Views From The Foothills A Publication of the Culpeper Soil & Water Conservation District Serving Culpeper, Greene, Madison, Orange & Rappahannock Counties www.culpeperswcd.org

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Managing stockpiled fescue: Are all the questions answered?

Robert Shoemaker, Alan Franzluebbers, Gabriel Pent and Carl Stafford

Tall fescue is a mainstay of the American beef cattle industry. It grows on about 35 million acres of pastureland in the eastern U.S. University recommendations in the Mid-Atlantic region generally suggest applying 60 to 80 pounds of nitrogen in late summer (end of August) to stimulate forage growth with the onset of cooler weather in the fall.

Recommendations are to defer grazing once fertilized on a portion of pasture acreage to accumulate enough forage for grazing in the winter months. The recommendations are set, so there is no need to look further ... or is there?

A team of researchers in Virginia and North Carolina set out to test whether these recommendations hold true or could be tweaked for better resource efficiency. Researchers asked two fundamental questions:

- 1. How much nitrogen is needed to get maximum economic return from that investment?
- 2. Is it better to wait until December before putting cattle onto stockpiled fescue or can adding an earlier flash-grazing period provide good return?

The nitrogen question- The need to apply nitrogen to pastures assumes the soil is not providing enough nitrogen. In many soils, this may be true, but is it always true? Research in the past few years throughout North Carolina and Virginia has informed us otherwise. In a series of trials conducted on several dozen fields throughout the region, about 75 percent of the sites did not yield an economic response to nitrogen fertilizer application. Yes, you read that correctly: Three out of four fields did not produce enough extra forage to be a better alternative than purchasing lower-cost hay.

This was possible because of an accumulation of organic nitrogen in the root zone during years of grazing and regrowth cycles. Think of it this way: Plant material contains nutrients removed during grazing but returned to the soil as organic matter (urine and dung). Soil bacteria and fungi decompose the nitrogen in this organic matter, releasing it back to the soil as inorganic nitrogen (ammonium and nitrate), which is available for new pasture growth.

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Culpeper Soil & Water Program & Publication Recognized

The Annual Meeting of the Virginia Soil and Water Conservation Society was held in Charlottesville on October 28, 2019. Culpeper SWCD was recognized for its pioneering work on the Virginia Conservation Assistance Program (VCAP) Steering Committee. Culpeper SWCD was one of the four SWCDs that developed and managed what became VCAP through grant writing and manual development from 2007 through 2017.

Culpeper SWCD Urban Conservation Specialist Richard Jacobs III also was recognized with the June Sekoll Media Award for his development and publication of the new Driveway and Gravel Road Best Management Practices Guide. According to the VSWCS website, the June Sekoll Media Award is a Virginia Chapter award for an individual or group that writes or produces materials for radio, television, newspapers, magazines or organizational publications which significantly increase public understanding and promote wise use of Virginia's natural resources. See details about the guide on page 14.







Culpeper Soil & Water Conservation District's Popular Tree Sale is Back!

- Five of one species for \$5
- Available species: Eastern redbud, crab apple, pin oak, Virginia Pine, Honey locust and common buttonbush
- Pick up trees March 13 or 14, 2020 at the Culpeper SWCD office only
- Supplies are limited!

2019 Conservation Awards

The District's Annual Conservation Awards Dinner was held on November 7, 2019 in Culpeper to honor residents who have demonstrated leadership in the stewardship of local soil and water resources.

The **Bay Friendly Farm Awards** are given to one farm in each county of the Soil and Water Conservation District that is exemplary in its protection of the state's soil and water quality, with particular emphasis on nutrient management. The recipients of the Bay Friendly Farm Awards were:

- Culpeper County, William A. Spillman III
- Greene County, Barbara J. Fried, Virginia Grassfed Beef (below left)
- Madison County, Charlie Thornton
- Orange County, Frank Gillan, Retreat Farm Produce (below right)
- Rappahannock County, Thomas Atkins (page 5 upper left)

The Conservationist of the Year Award is given to an individual or individuals who demonstrate outstanding leadership, hard work and investment in conservation practices that protect the quality of soil and water in the Culpeper District and exhibit strong advocacy to others for conservation. This year's award was presented to **The Nixon family** of **Glenmary Farm** for exemplary conservation practices in **Orange** County and for support to District outreach efforts. (page 5 top row middle)

The 2019 Forestry Award was given to Goodall Family Farm of Madison County. (page 5 top row right)

The 2019 Educator of the Year was presented to Old Rag Master Naturalists, particularly Bill Clarke and Ken Cranston. (page 5 second row middle picture)

The 2019 Wildlife Habitat Award was given to James and Sally Hazel of The Preserve at South River of Greene County. (page 5 second row left)

At the banquet, former Delegate Butch Davies presented the staff of CSWCD with a plaque of appreciation for hard work and top quality customer service. (page 5 second row right)

At the December Board meeting, long-time Natural Resources Conservation Service employee Nancy Utz was recognized for her years of service upon retirement and Culpeper Director Tom O'Halloran was recognized with the 2019 Chairman's Award. (page 5 bottom row)















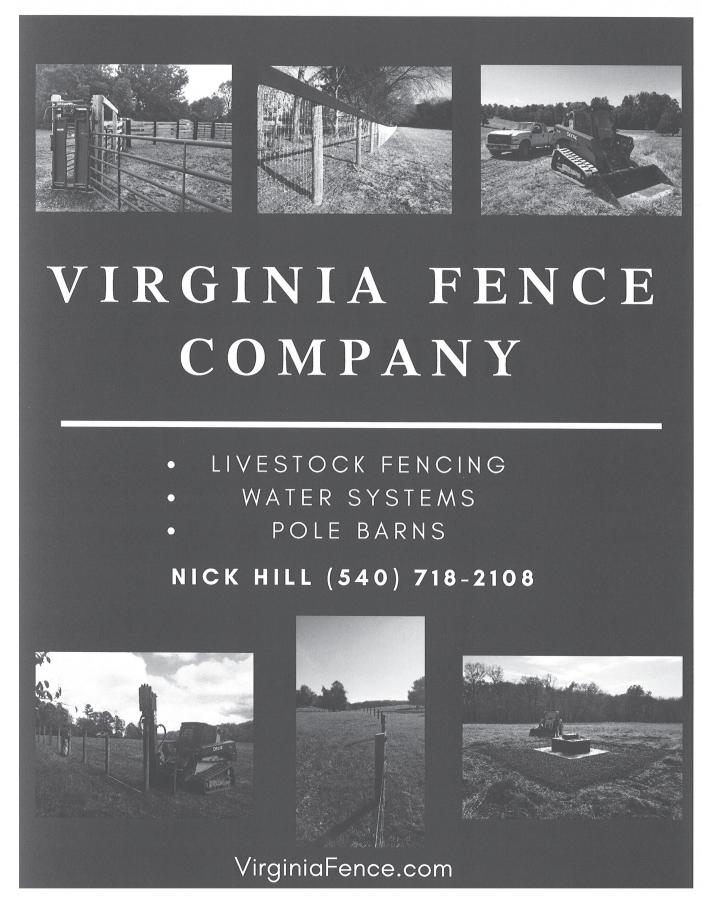




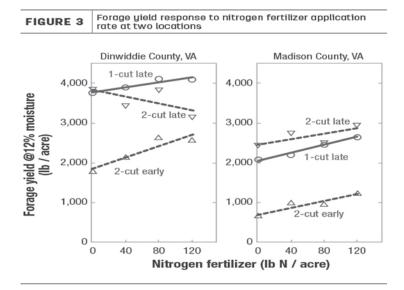


Woods and Wildlife Conference Returns to Culpeper!

The popular Woods & Wildlife Conference returns to the Daniel Technology Center in Culpeper on Saturday, February 29, 2020. Contact Adam Downing at adowning@vt.edu or 540-948-6881 for more information.



Continued from page 1



This research shows we can measure the organic nitrogen available for pasture growth. Traditionally, this was not part of a routine soil test because we did not have a quick, reliable method. Nitrogen mineralization is the process of turning organic nitrogen into inorganic nitrogen (i.e., turning complex organic matter into its simple mineral constituents). In previous and ongoing research, we found the potential for soil nitrogen mineralization was associated with a rapid, reliable and robust test of soil-test biological activity. The greater the level of soil-test biological activity, the less likely a pasture will produce more forage with application of nitrogen fertilizer.

Continued on page 9



New Practice Helps Producers with Pasture Management

Each year, the Virginia Agricultural Cost Share (VACS) Program adds new best management practices (BMPs) based on producer and technical staff input. For the 2019-2020 Program Year one of the new practices is SL-9: Grazing Land Management.

This BMP is intended to promote adequate regenerative pasture forage to minimize soil erosion and runoff. The practice is designed to enhance the producers level of grazing management by rotating livestock in accordance with a grazing plan specific to their operation. At the same time the system should improve the quantity, quality and utilization of forage for livestock. It should also reduce the risk of surface and groundwater contamination from nonpoint source pollution from pastures by assuring that an adequate stand of forage is available to absorb runoff and reduce pollutants.

All fields that receive cost share under this practice must be perennial pasture (plant cover for 60% of the year or longer) and have had all livestock previously excluded from all surface waters and sinkholes. Any field that is part of a rotational grazing system is eligible. A written grazing management plan that includes all acres in the grazing system must be prepared and followed in accordance with NRCS Standard 528 Prescribed Grazing. The practice helps producers with the cost of mowing/spraying to control woody vegetation and encourage regrowth, maintain adequate nutrient and pH levels to improve or maintain desired forage species composition in accordance with soil test recommendations, dragging pastures to uniformly distribute nutrients, and establishing sacrifice areas to contain livestock during times of drought or extremely wet weather to feed hay or other supplements.

So what are you required to do?

The cost-share rate is an incentive payment of \$25 per acre per year over the three year lifespan of this practice, for a total of \$75 per acre and is limited to 200 acres per participant per year. Cost share payment is made after soil test recommendations and a grazing plan are on file with the District. Fields in a grazing system are only eligible for payment one time.

For more information about this practice contact:

David Massie, 540-825-8591 x. 1004 or davidm@culpeperswcd.org Amanda McCullen, 540-825-8591 x. 1003 or amandac@culpeperswcd.org Spencer Yager, 540-308-6301 or spencery@culpeperswcd.org



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The grazing question- The standard recommendation is to defer grazing of fall-stockpiled fescue until the onset of winter. We were curious whether a moderate harvest event in October followed by the complete harvest of the fescue later in winter would yield more forage. An intermediate flash-grazing event in mid-fall may allow cattle to utilize some forage, reset the leaf area index to an optimum level for growth and still allow enough heat units to accumulate additional forage for winter grazing.

Forages grow best with a full canopy of foliage present to capture sunlight. Too few leaves limit growth because not enough "solar panels" are present to convert all of the available light energy into chemical energy. Too many leaves can result in shading of some leaves. This concept may be measured through the leaf area index. Tall fescue growth is most efficient at a leaf area index of approximately 7 or when the pasture sward is approximately 10 to 12 inches tall.

The experiment-Two well-managed, rotationally stocked pastures were selected in Dinwiddie and Madison counties of Virginia. Researchers applied four rates of nitrogen from zero to 120 pounds per acre at the end of August 2018. Simulated grazing treatments were the control or standard recommendation, which was a single harvest in mid-December to mid-January down to a 2-inch residual height and the double-grazed system with a first cutting in early October to a 5-inch residual height followed by second cutting down to a 2-inch residual height in mid-December to mid-January.

Nitrogen results - Forage yield generally increased with increased nitrogen rate at both sites, but the change was not dramatic (**Figure 3**).

At the Dinwiddie County site, nitrogen application in the standard one-cut system led to an increase of 3 pounds of forage per unit of nitrogen. The early cutting of the two-cut system resulted in the most dramatic yield response to nitrogen application, returning 7 pounds of forage per unit of nitrogen.

However, the negative yield response to nitrogen in the second cut negated the early yield response, resulting in an average yield response to nitrogen in the two-cut system of 3 pounds of forage per unit of nitrogen. All of the yield responses at the Madison County site were less than 5 pounds of forage per unit of nitrogen, independent of timing and frequency of cutting.

Based on economics of fertilizer cost and value of forage, yield of less than 10 pounds of additional forage per unit of nitrogen would have been wasted investment. Soil-test biological activity was medium to high for both fields, suggesting substantial nitrogen mineralization was occurring in both fields. Economic response to additional nitrogen already present in the pastures did not occur.

Grazing results: Across nitrogen rates, the two-cut system produced approximately 1,000 to 2,000 pounds more forage per acre than the one-cut system at both sites. Generally, the late cutting in the two-cut system produced as much forage as the one-cut system total. The early cutting in the two-cut system could be considered a bonus harvest. Removing excess forage early in the fall growth period was beneficial to allow newly growing leaves to capture more sunlight.

Interpretations: Rainfall was abundant in the fall of 2018 in Virginia. Research was conducted only on two sites. Due to abundant rainfall, potential growth was rapid early in the fall growing season. Both nitrogen and grazing results indicate some potential to improve economics in winter beef cattle systems. In this instance, purchasing adequate-quality hay to provide additional forage may be a better option than spreading nitrogen on non-responsive fescue pastures in August. The two-cut or two-graze system suggests opportunity to produce additional forage for very little cost compared to current standard university recommendations of deferring grazing until early winter when moisture is abundant.

Alan Franzluebbers, USDA-Agricultural Research Service, Raleigh, NC.
Gabriel Pent, Virginia Tech, Shenandoah Ag Research and Extension Center, Steeles Tavern, VA
Carl Stafford, Virginia Cooperative Extension, GW Carver Agriculture Research Center, Culpeper, VA a.
Robert Shoemaker, Virginia Department of Conservation and Recreation, Warrenton, VA



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Conservation Incentive Programs

Available in the Culpeper Soil & Water Conservation District Updated December 2019

Program	Cost Share Rate to Establish Practices	Agreement Period	Requirements	Annual Rental and Other Payments	Other Cost- Sharing	Where & When to Sign-Up
Environmental Quality Incentives Program (EQIP)	Up to 90% of estimated costs	2-10 years Must be part of conservation plan	threat to soil, water, air, and related natural resources on land	None	VA BMP Cost Share Program	
Reforestation of Timberlands (RT)	Up to 75% of estimated costs	10 years	Water quality BMP's must be installed. Pines only. 100-acre maximum.	None	None	VA Depart- ment of Forestry
U.S. Fish & Wildlife Service Partners for Fish & Wildlife	75% to 100%	10-year- minimum	Priority areas include Upper James, Upper Roanoke, Upper Tennessee watersheds	None	VA BMP	Culpeper SWCD USFWS
Virginia BMP Program	60-100% plus incentives	5 - 15 years	existing water quality problems	Yes for buffers	Some areas	Culpeper SWCD
Virginia BMP Loan Program	Zero interest loans – no maximum.	Up to 10 years	must be an eligible practice	None	None	Culpeper SWCD
BMP Tax Credit Program	25% of out-of- pocket expenses	5 - 10 years	existing water quality problem	None	BMP Program	Culpeper SWCD
Emergency Conservation Program (ECP)	50 - 64%	10 years	Damage to agricultural produc- tion due to declared agricultural emergency	None	None	FSA When an- nounced
Conservation Reserve Program (CRP)	No more than 50%; varies by component	10 or 15 years	Vary according to practice	Varies based on soil types	None	FSA
Conservation Reserve Enhancement Program (CREP)	No more than 50%; varies by component	10 or 15 years	Vary according to practice	Varies based on soil types	SWCD	FSA
TMDL Ag BMP Program	50-85% depending on the practice	10 years	Stream exclusion projects with 10-35 foot setbacks in selected watersheds		None	Culpeper SWCD
TMDL Septic Cost Share Program	50-80% depending on income	5-10 years	Inspections, pumpouts, repairs or replacements of septic systems in selected watersheds	None	None	Culpeper SWCD
VA Conservation Assistance Program (VCAP)	75% of costs	10 years	Problems with erosion, poor vegetative cover & impervious runoff. Existing Homes more than 3 years old are eligible	None	None	Culpeper SWCD
Agricultural Land Easement (ALE)	Cost to obtain easement	Permanent ease- ment	Open space easement; requires a partner agency to provide funds and hold easement	None	None	NRCS
Wetland Restoration Easement (WRE)	100% of wetland restoration costs plus cost to ob- tain easement	Permanent ease- ment	Area must meet criteria for wetland restoration	None	None	NRCS

CSWCD Expands Federal Education Grant

The Culpeper Soil and Water Conservation District (CSWCD) continued its Bay Watershed Education and Training (BWET) grant from the National Oceanic and Atmospheric Administration (NOAA). This three year grant brings \$250,000 into the District specifically to develop and deliver Meaningful Watershed Educational Experiences (MWEEs) for all sixth grade students in the five county District and also provide professional development programs for all instructors.

This fall the program launched Year 2 in Greene County at William Monroe Middle School and also returned to William Wetsel Middle School and Rappahannock County Elementary School, the schools from Year 1. Programs are scheduled with second semester science students at Wetsel Middle in March 2020 and Prospect Heights Middle School in April. Students were led through three days of classroom instruction. The investigative question was "Does our school impact the Chesapeake Bay?" The fourth day focused on an evaluation of the school grounds. The field components were held on the Rose River at Graves Mountain Lodge in Madison County They were perfect days to be outside and students enjoyed seeing live macroinvertebrates, performing chemical and physical tests on the river, using a dichotomous key to identify trees and seeing and touching the impact of vegetation on soils. Students returned to the classroom to evaluate the data collected at the Rose River, return to their investigative question and write letters to the editor about their experiences.

According To Eileen Oliver-Eggert, Principal of William Monroe Middle School, "The 6th grade students and science teachers at WMMS have been so fortunate to benefit from this amazing grant opportunity and instruction through The Culpeper Soil and Water Conservation District (CSWCD), Bay Watershed Education and Training (BWET), and the National Oceanic and Atmospheric Administration (NOAA). The classroom lessons and real-life experiences in the field have been powerful ways to help students learn not only about the impacts on the environment but about scientific processes and logical thinking as well. We are so grateful for this amazing opportunity. "

Cindy Orange, lead 6th grade Science teacher at WMMS continued "This partnership has been one of the best experiences for our kids in Greene. The awesome Soil & Water staff led our students through Biological, Chemical, and Physical Monitoring in class, then students were able to connect their learning with a meaningful watershed experience at Graves Mountain's Rose River. Richard Jacobs, Culpeper SWCD staff, led students through the school yard at WMMS, where students took soil samples, evaluated run-off from school construction, and assessed the impact we have on the Chesapeake Bay. Students completed their studies with creating and painting watersheds. This grant has allowed the Soil & Water Conservation District to give our classes books to reference, models for simulation, materials to create watersheds, lab kits to conduct monitoring, and wonderful and talented guest speakers to enrich and engage our students. So many positive things to say, but the best part is that these folks didn't just teach the students to regurgitate information, they taught them how to find it."

The Culpeper District has been acknowledged as the first soil and water conservation district on the East Coast to be selected for this grant.

Scholarships Available for Fall Camps and College!

Do you know a young person who loves the outdoors? Culpeper Soil & Water offers scholarships to two Fall camps. Camp Woods and Wildlife is held in June at the Holiday Lake 4-H Center. Youth Conservation Camp is held in July at Virginia Tech. Contact Stephanie DeNicola for more information at stephanied@culpeperswcd.org.

The District also offers college scholarships to students dedicated to natural resource conservation. Contact Stephanie DeNicola for more information at stephanied@culpeperswcd.org.

Road and Driveway Maintenance Guide Reprinted

Over time many roads and driveways deteriorate for a variety of reasons: poor initial design or construction, poor maintenance, extreme weather or heavy traffic. In addition to costly repairs, many roads and roadside ditches drain into local streams delivering both sediment and gravel into stream channels. This is destructive to the stream, resulting in loss of stream bottom habitat and results in loss of channel capacity. Improved maintenance incorporating best management practices (BMPs) can save money and better protect local waterways.

Currently available to property owners is the Dirt and Gravel Road BMP Guide, published with funding from the Chesapeake Bay Restoration Fund. The guide can be found at the Culpeper Soil and Water Conservation District's website (www.culpeperswcd.org) under publications. Hard copies can be picked up from CSWCD as well as your local extension office or building office.

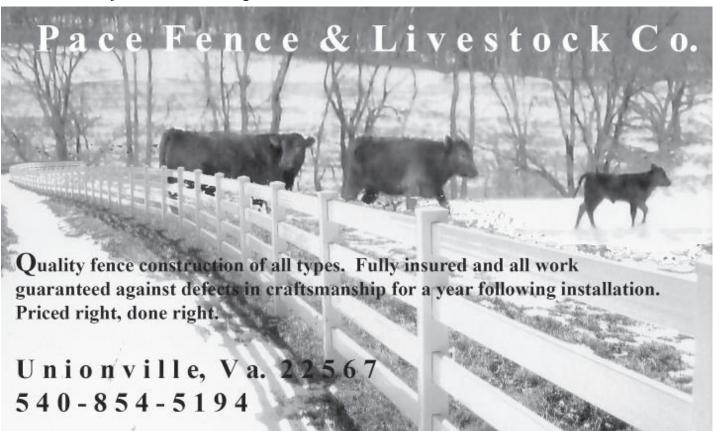
For technical assistance contact Richard Jacobs at 540-825-8591 or Richard

James River Buffer Program

The James River Buffer Program assists landowners within the Middle James River watershed restore forested buffers along all waterways (tributaries, ponds, streams and rivers) on any type of land use. Land in the southern part of Greene County is eligible.

The program offers flexibility to meet landowner objectives and assistance with site preparation, installation and three years of establishment and maintenance. The program covers 100% of project's total cost without and up front cost to the landowner. You may be eligible even if you are not eligible for conservation programs offered by USDA and Culpeper SWCD.

For more information call 434-286-7000 or email <u>buffers@thejamesriver.org</u>. You can also apply online at <u>www.jamesriverbuffers.org</u>.



RAIN BARREL SALE!

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Views From The Foothills

Published Seasonally By Culpeper Soil & Water Conservation District

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