



Common Ground

Fall 2003

News from the Southern Region SARE Program

Fall 2003

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Weedwhacker or just a pretty face?



During research activities, Sam Bellamy learned to take time for watching the geese and other living things interact on his farm. Photo by John Mayne

If Southern SARE had a mascot it would be Sam Bellamy's goose. The amiable-looking pair appeared first on the cover of our 1999 annual report, the year Sam won a producer grant to test alternative weed control methods in his berry patch. Since then they have graced brochures, our traveling display and our web site. We figured it was about time to find out if that goose is just a pretty face or if it really earns its keep as an alternative herbicide.

Sam, his brother and their parents farm 200 diversified acres known as Indigo Farms. The goal of the SARE project was to save the farm 12 to 15 pounds of herbicide used per acre to manage weeds in blackberries. The goose in the photo was one of 11

feathered weed eaters that were moved through the berry patch in geese tractors made of hog panels.

While Sam doesn't remember that particular goose's performance, he reports that the geese system adequately controlled grasses and fall panicum. With the grasses controlled and providing little competition for the broadleaf weeds, dock and smartweed were more evident and required cutting or pulling, but that required less labor than battling the full spectrum of weeds that grow in North Carolina's mild climate.

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As part of USDA Cooperative Research and Extension Education Service, SARE funds projects that develop environmentally sound, economically viable and socially acceptable agricultural methods.

The Southern Region SARE Program is administered by the University of Georgia and Fort Valley State University. The Southern Region includes Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, Puerto Rico and the U.S.V.I.

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Weedwhacker

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As time went by other benefits of the geese system became evident.

“They aerated the soil with their beaks and also dropped a nice, dry manure,” says Sam. “And while the project was not set up to measure how many insects they ate or the value of the manure, it was evident that the ground was greener and there was less insect pressure behind the goose tractors. By doing so much of the weeding, they freed up human labor for other chores.”

Now that the project is over, Sam still doesn’t use an herbicide on that field, but he has cautions for anyone considering using weeder geese on a large scale.

“A bramble field for a geese system needs to be close to the house so you can protect them from predators and also to make it easier to water them. I had to drive to the field and then haul water in buckets. While the geese did the best job of controlling weeds than the other methods I tested, the cost may be too high to use them on a large scale.” The Bellamy’s already had geese for their barnyard and knew how to take care of them. New owners would have the expense of purchasing geese and the learning curve that comes with any new livestock venture.

Another part of the project tested cover crops for weed control. Two clovers were used for cool weather, with sudan grass for hot weather. The crops were planted between rows of berries and also between individual berry bushes, so that when the cover crop was cut mulch would be thrown under the berry canopy to smother weeds.

The use of cover crops cut the weeding chores down from a 12-month job to less than three months. All of the covers tested had strengths and weaknesses. Even though the subterranean clover is expensive, its short, thick carpet was still suppressing weeds as late as June. The taller growing crimson clover became top heavy with seed heads and lay down in a loose mat which allowed more weeds to come through. The warm season cover, sudan grass, acted as a subsoiler breaking up the earth and making it more porous.

“One of the greatest benefits of the project was learning to let the biology work for me,” says Sam. “I’ve learned that farming is about timing.”

For example dock weed, which is unpalatable to geese, can seem impossible to eradicate because it reseeds several times in a single growing season. Sam found out that if the first generation is cut before it can mature, most of the work has been done because the reseeding process has been stopped.

The project has whetted Sam’s interest in other symbiotic relationships that will put biology to work for the benefit of farmers. He would like to experiment with guineas for insect management and chickens for eating curly dock. He recently planted asparagus in a peach orchard to find out if their reputation for repelling nematodes will help protect the peach trees.

“The research project also sharpened my observation skills,” says Sam. Observation is one of the under-rated skills in farming. I miss so much by going too fast and not taking time to journal my experiences. During the SARE project I was forced to observe the many dynamic changes that take place in temperature, humidity, insect populations and weed growth between late June and September.

Sam is surrounded by plenty of action to continue developing his observation skills. Indigo Farms produces a variety of fruits and vegetables, most of which are sold through their full service market which consists of a produce section, garden center, florist area, bakery and an interactive barnyard.

For more information go to www.sare.org/projects/ and search for project FS99-085.

Making waves in Florida

Until recently North Carolina State University was the only institution in the South with a research station devoted to organic farming systems. Now thanks to a Southern SARE producer project, the University of Florida has established the Center for Organic Agriculture.

“Despite the rapid increase in organic farming acreage in the United States, the number of research programs and positions within land grant institutions focused on organic agriculture has seen little change” says project leader Marty Mesh.

“Organic growers have similar research needs to those of conventional farmers but there are fewer tools available to solve their problems. Furthermore, their needs are not being met through most existing programs at land-grant universities.”

One of the obstacles facing researchers at land grant universities is finding locations at which to conduct organic research. Traditional research stations generally are not adequate for organic research because of past land use, usually including heavy chemical applications. Additionally, buffers between conventional crops and organic crops must be maintained between research plots to truly evaluate an organic system.

Mesh, who is also executive director of the Florida Certified Organic Growers and Consumers, Inc., assembled a multi-disciplinary team of farmers, researchers and extension personnel from the University of Florida and Florida A&M University to develop research priorities and work toward establishing an organic research and education center in North Florida.

A key part of the project was to develop productive partnerships between organic farmers and agricultural researchers at land-grant universities. These partnerships commenced at a series of farm tours, workshops and organizational meetings to identify research priorities.

Then Nancy Creamer of NCSU’s Organic Research Farm conducted a workshop about the details of establishing and operating an organic

research farm. The project culminated with the establishment of the Center for Organic Agriculture at the University of Florida’s Institute of Food and Agricultural Sciences in Citra, 30 miles south of Gainesville.

The team approach that brought it to life, will continue to guide the center’s development, says Mesh.

“We designed it to have co-directors (a university professor and an organic farmer) and an advisory board made up of equal numbers of university personnel and organic farmers or FOG representatives. Such a set up provides for mutual respect, broad-based input and responsibility for the future of the center.

Of the 40 acres available for organic

research, 10 are currently certified and planted. Mesh sees the establishment of the center as encouragement to look for ways to collaborate and strengthen efforts between organic farmers and land-grant institutions. Train the trainer efforts are already underway with a S-SARE Professional Development Program grant (ES03-067), *What Service Providers Must Know About Organic Rules and Regulations*. Long-term goals include expanding organic course offerings at the University of Florida, eventually offering a minor in organic agriculture.

For more information go to www.sare.org/projects/ and search for project OS01-138.

We need to be reminded now and then that a small group of dedicated people can change their world. The Florida Certified Organic Growers and Consumers, most often known as FOG, is just such a group. They met in members’ homes and barns when they organized in 1989 for the purpose of educating growers and consumers about organic and sustainably grown food. Now from their offices in Gainesville, FOG administers the largest organic certification service in the southeast and a community food program called Neighborhood Nutrition Network. The group also directs research and conducts policy making efforts with state and federal agencies.

Their relationships with researchers, extension and non-profit organizations provide a linchpin for networking within Florida and throughout the South. For example, the SSAWG conference in Gainesville, January 2004, will include a session on how producers can use the Florida model to start working toward an organic research station in their state. See www.sawg.org for more information.

Approximately a dozen SARE grants have been led by FOG or one of its members, such as Rose Koenig. Rosie’s Organic Farm, the research site for two SARE grants, was one of the farm tour stops that introduced key researchers and extension personnel to the need for organic research in Florida. Rose, also a member of the National Organic Standards Board and the Scientific Congress on Organic Agricultural Research, presented a current assessment of organic research for the team working to establish the Center for Organic Agriculture at the University of Florida.

For more information about FOG go to www.foginfo.org



The Koenig family: Amaleah on Rose’s lap, Rico on Tom’s lap, Rosie the dog

Parasites: the ins and outs



Would you like flies with that?

Counting flies on cows in the deep South probably ranks at the bottom of most students' summer job list, but that's what Stephanie Feese can put on her resume for the summers of 2001 and 2002. She counted horn flies on the shoulders, backs and sides of cows on 12 Arkansas dairy farms. She also counted stable flies on all four legs of dairy cows at each farm. Leaving nothing to chance, she also placed spot cards in the holding pens and milking parlors to keep track of how many house flies were congregating with the horn flies and stable flies.

Stephanie, who earned a reputation as a budding entomologist with her prize-winning 4-H insect collection, considered it a great summer job. She was hired after high school graduation by the Arkansas Dairy Cooperative Association as program monitor on

their producer organization project evaluating biological fly control on dairies. If dairies can control flies with fewer chemicals, milk is less apt to be contaminated with pesticides and fly resistance to chemicals should occur less frequently.

Along with monitoring the fly populations on 12 dairies throughout the summer, Stephanie also distributed parasitic wasps to nine of the dairies each week from mid-May to mid-September. The other three dairies were control sites, using only conventional chemical fly control.

After two summers of crunching Stephanie's weekly numbers, the researchers determined that the parasitic wasps combined with limited chemical use were very successful in thinning out the fly populations at a cost comparable to routine insecticide

use. So why aren't the producers in the co-op still using parasitoids? Mainly because once the project was completed and Stephanie moved on to pursue a degree in dietetics at Central Arkansas University, wasp distribution became another chore busy dairy farmers had to schedule, according to Arkansas State University Cooperative Extension Dairy Specialist Jodie Pennington.

"Dairy producers are so busy that it is difficult to fit one more job in the day," he says.

The fact that parasitic wasps can control flies sounds good, but actually putting them to work on real farms uncovers real life barriers. Obtaining and releasing the wasps in a timely manner is crucial to successful control.



Continued on page 6

Addressing the State of the Rumen in Virginia

It's easy to see why small-scale or beginning farmers swell the ranks of the rapidly expanding meat goat and sheep industry.

"Small ruminant systems offer greater flexibility to diversified small farms, and start-up costs are considerably lower than they are for a cattle operation," says Joe Tritschler, small ruminant extension specialist at Virginia State University. Moreover, slaughter-age lambs and kids can be raised on the farm, a more profitable venture than selling weaned calves.

So many new producers in a fast-growing industry translates into a learning curve that's as wide as it is steep. A SARE On-Farm Research grant in Virginia is helping them maneuver the curve without crashing.

"The most serious problem we have encountered, indeed the limiting factor to our profitability, is intestinal worms in our goats," says Tony Burgess, owner of Holly Oaks Goats in Crewe, Va. Those intestinal worms are adult nematodes, and fighting them is a protracted battle, Tritschler says.

While the lack of effective de-wormers designed specifically for small ruminants is an obstacle, so is not removing treated animals from heavily infected pastures, a practice that can result in re-infection. With the On-Farm Research grant, Tritschler and technician Michaela Dismann are interviewing small ruminant producers about their parasite programs and collecting fecal samples from their herds to determine which conventional and alternative methods are most effective.

With more than 50 producers interviewed and data collected from about a dozen herds, Tritschler found that parasites have developed resistance to the most popular anthelmintics, and that no "magic bullet" has turned up in the alternative treatments. Instead, "a combination of lower stocking rates and annually rotating small ruminants with cattle, hay or other crops provides the best environment for keeping nematodes in check," he says. Information developed by the project will be used to train producers and extension agents in sustainable parasite control practices.

For more information, go to www.sare.org/projects/ and search for OS02-007.



Joe Tritschler. Photo by John Mayne

Farmscaping: Entrapment by design

If anyone is busier than an extension agent in a tobacco-growing county, it's an extension agent who covers two tobacco-growing counties. Frank Bolick does just that in North Carolina's Watauga and Avery counties.

"It seems that everyone is either hoping for a buy out or transitioning to alternative crops," says Bolick, who works regularly with about 50 tobacco farmers and is on call for about 600 more.

Broccoli and other crucifers grow well in the high altitude, potentially producing three crops per year. Many of Bolick's clients are opting to direct market these high-dollar crops raised either organically or with a minimum of chemicals.

A concept called Biologically based Integrated Pest Management (or BIPM) has proved useful to transitioning farmers whether they are headed into organics or not. BIPM combines farmscaped border areas, insect monitoring, timed sprays of *Bacillus thuringiensis* or other least-toxic sprays, and supplemental release of predator insects.

Transitioning tobacco farmer Charles Church conducted a producer project on his Watauga River Farm to find out if organic broccoli could be grown there with a financial return at least equal to that of tobacco. He relied on the expertise and insects provided by IPM specialist Richard McDonald of Symbiont Biological Pest Management.

McDonald has been using farmscaping to work the bugs out of organic broccoli production since the mid-80s.

"I was completing my doctorate at Virginia Tech during the first downturn of tobacco," he says. "Beneficial insects became important when farmers started looking at organic broccoli as an alternative crop.

"We soon discovered that a well-fed beneficial insect will lay five to ten times more eggs than if it is just thrown out there to fend for itself. If farmers were going to get the most from their investment they needed to develop a beekeeper's sensibility, looking out for



Christoff den Biggelaar, agroecologist at Appalachian State University, and County Extension Agent Frank Bolick examine a field of organic broccoli. Photo by John Mayne

Gleanings

The project participants identified some things they learned that they would like to pass along to other farmer groups.

1. A label to provide local identity, such as New River Organic Growers, is important in today's produce market.

2. An organizational chart for responsibilities and duties of all involved parties is a must.

3. Through several years' work, a market has been developed for our product. We found it difficult initially to sell to a market until you actually have a certain level of product that can be delivered consistently. But without a defined market you won't have producers who are interested in growing the product, a classic Catch-22 situation. Growers must cooperate to develop and sustain a market.

4. Initial steps to develop a local market were much harder than we anticipated. However, because we spent lots of initial time during 2000 and 2001 promoting marketing, we were able to sell every bit of broccoli we produced in 2002.

5. A significant amount of cooler space is required to hold product for proper delivery times and to handle the ebbs and flows of a normal crop production.

6. A fact that all growers should keep in mind: having only one buyer means only one market, and you are completely at his mercy.

7. The practical value of demonstration projects for learning new things and reinforcing what is already known cannot be overstated.

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Would you like flies with that?



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If you miss a weekly application or misjudge how many wasps you will need for a given week, the fly populations will quickly get out of control.

Danny Griffin, Searcy County Extension Agent, says adoption of a new practice doesn't necessarily have to take more time; it can be worked in as part of daily activities.

"Sure, they have to remember to order the parasites, but they can get accustomed to doing something like that rather than just grabbing a chemical solution," he says. "The labor to distribute the wasps is negligible, only 5-10 minutes per week for 100 cows; actually chemical control is probably more labor intensive. And as for the monitoring, it's mostly just observing your cattle as they come in from the field. It doesn't really take more time but is more of a change of mind set."

Griffin also points out the need to remember the word *integrated* is the first part of IPM.

"The parasites will do a good job on large concentrations of flies in the stable but will not help out in the pasture, so farmers need to monitor daily in order to use chemicals effectively."

Don Johnson, Arkansas state entomologist, thinks adoption is just a matter of time.

"The biological control will give them as good or better management than the chemical pesticides and long term will reduce their resistance problem", he says. "Astute farmers recognize this as a better alternative. From past experience, it takes about five to ten years of educational effort to establish new management patterns."

Jodie Pennington agrees that more demonstrations are needed to prove the effectiveness of biological control. He is conducting a follow up project (OS03-016) with dairy farms in another part of the state. Along with parasitic wasps, he is also using traps in the pasture to help control horn flies.

For more information, go to www.sare.org/projects/ and search for OS01-143.

Farmscaping

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the welfare of the insects they released."

That's where farmscaping comes in. Farmscaping is a whole-farm approach of planting to repel or attract both pests and beneficial insects. It is a sophisticated management technique built on 30 years of research, mainly in California where they have specific seed blends for protecting many crops.

A refugia strip planted around the crop field is a major part of farmscaping. The seed blend contains wild relatives of the cash crop which will attract both pests and beneficial insects to the perimeter.

"Diseases and pests will go to the wild plants first," says McDonald. "By scouting the strip you know what is heading toward the crop and can plan to spray only as needed."

Organic broccoli in the Watuaga area is normally sprayed about six times with *bt*. Through farmscaping and scouting a farmer may spray only once or twice per crop at a savings of \$60 or more per acre in chemicals and labor for every spray pass he doesn't have to make.

Charles Church's SARE project was successful with \$9,023 pounds of high quality broccoli being harvested from 1.2 acres and sold for \$1.25 to \$1.50 per pound--more than \$11,000.

The good news quickly spread to neighboring farmers who began attending weekly meetings of the project cooperators. The group evolved into the New River Organic Growers and provides a base for informal research on production and marketing. The members all use farmscaping and other BIPM techniques demonstrated during the SARE project.

"We are considering the possibility of becoming a full-fledged cooperative," says Frank Bolick. "We know it's a big step so we are going about it slowly to make sure we are doing the right things at the right time for the right reasons."

Sponsored on-farm research is crucial to transitioning tobacco farmers, according to Bolick.

"SARE money was important because it took the financial risk out of trying the farmscaping and biological controls. It paid for the beneficial insects, the seeds and for the field labor as well as Dr. McDonald's time."

Since tobacco farmers are a geographically concentrated population, many of them can benefit from a single on-farm project. Area growers visited Watauga Farm when the project was featured on three farm tours. And it's on-farm research that speaks loudest to farmers, according to McDonald.

"We need research stations to get us to a certain point," he says, "but farmers know it doesn't really mean anything until you see it working on a real farm."

Watauga Farm, the real farm in this project, is still using the BIPM system with even better results.

"The first crop of broccoli in 2003 was the most pest-free crop I've ever grown", says Charles Church. "I did not find a single harlequin bug on a broccoli plant; they came to the mustard liked we hoped."

Church has expanded his vegetable crops to include more varieties of potatoes, red cabbage, beans, squash, tomatoes, corn, beets, onions, garlic, bell and hot peppers. He's still growing 15 acres of tobacco, but plans to increase the produce crops if a buyout ever takes place.

For more information about the project go to www.sare.org/projects/ and search for FS02-146.

For more information on farmscaping, growing organic broccoli and other BIPM information go to Richard McDonald's website at www.drncbug.com

Which SARE grant program for you?

Southern SARE administers six separate grant programs, each with its own priorities and audiences. The process begins with the release of calls for proposals for each of the programs. The SSARE web site www.griffin.uga.edu/sare is the quickest way to receive the calls for proposals as soon as they are released. If you prefer a mailed copy of any of the calls for proposals, contact Paige Patton at (770) 412-4787 or sare@griffin.uga.edu

Research and Education Projects generally are conducted by interdisciplinary, multi-institutional, and often, multi-state research teams coordinated by a principal investigator from a non-governmental organization, university or governmental agency. These projects include farmers as participants. Awards up to \$350,000 will be considered. As of 2003 a social science priority area has been added.

2003

April 1 Call for 2004 preproposals released

June 2 2004 Preproposals due

August Invitation by AC for full proposals

November 14 Full proposals due

2004

February AC announces all 2004 awards

Producer Grant Projects are developed, coordinated and conducted by producers or producer organizations. These projects are generally located in one state, often on one farm. There is a \$10,000 limit for funding proposals submitted by an individual producer and a \$15,000 limit on proposals submitted by producer organizations.

2003

August 1 Call for 2004 proposals released

December 5 Proposals due

2004

February AC announces all 2004 awards

Graduate Student Awards are intended for full-time graduate students (masters or Ph.D.) enrolled at accredited colleges and universities in the Southern Region. Up to \$10,000 will be awarded to each successful applicant for up to three years of project activities. The funds are paid directly to the university for use on the graduate student's project.

2003

March 1 Call for 2004 proposal released

December 12 Proposals due

2004

February AC announces all 2004 awards

Professional Development Program Projects train agricultural information providers in sustainable agriculture techniques and concepts.

2003

March 1 Call for 2004 preproposals released

May 16 2004 Preproposals due

August Invitation by AC for full proposals

November 14 Full proposals due

2004

February AC announces all 2004 awards

On-Farm Research Projects are conducted by agricultural professionals such as extension agents, NRCS and/or NGO personnel who currently work with farmers and ranchers. Cooperators must include at least one producer at all stages of the project. Funded for a maximum of \$15,000 for up to two years of activities.

2003

August 1 Call for 2004 proposals released

December 5 Proposals due

2004

February AC announces all 2004 awards

Sustainable Community Innovation Projects link sound farm and nonfarm economic development with agricultural and natural resource management. Applicants may be farmers, ranchers, researchers, community organizations, environmentalists, ag and community development professionals, entrepreneurs, governmental and non-governmental organizations. Funded for a project maximum of \$10,000 for up to two years of activities.

2003

July 1 Call for proposals released

September 5 Proposals due

November Sustainable Community Innovation awards announced

On-Farm Research: the real thing

The vagaries of farming also apply to on-farm research. In 2002 Leonard Kuykendall, county agent in Autauga, Alabama was awarded one of the first S-SARE On-Farm Research Grants (Project OS02-003). He and three farmer cooperators set out to find a solution to soil compaction or hardpan in conservation tilled cotton. The farmers set aside acreage in their fields to compare cotton yield and organic matter resulting from early or late burn down of cover crops or fields left fallow. Another part of the project evaluated the effectiveness of parasoiling to break up the hardpan about 12 inches below the surface.

Then came the drought of 2002. The wheat cover crop was sparse and spindly, preventing Leonard and the farmers from finding out how much the cover crops could contribute. In those adverse conditions organic matter increased only about .1 of 1% when the wheat was allowed to mature before burn down as compared to the early killed wheat or fallow fields. Paratilling before planting did break up the compaction under the rows, resulting in larger plants and slightly higher yield, but once again the drought conditions skewed the data.

So far 2003 has been a flood year, which brings another set of problems and makes it difficult to compare performance over the two years of the project. However Kuykendall is not



Traveling down a dusty Delta road is all part of a good day's work for Leonard Kuykendall, county extension agent in Autauga County, Alabama, shown here doing paperwork on the hood of his truck. Photo by John Mayne

deterred. The on-farm research, like the farming, will go on even after the SARE grant is over.

"I am always working with 10 or 12 farmers doing research," says Leonard. "It makes me strong in the field to conduct on-farm research, and the farmer cooperators will implement new practices before anyone else."

Since he drives about 12,000 miles a year on farm visits, Kuykendall especially appreciates the SARE grant

paying travel expenses that are part of the project

"These days I get only about half my travel money from extension," he says. "The rest has to come from grants."

The downside of grant funding is giving up farm trips to write proposals and project reports at the office.

"I'd like to be on the farms every day rather than in the office", he says. "As soon as this interview is over, I'm headed out the door."

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