



MOUNTAINS-TO-BAY GRAZING ALLIANCE

Working with farmers to implement and improve grazing management and reduce feed costs

December 2019

Now is a Good Time to Evaluate Your Winter Feeding Program

by Matt Booher, Virginia Cooperative Extension

Now is a good time to evaluate your winter feeding program. Do you know how well your hay matches the nutritional needs of your flock or herd? If supplementation is required, do you know how to select the most economical supplement and how much of it to feed? We recently reviewed current feed prices and offerings in our part of Virginia and would like to provide a few tips to help you develop your winter-feeding plan.

In our part of the world, most first and second cutting hay is usually adequate in protein. The exception to this rule could occur when feeding growing lambs or calves. The energy content of hay is typically much more limiting. First cutting hay, especially, is often deficient in energy for many classes of livestock. Factor in extreme cold and wind, and energy supplementation becomes critical to keep animals in good body condition through winter and into calving or lambing.

The first step in creating a winter feeding plan is to test your hay. Virginia Cooperative Extension can assist you with this or your local farm supply store can likely send off a sample for you. A hay analysis will tell you the energy, protein, and mineral content of your hay. From this, you can calculate the pounds per head per day of any nutrient that may need to be supplemented.

When comparing any supplement, it is useful

to compare products based on their cost per unit of nutrient. For example a blended stock feed may be the same price per pound of feed as a byproduct feed such as distiller's grains. However, comparing the two on a cost per pound of energy basis might show three cents per pound difference in the cost of energy.

How does this play out in a real world scenario? Let's assume a 1,300-pound beef cow on a diet of average first cutting hay is deficient in about two pounds of energy. You've done your research and choose distiller's grains over the blended stock feed. You would save about six cents per head per day. Not much, right? In a month's time, however, that is \$1.80 per head. Over five months that is \$9 per head. If you have a herd of 100 cows, that is \$900 savings over the course of a winter.

Lately, feed prices have been pretty flat. Currently, grains such as corn or barley are within a cent or two in cost per pound of energy as many of our byproduct feeds such as corn distiller's grains, wheat midds, and corn gluten. This is in contrast to several years ago when byproducts were significantly cheaper. There is one other thing to consider, however, when making your decision. Whole grains such as corn and barley contain much of their energy in the form of starch. When fed to livestock on a primarily forage diet, the starch can suppress fiber-digestion in the

rumen. Byproducts, on the other hand, are a fiber-based energy source. This can make a noticeable difference in animals' utilization of hay or pasture.

Incidentally, byproducts like corn distiller's grains, wheat midds, and corn gluten are also excellent sources of economical protein. They are currently running around 50 to 70 cents per pound of protein.

Liquid molasses is commonly under 40 cents per unit protein and, therefore, a very economical and convenient source as well. However, molasses is not a significant energy source when you factor in consumption rates. Likewise, protein blocks may be a good source of protein, but they are poor way to provide energy to livestock. Another thing to keep in mind with protein blocks is that while they are very convenient, they are one of the most expensive ways to provide supplemental protein.

One last point to make is that the cheapest and best way to provide nutrition is through extending the grazing season. Tried and true strategies like fall stockpiling can add months to your grazing, but they do require advanced planning. Stockpiled pasture almost never requires supplemental energy or protein, and statewide research and demonstrations have shown cost savings of well over \$1 per head per day versus feeding hay.

Better than a Snowball

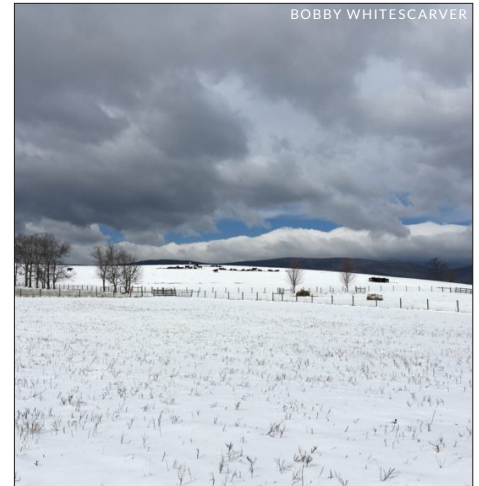
by Matt Booher, Virginia Cooperative Extension

The opportunity for fall pasture growth has passed us by this year. If you haven't already begun, you'll likely soon be on the search for more hay. There's surely hay to be had out there, and as they say—anything you can get will be “better than feeding a snowball.” I agree, but here are some things you might consider to improve the situation.

Look for opportunities to cull animals. I've heard it said that there's always a bottom 10 percent of the herd. Maybe you don't need to be this aggressive, but are there individuals in your herd that need to go? Given typical intake rates, a 1,300-pound mature cow will need to consume roughly 37 pounds per day or 1,100 pounds per month of hay. Accounting for normal hay waste feeding in a round bale feeder, the amount of hay fed per cow will easily reach 1,300 pounds (or about two 4 x 5 round bales) per month. Is there an opportunity to decrease the amount of hay you need by aggressively culling individuals that are poor tempered, old, open, or didn't calve successfully this fall?

Limit graze. No matter what it looks like—whether it is shutting a gate that is normally open or splitting a field with some temporary electric fence—limit grazing will stretch your forage supply. Limiting and controlling the area available to livestock will increase their harvest efficiency and waste less pasture. For example, splitting a single pasture into four sections that are gradually opened up to cattle can make it last 25 percent longer without any effects on nutrition.

Consider feeding hay in fall while limit-grazing pasture, especially with spring-calving cows. This will help to stretch the available pasture supply while maximizing any remaining grass growth in areas not yet being grazed. Since spring-calving cattle will have relatively low nutrient requirements in fall, feeding hay while grazing on a limited basis is perfectly acceptable. Fall-calving cows can be OK to feed hay and limit graze as well, but you should keep a closer eye on hay quality to make sure the cattle don't lose body condition.



Test your hay. We say this a lot, but by testing your hay you can identify any deficiencies and calculate how much may be needed to supplement. You can prevent overfeeding or underfeeding and save a lot of money by matching the best energy or protein supplement to the specific deficiencies of your hay. Talk to your local Extension office for help with hay testing.

Southwest Project Grass Hosts Annual Grassland Evaluation Contest

The 2019 Pennsylvania Grassland Evaluation Contest, presented by Southwest Project Grass, was held on October 10, 2019 at Penn State's Special Events building located at the Ag Progress Days facility.

The contest is an experiential education opportunity for Pennsylvania high school students enrolled in FFA and 4-H programs, or members of high school affiliated clubs. Contest programs focus on the value and benefits of pasture management, wildlife, livestock grazing, and soil health. Winning teams receive scholarships toward their secondary education at any accredited institution. Winning teams may have the opportunity to compete in the National Competition in Missouri.

Fifteen teams including 56 students from across Pennsylvania competed in this year's contest. The first-place team, Sugar Valley Rural Charter School FFA, included Naaman Conoway, McKenna Fox, Cheyenne Holdren, and Thea Homan. Each student receives a \$500 college scholarship.



The second place team, Penns Valley FFA, included Alden Homan, Michael Johnson, Dristen Wolfe, and Abby Zajaczuowski. Each student receives a \$250 college scholarship. Cheyenne Holdren, from Sugar Valley Rural Charter School FFA, was the highest scoring individual and receives an additional \$500 college scholarship.

The contest organizers and sponsors congratulate all students who competed for their time and effort spent preparing for the event.

Major event sponsors include: Penn State University, Southwest Project Grass, USDA-Natural Resources Conservation Service, Penn's Corner RC&D, Pennsylvania Grazing Lands Coalition, and local County Conservation Districts.

For more information, please contact Dan Griffith, Westmoreland Conservation District, by email at dan@wcdpa.com or at (724) 837-5271.

Quantifying the Environmental Benefits of Grazing in the Chesapeake Bay Watershed

by Beth McGee, Chesapeake Bay Foundation

One objective of our recently completed Natural Resource Conservation Service Conservation Innovation Grant entitled *Promoting Rotational Grazing in the Chesapeake Watershed and Quantifying the Environmental and Economic Benefits* was to estimate the greenhouse gas, water quality, and soil health changes associated with converting to rotational grazing systems.

To that end, we used farm-scale models, COMET-Farm for greenhouse gas emissions and the Chesapeake Bay Nutrient Trading Tool (CBNTT) for nutrient and sediment loads, to quantify benefits for six “case study” farms (see map). The farms represent different geographies, animal types (dairy, beef), and transitions (i.e., continuous grazing to rotational, cropland converted to pasture).

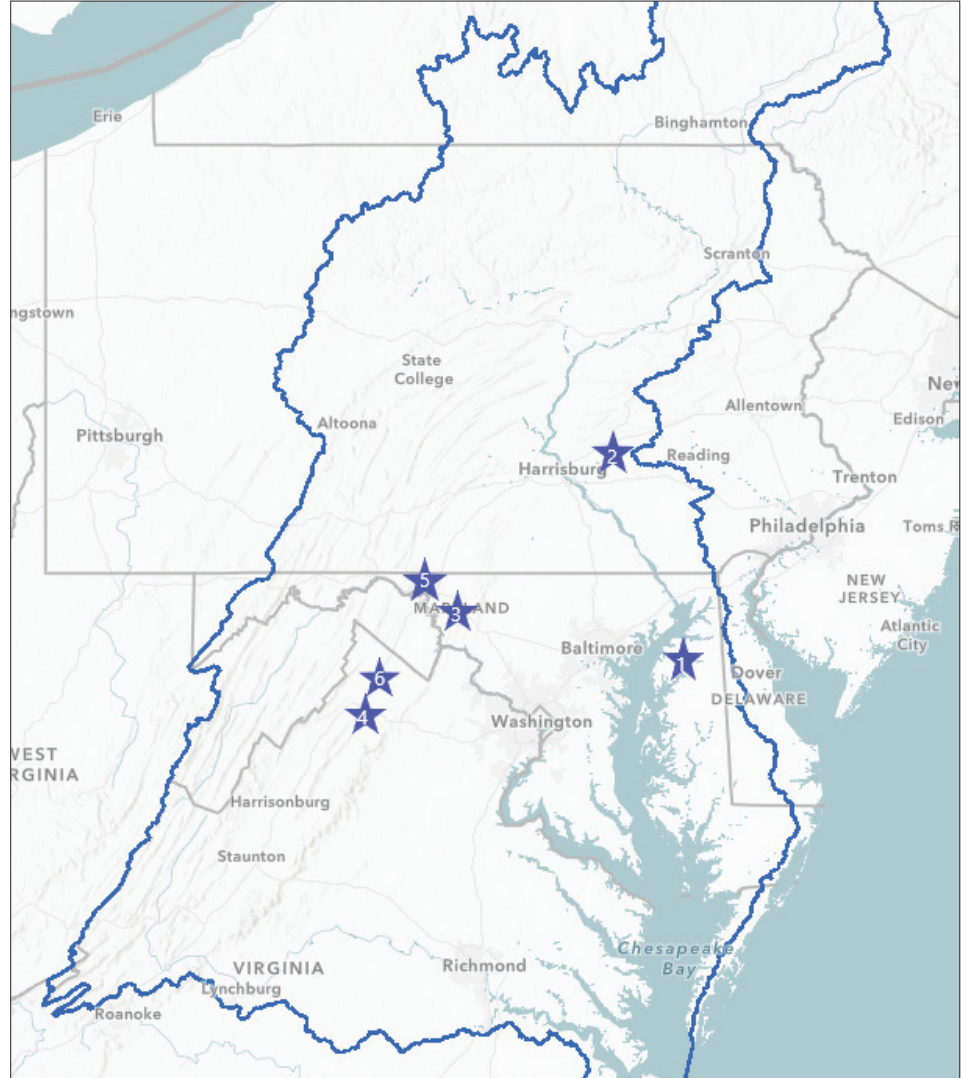
The models are available online (cometfarm.nrel.colostate.edu and cbntt.org) and are free to use, but users need to establish an account and password to protect the confidentiality of the data.

For each farm, Chesapeake Bay Foundation (CBF) staff worked with the producers to obtain the necessary 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. We also collected “before and after” samples to assess changes in soil health. We used the Cornell Soil Health Lab Basic Soil test (<http://soilhealth.cals.cornell.edu/testing-services/comprehensive-soil-health-assessment/>) to evaluate changes in soil health due to on-farm management changes. The Cornell Soil Health Test measures several indicators of soil physical, biological, and chemical health.

RESULTS

Greenhouse Gases

Five of six farms showed decreases in whole farm emissions of greenhouse gases when transitioning to rotational grazing due to a combination of increased carbon sequestration in the soil and lower emissions of nitrous oxide from reductions in fertilizer/manure use. The average reduction across all farms was 42 percent.



We expressed greenhouse gas emissions per hundred weight (cwt) of milk for two dairy farms in our pilot since graziers typically experience a reduction in annual milk production. Results indicate that even accounting for this reduction there was a 50 percent and 43 percent reduction in greenhouse gas emissions when expressed on a cwt production basis.

Nutrient and Sediment Loads

Modeling results indicate substantial reductions in annual loads of nitrogen, phosphorus, and sediment from all six farms. Average reductions were 63 percent, 67 percent, and 47 percent for nitrogen, phosphorus, and sediment, respectively.

Soil Health

Three of four farms where we collected

“before and after” soil samples experienced statistically significant increases in key soil health indicators—aggregate stability and organic matter—after converting to rotational grazing. We cannot rule out, however, the influence of climatic conditions on these results.

These case studies have confirmed and put some numbers behind the multiple environmental benefits of converting to rotational grazing systems in the Chesapeake Bay region. For more details, read our *Rotational Grazing Pilot Farm Study Report* (m2balliance.org/benefits.html#case-study). The report includes farm details and results, a comparison of the results of COMET-FARM with another greenhouse gas tool, A-Microscale, recommendations, and conclusions.

Feeding Hay with Purpose

by Matt Booher, Virginia Cooperative Extension

There is an old adage that says using wood to heat your home heats you twice—first while you are chopping it and again when you burn it. The same saying could be applied to hay as a feed source: it feeds livestock once when they eat it and a second time when its nutrients are recycled to grow next season's grass. But this saying only holds true if you feed your hay intentionally.

Allow me to explain. When eaten by livestock, greater than 90 percent of the nutrients in hay return to the soil as urine or manure. Any wasted or trampled hay eventually breaks down and adds all of its nutrients to the soil as well.

Using average nutrient values, you can calculate that, a 4' x 5' round bale of hay returns about 10 pounds of nitrogen, 4 pounds of phosphate, and 18 pounds of potassium to the soil. From an agronomic perspective, this means each 4' x 5' bale contains enough nutrients to grow the first cutting on about 1/5-acre of hay. At current fertilizer prices, this also means each bale contains about \$15 in nutrients.

How you choose to feed your hay determines

how much you get out of this “free” fertilizer.

Too many farms feed hay in rings in the corner of the pasture closest to the gate. This is the equivalent of ordering a load of fertilizer and having the dealer spread it in circles in the corner of the field until the truck is empty. I often see pastures where 95 percent of the field is suffering from obvious nutrient deficiencies, while one acre with the waterer and hay rings contains 200 times the nitrogen and phosphorus it could ever use.

A better method would be to move hay rings throughout the pasture to more uniformly distribute each slug of nutrients. An even better way is to unroll hay methodically across the field. Bales unrolled across the pasture and spaced 30 feet apart would be roughly equivalent to applying a 50-20-90 fertilizer per acre, plus some micronutrients and organic matter. As a bonus, a significant portion of the nutrients in hay and manure are largely tied to organic matter, more gradually released and better suited to pasture.

But don't think that how you feed hay affects only soil fertility. In almost any farm scenario,

uniformly unrolling hay versus feeding in one spot can dramatically reduce mud, flies, and weeds.

Unrolling hay also allows you to feed partial bales to better match the quantity of hay animals will clean up in a day. If you've never done this before, consider the following: an 800 pound 4' x 5' round bale meets the daily intake requirement for about 20 fall-calving beef cows.

If your herd numbers 30 cows and you feed two full bales per day, they are likely fouling and trampling that last half of a bale. Over the course of just one month, the herd will have wasted the equivalent of 15 bales of hay.

Weighing a few bales every year will aid in helping you to accurately limit-feed hay. Unless you know an accurate bale weight, you cannot know how many pounds of hay you are feeding and how it matches with the expected intake of your herd.

Like all resources on the farm, view your hay as a tool and be purposeful about how you feed it.



Mountains-to-Bay Grazing Alliance Regional Grazing Conference

Graziers of all types and industry personnel are invited to join us for our Regional Grazing Conference this February. This is the fourth event in this series and this year's theme is, *Soil and Animal Health on Pasture, Two Sides of the Same Coin*.

Our featured speakers are Mark Kopecky and Guy Jodarski, DVM. Mark is a soil ecologist whose experience in soil management began on his family's dairy farm but quickly developed as he amassed professional training and field experience. He attended college at the University of Wisconsin-River Falls, where he earned a Bachelor of Science in soil science and a minor in agronomy. After two years as a soil scientist with the Soil Conservation Service, he went

to graduate school at UW-Madison, where he completed his Master's degree in soil science. Following graduation, he worked as an agriculture agent for UW-Extension offering service to farmers regarding soil management and agronomy technique.

Dr. Jodarski is a staff veterinarian for Organic Valley, CROPP Cooperative and is based in Neillsville, Wisconsin. He received his Bachelor of Science degree in biology from the University of Wisconsin-River Falls and his Doctor of Veterinary Medicine from the University of Wisconsin-Madison. Jodarski was an owner and partner of a large animal practice in central Wisconsin for 12 years and has also worked as a staff veterinarian for companies that supply nutritional

supplements and livestock health aids. He has been a staff veterinarian at Organic Valley since 2007.

The conference will take place on Wednesday, February 19 at the Washington County Agricultural Education Center at 7313 Sharpsburg Pike, Boonsboro, Maryland. The agenda will be posted online shortly.

Registration for this event is \$15, and includes lunch. We ask participants to pre-register by February 14 for planning purposes. This event is sponsored by Maryland Grazers Network. For more details, please contact Michael Heller at (301) 351-4940 or mheller@cbf.org or Jeff Semler at (301) 791-1304 or jsemler@umd.edu.

Mountains-to-Bay Grazing Alliance



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Mission Statement: The Mountains-to-Bay Grazing Alliance networks organizations within the agricultural community to support and encourage wider adoption of rotational grazing and related conservation practices that benefit water quality, improve soil health, and boost farm economies.

PENNSYLVANIA EVENTS

Franklin County Graziers 2020 Winter Meeting

Thursday, January 16, 2020
9:30 a.m.–2:00 p.m.

Chambersburg Mennonite Church
1800 Philadelphia Avenue
Chambersburg, PA

Hear from guest speakers Greg Brann, a farmer who focuses on improving soils through diversity in plant and animal species, as well as management techniques; and Beau Ramsburg, owner and operator of Rettland Farm in Gettysburg, a pasture-based livestock farm and USDA meat processing plant. Registration costs \$15 and includes a hot lunch. Mail your registration and \$15 check (made payable to Capital RC&D), to Capital RC&D Area Council, Attn: Susan Richards, 401 East Louther Street, Suite 307, Carlisle, PA 17013. Contact the Capital RC&D at 717/241-4361 or at info@capitalrcd.org for more information.

Diversifying the Dairy: From Silvopasture to Market

Tuesday, January 21, 2020
10:00 a.m.–2:00 p.m.

Fiddle Creek Dairy
97 Loop Road, Quarryville, PA

During this workshop, you'll explore how Fiddle Creek Dairy—a pastured livestock farm that produces 100-percent grass-fed milk, yogurt, and cheese—has developed silvopasture areas within their grazing paddocks. Register by visiting PASA's website at pasafarming.org.

REGIONAL EVENTS

American Forage and Grassland Council Annual Conference

Sunday, January 5 through
Wednesday, January 8, 2020
Hyatt Regency

220 N. Main Street, Greenville, SC
Join AFGC for this high-quality meeting of farmers, scientists, and industry professionals in an educational setting. The theme for this year is *The More You Know, The Smarter You Grow*. For more details, including an agenda, and to register, visit AFGC's website at afgc.org.

MARYLAND EVENTS

Farming for Our Soil, Livelihood, and Community

Thursday, January 16 through
Saturday, January 18, 2020
College Park Marriott

3501 University Boulevard East
Hyattsville, MD

Join Future Harvest CASA for three days of how-to, peer-to-peer workshops; farm fresh meals; expert speakers; learning; and networking.

There will also be a Pastured Poultry pre-conference session to discuss sourcing, housing, feeding and record-keeping for processing, pricing, and marketing broilers and layers. Register for the pre-conference workshop or the conference by visiting futureharvestcasa.org.

Maryland Hay and Pasture Conferences

Wednesday, January 15, 2020
16608 Brandywine Road
Brandywine, MD

Thursday, January 16, 2020
Garrett College CTTC
116 Industrial Drive, Accident, MD

Friday, January 17, 2020
Burkittsville Ruritan
500 East Main Street, Burkittsville, MD

Topics will include adaptive grazing, weed control, soil health, pasture renovation, annual forages, and making quality hay and haylage. Visit the Maryland-Delaware Forage Council website at foragecouncil.com for more information and to register.

Regional Grazing Conference

Wednesday, February 19, 2020
Washington County Agriculture
Education Center
7313 Sharpsburg Pike
Boonsboro, MD

The theme of this year's regional conference is *Soil and Animal Health on Pasture, Two Sides of the Same Coin*. Featured speakers are Guy Jordaski, DVM, who will discuss animal health benefits that grazing provides and key health issues to be aware of when grazing; and Mark Kopecky, who will discuss a holistic approach to grazing and improving your soils. Registration costs \$15 and includes lunch. For more information, contact Michael Heller at mheller@cbf.org or Jeff Semler at jsemler@umd.edu.

VIRGINIA EVENTS

2020 Winter Forages Conferences

Tuesday, January 21, 2020
Wytheville Meeting Center
1000 East Main Street, Wytheville

Wednesday, January 22, 2020
Old Dominion Agricultural Complex
7983 U.S. Highway 29 South, Chatham

Thursday, January 23, 2020
Brandy Station Fire Department
20057 Fleetwood Heights Road
Brandy Station

Friday, January 24, 2020
Weyers Cave Community Center
382 Weyers Cave Road, Weyers Cave
Join Virginia Forage and Grassland Council, Virginia Cooperative Extension, and NRCS for their annual winter meetings. The 2020 theme is *Thinking Strategically: The Role of Hay in Today's Grazing System*. Keynote speakers include Kevin Yon from Yon Family Farms in Ridge Spring, South Carolina, who has a forage-based operation focused on producing cattle for a customer base of mainly commercial cattleman; and Dr. Dan Undersander from the University of Wisconsin who has spent 40 years focused on intensively managed beef and dairy operations. Registration costs \$35 and includes lunch and all materials. Visit vaforages.org to register.

DELAWARE EVENTS

Delaware Hay and Pasture Conference

Tuesday, January 14, 2020
9:00 a.m.–3:00 p.m.

Delaware State Fairgrounds
644 Road 316, Harrington, DE

Learn about weed control, soil health, and making the most of adaptive grazing at this conference sponsored by the Maryland-Delaware Forage Council, University of Maryland Extension, and University of Delaware Extension. No registration is necessary, as this event is part of Delaware Agriculture Week. See sites.udel.edu/delawareagweek for more information.