



# Shore Conservor

Eastern Shore Soil & Water Conservation District • promoting locally led conservation  
22545 Center Parkway • Accomac, VA 23301 • (757)787-0918

## December 2010

Eastern Shore  
SWCD

[www.esswcd.org](http://www.esswcd.org)

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## State Water Control Board Backs Groundbreaking Memorandum of Agreement

Agriculture on the Eastern Shore produces more than 80% of the vegetable crop in Virginia. The total acreage of vegetable production is estimated at 10% (or 12,000 acres) on the Eastern Shore with approximately 4% in plasticulture. Over the last ten years, tomatoes grown on the Shore have ranked 3<sup>rd</sup> or 4<sup>th</sup> in the nation for fresh market tomato production. Plasticulture management includes planted rows, often bedded and covered with impervious plastic mulch alternated with uncovered, inter-row spaces. Usually drip irrigation tubing is placed under the plastic much to provide water and nutrients to the crop. Because of the differences between crop production with plastic mulch and conventional crop production, requirements and conditions for water quality protection differ. Some Best Management Practices (BMPs) that have been successful for conventional production may not be effective for plasticulture and vice versa.

The discussion of implementation and design of BMPs for the plasticulture industry on the Eastern Shore has continued for many years and included tomato growers, the Eastern Shore Soil and Water Conservation District (ESSWCD), VA Department of Environmental Quality, VA Department of Agriculture and Consumer Services (VDACS), VA Department of Conservation and Recreation, VA Tech Cooperative Extension Service and Natural Resource Conservation Service. Over the years, the only "regulation" came in the form of

follow-up from ESSWCD staff and if necessary, VDACS, to agricultural stewardship complaints. All compliance and implementation of conservation practices occurred voluntarily by the tomato growers through the combined efforts of local partners.

Discussions increased after a petition was filed on December 4, 2008, with the State Water Control Board followed by a Notice of Intended Regulatory Action (NOIRA) initiated by the State Water Control Board on November 12, 2009. Once the NOIRA was initiated, tomato growers with the help and leadership of local partnerships drafted a Memorandum of Agreement (MOA) between themselves and the ESSWCD. The District fully supported the MOA and maintained the need to keep solutions voluntary and locally led rather than regulated. On September 28, 2010, the State Water Control Board voted unanimously to endorse the MOA rather than pursue regulations on plasticulture. Honorable Todd Haymore, Secretary of Agriculture and Forestry, was quoted saying "The board made the correct decision...I also appreciate the willingness of the Eastern Shore Stakeholders to become actively engaged in this water quality enhancement process, as well as their commitment to supporting the agriculture and aquaculture industries that are so important to the economy of the region."

The MOA includes the formation of a diverse and competent Plasticulture Technical Water Quality Committee made up

of individuals who have the best experience available. This newly formed committee was appointed by the ESSWCD at its October 13, 2010 District Board Meeting. The District is committed to its mission as a political subdivision of the Commonwealth of Virginia to provide and develop leadership in natural resource conservation on the Eastern Shore of Virginia through technical assistance, education, the promotion of cooperative programs and meeting the needs of diverse clients. The tomato growers and the District are dedicated to working cooperatively to reach the goals set forth in the MOA and addressing water quality issues as they arise to help agriculture remain a viable industry on the Shore.



*Pictured above: Without plasticulture BMPs. This scenario may allow for runoff and erosion.*

*Pictured below: BMPs installed such as hydroseeding and grass buffers. Other BMPs like rock check dams, etc. can be used for different slopes, soil types, landscapes and conditions.*





## What's With Plasticulture?

There are a lot of misconceptions about plasticulture. Many people think that plasticulture is a "dirty" word and that this practice is the evil of all evils. However, it is actually considered a "Best Management Practice" (BMP). BMPs are methods that farmers and conservationists use to protect the soil, water and air. So, what is the story behind plasticulture, where is it used, and how can it possibly be a BMP?

In Virginia, plasticulture is mainly used to raise produce by growing plants in rows covered with a plastic film referred to as "plastic mulch". Water (and other substances) cannot pass in or out of the plastic mulch; therefore the farmer has more control over this environment. A drip irrigation tube is often placed under the plastic mulch allowing the farmer to closely regulate the amount of water, fertilizer and pesticides that are applied to the plants.

Plasticulture has been used commercially on vegetables since the early 1960's. By the early 80's it was being used on the Shore to raise tomatoes and bell peppers. One of the main forces driving plasticulture is the demand of consumers for blemish-free produce. Since plasticulture provides a controlled environment, the quality of the produce is improved. It can increase yields by 2 to 3 times. In the case of tomatoes, the fruit and leaves are not in contact with the soil, therefore the fruit is cleaner, has fewer blemishes and less possibility of decay. Field preparation begins with tilling of the soil to allow for maximum root growth. Raised beds are formed in long rows about two

feet wide. Drip irrigation/fertilizer lines and plastic mulch are laid. Holes are then evenly spaced in the plastic by farm machinery which also drives 5 foot stakes into the ground. Greenhouse tomato seedlings are transplanted by hand into the holes in the mulch. As the plants go to maturity they are tied to the wooden stakes for support.

Plasticulture has been proven to have many advantages. One of the major advantages is that it extends the growing season. Since the plastic has the ability to warm the soil by as much as 10°F, vegetables can be produced 7 to 21 days earlier in the spring. This enables the farmer to get the produce to the market sooner, beating out other markets and bringing better prices. The warming of the soil by the plastic allows tomato growers in Virginia to have two overlapping seasons—the first in April and the second beginning in late June. These plantings are on different fields. Black plastic mulch is used in the first growing season while light colored plastic, which helps cool the soil, is used for the second.

Another advantage is that plasticulture uses less water. This reduction results from dripping irrigation water directly on the plant instead of spraying the entire field. Direct application, along with the plastic over the plant roots, reduces the rate of evaporation. Drip irrigation can save from 50% to 80% of the water used by other irrigation methods – which is good news for our groundwater supply. Nutrients and pesticides may also be applied directly to the plant through drip irrigation. This type of application allows the

farmer to closely regulate the amount of nutrients and pesticides. Therefore the total amount of nutrients and pesticides used on the field is lower. The low impact force of drip irrigation water reduces compacting of the soil assuring loose, well aerated soil which contributes to healthier crops. The plastic cover also inhibits light penetration to the soil so there are fewer problems with weeds, reducing the use of pesticides. The plastic cover directs rainwater runoff away from treated plants which prevents the nutrients and pesticides from being absorbed by this water and then leaching through our sandy soils into the groundwater system. Prevention of soil erosion by wind and water is another benefit.

Plasticulture has its disadvantages also such as the high costs to install this practice. Specialized farm machinery is needed along with the drip tubing and fittings which must be maintained during the season. Constant monitoring for leaks and clogs is required. Another disadvantage is what to do with the plastic resulting from this practice at the end of the season. Although very time consuming, most of this is bailed and sent to recycling centers. However, the biggest concern is runoff carrying sediment that occurs after a rain event. Although the plasticulture reduces the sediment that would be carried under former conditions, some may still remain. Especially after conditions like the Shore experienced last year when heavy rains prevented some farmers from planting traditional cover crops. Sediment entering the waterways is a major ...

*Continued on page 4...*

## Richard F. Hall Recognized



From left:  
Rick Hall and Robin Rich-Coates

After nineteen years of serving as Director on the Eastern Shore SWCD Board, Richard F. Hall, III, announced he would prefer to serve in an Associate Director capacity rather than be re-appointed by the Soil and Water Conservation Board to a new four-year term. Along with service to other organizations, Rick, a thirty-year farmer, has served on the Eastern Shore Land Trust Board since its formation in 2003. This board is interested in the establishment of conservation easements for resource conservation including habitat, farmland, historic resource and open spaces. The District Board and Staff appreciate Rick's dedication and commitment to the District for so many years. Rick was presented a plaque commemorating his 19 years of public service to the District by Chair Robin Rich-Coates at the November 17, 2010 District Board meeting.

## New Director to Provide Leadership on ESSWCD Board

Davis Lovell has accepted an appointment by the Soil and Water Conservation Board to serve as Director on the ESSWCD Board of Directors. Davis' four-year term will commence on January 1, 2011. He resides with his wife Tracy and their two daughters in Melfa, VA and is an active member of Onancock Baptist Church. He has served as a District Associate Director for the last three years. For the past 18 years, Dave has owned and operated a growing poultry operation and has served two years on the Board of Directors to the Delmarva Poultry Industry. The District looks forward to the new ideas and enthusiasm Dave will bring to resource conservation over the next four years.





## Bags to Benches

Nandua High School is investing in future, not just with the leaders of tomorrow, but by taking advantage of a program that recycles plastic bags and turns them into composite lumber. Local schools in the area have been participating in the Trex® Plastic Bag Recycling Drive. Trex® is one of the largest plastic bag recycler in the United States and is located in Winchester, Virginia. It uses the shredded bags along with sawdust to make a composite lumber. This material is then used to create weatherproof decking, railings and outdoor furniture.

In Trex's Plastic Bag Challenge, it has participating schools compete to collect the most plastic bags. Of the local schools in Accomack county, Nandua recycled the most bags (approx. 152,000) in the last challenge. The average American household uses 900 bags per year, so that's, a whole lot of families who pitched in. You do the math.

Trex® offers an incentive for the winning school such as funding for equipment or a bench made out of the composite lumber. This last challenge Nandua was awarded the Trex® bench which is valued approximately \$200.00, and takes 100 bags to make a bench.

The Eastern Shore Soil and Water Conservation District is supporting this effort by collecting plastic bags for the schools. Trex also accepts: Bread bags, Cereal bags, dry-cleaning bags, Shrink wrap, newspaper sleeves, produce bags, greenhouse film wrap from paper products (paper towels) and sandwich bags (no Ziploc).

Trex® does not accept plastic bottles, bubble wrap, food containers, mulch bags or bags with strings or plastic with food residue or moisture. If you would like to donate your used plastic bags or other acceptable items, you may drop them off at ESSWCD in the USDA Service Center, 22545 Center Parkway, Accomac, VA 23301 located be-



Susan Wilder, head of Nandua High's program, on the bench awarded to the school

## Pirates of the Chesapeake Strike Again at the 2010 Watershed Walk

This was the second year of the Pirate themed Watershed Walk, an educational festival with hands-on activities for children and adults alike. There were "pirates" all over the festival; some were the various exhibitors dressed in the 17th century pirate garb, some were the children who chose a pirate hat prize and wore it around the festival and one was a strolling pirate (David Hatfield) interacting with the crowd. He told tall tales of pirates in the Golden Age of Piracy. This theme was also promoted by the band, "Three Sheets" playing sea shanties and other water related tunes while patrons used the treasure map to guide them through the Watershed Walk.

The Watershed Walk was held in partnership with the Onancock Harborfest on Saturday, September 11, 2010 at the Town Park of Onancock, VA. Sponsored by the Environmental Education Council (EE Council) through the Eastern Shore Soil and Water Conservation District, the Watershed Walk consisted of 18 exhibitors from across the State such as the Museum of Chincoteague, Dept of Game and Inland Fisheries, ES Master Naturalist, ES ShoreKeeper, Kiptopeke State Park, and others who had interactive displays highlighting the wonders and historical culture of the Chesapeake Bay and the Eastern Shore. Visitors



Children are like sponges, soaking up knowledge while having fun with the hands-on activities. The pirate hat was just an added extra reward.

learned how unique the Eastern Shore is and why it is so valuable to wildlife.

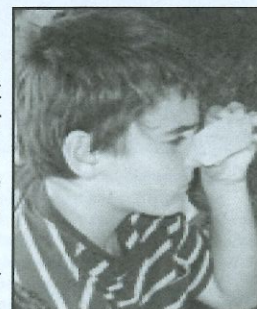
This event help local children get a head start at school by focusing on the Science Standards of Learning (SOLs) for grades 3-6 and it provided plenty of fun for everyone. Along the path, children received a "gold coin" at each event they participated. They used this well deserved bounty of coins at the Keeper of the Treasure as proof of successfully navigating the Watershed Walk. They could choose between a plush sea animal or a pirate hat as a reward for taking this journey. The Watershed Walk had a 50% increase in public attendance over the previous year. The EE Council and ESSWCD greatly appreciate the support of the Onancock Harborfest Committee, and the efforts of all the individuals and organizations involved in the planning and presentation of this event.

## Farms, Fields, Fun

Almost over 600 Accomack County third graders had an exciting field day outside learning about operations that occur on a farm. They learned how food gets on their table and that farmers play a major role in this process. They discovered that we have to take care of our fertile vegetable soils and plants help take up nutrients and prevent flooding.

Farm Field Day is sponsored by the Virginia Cooperative Extension Office. Several partner agencies such as Eastern Shore Soil and Water Conservation District, ANEC, NRCS, Master Gardeners, and the Department of Forestry gave presentations. These included sessions on electricity, fire safety, forestry, farming in colonial times, local crops and other aspects of rural living in a farming community. The ESSWCD did a presentation focused on several of the Standards of Learning concepts for 3rd graders. It was based on how soil is formed and what local farmers do to protect it.

Duncan Farms was a great setting for this event. Bruce and Fred Holland who own Duncan Farms, have hosted this event for over thirteen years. We extend our appreciation for their dedication to the youth of the Eastern Shore.



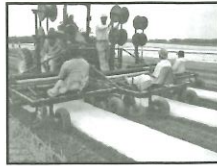
A student ponders how quartz breaks down to sand



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## Plasticulture

...concern for the aquaculture community. In order to protect our waterways the larger tomato companies use several BMPs to control this sediment. The spaces between crop rows and the farm machinery drive roads are sometimes planted with annual ryegrass, barley, or wheat to help absorb runoff of rainwater from the plastic. This practice has been proven to greatly reduce sediment movement. An often overlooked feature is the protection these plantings between the crop rows offer to young seedlings from the wind. Retention ponds have been dug in some areas. These are designed to slow the movement of water coming off of the field, then capture the sediment. This allows the sediment to settle to the bottom of the ponds. Another method is special designed and constructed ditches which capture the runoff before it can get into a water way and then slow its movement allowing the sediment to fall out. Just because you see muddy water in a pond or ditch does not mean the ditch or pond is not doing its job. It may mean the exact opposite – they are trapping and holding the sediment. A third method of attack on sediment is providing a vegetative buffer zone between the field and bodies of water. These areas of tall, warm season grasses, shrubs and trees do an amazing job of trapping sediments, nutrients and pesticides. The three major tomato companies on the Shore are using BMPs in an effort to help solve the problems associated with plasticulture.



As in most things there are pros and cons with the practice of plasticulture. It involves high initial costs, constant management and, just like almost any other system, there is the risk of mismanagement. However many people believe that the increased production of higher quality produce, the lower use of water, pesticides and nutrients, along with the decrease of toxins leaching from our sandy soils into the groundwater makes the plasticulture system a practice that has more environmental pros than cons.

## ESSWCD Begins 65<sup>th</sup> Year

When the Eastern Shore Soil and Water Conservation District Board meets on January 12, 2011, it will begin its 65<sup>th</sup> year in existence. In 1945, twenty-eight successful petitioners signed to establish the District under the authority of Chapter 394 of the acts of the General Assembly of Virginia. On January 4, 1946, ESSWCD conducted its first official District Board meeting with a five-member Board of Directors. Members of that original meeting were J.E. Tankard, Chair, John E. Drummond, Jr., H. Marshall Clark, E. J. Marshall and Harold Wescoat. The first District employee, Foster Fletcher, was hired in 1968 as Treasurer.

The principal conservation concerns of the forties included drainage, irrigation and forestry and are still supported by the District. In the 1950's, to address those issues, the District obtained heavy equipment from government surplus and supervised its operation by farmers. The heavy equipment program was phased out and in the 1970's the equipment was sold. The sale of the heavy equipment, together with increased financial assistance from state and local governments, enabled the ESSWCD to extend its scope of operations.

Currently, the six-member District Board is comprised of four elected Directors representing both Accomack and Northampton counties—Chair Robin Rich-Coates (NH), Fred Holland, II (Acck), James A. Evans (Acck), W. Rawlings Scott, Jr. (NH), and two appointed Directors—Vice-Chair Richard Hall, III (Acck) and William Shockley, Sr., (NH). The District employs four full-time staff members consisting of District Manager, Carmie S. Duer, Education Director, Tamsey W. Ellis, Conservation Specialist, Addison Nottingham, and Conservation Technician, Latonya E. Justice.

From 1946 to 2011 and beyond, the District Board and staff will continue to work diligently in an effort to educate the public and promote the use of all of our available natural resources. We look forward to the future direction of the District and what that direction may bring.

The Shore Conservator is published quarterly by the Eastern Shore SWCD to provide information to land-users. The District customarily meets monthly on the second Wednesday of the month at 5:00pm at the USDA Service Center in Accomack, VA. The public is welcome to attend. To be added to the mailing list, please contact the District office at 757-787-0918 x119.

*All programs and services of the Eastern Shore Soil and Water Conservation District and the Natural Resources Conservation Service are offered on a nondiscriminatory basis, without regard to race, color, national origin, religion, sex, age, marital status or handicap.*

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