

Southern Region SARE

addresses water quality

Projects from USDA's Sustainable Agriculture Research and Education Program



Type the key words “water quality” into the SARE national project data base and several hundred project reports come up; 125 of them in the Southern Region. It’s clear that SARE considers water quality a research priority. From coast to coast SARE projects address agricultural water issues as varied as chemical run-off from cropland or cattle hooves causing streambank deterioration. The following highlights from some recent water quality projects are a few samples of the many ways SARE funds can be used to improve or protect water quality.

High soil test phosphorus values are a concern on fields near confined animal feeding operations, where manure and wastewater applications contribute to increasing soil phosphorus levels. Selling manure and compost has been a traditional way for some livestock producers to manage waste, but such high-volume, low-value products often don’t bring enough to pay for hauling them.

A Southern SARE project led by Don Vietor of Texas A&M evaluated the feasibility of exporting manure through a higher value product: turfgrass sod. Through trial plantings, the team discovered that surface applications of manure produced high quality sod which exported the accumulated phosphorus with it upon harvest.

When the sod was replanted in a new location, phosphorus runoff was reduced nine percent compared to runoff from sod grown with commercial fertilizer. Furthermore, the sod does not have to be fertilized for phosphorus and has better water infiltration than commercially fertilized sod.

Using an economic model, collaborator Darrell Bosch at Virginia Tech estimated that a dairy farmer who used

manure to grow 50 acres of sod could earn an additional \$46,000 per year.

As a result of the research, the team recommends that sod producers and dairy producers could benefit from collaborating while creating a product that will decrease phosphorus runoff from athletic fields, parks and residential lawns. (Project LS00-117)

A comparison of conventional, transitional and organic cropping systems at Alcorn State University in Mississippi determined that two years of organic production significantly lowered the levels of nitrate-nitrogen and orthophosphate in test plots of vegetables. That reduction led researchers to conclude that organic farming decreases the chances of water pollution from nitrogen and phosphorus when compared to conventional and transitional production systems. (Project LS01-125)

Protecting water quality was the training goal of a project led by the Kentucky Division of Conservation, NRCS and Kentucky Cooperative Extension. Through educational materials, farm field days, commodity meetings and workshops, hundreds of farmers and other

landowners in Kentucky learned waste management techniques to help them meet the NRCS Nutrient Management Standard 590, the EPA Confined Animal Feeding Operation regulations and the Kentucky Water Quality Plan. (Project ES00-049)

The 1862 and 1890 extension programs in each state appoint SARE State Sustainable Agriculture Coordinators who collaborate to administer funds for sustainable ag training activities tailored for specific needs by a state committee.

Many state plans address water quality issues. In Douglas, GA, waste management officials learned to compost municipal waste and sell it as a soil amendment, reducing both their waste water treatment load and landfill needs.



Streambank erosion associated with different grazing activities is being monitored with collared cows, monthly photo documentation and GPS surveys as part of a Southern SARE graduate student project at the University of Kentucky. When the project is completed, the results will add to the body of knowledge about protecting streams in grazed pastures. (Project GS02-014)

Download or print project reports from SARE's Project Data Base at www.sare.org

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Phone: (770) 412-4787 or info@southernsare.org

More Southern SARE projects addressing water quality

The dynamic nature of water quality invites ongoing research where new projects build on previous projects. Such progressive research is encouraged by Southern SARE and can be observed in a trio of projects led by three different scientists from USDA-ARS in Watkinsville, Georgia.

The first project (LS97-88), led by Jean Steiner, assessed the N and P in ground and surface waters of two creeks in relation to the agricultural practices of the farms bordering the creeks. A year later, Dwight Fisher was awarded a grant (LS98-093) to assess the impact on surface water quality in the same watershed as EQIP-subsidized conservation practices were installed. In 2004, Dory Franklin was awarded a grant (LS04-159) to compare nutrient concentration in runoff from fields with and without crop/forage rotations for beef production, horse-quality hay and poultry feed— common agricultural interests in that same watershed. Franklin’s multi-state project will extend the work to a watershed in North Carolina, utilizing some of the farmer leaders that have been educated through the three Georgia projects.

Grazing experiments in the Texas High Plains provided important new information for beef cattle producers who must raise the most nutritious grass possible with limited rainfall. Dirk Philipp of Texas Tech University used a graduate student grant to test three old world bluestem species for water use efficiency near Lubbock. Old world bluestem species are widely grown in the semi-arid plains, but little research had been done on their water use-yield relationships.

After three summers of growth trials, it was determined that either Dahl or Caucasion provided more biomass and higher nutrition than Spar under any moisture regime, but particularly



Participants get their feet wet and their hands dirty in SARE PDP training activities, whether as part of competitive grant projects of state sustainable ag activities. Here NRCS and extension personnel get a tadpole’s view of how farm run-off affects creatures who have to live in it.



Demonstrations of water-efficient irrigation technology were popular with farmers attending a Minority Outreach Conference in Baton Rouge. The SARE State Sustainable Ag Coordinators at Southern University and LSU contributed to the conference, which was sponsored by the Federation of Southern Cooperatives. Photo by John Mayne.

under limited or no irrigation. The findings are significant because Spar old world bluestem was widely planted on CRP acres in the area and is the species that area producers are most familiar with. Project field days extended the results to more than 300 producers, helping them make informed choices regarding selection of species for yield, quality and water savings. (Project GS02-012)

Government agencies and NGOs apply for SARE grants to put a little extra punch into their own programs. For example, in Virginia more than 200 people attended a two-day training for the Innovative Cropping Systems Incentive Program (ICS) conducted by the Colonial Soil and Water Conservation District. The ICS promotes the use of no-till production, intensive crop rotations and nutrient management that result in improved soil and water quality.

The SARE funds provided \$49,000 that allowed the SWCD to bring in high-profile national speakers and provide a field tour to five local farms. Virginia Tech Cooperative Extension designated the session as required in-service training and also offered certified crop consultant and nutrient management credits. (Project ES01-053)