

MOUNTAINS-TO-BAY GRAZING ALLIANCE



APRIL 2019

Productive Summer Forages to be Planted on Farms Across Virginia

by J.B. Daniel, NRCS Grassland Agronomist and Grazing Specialist in Virginia

Graziers throughout the state are gearing up to transition portions of their pastureland



Tall grass structure varieties like switchgrass provide a more consistent summer forage supply and more canopy for ground-nesting birds.

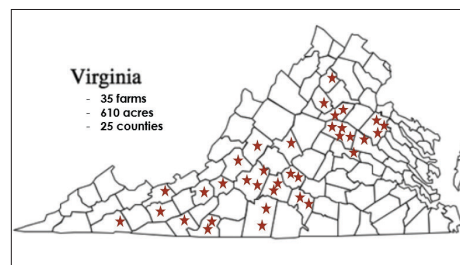
the switchgrass (pictured) also provides more canopy cover for ground nesting birds such as the Northern Bobwhite quail.

A new approach to grazing offered through USDA's Natural Resources Conservation Service (NRCS) could provide just the incentive you need to incorporate these grasses into your livestock enterprise.

Unveiled two years ago, the Working Lands for Wildlife Initiative eliminates a decades-old requirement to take land out of production to receive funding for habitat establishment/restoration. Now, you can keep your working lands working while establishing much larger acreages of habitat at the same time.

to warm season perennial grasses that provide a more consistent summer forage supply. These native species grow well and can yield four to five tons of dry matter per acre in June, July, and August when our cool season grass growth is very limited. The tall grass structure of varieties like

While most farmers enjoy wildlife, the more consistent supply of fresh forage for grazing livestock is the real reason so many are making the switch to native warm season grasses (NWSGs). The illustration below shows the geographic distribution of native grass plantings scheduled on 35 farms and 610 acres across the state of Virginia through this new program. Transitioning up to 30 percent of pastureland acres has been shown to balance forage production with livestock needs and takes the pressure off our cool season pasture acres for most of the summer.



The geographic distribution of native grass plantings scheduled on 35 farms and 610 acres across the state of Virginia through the Working Lands for Wildlife Initiative.

Dr. Pat Keyser's research, demonstrations, and Extension activities through the University of Tennessee and his Center for Native Grasslands Management have influenced many farmers to take a closer look at these grasses. His studies show that attention to forage establishment principles and grazing in the vegetative stage enhances livestock performance, far exceeding weaned calf gains on fescue mixed pastures during the

summer months (read more of his research at <http://nativegrasses.utk.edu>).

Virginia NRCS and the Virginia Forage and Grassland Council brought Keyser to Virginia for a series of summer workshops and evening pasture walks in 2017. These field demonstrations, combined with training for our staff, showcased the potential of these forages and resulted in signups for more than 600 acres to be planted in the next few years. Based on early results and farmer testimonials, I expect many more acres to be enrolled and planted with each year.

Farmers can choose to establish Eastern gamagrass, switchgrass, or a mixture of Big bluestem, Indiangrass, and Little bluestem for grazing through this program. If you doubt how well livestock like these native grasses, the photo below speaks volumes. These cattle were grazing at 2:30 p.m. in 90-plus degree weather in mid-July!



Livestock love native grasses.

(story continues on page two)

(continued from page one)

Although this program was previously limited to selected states, Working Lands for Wildlife is now written into the new Farm Bill. The benefits we have enjoyed in Virginia should be available to graziers in other eastern states starting in October 2019. A new USDA publication, *Economic and Productive Performance of Grazing Native Grasses in the Fescue Belt*, provides an excellent summary of potential economic returns from establishing and grazing these grasses.

The 2019 Farm Bill programs are currently being developed for rollout this fall. Now is the perfect time to begin thinking about next steps for your operation. Visit our website at www.nrcs.usda.gov to read more about the program, download a fact sheet, and get answers to frequently asked questions.

You can also view our *Forage for Beef and Bobs* video to learn how one farmer's livestock operation has benefited from these native grasses over the years.

Then, call or visit your local USDA Service Center to invite your local district conservationist for a farm visit and share how your livestock and grazing goals could benefit from a dependable warm season perennial native grass.

These discussions can build a foundation for a conservation plan and open the door to financial assistance that can help you implement conservation practice solutions for your grazing system.

Estimating the Environmental Benefits of Rotational Grazing

by Beth McGee, Chesapeake Bay Foundation

There are many reasons why farmers convert to grazing. Graziers can save money on labor, feed costs, and vet bills. Often, they get higher prices for their products. Many producers also say it improves their quality of life. There are even more ways that the rest of us benefit from this decision.

Planting grass instead of corn for feed or moving from continuous grazing to rotational grazing can substantially reduce farm nutrient and sediment runoff. This transition also helps reduce greenhouse gases by sequestering carbon in soil through increases in soil organic matter. Rotational grazing improves soil health and fertility. It makes farms more resilient to weather extremes like drought and heavy rainfall, since healthy soils have higher water holding capacity.

One objective of the USDA NRCS Conservation Innovation Grant that funds this newsletter and other projects has been to estimate environmental benefits on actual farms in the Chesapeake Bay region. To that end, we used farm-scale models to quantify greenhouse gas and water quality benefits of converting to rotational grazing for six "case study" farms. The farms represent different geographies (three in Maryland, two in Virginia, one in Pennsylvania), animal types (dairy, beef), and transitions (i.e., continuous grazing to rotational, cropland converted to pasture).

For each farm, Chesapeake Bay Foundation (CBF) staff worked with producers to obtain the necessary agronomic information to run two scenarios: the "baseline scenario" that reflected on-farm conditions and practices before the conversion to rotational grazing, and the "current scenario" that reflects

conditions after the conversion to rotational grazing.

We entered farm management information into two farm-scale models: *COMET-Farm* for greenhouse gas emissions and the *Chesapeake Bay Nutrient Trading Tool* for nutrient and sediment loads. Both models are available online and free to use, but you'll need to establish an account and password to protect the confidentiality of the data you enter.

We are still double-checking numbers, but the results for one case study farm are presented below. We will be sharing results of other case studies in future issues of this newsletter.

Matt Bomgardner owns and operates, Blue Mountain Farm, a 198-acre dairy farm in Lebanon County, Pennsylvania that has been in production since the early 2000s. His dairy herd includes roughly 100 milking cows and 20-25 dry cows.

Between 2008 and 2016, Matt converted 50 acres of cropland (a mixture of corn, alfalfa, and rye) to pasture so he could increase the percentage of time his dairy herd spent foraging on grass and comply with organic dairy standards. Historically, he applied manure and fertilizer to pasture and cropland, but he eliminated synthetic fertilizer in the current scenario, also to comply with organic standards.

Overall, greenhouse gas (GHG) emissions from the farm decreased by roughly 342 tons of CO₂ equivalents per year (see inset to right for more information on what that means).

(story continues on next page)

Greenhouse Gases 101

Gases that trap heat in the atmosphere are called greenhouse gases. We list the most common ones below.

Carbon dioxide (CO₂) is the most abundant greenhouse gas, but the least potent in terms of its ability to trap heat. CO₂ enters the atmosphere primarily through the burning of fossil fuels. It is removed from the atmosphere (or "sequestered") when it is absorbed by plants and soils. There is national and global interest in building "healthy soils" because of the huge capacity of soils to sequester carbon.

Methane (CH₄) is 28 times as potent as carbon dioxide in terms of its ability to trap heat. Agricultural sources include "enteric emissions" from livestock. Cows, as walking mini-breweries, depend upon fermentation to extract all the nutrition from forages they eat. Methane is a byproduct of this rumen fermentation. Manure management systems can also produce methane.

Nitrous oxide (N₂O) is 265 times as potent as carbon dioxide. N₂O is predominately produced in the soil by microbial processes and is heavily influenced by nitrogen fertilizer and manure application. As a result, good nutrient management can reduce nitrous oxide emissions. The storage and handling of livestock manure is another source of emissions that farmers can reduce with best conservation practices.

"CO₂ equivalents" is a standard unit for measuring carbon footprints. It allows us to account for the different potencies of greenhouse gases and express them in common units. For example, 1 ton of methane would be 28 tons of CO₂ equivalents, since methane is 28 times as potent as carbon dioxide.

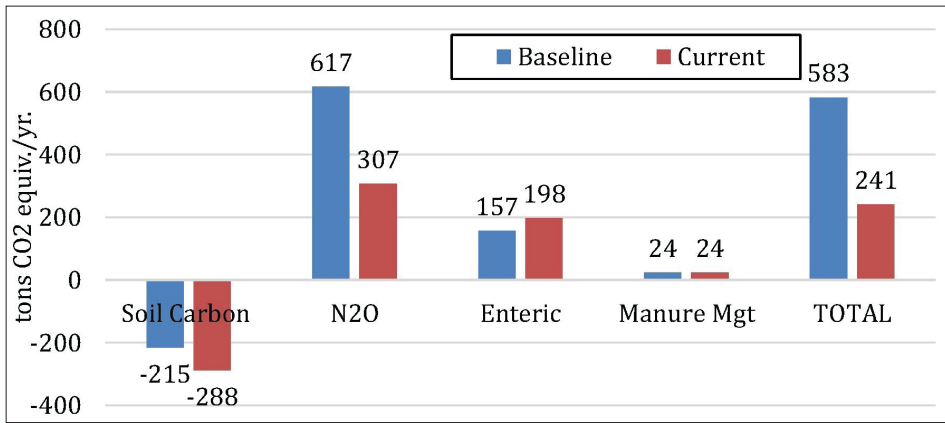


Figure 1. COMET-Farm results for Blue Mountain Farm baseline and current scenarios.

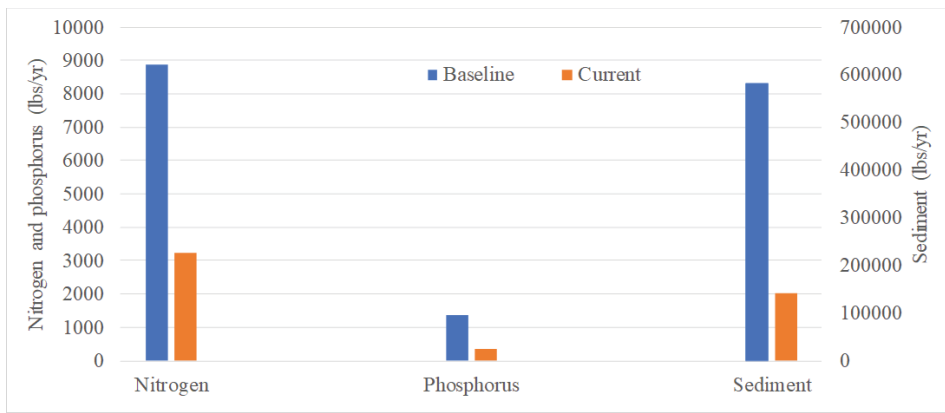


Figure 2. Results of Chesapeake Bay Nutrient Trading Tool estimates of annual loads nitrogen, phosphorus, and sediment from Blue Mountain Farm for the baseline and current scenarios.

This is 59% from the baseline to the current grazing scenario, indicating significant benefits in GHG reduction from transition to organic, rotational grazing. For context, according to the Environmental Protection Agency, this reduction is roughly equivalent to taking one passenger car off the road for a year.

COMET-Farm estimates GHG emissions from several on-farm “source and sinks,” so we are able to drill down and find where changes in GHG emissions occurred and due to what

actions. Carbon sequestration in the soil increased (negative values indicate carbon sequestration) from -215 to -288 tons of CO₂ equivalents per year, reflecting an increase in soil organic matter. This increase was due to both the transition of multiple fields from cropland to pasture and an improvement in grazing management across the farm.

Nitrous oxide (N₂O) emissions decreased from 617 to 307 of CO₂ equivalents per year. Reduction of N₂O resulted mostly from the elimination of synthetic nitrogen fertilizer

in the current grazing scenario. Enteric emissions of methane increased from 157 to 198 tons of CO₂ equivalents per year due to the increase of grasses as part of the cow diet, from 28% grass to 49% grass in the current grazing scenario. It is commonly understood that a diet high in grass results in higher methane emissions from livestock. The manure management system and emissions remained the same in both scenarios.

Nitrogen, phosphorus, and sediment pollution all decreased in the current grazing scenario by 64%, 74%, and 75%, respectively. Elimination of synthetic nitrogen fertilizer use in the current scenario contributed substantially to the reductions in nitrogen losses.

In addition, improvements in soil health led to better nutrient cycling, making nitrogen and phosphorus more plant available and less likely to run off. Similarly, increased water holding capacity of healthier soils helps reduce nutrient and sediment losses to the environment.

This case study has confirmed and put some numbers behind the multiple environmental benefits of converting to rotational grazing systems in the Chesapeake Bay region. This is one reason that USDA has committed to increasing the implementation of rotational grazing as part of their Climate Smart Agriculture and Forest strategy. In addition, the Chesapeake Bay watershed states are relying on this practice to help them achieve their pollution reduction goals for nitrogen, phosphorus, and sediment.

Look for additional case study results in future issues of this newsletter, as well as information about the economic benefits of converting to grazing systems.

Assessing Market Access for Sustainably-Produced Beef

As we reported in the last edition of the Mountains-to-Bay Grazing newsletter, Piedmont Environmental Council (PEC) is working with Health Care Without Harm (HCWH), a regional non-profit that encourages large institutions like hospitals and universities to purchase locally-raised beef. The purpose of their work is to better understand beef production in Virginia’s Piedmont and producers’ interests in connecting with a consistent wholesale market. To complement PEC’s supply study, HCWH is doing a market-demand study focused on hospitals and universities in our region. In the long-run, survey responses as part of the study could directly benefit local farms as well as the overall economic viability of beef production throughout the Piedmont region, which includes Charlottesville, and the counties of Albemarle, Nelson, Fluvanna, Louisa, Greene, Orange, Madison, Culpeper, Fauquier, Rappahannock and Loudoun.

In order to gather information about the beef economy in the Piedmont, PEC has put together a short survey. If you raise or sell beef, please consider taking 10 minutes to complete the survey, which can be found by [clicking here](#). PEC and HCWH will be collecting responses through the end of May.

So, You Want to Have a Grazing Event?

By Matt Bomgardner, Owner and Operator, Blue Mountain Farm

Planning pasture walks, conferences, discussion circles, and other events can be a challenge especially when it revolves around farmers. Farmers are often busy and won't take their time to attend an event that doesn't appeal to them or their operations. Having helped plan several events, I have the following advice for conducting your own.

Pasture walks are especially appealing because people can see forages, fencing, watering systems, and livestock for themselves, and discuss various options with other graziers. They can be inexpensive and easy, and do not need a lot of planning. Normally an experienced grazier who manages their pastures well is a good host. However, a good pasture walk can also be hosted by a beginning grazier who is looking for advice. Other graziers new to grazing will benefit from these walks too. Ask experienced graziers and local NRCS and extension grazing specialists to come to beginner walks to offer their advice. Be sure to have someone to lead the walk who will keep track of time and keep the group together.

Meetings and conferences require much more planning and often need to be financed. A location to hold the meeting adds cost unless a local farmer or extension office will host for free. Other options that won't break the bank are churches and fire halls. Lunch is often provided if the meeting lasts longer than

three hours. Remember that attendees are not there for the food, so keeping it simple with pizza, subs, or sandwiches along with a veggie tray, chips, and drinks is enough and helps keep costs down.

To help cover costs, some organizations will give grants or help sponsor the event. Local ag companies such as seed dealers, feed mills, and supply stores might be willing to sponsor a little too. Registration fees can be collected, but be careful, as some farmers may not think your agenda is worth the cost. Other farmers may not want to commit by preregistering for fear that they might not be able to make it that day.

I find that the audience usually prefers speakers who are farmers because they give a more applicable presentation. However, many agency speakers do a great job so a mix of both type of speakers is good. Audiences also enjoy Q&A panels. Agency speakers may speak for free or only need to be compensated for mileage. However, farmer speakers should be paid for their time and travel. Keep the agenda simple and do not rush the speakers. One-hour blocks for each presentation and lunch keep the meeting from feeling rushed and allows for conversation.

Hopefully these few tips can help you plan a successful event. Keep it simple and keep your focus on bringing graziers together.



Pasture walks are appealing to graziers, as attendees can see forages, fencing, watering systems, and livestock for themselves.

Be Part of the Next Amazing Grazing Directory

By Caiti Sullivan, Future Harvest CASA

Future Harvest CASA is updating our Amazing Grazing Directory of pasture-based farms in Delaware, Maryland, Virginia, and West Virginia in 2019. We continue to add new farms and products, and encourage you to join Future Harvest CASA and be part of our most requested publication!

More than 18,000 copies have been printed and distributed since our first printing in 2003. The Amazing Grazing Directory is provided free of charge to consumers looking for sources of locally and sustainably produced food choices in the Chesapeake region. It is used to promote the benefits of eating meat, poultry, eggs, and dairy products from grass-fed animals. Direct-market farmers raising grass-fed animals also use the directory to promote their own businesses and those of their neighbors.

The directory lists farms that are pasture-based (animals are primarily grass-fed) and that are selling product directly to consumers. Producers must pledge that their products are raised without added hormones or antibiotics. We ask all farms listed to describe their production process and confirm whether any of their animals are 100% grass-fed or pastured. You may be contacted by our staff for verification. We also ask that all animals be fenced out of streams, as we market these farms as conservation-friendly: for water quality and climate change, protecting stream banks, and building soils through regenerative agriculture.

The directory will include contact information, product and farm descriptions, and a farm location map. To view the 2015 directory, please go to futureharvestcasa.org and click on "Resources," or [click here](#). There is no cost to be listed in the directory; you can sign up online at <http://bit.ly/AmazingGrazing2019>. To request a hard-copy application to complete and send by mail, email futureharvestcasa.org or call 410-549-7878.

Make Hay While the Sun Shines

By Matt Booher, Virginia Cooperative Extension

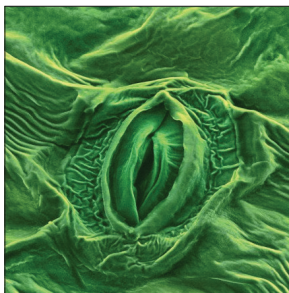
Do you know how hay dries? I thought I knew—turns out I didn't. Recently, I read an article on how hay dries that changed the way I think about haymaking. Some additional research led to a couple quick-and-dirty, on-farm tests and to a challenge I'd like to offer. But first I'd like to share some of what I learned:

- Each ton of dry hay that is made has to first lose roughly 1.5 tons of water.
- A 20% drop in air humidity speeds drying time by about one-and-a-half times.
- The presence of surface soil moisture lengthens drying time: at 80°F, for example, a moist soil extends drying time by six hours.
- Going from no wind to an eight mile-per-hour wind cuts drying time in half.
- A 20-degree increase in air temperature barely changes drying time at all.
- Raising stubble height allows better airflow and reduces wicking of ground moisture.
- Exposure to sunlight is likely the number one controllable factor in hay drying time.

Most of these facts are no surprise at all. The importance of sunlight, however, was one I had underestimated. For an explanation, let's look at what happens to a plant when it is mowed.

Prior to mowing, the plant conducts photosynthesis and its stomata are open (as long as it is daytime).

Stomata are the pores in green tissue through which the plant takes in carbon dioxide and releases oxygen and water.



Plant stoma.

When the plant is cut, the green tissue that is exposed to sunlight continues to photosynthesize, meaning its stomata stay open and it continues to lose water vapor. This is the main source of moisture loss during the initial phase of drydown, which



continues until the plant reaches 60% moisture and the stomata close.

Respiration (the burning of plant sugars) is also occurring during this time, which means speeding up the first phase of drydown can greatly improve hay quality. Speeding up moisture loss during the first phase of drydown also means overall hay drying takes less time.

So how can you take advantage of this knowledge? The first and most important thing you can do is to lay forage into a wide swath to maximize green tissue exposure to sunlight. Many producers make a windrow that fits between the tires, but research has shown that driving over the hay is less detrimental than commonly thought.

The second thing you can do is to ted forage sooner than you normally might. This might mean mowing hay for a couple of hours, and then turning around and tending it before moving on to mow more hay. This would be a big change for most farmers I know and for some it just wouldn't be logistically possible. Where it is possible, however, it could make a big difference in drying time.

By tending after only a couple hours, the majority of the mowed forage gets exposure to light when the potential for rapid moisture loss through plant stoma is high. Tended in the traditional way, the bottom of the windrow would be in the dark while the top of the windrow drops below 60% moisture and shifts to losing water more slowly through normal evaporation.

In spring 2018, I was able to work with a

couple of farms to try out the practice of earlier tending. On both farms they took one field and split it in half. Half of the field was mowed and tending within a couple hours of mowing. The other half of the field was tending the following day as is customarily done. The research was pretty much seat-of-the-pants and the treatment was not replicated, but the results were promising enough that we have made plans to conduct a more in-depth study. Here's what we found:

On farm #1, a forage test after baling showed that the earlier tending forage was 14.3% moisture, versus 15.3% moisture for the later tending hay. We were surprised to see a full percentage point difference, as drying conditions had been ideal.

On farm #2, a forage test at baling showed that the earlier tending forage was 15.5%, versus 22% for the later tending hay. Prior to baling, we had actually tested moisture in the windrow at 24 hours after mowing: the earlier tending hay was 26.4% moisture while the later tending hay was a 46.4% moisture. Drying conditions in this case had been mediocre, which probably contributed to the large difference between the two treatments.

I'm optimistic that early-tending could be a good tool to hasten drying time. It's a tool that might be helpful under good drying conditions, but could make the difference between good hay and junk hay when drying conditions are poor and weather is fickle.

While it may not be possible to do early-tending in every case because of logistics, type of hay, etc., I challenge you to try early tending some hay and see for yourself.

Answering Reader Questions: Season Extension Using Limited Land

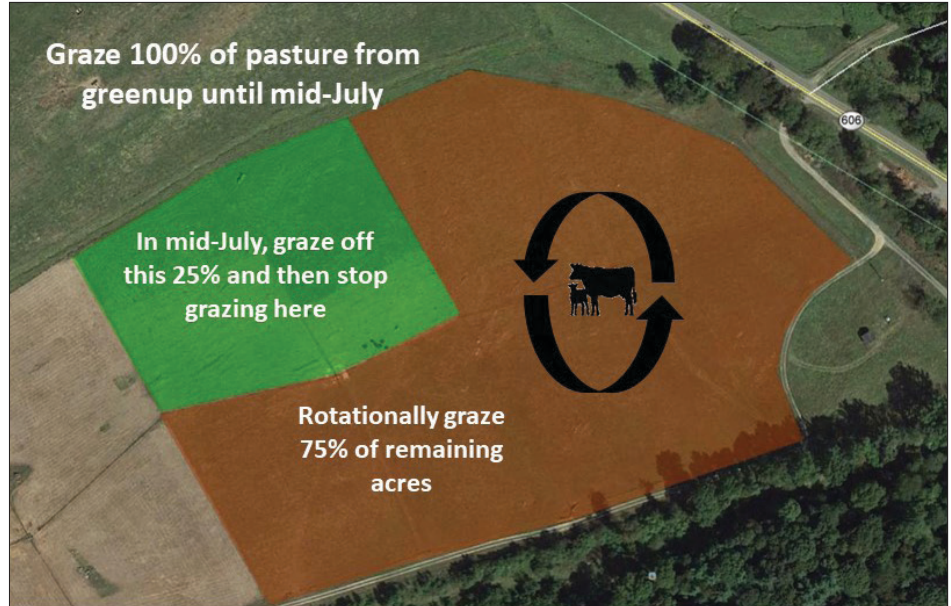
One of our newsletter readers asks, “One of the topics that I find isn’t discussed enough is season extension, especially when one only has 10 to 20 percent extra land beyond what is needed for ‘regular’ 30-day rotation. When I was starting out, it appeared that those that did season extension were doing this on many acres of land that they planted corn on or used for other row crops that could be set up so that there would be a cover crop that could be grazed in early winter or early spring. But what if you don’t have that much land, then what?”

Members of the Mountains-to-Bay Grazing Alliance offer the following advice:

It sounds like you are already rotating your herd through multiple paddocks and get back onto each one after about 30 days. That is a great rest time for your forage! There are a few ways to extend your grazing season and one of the best to try first is stockpiling.

We’re assuming you have a tall fescue dominated forage. Try setting aside 20-25% of your pasture in late July or August, grazing paddocks by the second week of August. Generally, one acre per cow equals two months of managed winter grazing. Instead of grazing these paddocks like you normally would, rotate your herd back onto the remaining fields in the order of most rested to least. Your rest time will decrease from 30 days on these remaining fields, but as the fall weather moves in, the cool season grasses should begin growing again and hopefully, the forage can keep up with the grazing.

Once your grazing pastures are depleted and the stockpiled fields have had a few killing frosts, then it is time to start grazing the stockpiled forages. Limit the herd’s access to the stockpile by using temporary fence or portable panels. By limiting the amount of forage they have access to, the livestock will increase their utilization of the standing forages by not being selective. If you can,



strip graze in sections. Then you can increase grazing efficiency and extend the grazing season on those acres by up to 50%.

Keep in mind that no matter what kind of grazing management you do, it will only work if you are properly stocked.

Check out the diagrams above from Virginia Cooperative Extension for further explanation.

Do you have questions about grazing practices? Send it to eronston@cbf.org and we'll try to find you an answer!

Silvopasture: Where Forest and Forage Meet

Article reproduced with permission from John Fike, Forage Extension Specialist, Virginia Tech

Silvopasture involves the intentional integration of forages, trees, and livestock. These systems are designed and managed in ways that increase productivity on a unit of land by producing both livestock and timber products. Because this takes a high level of management across several disciplines, the Virginia Silvopasture Research & Demonstration Team is working to develop and provide knowledge about suitable practices in order to support appropriate adoption and utilization.

Silvopasture, one of five agroforestry practices, is of growing interest in the Chesapeake region. While trees have benefited livestock for eons by the shelter they offer, the purposeful integration of trees and forage, whereby both are managed to optimize system outputs, is rarely practiced.

Silvopasture systems offer opportunities to address several production and

environmental issues at once. These systems:

- Increase productivity and resource use efficiencies in pasture systems,
- Improve the value of timber stands in degraded/unmanaged woodlots,
- Mitigate stress to livestock, buffering animals and forages alike from climatic extremes,
- Address environmental concerns, because trees can capture additional nutrients lost from cool-season forages and sequester carbon,
- Reduce livestock use of streams and surface waters for cooling purposes.

Adoption of these systems has been slow in the past, partly because producers lack information regarding design, management, productivity, and economic impact—and they have few places to view its implementation.

The Virginia Silvopasture Research &



Ag professionals evaluate forage establishment in the silvopasture at the Southern Piedmont Agricultural Research and Extension Center in Blackstone, Virginia.

Demonstration Team is working to develop research and demonstration sites around the state and to partner with innovative first-adopters to show producers and land owners how these systems might be assembled and managed for greater economic and environmental outcomes.

For more information go to: <https://ext.vt.edu/agriculture/silvopasture.html>.

Regional Grazing Conference a Success!

By Michael Heller, Chesapeake Bay Foundation

In February, the Mountains-to-Bay Grazing Alliance hosted a conference in Boonsboro, Maryland, welcoming producers and other ag professionals to learn more about grazing practices.

This year's featured speaker was Jim Gerrish. Jim is known to many farmers through his writings on grazing in the *Stockman Grass Farmer*. Jim's experience includes more than 20 years of commercial cattle and sheep production on his family farm in northern Missouri. The University of Missouri Forage Systems Research Center rose to national prominence as a result of his research leadership. Jim's research encompassed many aspects of plant-soil-animal interactions and provides a foundation for many of the basic principles of management-intensive grazing, which he shared with the conference attendees.

Jim began his presentation by saying, "Welcome to Over-Graziers Anonymous." Most of us in the crowd chuckled, but a bit guiltily. In actuality this comment and the rest of Jim's presentation really freed up the audience a bit as we each recognized that we weren't the only farmer that could do a better job of grazing. We all have fields we know we could do a better job with.

Jim gave us some tools to consider as we thought about our farms. He also related our grazing management to water quality and the Chesapeake Bay's health. This was refreshing to hear from someone outside the watershed.

In addition to Jim's wisdom, participants also got to hear first-hand accounts about different grazing experiences from a panel of regional farmers. The audience learned tips and tricks to make their grazing operations



Jim Gerrish speaks to producers at this year's regional grazing conference.

more economically successful, while still being protective of water quality and building soil health.

Thanks to everyone who took the time to attend the conference and to our presenters for their insight.

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**Interested in past editions of the Mountains-to-Bay Grazing Alliance newsletters?
Visit www.futureharvestcasa.org/resources to read all of them!**

MARYLAND EVENTS

Grazing Workshop

Tuesday, June 25

Clagett Farm

11904 Old Marlboro Pike

Upper Marlboro, MD

Learn about the best tools and strategies for using temporary fencing at this workshop. We will cover electric fence basics (e.g. equipment, grounding, set-up/take-down, ideal voltage), finding short circuits, using fault finders (using NRCS fencing supplies), grazing stick use and math, plus much more. For more information or to sign-up, contact Brian Campbell at brian.campbell@md.usda.gov or 443-567-7816; or Michael Heller at mheller@cbf.org.



PENNSYLVANIA EVENTS

Designing a Rotational Grazing Plan

Thursday, May 2, 10:00 a.m.–3:00 p.m.

Hameau Farm

6364 State Route 655, Belleville, PA

During this field day, participants will discuss how to establish a rotational grazing plan on their farm. The day will begin with a pasture walk led by Hameau Farm owner Gay Rodgers and apprentice Jessica Matthews to examine the farm's forage, rotational grazing plan, and watering systems. In the afternoon, attendees will work with Jeff Biddle of Bear Meadows Farm to review aerial photos of his farm using it as a case study for developing a formal rotational grazing plan. NRCS grazing specialists will also join the conversation. Visit PASA's website at pasafarming.org to register.

Bringing Marginal Ground Back into Productive Grazing

Tuesday, May 21, 10:00 a.m.–2:00 p.m.

Moyers Dairy Farm

3148 James Street, Towanda, PA

Join PASA for a pasture walk that focuses on bringing marginal ground into productive grazing rotations for cows. Attendees will look at one example of this practice with Master Grazer Brian Moyer. He'll explain how he no-till drills annual forage crops into cattle exercise lots to produce forage for grazing, while he mitigates the impact on heavy-use areas to revitalize soil. We'll also learn how dairy grazer Joseph Moyer transformed edge habitats on the farm. For more information and to register, visit the PASA website at pasafarming.org.

VIRGINIA EVENTS

Grazing School for Ag Professionals

Wednesday and Thursday, April 24-25

8:00 a.m.–5:00 p.m.

Shenandoah Valley Ag Research and Extension Center, Middleburg, VA

This two-day training is designed specifically for conservationists, Extension agents, and other ag professionals working at the field level. Registration costs \$150. Visit vaforages.org for details.

Pasture-Based Production

Friday, May 10, 1:30–6:30 p.m.

Long Stone Farm

38212 Long Lane, Lovettsville, VA

Learn how farmers Casey Wisch and Molly Kroiz manage multi-species grazing, direct marketing, and value-added production on their neighboring farms, Long Stone Farm and George's Mill Farm Artisan Cheese. A potluck will follow the workshop, so bring a dish to share. Registration costs \$20. Visit Future Harvest CASA's website at futureharvestcasa.org for more details.

Low Stress Cattle Handling Clinic

Saturday and Sunday, May 25 and 26
9:00 a.m.–4:00 p.m.

Shenandoah Valley Agricultural Research and Extension Center
128 Cyrus McCormick Circle
Raphine, VA

Are your cattle meeting their full potential? Do you want to maximize cattle gains and profits? Join Tom Curtin, renowned clinician and stockman, to learn about low-stress methods to weaning cattle, and working cattle through a chute. To register, email Tonya Schaefer at cattleclassroom@gmail.com.

Mountains-to-Bay Grazing Alliance Partnership

