

Plan for Drought with Sorghum Silage

By: *Matt Booher & John Benner, Augusta County Extension*

Weather records indicate that producers in Virginia can expect a severe drought 1 out of every 10 years and a moderate drought 1 out of every 5 years. Parts of the territory we serve here in the Shenandoah Valley are among the driest areas in the eastern U.S. Yet somehow, summer droughts always seem to come as a surprise. For many beef cattle operations in Virginia currently using corn for silage, *sorghum* for silage offers a great opportunity to build a more resilient forage system. Sorghum is not a new idea in Virginia. It continues to be under-used, however, particularly when you consider that sorghum often matches or exceeds the yield of corn silage on marginal ground. In an extreme drought, sorghum yields can be twice that of corn. The difference goes back to the plant's water-use efficiency. It takes about 30% less water to produce a ton of sorghum forage as it does to produce the same amount of corn silage. Trials at Texas A&M have shown that sorghum can produce up to 2.5 tons of biomass per inch of water, compared to less than 1 ton of biomass per inch of water for corn. Additionally, the input costs associated with a sorghum crop are generally much lower than that of corn - around \$10/ton cheaper than corn in a recent Penn State study. The end result is that we can usually produce the same energy and protein per acre for less money.



Lane Grow inspecting a sorghum field.

**Variety selection:** Forage sorghum varieties are preferred for silage over grain varieties due to their higher overall yield potential. They produce less grain and more vegetative growth than grain varieties, and are later-maturing. Forage sorghum varieties vary from 6 to 15 feet tall. Plant breeding has produced dwarfing genes which reduce overall plant height without affecting other agronomic traits or yield. These are often referred to as “Brachytic Dwarfs”. These dwarf varieties are valued for their lower risk of lodging, without sacrificing tonnage or forage quality. Similarly to corn, sorghum varieties range in the days to harvest- generally from around 80 to 120 to get from planting to harvest at soft dough. In Virginia Tech variety trials at Blackstone, VA going back to 2009, silage yields of forage sorghum ranged as high as 22 tons/acre (at 35% DM), and never dropped below 12 tons/acre. On productive soils sorghum yields can reach 30 tons/acre. Important characteristics to look at when selecting a variety include: dwarf vs. full-sized, susceptibility to lodging, stalk dry down. Also available are varieties with a brown-midrib (BMR) charac-

**Establishment:** Sorghum is generally planted 1-2 weeks later than corn, when the soil temperature has reached at least 60° F. Sorghum does not match corn in its cold-soil seedling vigor. It can be either conventionally or no-till seeded using a corn planter or grain drill. In wide rows, seed should be planted at a rate of 5-10 lb/A. When seed is broadcast, 15-20 lb/A should be used. Seeding depth should be between 1 and 1 ½ inches. Planting too early and too deep are common causes of poor sorghum stands. Fertilization should be identical to that of corn for silage. Herbicides options for forage sorghum are a bit more limited than for corn, but still include many of the same modes of action. A popular herbicide program would involve atrazine and s-metolachlor pre-plant followed by a postemergence application with some combination of 2,4-D, dicamba, or atrazine. Be sure to consult with an expert for herbicide recommendations, as some herbicide products may require seed treated with a safener, and height restrictions may exist with postemergence applications.

**Harvesting:** Forage sorghum should be harvested for silage when the seed has reached the soft dough stage to ensure optimal forage quality. Beyond the soft dough stage seed hardens quickly, dropping in digestibility. At the soft dough stage most sorghum varieties will be around 70-75% whole-plant moisture, which can result in less than ideal ensiling. Selecting a variety with a dry stalk characteristic will help with this dilemma. Forage sorghums can also be harvested in the late-boot to early-head stage, wilted down to about 65% moisture, and ensiled. It is helpful to use a mower-conditioner to crush stems and use wider mower swaths to increase surface area for drying. Lastly, it's important to note that while prussic acid poisoning is a risk with grazed or green chop sorghum, it is not a concern with sorghum that has been ensiled.

**Nutrition and Feeding:** From a feed standpoint sorghum silage is generally comparable in crude protein and about 80-90% of the energy value of good corn silage. This is due to sorghum's lower grain-to-roughage ratio, as well as the fact that a larger percentage of the grain passes through the animal undigested. Sorghum silage contains more energy than is needed by bred heifers or cows, and should be fed on a limited basis in those cases. It is a good fit for cows and heifers during the first few months of lactation. The energy requirements of growing steer and heifer calves exceed that supplied by sorghum silage. For gains of 1.5 lbs./head/day, 2 to 3 lbs. of grain per head should be fed daily along with protein, mineral and vitamin supplementation. For gains of over 2 lbs./head/day, grain supplementation should be bumped up to 4 or 5 lbs. of grain per head daily. Similarly to corn silage, the calcium, phosphorus and protein content of sorghum silage are below requirements for the classes of cattle mentioned above. Be sure to supplement

these nutrients accordingly. The vitamin A content of silage tends to be deficient, and should be supplemented regularly if animals are on a diet of primarily silage. Even with additional supplementation, total feed costs per head per day should trend \$0.40-\$0.50 cents lower than a corn silage and soybean meal based ration (sorghum/corn gluten=\$2.34/head/day; corn silage/SBM=\$2.83/head/day).

Table 1. Comparison of nutrient recommendations for medium to large frame steer and heifer calves gaining 1.5 to 2 lbs. daily and nutrients supplied by corn and sorghum silage (dry basis).						
	Total Protein (%)	NE <sub>m</sub> Mcal /cwt	NE <sub>g</sub> Mcal /cwt	TDN (%)	Ca (%)	P (%)
Nutrient Recommended - 2.0 lbs Daily Gain						
Calf Weight						
300-400 lbs.	13.0	78	50	72	.60	.35
400-500 lbs.	12.0	76	48	70	.50	.30
500-700 lbs.	11.5	71	45	68	.50	.30
Nutrients Supplied by Silage						
Corn Silage	8.0	74	47	70	.27	.20
Forage Sorghum Silage	8.1	62	38	58	.35	.20

Table 1. University of Nebraska.

Is low-lignin alfalfa a fit for Virginia producers?

By: *Matt Booher, Augusta County Extension*

I've spoken with many producers who have stopped growing alfalfa in recent years, and in many cases I can't blame them one bit. The time, labor, and expense of harvesting, combined with the difficulty in getting alfalfa hay made right are major hurdles. It's unfortunate, because alfalfa is still queen of the forages, – drought resistant, high-yielding, and great feed. You may have heard the term low-lignin alfalfa thrown around recently. Low-lignin is the latest advancement to take place in the alfalfa world, and may be a good fit here in Virginia. Through both traditional breeding and genetic engineering methods, alfalfa varieties have been developed that contain lower levels of lignin than conventional varieties. If you are familiar with brown-midrib corn, the concept is very similar. Lignin is a plant fiber component that provides structure to the plant but that decreases digestibility of the forage. The lignin content of any plant naturally increases as the plant matures, and generally increases with hotter growing conditions as well.

Due largely to lignin, the nutritional value of alfalfa decreases rapidly after early bloom. Consequently, there is a lot of pressure to harvest within a short window of time. A delay in harvesting of a day or two can make the difference between dairy quality hay and stocker quality hay; add in another delay due to bad haymaking conditions and all of a sudden you've got beef cow hay. Low-lignin alfalfa simply retains digestibility longer than conventional types. This means the harvest window can be stretched to wait for better weather, higher yield, and more opportunity for plants to replenish their energy reserves. Research has shown low-lignin varieties cut on a 35-day schedule possess the same digestibility as conventional varieties harvested on a 28-day schedule. In other words, you can cut it a week later without a drop in quality. For those seeking maximum quality, low-lignin alfalfa may be cut during the traditional bud to early bloom stage for a 5-10% increase in digestibility over conventional varieties. In many cases, producers are saving money by reducing the number of cuttings per year, harvesting the same or more yield than they used to while minimizing trips across the field. Farmers always asks the same question about low-lignin alfalfa: “so it's going to fall over?” Dr. Marvin Hall, extension forage specialist with Penn State, says current, multi-state research shows that low-lignin varieties are no more prone to lodging than conventional varieties. Farmers also always ask about cost. While any new feature is going to increase the cost of seed, in this case the extent of the increase really depends on the company and variety you select. Some low-lignin varieties are genetically engineered and carry a hefty technology fee, while conventionally bred varieties do not. Be aware, however, that there are some important distinctions between the two methods that may be worth the cost difference. Some varieties may also be paired with a Roundup Ready trait, which also increases the cost. The goal of this article is simply to increase awareness about low-lignin alfalfa and its potential as a management tool. If you would like more details about quality, variety selection, or establishment, feel free to contact me for more information.

2017 Annual Livestock and Forage Field Day



The annual Livestock and Forage Field Day at the Virginia Tech Southern Piedmont Agricultural Research and Extension Center will be held on Tuesday, July 25, 2017. The station tours will provide an overview of livestock and forage research being conducted at the station. Registration will begin at 2:00 p.m., with a sponsored dinner beginning at 5:00 p.m. There will be a tour in the afternoon and an educational session in the evening. Topics to be covered include silvopasture implementation and management, heat-stress mitigation strategies in Virginia pastures, backgrounding calves on novel endophyte tall fescue, managing toxic tall fescue, and hay testing and winter ration balancing.



## Tips to improve stocker performance on your pasture

By: *Matt Booher, Augusta County Extension; John Benner Augusta County Extension; and David Fiske, Superintendent, Shenandoah Valley AREC*

1) Fenceline weaning. Although it's not a new concept, fenceline weaning is a practice that is not utilized by enough livestock producers. Fenceline weaning is a weaning management practice where calves are removed from their dams and separated into two different adjoining pastures where the calves are allowed to see, hear, and smell their dams. It is important that the calves be given access to good quality grass pasture during this fenceline weaning period to maximize gains. Fencing between the pastures, preferably electric fence, should be substantial enough to keep the cows and calves separated and prevent nursing. The fenceline weaning period should last 7-10 days. After three days, the fenceline weaned calves usually reduce their vocalization and fence walking and start to concentrate on grazing. When compared to abruptly weaned calves that are moved away from their dams, fenceline weaned calves suffer less stress, continue to gain during the weaning period, and are ready to "go to grass" after the 10 day fenceline weaning process. Studies conducted at the University of California-Davis and the University of Idaho showed that calves that were fenceline weaned were 20 to 25 pounds heavier after 10 weeks post-weaning when compared to calves that were abruptly weaned and moved away from their dams. Fenceline weaning is less stressful on the calves, the livestock producer and less of a noise nuisance to the neighbors.

2) Develop a good animal health program . Keeping calves healthy is a big part of maximizing weight gain. It takes only one dead calf to really cut into your profits. To reduce risk of losses be sure to provide calves with vaccinations against clostridial diseases and respiratory disease complex prior to or no later than weaning. Older calves should be properly boosted according to drug label directions. Fly-control, deworming, and implants all contribute to increasing daily gains.

3) Optimize stocking rate. While it's tempting to focus on individual animal gains, it is more profitable to maximize gain per acre. This is done by selecting a stocking rate that maximizes gain for the herd while lowering individual animal performance. The appropriate stocking rate is case-by-case and dependent on the inherent productivity of your soils. To make things more difficult, you likely have multiple soil types on your farm.

Let's assume, however, that you are dealing with 100 acres of moderately productive soils for which 1 stocker/acre would maximize the gain per head. Stocking at this rate may reasonably give you an individual animal gain of 1.75 lb./day (175 lbs. for the whole herd). Increasing your stocking rate to 1.5 head/acre would likely reduce individual gains to 1 lb./day, but would give you 188 lbs. of gain daily for the whole herd. Of course, a balance must be struck. If stocking rate is too high pasture productivity and quality diminish and the whole herd suffers.

4) Enhance water availability. Water is often a limiting factor in animal performance on pasture. Livestock typically will not graze well beyond about 1,000 feet from the water source (a square field 10 acres in size would be roughly 1,000 feet from a corner to the center of the field). This can cause overgrazing of pasture closest to water, reducing pasture productivity. Conversely, pasture farther from water sees little grazing and soon becomes rank and mature. Both cases reduce calf performance by either limiting the amount forage available to graze, or by lowering the nutritional quality of the pasture. Many producers have added additional water sources by using temporary black polyethylene pipe run on top of the ground. Polypipe is typically inexpensive (\$0.40-\$0.50/foot depending on diameter) and need not be buried when only used seasonally. It is often run on top of the ground underneath a fenceline or buried to a shallow depth to keep livestock from messing with it. Be sure to consider the distance and required flow rate when selecting the diameter of your pipe. Also, be sure to supply the volume of water and recharge rate required for the size of your herd. Check into full-flow valves, which are a big improvement over the cheap, restricted-flow float valves available at most farm supply stores. When selecting a water trough, consider that the capacity of the trough can serve as a buffer in situations where water recharge may be slow. For 650-lb. stocker cattle in the heat of summer, water consumption will likely approach 13 gallons/head/day. Consumption can vary from 2.5 -6.5 gallons per visit to the water source depending on the number of visits and distance they are traveling.

5) **Keep an eye on post-grazing residual.** Post grazing residual refers to the plant stubble that is left in the pasture after livestock have been rotated out of the field. Some of you are likely thinking, "sure, that is important for proper pasture regrowth, but what the heck does it have to do with animal performance?" Research has shown that the quantity of forage consumed has more impact on stocker performance than the quality of the forage. Nutrition is definitely of great importance, but it really doesn't mean much if there isn't enough to go around. Consider the following example. You have just turned some weaned calves onto a fresh piece of pasture dominated by clover and orchardgrass. Being a good manager of rotational grazing, you had allowed the pasture to recover to about 12-inches in height. The cattle are happy, eating their fill, and may be consuming close to 4% of their body weight that first day. Every day after, the amount of forage available and the quality of the forage gradually drop. By 7 days in, the pasture is 4-inches tall and cattle are able to consume about 2% of their bodyweight daily.

Check out [vaforages.org](http://vaforages.org) for upcoming Summer Tours, field days, and fall grazing school information.

## Upcoming Events

**2017 Forage/Livestock Field Day**  
Southern Piedmont AREC  
July 25 ,2017

**Summer Forage Tour For Beef and Bob's**  
July 18<sup>th</sup> in Charlotte,  
July 19<sup>th</sup> in Madison,  
July 20<sup>th</sup> in Augusta.

**Shenandoah Valley ARE 2017 Field Day**  
McCormick Farm  
August 2 , 2017

**Fall Grazing Scholl**  
Locust Level Farm  
October 18-19, 2017

## Corporate Sponsors

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*Students learn to set up portable electric fence with step in posts, poly wire, reels.*

"The information in the handouts and presentations is very good and the hands

on experience was great! The attitude of the instructors made for a perfect learning experience!"

"The agenda was well thought out and all subjects were useful. There was no wasted time."

"I gained so much knowledge through the presentations and I thoroughly enjoyed the informal, casual dinner with the opportunity to network with the instructors and the participants."

"I would tell anyone considering this, to go ahead and attend. There is so much information and knowledge to gain....you can never learn enough. For many of us women, our husbands have died and we need to know this stuff to keep and manage our farms properly." Mrs. Marie Harris Brown."

This school was funded in part by the Chesapeake Bay Foundation through a Conservation Innovation Grant.

If you have never been to a VFGC Grazing School then register today for the October 18-19, 2017, Grazing School in Vernon Hill, VA, hosted at Locust Level Farm.



*April 2017 Grazing School Participants.*

## Tazewell County Hosted

Wednesday, March 29<sup>th</sup> was a beautiful day in Thompson Valley to host the Virginia Forage and Grassland Council and Virginia Cooperative Extension's Fencing School. Thirty participants and fourteen sponsors/presenters participated in constructing 355 feet of fence along the border of the Thompson Valley Community Center. Topics included an overview of Virginia Fence Law, Fence Economics, Fence Construction Basics, Electric Fencing Basics, and Hands-on Fence Building.

Corporate Sponsors included Stay-Tuff Fence, Madison Wood Preservers, Tanner Fencing and Extreme Post Drivers, and Gallagher Fencing Supplies.

Special thanks to the Tazewell Soil & Water Conservation District, Natural Resource Conservation Service, Country Girl Concessions, Thompson Valley Community Center and Kowpoke Cattle Company, LLC for their contributions to making the school successful.



To JOIN the *Virginia Forage and Grassland Council* a membership form can be found on the web at <http://www.vaforges.org> or Contact Margaret Kenny at [vfgcforages@gmail.com](mailto:vfgcforages@gmail.com) or call 434-645-9639

Although there may appear to be adequate pasture remaining, there is not enough to maintain good gains on growing calves. It is no different from Thanksgiving week around my house. The day of the feast we eat until we can't move. The next day the fridge is filled with leftovers and we're still stuffing ourselves. Every day after, there is less and less food in the house until, by the end of the week, all that's left is cranberry salad and some dried out mashed potatoes. This may work ok for my wife and me, but our kids require a trip to the grocery store. The bottom line is that growing calves need to consume somewhere around 3-3.5% of their bodyweight daily, and this corresponds with pasture that averages greater than 4-inches in height. This may mean rotating as frequently as every 3-5 days to ensure livestock are getting the intake to support the gains you are after. There are many inexpensive electric fencing options available these days to help with a more intensive grazing rotation. Use them, and base your rotation on post-grazing residual to leave 4 to 5-inches.

**6) Try to keep pastures vegetative.** A few years ago, we conducted forage quality sampling that followed ten pasture fields in the Shenandoah Valley throughout the entire growing season. Like many pastures in our area, these fields had relatively few legumes and were dominated by fescue. In our study, we hit a period from late-May to mid-August where the energy content of pastures tested at a level that would support less than 1 lb./day of gain on a 600 lb. steer. Unfortunately, this kind of seasonal slump in grass quality is the rule in most of Virginia. We also sampled an area of pasture during this period that had been managed separately to keep the grass in a vegetative state. This leafier forage tested better, enough to support gains of 1 lb./day. While this observation was interesting, it was not a great revelation, almost anyone can tell you clipped pastures lead to higher quality forage.

The problem is that it can be very difficult to keep pastures in a vegetative state, especially when grasses are rapidly maturing. It's a good idea to concentrate grazing on a reduced number of acres during this period as a way to keep up with excess growth. Although it is not a cure-all, higher densities of livestock are more likely to graze off reproductive stems when they are still relatively palatable – in turn forcing grasses into vegetative regrowth. Some producers are having success by restricting the grazing rotation in spring to about 75% of pasture acres while stockpiling the rest for grazing in late-summer. Another option is to mow or bushog pastures to keep plants vegetative. This only works if there is adequate rainfall for regrowth afterward, but this can be helped by mowing earlier in the year than is typically practiced. Seedheads are usually elevated above 10- inches sometime in mid-to late-May (depending on location), and their removal kills the reproductive stem and stimulates vegetative regrowth. At an average cost of \$15-\$20 per acre, mowing as a management tool would likely be worth the potential increase in gains in a stocker scenario. The other benefit of keeping pastures vegetative is that you minimize the amount of dead and dying tissue that occurs as plants age and shade out lower portions of the plant. Removing

older growth leaves more room for new, higher quality leaves that are much more effective at photosynthesizing.

**7) Improve legume content of pastures.** A 600- lb. steer seeking to gain 2 lbs./day needs a diet of around 68% total digestible nutrients and 10% crude protein. Increasing maturity and hot growing conditions of summer cause grasses to increase fiber content, limiting their forage quality. Even when kept vegetative, pure grass pastures simply lack the quality required for good gains on growing calves. In some cases, cattle can make decent gains on straight grass throughout the summer because they are stocked at a relatively low rate. A lower stocking rate means each individual animal can be more selective to consume the best pasture available. As mentioned earlier, however, maximum individual gains are not necessarily desirable.

Adding legumes is a cheap and effective way to improve the nutrient content of perennial pasture. The goal should be to increase legume content to somewhere around 30-50% on a dry matter basis. Be aware that 30-50% legume on a dry matter basis will look like 75% when you see it in the field. Providing pasture that is high in legume content does several things for the growing calf. 1) It increases the energy and protein content of the forage. 2) It increases the rate of passage, which means cattle can potentially consume more feed per day. 3) It dilutes the harmful effects of fescue alkaloids. In Virginia, stocker cattle on fescue in summer will typically gain about 0.25 lb./day less than cattle not suffering from toxicosis; the difference is closer to 0.5 lb. during the spring when the potential for gain is higher. Research has shown that the dilution effect of legumes typically result in a 0.25- 0.5 lb./day increase over gains on straight fescue pastures. Even on non-fescue pastures, the bump in nutrition from including legumes accounts for significantly better animal gains.

**8) Consider feed supplementation.** Supplemental energy and protein to calves on pasture can help economically maintain gains during the summer months when forage growth and quality drop off. Selecting a fiber-based energy source such as corn gluten pellets, distillers grains, or other byproduct helps prevent the suppression of fiber digestion often seen with starch-based sources. Many byproduct feeds provide supplemental protein as well, although protein is usually not as limiting as energy. If labor is an issue, consider that a number of recent studies across the U.S. have shown that feeding every other day can be just as effective as feeding daily.

**9) Take advantage of ionophores.** Ionophores (e.g. Rumensin, Bovatec) can be cost-effective tools for managing growing cattle on pasture. They work by shifting the microbial population of the rumen to enable cattle to pull more energy from forages. Results include improved feed efficiency and weight gain. They have also been shown to hasten puberty in heifers. Most products are marketed in a supplement, mineral mix, or molasses block. Ionophores are not medically important for humans and so have not been impacted by the recent Veterinary Feed Directive. However, they are not approved under some natural marketing programs.



The Virginia Tech Shenandoah Valley Agricultural Research and Extension Center 2017 Field Day will be held on Wednesday, August 2, 2017. Registration will start at 12:00 noon and the program will start at approximately 1:00 pm. During the Field Day, researchers will be on-hand to discuss their on-going research projects being conducted at the Center. This will be an excellent educational program, especially for producers interested in forage production, grazing, and forest management. There will also be many area vendors on-hand to discuss their products and services. **We are asking persons interested in attending the Field Day to contact the Shenandoah Valley Agricultural Research and Extension Center at (540) 377-2255 on or before July 28<sup>th</sup> to register.**

**Field Day Program**

**Silvopasture Update** – Adam Downing, Northern District Forestry Agent, Virginia Cooperative Extension, and Dr. Gabriel Pent, Ruminant Livestock Systems Specialist, Southern Piedmont AREC

**Emerald Ash Borer – The Good and the Bad** – Adam Downing, Northern District Forestry Agent, Virginia Cooperative Extension

**Summer Annual Forages: Uses and Benefits** - J.B. Daniel, Forage & Grassland Agronomist, USDA-NRCS

**Opportunities with Solar Powered Watering Systems** – Alston Horn, Field Technician, Chesapeake Bay Foundation

**Herbicides for Fenceline Grass Suppression - Chemical Mowing** – Doug Horn, Extension Agent, Rockingham County

**Semi-permanent Posts & Bracing for use with High-tensile Electric Wire** - Alston Horn, Field Technician, Chesapeake Bay Foundation

**Update on Sericea Lespedeza Grazing Experiment** – Dr. Ben Tracy, Crop and Soil Environmental Sciences, Virginia Tech

**Evaluation of the Feeding Value of Corn Gluten Feed in Forage-based Rations** – Dr. Bain Wilson, Department of Animal and Poultry Sciences, Virginia Tech

**Effects of Endophyte Infected Tall Fescue Consumption on Growing Cattle Performance and Prospective Mitigation Strategies** – Dr. Robin White, Department of Animal and Poultry Sciences, Virginia Tech

**Tools for Selecting Replacement Heifers** – Dr. Vitor Mercadante, Department of Animal and Poultry Sciences, Virginia Tech

*By: Matt Booher, Augusta County Extension*  
There is an old adage that says using wood to heat your home heats you twice – first when you cut it and again when you burn it. The same reasoning can 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 wisely.

Allow me to explain. When eaten by livestock, greater than 90% 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 it’s 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% 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

better way is to unroll hay methodically across the field. Bales unrolled across the pasture and spaced 30’ 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 lb. 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.

**Summer Forage Tour For Beef and Bob’s**

VFGC hosts a series of Summer Forage Field Days focusing on how Native Warm Season Grasses (NWSG’s) can be effectively used for both production and wildlife benefits. As they say when it comes to NWSG’s, “What’s good for the bird is good for the herd!” The evening field day’s will include a meal at 5:30 pm followed by a pasture walk on July 18<sup>th</sup> in Charlotte, July 19<sup>th</sup> in Madison, and July 20<sup>th</sup> in Augusta. The featured speaker will be Dr. Pat Keyser, the Director of the Center for Native Warm Season Grasses, in Tennessee. Come join us as he is reunited with produces in Virginia who he helped get NWSG’s planted on their farms over 20 years ago, and see how they are using them to benefit their grazing operation. Mark you calendar today for the tour location nearest you and watch the website for details on registration and directions to each farm at [www.vaforages.org](http://www.vaforages.org). I hope to see you there!



**Harlan White Memorial Scholarship awards for 2017**

Two deserving students, Martin Battaglia (left) and Katie Kaufman (right) , received Harlan White Memorial Scholarship awards for 2017. Battaglia hails from Argentina and completed his Master’s degree at the University of Kentucky. Battaglia is investigating the effects of harvesting forages (corn and small grain silage) and crop residues (corn stover and wheat straw) on system production, soil chemical and physical properties, and potential economic returns from residue harvest. Battaglia worked with high school students in New Kent as a graduate extension scholar and has been active in providing leadership both to the Crop and Soil Environmental Sciences department and to the American Society of Agronomy. He has received several scholarships for his academic performance and leadership efforts. Kaufman received BS and MS degrees from Ohio State University. Kaufman is researching the relationship between non-structural carbohydrate levels and laminitis for horses grazing fescue pastures. This involves intensive sampling of pastures and animals and the unique aspect of this work is in developing an understanding of how the microbiome shifts with seasonal changes in forage nutritive value. Kaufman recently received a second place award at the Equine Science Society’s graduate student competition.







Greetings Graziers,

My name is Alan Spivey and I'm your new director and president. I was previously on the board and president back in the 1998-2006 era. I'm 65 years old and in the past have run as many as 150 cows and 100 ewes. Presently, I have a herd of about 50 Simmental cows. I make my living in the horse industry as a horseshow announcer, rider, and farrier.

Thanks to Jon Repair on a job well done as our president and our representative across the state and country. Members don't realize the countless meetings and communications that are required with various agencies, producer groups, and state officials. Please tell Jon how much you appreciate his service.

Don't hesitate to contact me or any director with suggestions for our council.

Hoping for a clover year,

Alan Spivey  
President, VFGC

# Passing the baton

At the last VFGC Board meeting the new President Alan Spivey presented, Past President Jon Repair with this plaque recognizing his outstanding leadership and devoted service to the Board of Directors while serving as President of VFGC for 2015-2016.



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# What is the cost of winter and early spring grazing?

*By: Matt Booher, Augusta County Extension*

Every year as grasses begin greening up, thousands of cattle producers across Virginia breathe a tired sigh of relief as they stop feeding hay. To look across the pasture and see grass blades stretching upward and every head down grazing certainly feels like cattle and pasture are good-to-go. However, there is a cost to both the animal and the plant by putting away the hay and turning cattle out to graze in the early stages of pasture growth.

From an animal standpoint, adequate dry matter intake is hard to come by in early spring. I'm not just referring to the fact that spring grass is about 90% water, although that is part of it. "Dry matter intake" refers to the pounds of feed (adjusted for moisture) that an animal must consume daily. One issue with early spring pasture is that there is just not much dry matter available. A pasture with 4-inch tall grass would only yield a little over 100 lbs. of dry matter per acre. A mature cow would need to harvest every square inch on a third of an acre to meet her dry matter requirements, which brings up a second issue. Cattle graze by wrapping their tongue around a clump of forage and tearing it off - they cannot bite off grass very well, and are inefficient at grazing closely. Cattle harvest most efficiently when pasture is around 8 inches tall, and very ineffectively when grass is 4 inches tall. So, despite the fact that the nutrition of new spring grass is through the roof, and despite the fact that they have their heads to the ground twelve hours a day; they are still unable to meet their daily nutrient requirements. Add to this the high-moisture content of early spring grass and cattle find themselves in a situation where they could actually be losing body condition on pasture. This would be especially bad for cows nursing young calves and trying to cycle again. A better course would be to continue feeding hay on a sacrifice pasture until grass is at least 6 inches tall. At this point livestock can graze more efficiently and availability of forage will remain high enough to meet dry matter requirements.

From a plant standpoint, the date of spring turnout can have a major effect on subsequent pasture growth and yield. A recent study by Tom Griggs at West Virginia University looked at this and found that delaying turnout until pasture growth reached 7 or 8 inches significantly improved total season pasture yield by 1,600 lbs./acre over turnout onto 4 or 5-inch pasture. The reason is simple. Defoliation before plants have adequate leaf area not only further reduces photosynthetic potential, but also forces plants to regrow using stored carbohydrates. Some of you may be thinking, "I understand this, but I'm willing give up a little yield on a few acres in order to get some important grazing in early spring." As outlined previously, you should consider the actual value of this early season grazing. You may also want to consider the ways in which the yield you would forfeit could otherwise be used to extend grazing in the fall. Postponing grazing a week in the springtime could buy you anywhere from 2 weeks to 1 month of grazing in the fall. That is more than worth the extra hay it will take to contain and feed livestock longer in early spring.

Some people have questioned whether intensive strip grazing of stockpiled pasture in fall and winter has any

effect on the following season's yield. The study by West Virginia University also looked at this and found that grazing dormant stockpiled pastures *did* have an effect on the next year's yield, though probably not in the way you think. Researchers found that stockpiled pasture grazed closely during winter responded with significantly higher yields the following spring than did pastures grazed more moderately. This spring yield bump for the close-grazed pastures carried through the season to result in a significant total yield increase of 900 lbs/acre. Why? Intensive winter grazing of stockpiled pasture occurs following a long growth and recovery period for the pasture, so plants are at full strength going into winter. Strip-grazing of it then results in a uniform covering with manure nutrients, and removes old leaves and residue that might hinder photosynthesis the following spring.

## Gabe Pent

Please welcome Dr. Gabe Pent, Ruminant Livestock Systems Specialist, to the Virginia Tech Southern Piedmont Agricultural Research and Extension Center (AREC). Gabe's research focused on nutritional and behavioral mechanisms affecting lamb performance in hardwood silvopasture systems. He developed novel technologies to study ruminant grazing behavior including wide-band audio recordings to monitor ingestive behavior of sheep, implanting temperature sensors for remote monitoring of sheep core temperatures, and dynamically mapping shade from trees and correlating GPS waypoints of sheep locations to those maps. His research is at the forefront of understanding silvopasture systems and will be instrumental in adoption of silvopasture systems by producers.

Gabe's extension and research program will focus on nutritional and environmental management strategies for ruminant production systems in Virginia. Some planned studies include forage finishing strategies for variable frame size cattle and heifer development, behavior, and body temperatures in thinned silvopasture systems. The technologies he has developed for silvopasture research will also be valuable in studying the dynamics of animal well-being in Virginia's fescue-based pastures.

His research combines many disciplines and provides him with a broad knowledge base of ruminant production.







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# VIRGINIA FORAGER

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## Spring Grazing School a Success!

*By: J. B. Daniel, NRCS Agronomist*

The spring grazing school conducted by the Virginia Forage and Grassland Council at Virginia Tech McCormick Farm in Raphine, VA, was a terrific success with 25 new graduates from Virginia, Maryland and Tennessee. Despite the day of rainy cool weather to start the school on Tuesday we made adjustments to the agenda and had nearly a full day outside on Wednesday learning through practical exercises in the field. The participants learned specifics about soils, forages, grazing management, estimating forage and allocating pasture, portable electric fencing options, the economics of grazing management and the importance of managing stocking rate in balance with forage supply and livestock demand.



David Fiske explains the importance of properly grounding your fence energizer as class participants look on eagerly.

The participant evaluation forms shared a lot of good information about the grazing school and their favorite parts of the school. Here are some direct comments and one quote from the participants:

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Mother and daughter team up to evaluate pasture condition in preparation for group discussion.



This team reviews their pasture allocation after one day of grazing by the cows.

*Grazing school Page 4*

Reporting the progress of Virginia's forage industry