



CLEAN WATER CLEAR CONSCIENCE

*Preserving our greatest natural resource, water,
is more important than ever to our agriculture industry.*

by Janet E. Mayer

Enjoying the distinction of being the top-ranking industry in this country, agriculture in the latter part of the 20th century is facing challenges that were of little consequence to farmers of 100 years ago. In addition to dealing with the ever-present variables, such as the weather and economic markets, the agricultural operations of today must deal with the demand for a wholesome product that is produced in an environmentally responsible manner.

In the past, farming had traditionally been viewed as a "clean and healthy" way to make a living. But in truth, farming practices can and do affect the environment. Consequently, environmental issues have fast become of vital importance to the agricultural industry.

One of the most complicated of these issues is protecting and improving water quality in rural areas. This can be done only by controlling runoff and non-point source water pollution.

Runoff from farmland can contaminate ground and surface water with nitrogen and phosphorus from manure and chemical fertilizers, sediment from erosion, and toxic chemicals from pesticides. The problem of detecting and solving non-point source pollution is difficult since it can stem from many sources, such as forestry operations, construction excavation, mining and agriculture itself.

Thus far, efforts by farmers to clean up pollution and preserve water quality have been strictly voluntary. To aid in cleaning up pollution,

however, the U.S. Department of Agriculture (USDA), in cooperation with other federal, and state and local agencies has now established programs to help farmers prevent the pollutants from reaching surface and ground water.

Pennsylvania is one state working with the agriculture industry to preserve the quality of the water within its boundaries. With more than 45,000 miles of streams in the state— most of them on privately owned property— conserving this natural resource has become of great importance to both the agricultural and residential communities.

The response is reflected in the farm belt of southwestern Pennsylvania where Joel Elder is one of the growing number of people interested in preserving the quality of his state's watersheds. Working as an agent out of the Somerset County office of the USDA Soil Conservation Service (SCS), Elder says the agency is making a real effort to help preserve streams.

"Since the inception of the SCS in 1935, the service has been interested in the quality of water," he explains. "Water quality pretty much goes hand-in-hand with soil erosion; if you have erosion, you will have bad water."

Elder says it is only in the last 10 years, however, that the agency has started to monitor the watersheds to find out where there is a problem and to direct the funds to do something about it. In analyzing the chemistry of water in many of the problem areas, the agency found not only sediment but fertilizer and manure.

The recent legislation in Harrisburg of House Bill 100 provides for the management of nutrients on certain agricultural operations in an effort to abate non-point source pollution to the waters. This could be the wave of the future.

"This may be the only way to get people to do anything about the problem," Elder says. "A lot of people don't see pollution as a problem; I feel the attitude is a matter of a lack of education on the subject. But once you point out the detrimental effects and show them data of what it does to the watershed, they realize it is very much a problem and that they will have to do their part to help correct it."

Once people become aware of the problem, they become some of the best to work with. Elder has found that many operations try to control the problem voluntarily. These people may not do things the way the government agencies would want them to do it, but, nonetheless, Elder feels they are doing a good job by themselves.

The agent cites ErRer Hill Farm as an example of what a livestock operation can do to help preserve the water quality flowing from its property. The farm is tucked away in the rolling hills of a largely rural area a few miles from the coun-



ty seat, Somerset. Owned by Sidney and Alberta Riggs, this registered Angus cow-calf operation has been practicing streambank management, a vital part of stopping non-point source water pollution, since 1987.

The Pennsylvania Game Commission had approached the Riggs at that time, requesting permission to place fencing along Little Beaver Dam Run and its tributaries, which run through several pasture areas on the farm. They wanted to use this project as a test area for Pennsylvania State University to observe the results of this type of stream management and stabilization.

Through fencing and planting, the Commission was hoping to establish streamside corridors of vegetation, a buffer zone between the fence and the stream that would be favorable to many species of wildlife. Also, this type of project would demonstrate the multiple benefits of giving livestock limited access to the stream which would result in improved pasture management, fish habitat, water quality and aesthetics.

At no cost to Riggs, the Game Commission installed two-strand high-tensile electric fence, with a solar charger for power on both sides of the stream for a distance of about half a mile. Ironically the site was never used for research as intended. Instead, the university did its research with the Chesapeake Bay area project. Maintenance on the fence and cutting of the brush around it are done by the Commission on a regular basis.

The fence was installed about 15 to 20 feet from the edge of the stream. However, in some areas the terrain did not allow for this large a corridor; in these areas the fence was placed closer to the stream. The cattle are now restricted to one area where they have access to the water for drinking and crossing. This stabilizes the stream banks and reduces erosion.

"Water quality goes hand-in-hand with soil erosion."

—Joel Elder



Joel Elder (left) shows Dave Wise, ErRer Hill herdsman, alternate types of crossings.

"I feel losing an acre or two of pasture by fencing is worthwhile. This type of management is here to stay."

-Sidney Riggs

By volume, sediment causes much of the water pollution, with the sediment coming from soil erosion along stream banks that are grazed. When livestock trample stream banks, the soil is left unprotected and may collapse. By restricting livestock access, new growth of vegetation shields the bank against this type of erosion and loss of productive land.

As in many projects, correcting one problem sometimes causes new problems. "By restricting the cattle to crossing in one area, they did a lot of damage to the stream," Riggs says. "Before, they had crossed anywhere, but once they were confined to one area, a bad situation developed. Parts of the stream became mucky and virtually bottomless. In fact, the mud became so bad, we came close to losing a couple of calves there."

To alleviate the crossing problem, ErRer Hill manager Bob Hay contacted Elder at the SCS office and asked for help. Elder suggested stabilization of the channel with rock. He then directed Hay to contact the Agricultural Stabilization Conservation Service (ASCS), where there is cost-share assistance available. Up to 50 percent of the cost is available to operations to install the type of crossing that Elder was proposing. At this point, it was necessary for Hay to seek a permit for an agricultural crossing from the Department of Environmental Resources (DER) Bureau of Dams and Waterway Management.

"When the landowner applies for a general permit from DER, we make sure it fits the application, which has a pretty broad range," Elder explains. "There is no money involved in seeking and getting approval. DER is simply using the permits to monitor where the crossings are be-

ing placed. There are some conditions under which you wouldn't want to install one of these crossings, like on a river or in some special watersheds."

In the permit application, Hay had to describe the type of crossing that would be installed. The style can vary from prefabricated concrete waffle slats designed for cattle to an arrangement of stone fill, timbers and gravel. The name of the stream or body of water had to be included along with a description of the location and the name of the municipality and county in which it was located. A location map with the agricultural crossing indicated also had to be enclosed.

After the permit was granted, all materials to be used in construction of the crossing, such as rock, gravel and seed, had to be placed on site prior to the start of construction. Work was limited to one side of the stream at a time. The sequence of construction began with excavation for the placement of the rock base. The excavated material was disposed of beyond the limits of the floodway, but not in a wetland. The larger rock was installed and finally the track was in place. Within five days, the disturbed areas surrounding the stream were seeded, limed, fertilized and mulched.

The average cost for a crossing of the type installed at ErRer Hill would be about \$1,500, with ASCS picking up half of the cost. He suggests there are money-saving alternate methods for building a crossing, such as using your own equipment and using available rock from areas on your property. "You can definitely cut cost in any of these endeavors if you use your own resources, time and labor. But as in most agricultural improvements, it is going to cost you something to stop stream pollution, no matter how you look at it," he says.

Barnyard runoff is another area Elder says needs a lot of attention in pollution management. "We feel this is as important to watershed water quality as cropland conservation practices. Here again, this type of improvement is not going to give you a cash-in-your-pocket type of return, but it will keep you out of trouble, and it will benefit people downstream. Hopefully, the people upstream from you will do the same."

Although Riggs thinks fencing is a good idea on the larger streams, he has some reservations about fencing small streams. He feels it allows the growth vegetation to become too thick, which, in turn, could allow the possibility for flooding. To prevent this from happening, the employees at ErRer Hill intend to watch the tributaries pretty closely. Riggs feels in the long run, stream corridor management enhances both the wildlife and the pastures.

To test the effects of fencing in other areas of the farm, Riggs had fences put in at his own ex-

CLEAN WATER CONT.

pense. He recently walked one of the streams and found parts that were fenced were in much better shape than those that were not. He has also put in 18 livestock watering tanks at existing springs that will eliminate some troublesome wet spots.

"I feel losing an acre or two of pasture by fencing is worthwhile. This type of management is here to stay," Riggs says.

When Riggs was in Germany many years ago, he saw beautiful mountain streams coming off the Alps, especially in Bavaria. Cattle were fenced out and were drinking out of water tanks. Other countries that have denser population have been doing it for years.

"It has to happen in the future," Riggs says. "Why should we be allowed to run our animal waste down the stream?"

Paul Genho, chairman of the National Cattlemen's Association's (NCA) Private Lands and Environmental Management Committee, is in agreement with projects like the one at ErRer Hill. "We have the knowledge and expertise that, combined with assistance from various agencies such as the SCS, can make

positive strides toward protecting quality," he says.

However, with the introduction of S1114, the Water Pollution Prevention and Control Act of 1993 by Senator John Chafee (R-RI) and Senator Max Baucus (D-MT), the situation could be changed. While S1114 has many positive aspects designed to improve water quality, it could also mean the end of total voluntary water pollution management.

At this point, Genho does not see the merits of the legislation. "I feel mandatory federal land-use requirements, promulgated at the federal level, will not guarantee significant protection of water quality: he said at a hearing on S1114, held earlier this year by the subcommittee on Clean Water, Fisheries and Wildlife of the Senate Environment and Public Works Committee. "Since there are great variations in climate and geology throughout the country, participation should remain voluntary.

"Many livestock producers are already working with the SCS and other state-developed and-funded agencies, such as Extension services, and wildlife and fish commissions. These programs should be given adequate funding and time to be fully evaluated," he says.

Galen Bridge, acting chief for the SCS, in Washington, D.C., says other people also need to join farmers in the conservation of natural resources. "We hope to bring an awareness to the people that farmers care for the land, and that farmers are working hard to improve water quality and are reducing soil erosion. History tells us prevention is much less costly than clean-up."

In a public relations campaign dubbed, "Harmony," launched earlier this year by the SCS, the service is making a concentrated effort to encourage everyone to do his or her part in keeping water clean and stopping erosion. The campaign is directed at everyone — in the city or on the farm. The public relations effort encourages everyone to do his or her part. The campaign goal is to establish a balance between taking from the earth and replenishing resources.

Editor's note: For information on how to prevent pollution of watersheds in your state, contact your local Soil Conservation Service, Agricultural Stabilization and Conservation Service or State Extension Service.

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