping systems. Lupins over-winter, while tropical corn and pearl millet can be planted in late spring/early summer for later harvest. Lupins act as an efficient nitrogen-rich "green manure" that resulted in tropical corn silage yields of 20.5 tons an acre. Tropical corn can follow lupin in late spring, unlike early planted field corn, and exhibits improved tolerance to common southern pests like armyworm. Those findings can help growers, who could add tropical corn to wheat and soybean rotations. Indeed, the total acreage of tropical corn went from about 3,000 acres 10 years ago to close to 100,000 today, partly a "direct result of the work we have done on tropical corn," says David Wright, University of Florida Extension specialist. Pearl millet also performed well behind lupins. At one location, millet yields equalled 129 bushels per acre, with lupin supplying about the equivalent of 60 pounds of applied nitrogen. A high protein grain, drought-tolerant hybrid pearl millet makes a nutritious feed for livestock, and can be planted as late as mid-July. (LS93-53)

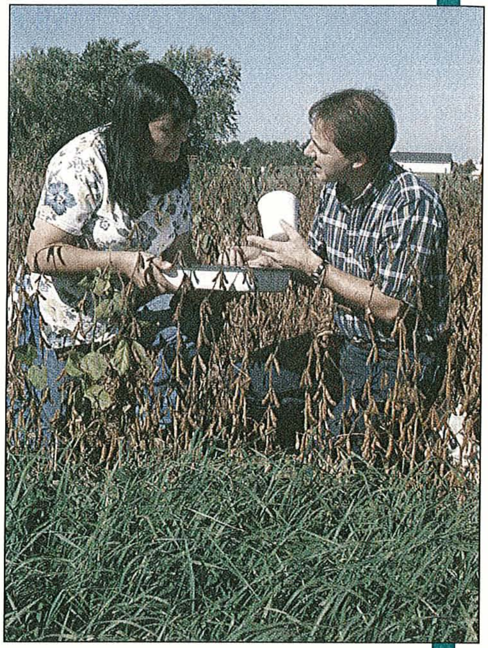




Lupin—a protein-rich feed and cover crop—helps increase tropical corn silage yields, generating interest from farmers across the South.

Photos courtesy of Auburn University

Harboring Beneficials Reduces Chemicals

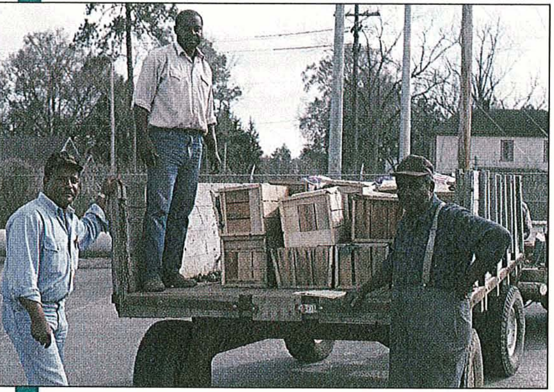


Tilling, planting, cultivating and harvesting on farms can kill off beneficial insects that prey on crop pests. SARE-funded researchers in Michigan have identified ways for growers to retain or create undisturbed areas on farms to harbor beneficial insects that will help keep pest populations in check and reduce the need for synthetic pesticides. Beneficials flock to vegetative strips, particularly strips of switchgrass—a native, warm-season grass with tall, stiff stems. It contained 38 species of ground beetles, which not only prey on insect pests, but ingest many types of weed seeds as well. The beetles destroyed 84 percent of foxtail, a pervasive weed, in one week alone in the switchgrass strips versus only 17 percent in the soybean field far away. They also found refuge strips of orchard grass, clovers and perennial flowering plants sheltered greater numbers of beetles in winter than a control area. A cooperating farmer who uses filter strips stopped spraying insecticides in his field, saving $6 to $10 per acre. Researchers next will study how well the beetles migrate into crop fields to seek food after overwintering in refuge strips. (LNC95-85)

Researchers search for ground beetles, beneficial insects that are attracted to vegetative refuge strips in crop fields.

Photo by Bob Neumann

'Fast Food' System Helps Growers



The South Georgia Farmers' Co-op harvests and delivers produce within 24 hours to Atlanta markets, bringing customers fresher food and farmers greater profits.

Photo by Freddie Payton

A group of south Georgia vegetable producers, descendants of generations of African-American family farmers, knows how to grow the finest southern peas, beans, watermelons and greens. Marketing such regional staples was another matter at the area's only farm auction. To widen their marketing options, the farmers established the South Georgia Vegetable Producers Cooperative and began selling directly to retail outlets. With a SARE grant, the co-op and project partners designed a production and marketing system that allows them to deliver a truck-load of high quality, field-graded vegetables to Atlanta within 24 hours of harvest. They pick and grade by day, then drive seven hours overnight to stock store shelves within 24 hours. The farmers receive a premium price, while customers get fresher food free of the post-harvest chemicals often used to retard decay on long deliveries. The farmers also are learning to stagger their plantings and raise more kinds of vegetables, such as exotic eggplant and bok choy, to meet customer needs. (LS97-87)

Organic Dairy Producers Increase Profits

Vermont organic dairies boosted their profitability and more farms are joining their ranks, thanks in part to a SARE-supported study answering farmer questions about producing milk organically. Market demand—in 1997, Vermont's Organic Cow dairy paid $18 per hundredweight of milk, nearly $6 more than conventionally produced milk—has sparked producer interest in organic production. The project features case studies of eight organic and transitioning farms, comparing such diverse factors as economics, milk quality and herd health in a whole-farm system approach. Dairy producers who have adopted some project recommendations—such as using management-intensive grazing, feeding high-quality forages and replacing commercial fertilizers with green manure—have seen profitability soar. At one farm, profits climbed 40 percent over the three project years as the farmers improved management and reduced expenses. At another organic operation, the cost of producing milk dropped by $5,000 over the three years. A third farm increased gross income from $125,000 to $165,000, cutting its debt-to-cow ratio in half. Because the project emphasizes outreach, it assisted many farmers beyond the study group. (LNE93-39)

To answer producer questions about organic dairying, the project studies the economics of transitioning from conventional dairy farming.

Photo by Valerie Berton

Rancher Co-op Raises, Markets Grass-Fed Beef

The nine Kansas ranching families who comprise Tallgrass Prairie Producers Cooperative bank on the willingness of consumers to pay for sustainably raised beef. Aided by a SARE grant, the co-op worked with the Kansas Rural Center to hire staff to create labels, coordinate production and, above all, market their healthy product. They now sell locally to a hospital, restaurants, small groceries and directly to individuals. Most U.S. beef comes from cattle finished in feedlots, where they eat large amounts of grain. By finishing beef on pasture, co-op members cut out the extra, energy-intensive process of planting, harvesting and shipping grain. Instead, their production model keeps land in grass, conserving soil and water quality, and their animals are raised without hormone implants or antibiotics. The resulting leaner cut has yielded impressive nutritional test results: a four-ounce serving offers just 116 calories, 1.5 grams of fat and 0.7 grams of saturated fat. Recently, the co-op landed its first out-of-state customer when a Baltimore trade show brought co-op representatives in contact with a distributor that supplies food clubs and natural food stores in the Northeast. "It's a great effort by people trying to live by their principles and have their product reflect that," says Dan Nagengast of the Kansas Rural Center. (LNC95-78)

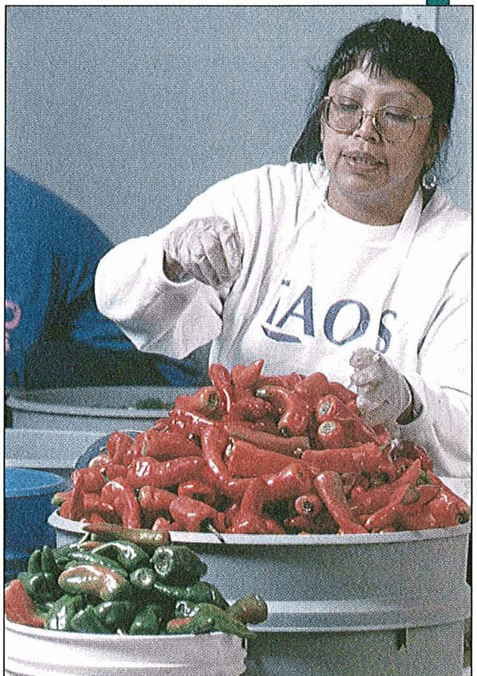
Kansas rancher and co-op business manager Annie Wilson tells people she raises "healthy animals on healthy land." She and her partners hope their extra profits will help preserve a way of life they see disappearing on the prairie.

Photo by Vada Snider

Ag Ventures Improve Quality of Life

A partnership of northern New Mexico producers, community development leaders and agricultural professionals is creating a promising mix of small-scale farming and value-added enterprises to reconnect the community to agriculture. They are leveraging SARE funds with other public and private resources to make a significant change in the quality of rural life for Hispanics, Native Pueblo Indians and other families on limited incomes. Leading the effort is New Mexico State University Cooperative Extension, the state Department of Agriculture and community activists from the Taos County Economic Development Center. A generation after people stopped farming, a new cooperative is producing organic wheat, a thriving community garden yields fresh produce and small farmers have learned to add value to their products through on-site processing and savvy marketing. Business "incubators" such as a new commercial kitchen along with entrepreneurial assistance will help people trying to add value. "We're after a strong sustainable community that's not dependent on tourism or other up-and-down economies," says wheat grower Juan Montes. In Costilla, N.M., residents growing organic wheat for the first time expect to bring at least $100,000 in annual agricultural receipts to the economically challenged area. (SW96-027)

A generation after people stopped farming, a new cooperative is producing organic wheat, a thriving community garden yields fresh produce and small farmers have learned to add value to their products.



At the Taos County, N.M., Economic Development Center's new commercial kitchen, local residents receive guidance in launching new businesses and adding value to farm products.

Photo by Jeff Caven

Teaching the ABCs OF MIG

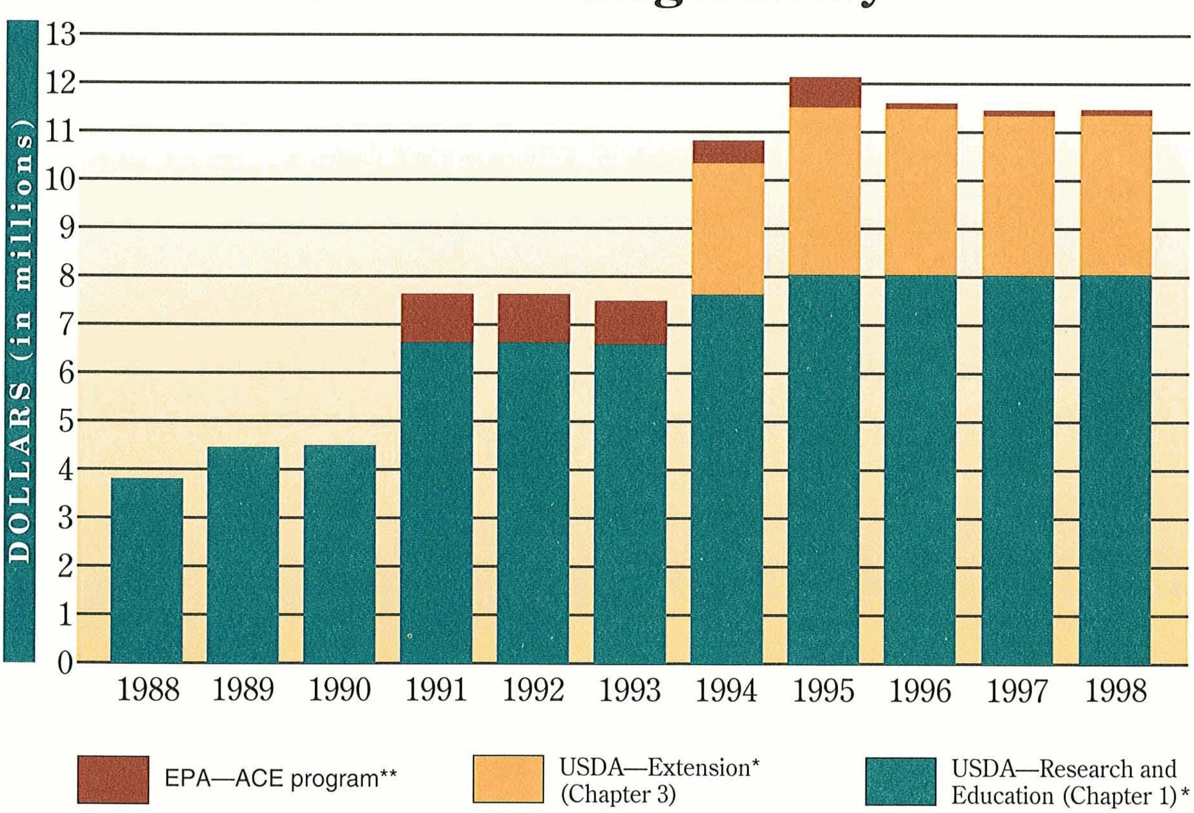
Extension educators examine a mix of forages to determine its nutritive value for livestock. Management-intensive grazing (MIG) has been well-received by southern farmers and ranchers.

SARE file photo

Many farmers and ranchers in the Deep South want to learn how to raise forage for maximum nutrition for their livestock without overgrazing pastures. A SARE professional development program (PDP) grant has paved the way for many of them to get that information from Extension agents, Natural Resources Conservation Service (NRCS) field specialists and other educators.

One of the first such trainings below the Mason-Dixon Line is helping to spread the word about management-intensive grazing (MIG) for cattle and dairy. Most southern pastures—supporting 30,000 to 50,000 pounds of beef per acre per day during the long growing season—will increase utilization of forage from 30 percent in conventional grazing to 70 percent in MIG. Producers move animals frequently, leaving them in a pasture just long enough to eat the nutritious new growth, without damaging the forage. "It means knowing your stock and what it likes to eat, knowing how many paddocks your pastures can be divided into, and managing resources like fencing and water availability," says Alan DeRamus of the University of Southwestern Louisiana. A series of training seminars and workshops that started in 1995 was so successful, two Extension agents who attended a program are adapting some of what they learned about MIG in producer training sessions in Florida. One central Florida program drew about 200 ranchers. (LST94-3)

SARE Funding History

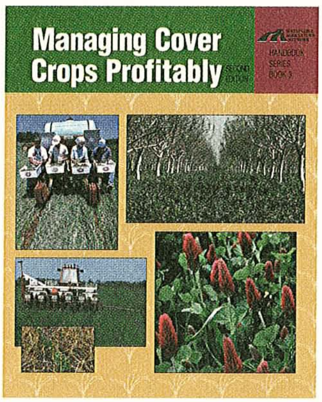


*See "How SARE Works," page 2. **EPA's Agriculture in Concert with the Environment program contributes to selected SARE projects.

Practical Information From SARE

SARE's outreach arm, the Sustainable Agriculture Network (SAN) promotes effective communication about sustainable agriculture through a variety of printed and electronic information tools.

Contact your region's communications specialist (see box, right) to find out how to obtain free project summaries and annual reports. Obtain SAN publications by sending a purchase order or check payable to **Sustainable Agriculture Publications, Hills Building, University of Vermont, Burlington VT 05405-0082.** To inquire about bulk discounts and rush orders, contact: (802) 656-0471 or nesare@zoo.uvm.edu



- *Managing Cover Crops Profitably, 2nd edition.* $19. Builds on the first edition to explain how and why cover crops work as well as information about how to build them into any farming operation.
- *Steel in the Field: A Farmer's Guide to Weed Management Tools.* This farmer-oriented book covers sustainable, profitable weed management systems such as cultivation, flaming, crop rotation and careful tillage. $18.
- *Source Book of Sustainable Agriculture.* $12. More than 100 pages abstracting scores of publications, videos and other information sources on sustainable farming. An excellent resource for educators and outreach personnel.
- *The Sustainable Agriculture Directory of Expertise.* $18.95. This "yellow pages" of sustainable agriculture puts you in touch with more than 700 individuals and organizations with expertise in sustainable agriculture.
- *The Real Dirt — Farmers Tell About Organic and Low-Input Practices in the Northeast.* $13.95. 264 pages of advice from experienced practitioners on the many biological, cultural, mechanical and chemical options available.
- *Profitable Dairy Options.* **Free.** This eight-page brochure offers case studies and information on raising dairy cows on pasture.

Printed on recycled paper, 20% post consumer waste.

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Reach SARE and the Sustainable Agriculture Network on the Web at
http://www.sare.org

SARE Regions