Volume 21, Issue 2 Winter/ Spring 2006

Shore Conserver

Eastern Shore Soil & Water Conservation District

22545 Center Parkway, Accomac, VA 23301-1330

District proud of environmental outreach programs

Virginia's 2005 Conservation Education District

Eastern Shore SWCD received the "Conservation Education District of the Year" from the Virginia Association of Soil and Water Conservation Districts at their annual awards banquet in Williamsburg. Eastern Shore competed with 46 other districts from across the state and was chosen for its outstanding job in helping convey the conservation message to local farmers, students and citizens.

Assistance is offered to local citizens in many ways. This assistance includes working with farmers and providing them financial help through the state's agricultural cost-share and tax credits programs for using best management practices (BMPs). Last year over $300,000 was allocated to Shore farmers for conservation practices such as winter cover crops, conservation tillage, and animal waste control.

The district also promotes environmental education for students. Last year, the Eastern Shore SWCD, in partnership with the 4-H Youth Extension and Master Gardeners, designed a Schoolyard Wildlife Habitat program to assist local schools with developing outdoor classrooms and providing habitat for desirable local wildlife.

Other programs include awarding college scholarships to students pursuing environmental studies, sending high school students to summer conservation camp in Blacksburg, and hosting a local Envirothon, an environmental competition for high school students now in its 13th year.

Eastern Shore SWCD funds mini-grants to area teachers to support conservation programs and field trips.

Adult programs include presentations to civic groups. In 2005, the district held its first Bay Kayak Sojourns on new water trails under development with the Eastern shore RC&D and the National Park Service.

Eastern Shore SWCD also works in a partnership with the Eastern Shore Environmental Education Council to produce the award-winning publication "Shore Outdoors" , a 4-page newspaper supplement focusing on local resource concerns. Another joint venture with the Environmental Education Council is an annual Watershed Festival. 2005 marked the fourth anniversary for this event. Over 500 visitors came to YMCA Camp Silver Beach to learn about our watershed resources in a fun-filled day of hands-on activities, touch tanks, kayaking, live music, fish printing and exhibits.

All District programs attempt to bring education, science and technology together to address local natural resource concerns and to celebrate our natural heritage.

District proud of Associate Director, John Chubb

John awarded by the Virginia Association of Soil and Water Conservation Districts

John Chubb was recently named "Associate Director of the Year" by the Virginia Association of Soil and Water Conservation Districts. This state-wide award was presented to John at the Association's awards banquet in Williamsburg. John is an Associate Director for the Eastern Shore Soil and Water Conservation District which serves both Virginia counties on the Shore and is one of 46 Conservation Districts across the State.

John received the "Associate Director of the Year Award" as a result of his strong commitment to conservation practices. He has devoted hundreds of volunteer hours to this purpose. John began the "Adopt a Stream" program here on the Shore, a citizen stewardship effort to clean trash from local waterways. Working with the Citizens for a Better Eastern Shore (CBES) and various students, John has now collected thousands of pounds of trash from regular clean-ups at the Custis Tomb, an Eastern Shore historic site on Plantation Creek. These beach clean-ups have grown into a shore-wide program, including clean-up on the Barrier Islands.

Through his grant-writing skills John helped the Northampton Alliance against Trash (NAAT) buy a trailer to use in their community trash pick-ups and to clear sofas and large appliances from back road ditches.

John was also influential in establishing a clean water advocate for the Eastern Shore under the Shorekeeper's Program, an office under the licensing of the nationwide "Waterkeeper Alliance."

John likes to educate people on how to be good stewards of our natural resources. As chair of the CBES;s Natural Resource Committee, John has written numerous articles for their *ShoreLine* newsletter. These articles deal with environmental concerns and ways the average citizen can help improve the quality of our natural resources. Past articles include: "Water Quality Assessment and Improvement", "Biosolids and You", and "Bacterial Contamination Data".

John teaches math and science to high school students at Broadwater Academy. As part of his oceanography class, John has arranged annual field trips to the Chesapeake Bay Foundation's education lab on Tangier so his students can have hands-on experiences with the Chesapeake Bay restoration.

For years, John has helped promoted ecotourism on the Shore by helping to coordinate the annual "Between the Waters Bike Tour".

John states, "I have tried to do my part to protect the environment through classroom activities, coaching ecological competitions, leading "Adopt-a-Stream" cleanups and promoting citizen interest and involvement with natural resource issues. For me its's the land and the sea."

New Watershed Coordinator joins district staff

Gretchen Arnold joined the District in January as a part-time Watershed Coordinator. She is a biologist with experience in estuarine science and watersheds. For seven years, she worked on the Eastern Shore as a marine scientist at the Virginia Institute of Marine Science.

She will be helping the District assess how well agricultural best management practices are implemented and where improvements can lead to better water quality.

This work builds on Gretchen's 2005 study with VIMS that assessed the impacts on water quality when land use changes from agriculture to housing.

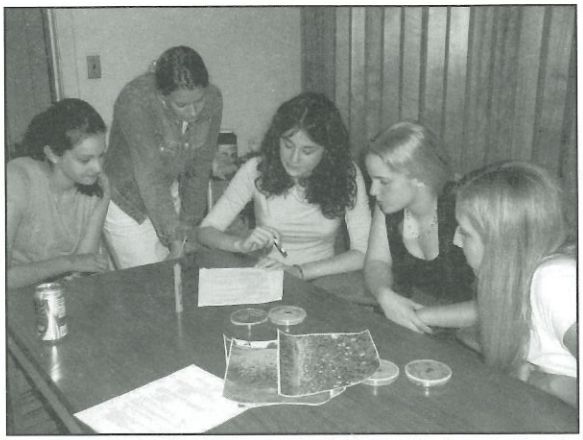
In addition to her role at the District, she works full time as a consulting biologist for East Virginia Company, providing wetland delineations and conservation planning.

CONSERVATION EDUCATION

Nandua wins 1st place, Arcadia takes 2nd place, and Chincoteague comes in 3rd

The 2006 Eastern Shore District Envirothon was held at the Herb Bateman Center on Assateague Island. The team training day took place on February 16, with competition on March 23. Six teams from local high schools registered for this environmental competition.

The two-day environmental education program features outdoor hands-on training and testing in soils, aquatics, wildlife and forestry. In addition to the four core subjects, teams tackle a challenging resource issue. This year's topic addresses the effect of rising sea levels on the Chesapeake Bay.



Natural resource specialists and community volunteers work with local educators to plan activities that will help students learn more about team building, cooperative learning, communications, and conservation projects.

This year Nandua High School won 1st place in the local competition. These students will go on to compete in area and statewide events later in the spring.

Financial support for the Eastern Shore Envirothon was provided by a grant from the Joy Foundation for Ecological Education and Research.

Students can attend summer Conservation Camp

The application deadline for the 2006 Youth Conservation Camp is May 1. Camp is held on the Virginia Tech campus from July 9-15. Students from across the Commonwealth in grades 9-12 learn about environmental resource concerns and explore the mountains of Virginia. Youth Conservation Camp is conducted by the Virginia Association of Soil and Water Conservation Districts.

Application is through the District office and student expenses are covered for the weeklong program. For more information contact Carmie Duer at 757-787-0918, ext. 101 or email carmie.duer@va.nacdnet.net .

Network News

by Gretchen Arnold

A new website for the Eastern Shore Watersheds Network is being developed to feature local information and events related to agriculture, land use, and water quality. The primary objective is to provide factual information on local environmental issues. Categories and links for the website will include topics such as local water quality, groundwater issues, and facts and myths about agriculture. If there is a topic you would like to see on the website, contact Gretchen at the District office.

Hopefully the site will be online in April. It is accessed through the Virginia Watersheds Association (VAWA) website at www.vawatersheds.org . Once the website is posted, you can click on the Eastern Shore to link to the Watersheds Network homepage and begin to explore a wealth of locally relevant information.

Scholarships available to shore residents

High school seniors and undergraduate college students may apply for the 2005 W. Foster Fletcher Conservation Scholarship and the William H. Beasley, Sr. Memorial Scholarship. Administered by the Eastern Shore SWCD's endowment committee, these scholarships are only available to Eastern Shore of Virginia residents. Up to $500.00 is available for scholarships to one or more students, depending upon their qualifications. May 1 is the application deadline. For more information contact Tamsey Ellis at 757-787-0918, ext. 129 or email tamsey.ellis@ va.nacdnet.net .

Camp and scholarship applications are available in the district office by calling 757-787-0918

AGRICULTURE

How much nitrogen fertilizer should I apply?.....

Ask the plant!

Variable-rate technology (VRT) makes it possible to change N fertilizer rates every 4 ft² based on individual plant needs -by Steve Phillips, Soil Scientist at Eastern Shore Agricultural Research and Extension Center

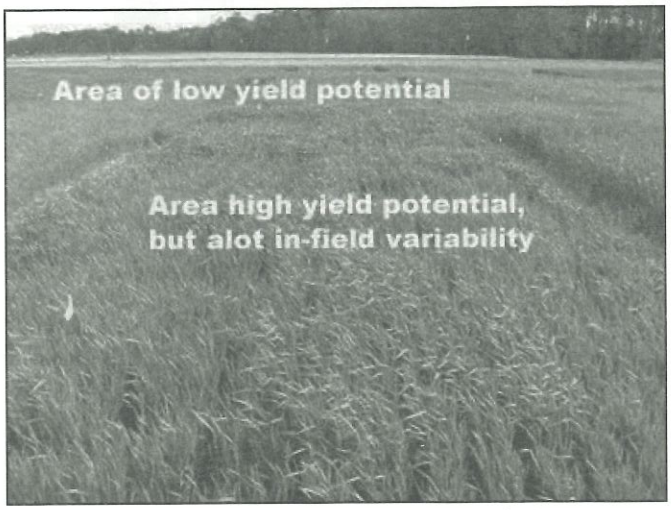
Typically, nitrogen (N) fertilizer is applied to wheat fields at a single rate based on the average needs of the field. The average N rate for the field is easy to calculate (often as simple as being based on a yield goal selected by the farmer) but is actually correct only about 1/3 of the time. Due to a variety of factors, many areas of the field have yield potentials and N fertilizer requirements significantly higher or lower than the average. This variability results in over application of fertilizer in some areas of the field and under-application in others. Over-application of fertilizer results in pockets of excessive nutrients subject to leaching or runoff, while under-application results in less than optimum crop yields.

Over the years, farmers have learned to apply nutrients more efficiently by treating large areas of the field differently based on crop yield potentials. Their decisions are often based on landscape elevation changes, soil differences, or simply their knowledge of previous yields in certain areas of the field. Whatever the causes of the variability, the differences in crop performance can be dramatic enough to be easily recognized by the farmer. However, research has shown that nutrient availability in fields can vary enough to affect crop yield in areas as small as 4ft², which can be nearly impossible to distinguish in the field.

Recognizing that the plant itself is the best indicator of nutrient availability and fertilizer requirements, farmers in Virginia use a tissue test to determine N fertilizer needs for an actively growing wheat crop. It's easy and fairly inexpensive to collect separate tissue samples from large areas of the field showing variability in crop growth, but what about the differences too small to see? It's not only too expensive to conduct a tissue test for every 4ft² in the field, but it's essentially impossible to apply different N fertilizer rates to each 4ft² using traditional application equipment. That is until recently.

Researchers at the Eastern Shore Agricultural Research and Extension Center (AREC) in Painter, VA, have developed the methodology to accurately detect and treat differences in N fertilizer requirement for every 4ft² in Virginia wheat fields using GreenSeeker variable-rate fertilizer technology.

The GreenSeeker system, originally developed by scientists at Oklahoma State University, uses optical sensors



Crop yields can vary across a wheat field.

mounted on the spray boom to gather information about the crop. Just like farmers visually detect differences in crop performance based on color and plant vigor, the sensor "sees" the crop by measuring different wavelengths of light reflected from the wheat canopy. The biggest difference is that the sensor only "sees" the colors associated with plant health and blocks out the rest. This allows the sensor to detect differences in plant health (N status and plant vigor) and N fertilizer requirements across very small distances that cannot be detected with the human eye.

Once the N fertilizer requirement has been determined by the sensors, the information is sent through a variable-rate controlling unit, which activates a set of nozzles corresponding to each sensor to apply the appropriate rate.

How the sensor measurements are used to calculated the appropriate N rate for Virginia wheat production has been the subject of several year's worth of research at the Eastern Shore AREC.

Since 1999, researches at the Eastern Shore AREC under the direction of Dr. Steve Phillips have been investigating the potential to use sensor-based measurements to determine optimum N rates for wheat production. Thus, when the GreenSeeker became commercially available in 2003, Virginia was

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one of the first states to evaluate the new technology. The operation of the GreenSeeker system relies on a set of algorithms (a series of mathematical equations) which, upon initial evaluation in Virginia, were determined to be inaccurate for Mid Atlantic production systems. Therefore, Dr. Phillips and his research group conducted studies at over 30 sites across the state to develop new algorithms necessary to implement sensor-based fertilizer technology into Virginia wheat production systems.

By incorporating their Virginia-based research data into the GreenSeeker technology, Dr. Phillip's group was able to develop a variable-rate fertilization system for Virginia that has the potential to increase N fertilizer efficiency (amount of fertilizer N removed in the harvested crop) by 55% compared with the standard tissue test-based strategy. This increase occurs one of two ways.

- **By matching N application rates with specific crop yield potentials in given areas of the field, N rates can be reduced by up to 20 lb/acre without affecting grain yield or (2) grain yield can be increased up to 7 bu/acre without increasing N application rates.**

Approximately 245,000 acres of wheat are produced in Virginia each year. Assuming that N inputs to most of this area average 125 lb N/acre/yr, approximately 30,000,000 pounds of N fertilizers are applied each year. The worldwide N fertilizer efficiency for cereal grain production is 33%. Using this figure, over 20,000,000 pounds of the N applied in VA in an average year is not recovered in the harvested grain. Based on small-plot research results,

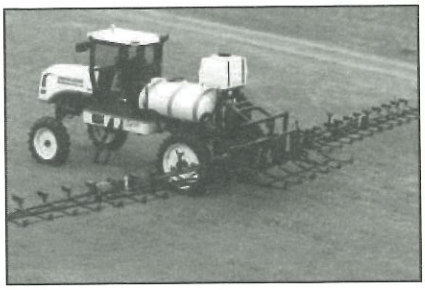
- **Implementing variable-rate fertilizer technology on only 10% of the wheat acreage in Virginia could reduce N loading in the Chesapeake Bay Watershed by over 500,000 lb/year.**

Current Virginia Research

In 2005, Dr. Phillips research team began conducting large-scale studies using the RT200, which is another version of the GreenSeeker technology.

There are several differences between the RT500 and the RT200. The biggest difference is that the RT200 has only six sensors spaced evenly across the width of the boom, whereas the RT500 has a sensor mounted every two feet across the boom. On both versions, the sensors operate independently to collect spectral data; however, only the RT500 calculates and applies an N fertilizer rate corresponding to each sensor.

The RT200 averages the measurements from all six sensors and calculates and applies a single N rate across the width of the boom. This method allows the RT200 to operate using any standard variable-rate controller and nozzles as compared with the RT500 which requires a GreenSeeker controller and variable-rate nozzles. These differences in design affect, not only the price (the cost of the RT200is markedly lower) , but the resolution (size of the areas in the field) at which the system operates. While the resolution associated with the RT500 is always 4ft² (2 ft sensor spacing and rate changes every 2 ft), the resolution with the RT200 depends on boom width and ground speed (typically 1800 to 2400 ft²). Results from this year's studies indicate that the RT200 might not be as effective in reducing N fertilizer rate or increasing grain yield compared to the RT500. Additional studies will be conducted in 2006.



For more information on GreenSeeker technology or other soil fertility research being conducted in Virginia, contact Dr. Steve Phillips at the Eastern Shore AREC in Painter.

DEQ Ag BMP Loan Program announcement: No-till drills / Planters are now loan eligible

The DEQ Ag BMP Loan Program will now accept no-till drills or planters as a loan eligible expense. Low interest loan funding is available for the cost of the no-till equipment less the value allowed by the dealer for any equipment the farmer trades in. Purchase must be made from a dealership but both new and used equipment are loan eligible.

Like the program's standard BMP loans, a $5,000 minimum loan, a satisfactory credit review and a Conservation Plan are required. Ag BMP loans are not available for refinancing no-till drills or planters that were purchased prior to submitting an Ag BMP loan application.

In order to apply for a loan for no-till drills/planters a farmer needs to submit the pre-application form that is found in the *Virginia Ag BMP Loan Program Guidelines* booklet. This form is available at the Eastern Shore SWCD office. The District will also assist with preparing the required Conservation Plan. No-till drills are not listed on the application at the present time so farmers should write in "no-till drill" on the practice list on the back of the application.

For more information contact Jane Corson-Lassiter at the District office in Accomac at 757-787-3581, x 126.

Resource Conservation & Development in action

By Marian Huber, RC & D Coordinator

There have been a number of recent initiatives to promote direct marketing and agritourism for specialty growers. A committee working through the Eastern Shore Tourism Commission, the Virginia Department of Agriculture, and the Virginia Tech Extension Service is developing suggestions for projects that may have potential to improve your business.

If you are interested in learning about agritourism and direct marketing opportunities, we'd like to invite you to attend a meeting with Ms. Cathy Belcher, Direct Marketing Director of the Virginia Department of Agriculture and Consumer Services on Tuesday, April 11 at 7:00 p.m. at the Virginia Tech Eastern shore Agriculture Research and Extension Center in Painter.

If you have an interest in participating in a network to promote your products or services, please take a minute to call 787-2786 or email marian.huber@va.usda.gov with the type of product or activity you offer, the time of year you are open, and the type of visitor or customer you serve.

One idea the committee felt was worth doing this spring was a map and guide to attractions such as wineries, pick-your-own farms, local farm stands, flower fields and other agritourism businesses. If you would be interested in being listed in a guide to Eastern Shore attractions like these and cannot attend the April 11th meeting, please call Marian Huber at 787-2786.

NRCS program updates

by Robert Williams, District Conservationist

The local Natural Resources Conservation Service (NRCS) office is proud to announce that over one million dollars in cost share funds have been allocated to local farmers and landowners on the Eastern Shore. Funding under these federal programs is as follows:

- Wildlife Habitat Incentives Program (WHIP) $65,251 in FY2004
- Environmental Quality Incentives Program (EQIP) $219,572 in FY 2005
- Environmental Quality Incentives Program (EQIP) $751,070 in FY 2005
- Environmental Quality Incentives Program (EQIP) $441,746 in FY 2006

Sign-up for these programs is expected to open again in fall 2006. Anyone interested may contact Robert Williams at the USDA Service Center.

The Shore Conserver is published quarterly by the Eastern SWCD to provide information to land users. Please contact the district office to be added to the mailing list.

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