“Win-Win” approach balances water quality, agriculture needs

A win-win situation. That is the ultimate goal of a 2,500-acre water quality project underway in the upper Neuse River Basin in Wake and Franklin Counties.

In association with the Neuse Crop Management project, five farms are cooperating to prove what more people are beginning to realize — profitable agriculture can coexist with responsible stewardship of our water resources.

“We are focusing on precision agriculture and nutrient management because nutrient management will be the most widely adopted best management practice in the Neuse,” says Bill Lord, Neuse Education Team member. “Precision ag research is part of the project to determine how it can help with developing more accurate nutrient management plans.”

Under the Neuse Rules, farmers are required to reduce the amount of nitrogen leaving their fields by 30 percent. According to Lord, “rather than looking at cutting nitrogen fertilization rates by 30 percent, we are looking for ways to increase yield and maintain fertilization rates.”

The end result would be the same, reducing the amount of nitrogen that reaches the Neuse River. “We are looking for a win-win situation, compliance with the Neuse Rules and better yields and returns.”

Jackie Thompson, who grows tobacco, soybeans, wheat and fescue, says a sense of knowing that farmers

(continued on back page)
Neuse Education Team project in Craven County is showing that the concepts of prevention and treatment — as they relate to nitrogen losses in farm fields — work well together to improve Neuse River water quality.

The Core Creek Project, a 5-year $1.3 million water quality improvement effort supported by the Clean Water Management Trust Fund, is implementing and evaluating a system of agricultural best management practices (BMPs). BMPs such as nutrient management, controlled drainage, riparian buffers and vegetative filter strips are used on the 8,000-acre project site located in the headwaters of Core Creek.

“We chose to work at the headwaters because of its distance from the Neuse,” says Neuse Education Team member David Hardy. “This distance means that it takes water more time to reach the river, which in turn means more effective treatment of the water before it enters the Neuse.”

Core Creek empties into the Neuse River just east of the Fort Barnwell Bridge in Craven County. It is primarily an agricultural watershed. Of the 8,000 acres involved in the project, 5,000 are cropland. The farmers associated with the project are committed to water quality improvement. Myron McCoy, a livestock producer who also grows corn and soy beans is one of the participating farmers.

“Farmers like myself want to be responsible when it comes to our water resources. We want to do our part to maintain and improve water quality,” he says.

Crops use only 60 to 70 percent of applied nitrogen. Decreasing the amount of fertilizer put on a field can reduce nitrogen losses, but this alone does not guarantee 100 percent efficient crop use of it. As a result, some nitrogen remains in the soil. Once in the soil, nitrogen is very mobile in the nitrate form and finds its way to the Neuse via shallow groundwater, man-made and natural drainage systems. A solution to this dilemma is using both preventative and treatment BMPs simultaneously.

Restoration of streamside wetlands and buffers and approximately 100 controlled drainage structures are planned with the project. Furthermore, the project calls for nutrient management plans for the growers involved that will cover more than 8,000 acres.

Water quality samples are being taken post and pre BMP installation to estimate the nitrogen leaving the fields and to determine the effectiveness of BMP systems in reducing this loss. The overall goal of the project is to reduce the total nitrogen leaving these farm fields by 30 percent within four years and to assist growers with compliance, as outlined in the Neuse Rules.

According to Billy Dunham, Craven County Extension Director, “these farmers are much more aware of water quality than people think. They value the soil and water around their farms. They are very interested in learning ways to balance the work they do with concern for our natural resources.”

“We want to do our part to maintain and improve water quality. Farmers want to be responsible when it comes to water resources.”

—Myron McCoy, cooperating farmer
Neuse Education Team leads county officials on basin tour

In an effort to bring Neuse River Basin leaders together to discuss and observe solutions for improving Neuse River water quality, the Neuse Education Team led a late-summer tour that featured projects focusing on both agricultural and urban issues. County commissioners, managers, planners and engineers from across the Neuse River Basin were involved in this Neuse Team effort.

Tour participants first visited the site of a future constructed wetlands project in the town of Smithfield. The town of Smithfield also plans to remove some wastewater discharge from the Neuse and treat it through the use of a wetland and a land application treatment system.

The next stop was Goldsboro, where the leaders visited the Center for Environmental Farming Systems. County leaders learned the importance of riparian buffers as “filters” on agricultural fields in reducing nitrogen reaching the Neuse River. The Goldsboro stop also featured Karen Brashear, Public Utilities Director for the City of Goldsboro. Brashear spoke about urban solutions for dealing with the Neuse’s nitrogen problems.

The group then followed the Neuse to Kinston to visit a major agricultural water-quality project and two urban projects. Jim Parrot, a Lenoir County farmer, spoke about his involvement with the Neuse Crop Management project and the economic and environmental benefits of various nitrogen-control practices such as controlled drainage and riparian buffers. Inside the Kinston City limits, a project using alternative pavement was explained.

Traditional pavement consists of asphalt or concrete. Not all pavement areas need to be as strong as these materials. Tour participants learned that alternative pavement allows water to filter through the ground — reducing stormwater runoff. By reducing runoff, streams experience less erosion and fewer pollutants enter our rivers.

The Neuse Basin leaders tour concluded at the Nature Center in Kinston with a dialogue-filled lunch and a stop at the city’s first rain garden.

“The biggest benefit I know of from going on a tour like this is the sharing of ideas,” says Joe W. Bowser, Durham County Commissioner. “I will take of a lot of these ideas back home and share them with my colleagues. It’s been very helpful to interact and to learn from other folks on this tour.”

According to Craven Hudson of the Neuse Education Team, tours like these serve a very valuable educational purpose for government leaders like Bowser.

“These folks saw first-hand examples of towns removing wastewater, on-site treatment of stormwater runoff, buffer research on nitrogen removal and permeable pavement alternatives,” says Hudson. “It is important that these types of government employees, whether they are commissioners or planners, become aware of the solutions that work and that are available to their communities.”

Scott Stevens, far left, of Kinston, leads the discussion of alternative pavement at this research and demonstration parking lot. Hudson, right, says that such tours are a valuable teaching tool for local officials.
respect North Carolina’s environment prompted him to participate. “Farmers have nothing to hide about how we use the land. I wanted to become involved in this water quality project to help out NC State and to show that farmers do care about water quality.”

The Neuse Crop Management Project is also using farms in Wayne, Lenoir and Craven Counties to demonstrate to farmers how to reduce costs and achieve compliance with the Neuse Rules. According to Deanna Osmond, Neuse Education Team member and soils specialist, an important aspect of farms like Thompson’s is the fact that “such farms represent the types of BMPS that Piedmont farmers can use to balance water quality improvements with economic viability.”

**NeuseClips**

- A permeable pavement research site has been installed in River Bend.
- The Neuse Education Team and the town of Chapel Hill will host a bio-retention design workshop on February 28, 2001.
- Person County students are learning to predict stormwater runoff using the Neuse Education Team web site.