Maximizing Grazing and Improving Soil Health

by Sjoerd Willem Duiker, Ph.D., CCA, PennState Extension

"When my soil is healthy, my animals are healthy"—was the adage of one of the graziers I've worked with. As a person interested in improving soil health, this really piqued my interest. How do you improve soil health while maximizing pasture production? Let us boil it down to a few key points:

Don't graze your pastures to the ground. A common rule of thumb is 'graze half—leave half.' The key for perennial cool season pastures is to leave at least 3-4 inches of vegetation when the animals are rotated out of the pasture.

For warm season grasses, more residual needs to be left—at least 6-8 inches. This is because grasses store reserves for regrowth in the stem just above the soil surface. When you leave sufficient residual, they can quickly recover from the shock of losing so much leaf matter. If you remove these reserves, they have to pull energy from the roots and that severely impacts the root system—which reduces soil health! Further, any trampled material will decompose and contribute to soil organic matter, feeding the soil life.

Allow for sufficient regrowth time before letting the animals back in. This is the principle behind rotational grazing—you graze for a short period (typically no longer than 3 days) and then let the pasture rest for a long period (typically 20-30 days, depending on weather) before grazing them again.

This helps the root system to develop as well as the top-growth. Additionally, the reduced exposure of the soil to the animal impact reduces the potential for detrimental soil compaction. If the animals are left in the field for longer than 3 days they typically go back and graze the new regrowth and this really weakens the root system.

Maximize the grazing season by diversifying your grazing supply. Grazing farmers in the Northeastern U.S. rely first and foremost on cool-season grasses for grazing. These grasses have two big flushes of production: the biggest in the spring, after which they typically go into a summer slump when the weather is hot and dry, and then in the fall they resume growth and produce another bump in production.

Warm-season perennial grasses such as switchgrass, big and little bluestem, and Indiangrass have a different growth pattern.

These grasses produce most in the heat of summer. They are the mainstay on prairies that used to feed our herbivores but have gone out of fashion for commercial grazing in the Northeast.

They got a bad rep due to poor forage quality testing, but this needs to be revised based on ground-breaking work by Dr. Pat Keiser from University of Tennessee and others, who recorded excellent Average Daily Gains (as much as 2.5 lb./day) of grazing weaned steers.

Warm-season perennials can be an excellent place to graze in summer, which allows the cool season pastures rest.

Another interesting thing about them is their tremendous root system that helps improve soil organic matter content and aggregation—considered to be the reason that the best soils in the world developed under prairie.

It is also possible to use warm-season annual mixes for summer grazing. Sometimes, these are reserved until fall so that the cool season pastures can be rested for stockpiling.

Cool season annuals can be planted after the warm-season annuals—options are oats/peas for late fall grazing, or rye or wheat for winter and/or early spring grazing.

Use no-tillage to establish your annuals and perennials. No-tillage helps preserve the soil structure and organic matter in your soils. It has proven to make your soil resist soil compaction.

Pugging is a lot less on a no-till soil than a tilled soil. Further, no-till helps favor soil life—you will have more earthworms, soil insects, and microbes which improve soil health.

Monitor soil moisture conditions and cattle impact on the soil. When you notice the animals starting to tear up the pasture and soil, it is important to move them more quickly, or—if things get really dicey—to put them in a sacrifice lot or in the barn.

These are five keys to help you maximize grazing while at the same time improving your soil!

When Should I Apply Chemical Seed Suppressant?

by John Fike, Virginia Tech

This article helps answer the question: 'When should I apply a chemical seed suppressant or when should I clip to suppress tall fescue seedheads?"

As (almost) always this specialist likes to frame the issue before jumping into the answers, which usually means starting with another question: Why?

For those of you who are unaware, most of Virginia's tall fescue contains a fungal endophyte which produces toxins that are harmful to livestock. Concentrations in spring are greatest in the seedheads (see figure to right), and removing the seedheads is a good strategy for reducing toxin load for grazing animals in spring. (Note, this won't be a worry in summer stockpile as seed will have dropped and the rest of the stalk will have dried up.)

Fescue seedheads begin formation in response to light and temperature cues, which will vary a bit by region in the state, but they are generally apparent in mid-spring in ungrazed/unmown fields. Suppressing seedhead development can result in substantial improvements in animal performance.

Approaches for reducing seedheads include close, timely grazing (or close mowing) in spring or application of approved herbicides.

Grazing the stand to a short stubble height can work because the reproductive tillers that produce toxic seedheads are grazed before they elongate and increase in toxin levels.

Getting this timing right can sometimes be a challenge, but based on the figure above, this should happen in early May. Some caution is warranted here, however, as close defoliation may limit future productivity if the sward is pushed too hard.

Herbicide applications can be very effective (and also economical). Of note, however, is that in on-farm trials with Chaparral (a Dow product), the value of herbicide application was not greater than close grazing in spring. So, take your pick of what works best for your management.

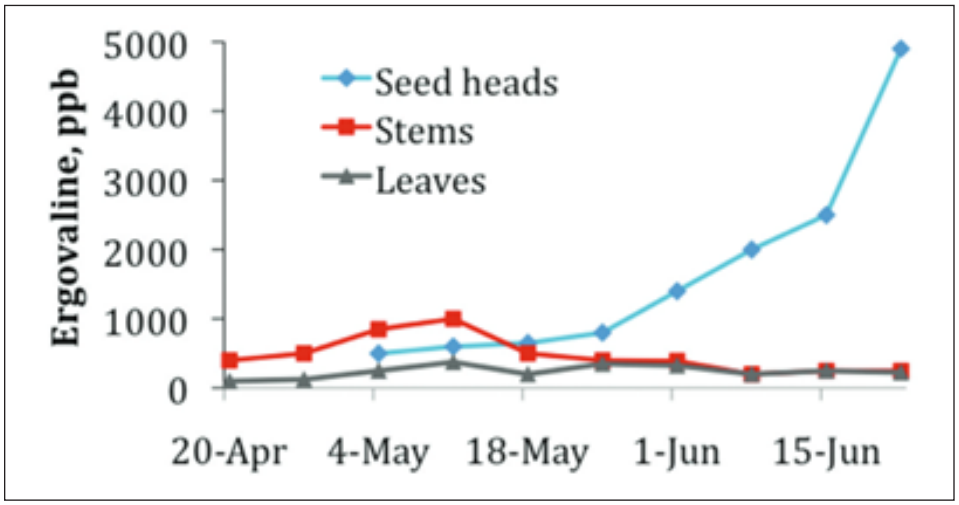


Figure 1. Fescue ergovaline alkaloid concentration by plant part during spring. Figure from Strategies for Managing Endophyte-Infected Tall Fescue—A Whole-Farm Approach, https://www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/spes/spes-163/SPES-163.pdf.

General recommendations for timing are to apply within the period of three weeks before emergence until the boot stage. Early to mid-May is probably a reasonable window for much of Virginia.

However, the specialist will admit that while this is true for Chaparral, the specialist has not explored this for all suppressant herbicides that are on the market—so be sure to read the label.

For more on herbicides, see "Herbicide Options for Tall Fescue Seedhead Suppression" at aces.edu/blog/topics/farming/herbicide-options-for-tall-fescue-seedhead-suppression/— and again, follow labeled directions for use.

A few more notes about using herbicide-based suppression. First, some injury to your fescue should be expected, and the effects may be worse on fields with poor fertility.

Target better fescue fields that have better fertility and expect that about 10%-20% of plants will be set back—but they generally grow out of that after a week or two.

As a positive tradeoff, increases in grass species diversity (i.e., a little less fescue, more other good "stuff") is often observed. Additionally, the treated fescue is leafier and generally higher in protein and soluble carbohydrates, so it's more digestible than when allowed to go to seed.

If you have a productive fescue field but with a bit of undesirable broadleaf species (that you haven't taught your cows to eat), this might be good field to target for treatment. (If it's really weedy, target that field for renovation to novel fescue.)

Also, applications on the same field in back-to-back springs are not recommended as this can have detrimental effects on your fescue stand.

Good grazing management is important to get the most out of your fescue stand—whether you graze or spray to suppress seedheads.

While rest and recovery following a grazing event is essential for recovery and growth, it may be even more important when seedheads are suppressed with herbicide.

Consuming fescue toxins acts to "put brakes on" forage intake, and treated pastures, with lower levels of alkaloids, can result in more comfortable cows that eat more (of a more leafy, palatable forage).

Rotational stocking (grazing) management will be important to prevent overgrazing.

Silvopasture for Simple, Scalable Agroforestry Expansion

by Austin Unruh and Joshua Greene, Trees For Graziers

Agroforestry has so many potential directions and courses of action that it's really quite exhilarating. At the same time, the array of agroforestry projects can be dizzying.

There are so many interesting and potentially productive projects to pursue at the intersection of fruit, nuts, timber, pulp, pasture, and a host of other crops—not to mention the integration of livestock into the mix.

Every day brings another collection of project ideas with hosts of interesting and compelling questions to be answered through on-farm trials and pilot projects.

At Trees For Graziers, we have determined to focus our attention first and foremost on the practice of silvopasture. Specifically, we plant trees into pastures. While we work with other agroforestry practices like riparian buffers, windbreaks, and conversions of woods to silvopasture, we have chosen to concentrate our attention on planted silvopasture.

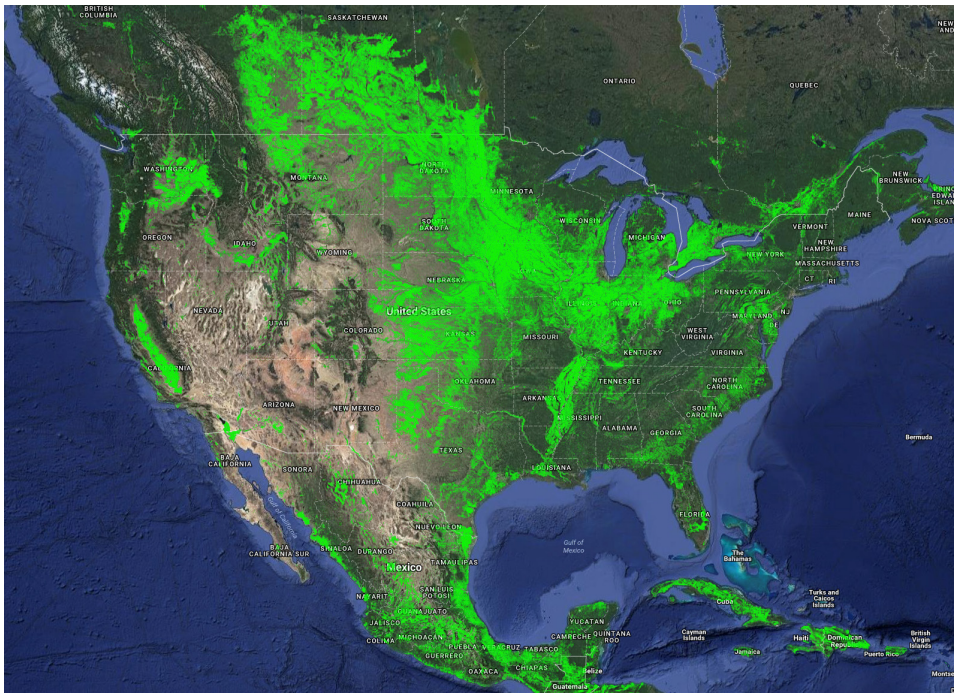
We have narrowed our gaze on silvopasture for five basic reasons: focus, harvest, shade, scale, and economics.

As a start, we focus on silvopasture because we need focus. There are so many opportunities in the broad field of agroforestry, from growing ginseng, ramps, or shiitake in the woods to growing pecans and cider apples, that it's easy to become overwhelmed, spread too thin, and hence ineffective. We would rather make significant strides in one direction than creep forward in many.

Further, we've seen that graziers intuitively understand the need for dappled shade for their summer pastures.

Many of the early adopters of agroforestry are graziers who want to improve pasture quality and quantity especially during the summer slump.

There is so much potential productivity from the integration of forages, trees, and herbivores that lifetimes of energy and attention can be invested on developing and refining productive silvopasture systems for different regions of the United States.



The United States has 410 million acres of net cropland area. If just a portion of that cropland could be converted into perennial silvopasture perhaps our number one export would not be our topsoils carried into the Gulf of Mexico and the Chesapeake Bay. Source: https://www.usgs.gov/media/images/map-croplands-united-states.

Second, we focus on silvopasture because we think livestock is our best option for harvesting tree crops.

We have chosen not to focus on tree crops for human consumption because the whole enterprise of growing tree crops for humans to eat is vastly more complicated than growing feed for livestock.

The logistic complexity of harvesting, processing, and marketing tree crops profitably is a major barrier to entry.

Harvesting and processing just one crop, say chestnuts, has its challenges, but when you add currants, aronia, elderberry, hazelnuts, and all the other potentially valuable crops, there are a lot of moving pieces—each with significant question marks.

Since there are already competent players in this space, like the Savanna Institute and Propagate, we have determined to let them crack that nut.

In contrast, here's the basic plan for harvesting, processing, and marketing tree crops for livestock: let the animals eat them where they fall. Done.

Third, we focus on silvopasture because access to shade can improve animal comfort and animal performance. This is easier to quantify in dairy production since there's a twice daily measurement of productivity in the bulk tank.

Even though measuring daily gains is more challenging and often less nuanced in beef production (since there's typically just a weaning weight and slaughter weight), the potential for silvopasture to increase daily gains by reducing heat stress and increasing forage quality stands as one of the biggest benefits of silvopasture.

The University of Kentucky has one study that needs to be mimicked in other regions of the United States.

That study showed an increase of 0.89 pounds of extra gain per head per day with access to shade from May 7 to June 3. If you value your beef at $1.75 per pound (which is pretty low by the current market standards), that would earn you an extra $1.55 per head per day. With a herd of 50 cattle, that's $77.88 per day of additional income.

(article continues on page 4)

Feed trees for livestock (honey locust, mulberry, and persimmon) will certainly cover many times the acreage of tree crops for human food (chestnuts, hazelnuts, and currants), but trees primarily for livestock shade is an even simpler concept.

While a lot of development work needs to be done on food and feed trees, shade trees are ready to go, and offer some of the fastest and most reliable benefits in all of agroforestry, especially in climates with hot summers.

Reducing heat stress in livestock and forages is a surefire way to create more resiliency to climate change and increase farm profitability.

Fourth, we focus on planting trees in pastures because planting trees to provide fodder and shade for livestock is much more scalable and stable than planting trees to produce crops for human consumption.

Most agricultural land in the United States is dedicated towards feed for livestock, not food for people.

The United States has roughly 410 million acres of net cropland area. According the National Agricultural Statistics Service, 229.7 million acres were planted in corn, soybeans, cotton or wheat in 2023 for a total of 56% of the total cropland.

Many of these acres, which are poorly suited for cropland because of their steep slopes and highly-erodible soils, would be much better suited for silvopasture.

J. Russell Smith, author of the 1929 classic, *Tree Crops: A Permanent Agriculture*, said it best: "This book is primarily an attack upon the gully. To succeed in this we must have millions of acres of tree crops replacing the destructive plow crops. Now the nuts that people eat are fine and worthy of much improvement, but a few hundred thousand acres of them would glut the market. Not so with stock food. Once we get a cow-feed tree crop established we have a guaranteed outlet, and twenty or thirty million acres will not glut the market. We would simply convert thirty or forty million acres of our hundred million acres of corn to a more profitable and soil-saving crop" (page 32).

Finally, we focus on silvopasture because of its resistance to boom and bust economic cycles.

Red Devon cattle cluster under the shade of fence line trees at Greene Kitchen Farm.

Again J. Russell Smith: "There is another reason also. Some of the stock-food crops seem to be in the class of sure things with which the farmer can safely begin without waiting for a lot of scientific work to be done. Then, too, stock foods start on an honest-to-goodness basis. *They don't begin five prices high like a human food novelty and then come down bumpety-bump as soon as a few carloads are produced*" [emphasis added] (page 32).

This last observation by Smith is critical. Anyone who has been around agriculture for any length of time has seen quite a few boom-and-bust cycles of trendy crops.

Since we're talking about tree crops, which are a very long-term investment, stability is critical.

Many agroforestry projects predict that prices for various crops will hold as other growers scale up production, but this is not likely to be the case.

On the other hand, livestock feed may not be glamorous or able to return as much per acre, but it will always have a solid outlet and reduce the heat stress on grazing livestock, improve animal comfort, and lower input costs for graziers.

We at TFG are pretty bullish on the future of silvopasture. Right now there are several bottlenecks to the practice taking off, but farmer demand is not one of them.

Thoughtfully integrating trees into pastures simply makes good sense for graziers, and as funding availability and tree genetics are improved, we'll see silvopasture really take off. It's a long-term, slow-moving practice, so 'explode' might be the wrong term, but steady growth in the right direction is what we see moving forward.

Sources:

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A black locust after only three growing seasons, showing the quick return on investment on shade trees.

Research Update: Performance of Dairy Heifers on Pasture Relative to TMR-fed Counterparts

by Amanda Grev, Ph.D., University of Maryland Extension

Over the past several years, a study was completed at the Central Maryland Research and Education Center Clarksville Dairy Farm to investigate the effects of improved grazing management on pregnant dairy heifer performance.

The objectives were to determine the effect of improved grazing management on heifer growth characteristics, as well as the economic feasibility of using a rotational grazing system to mitigate costs associated with the replacement program.

Heifers are also being followed through their first lactation to investigate potential carry-over effects on first lactation performance.

Methods

Pregnant Holstein dairy heifers (n=166; 2021-2023) from the University of Maryland Dairy were utilized for this study.

Heifers were enrolled in the study on a rolling basis, with heifers added following pregnancy confirmation and removed approximately three weeks prior to calving.

Upon enrollment, heifers were randomly assigned to one of two treatments groups: control (CON) or grazing (ROT). Heifer groups varied in size throughout the study period (ranging from 15 to 22 per group) but were kept consistent between treatments at any given time.

Heifers in the CON group received a total mixed ration (TMR) once per day and had access to one continuously managed 6-acre perennial pasture consisting of mostly endophyte-infected tall fescue.

Heifers in the ROT group were rotationally grazed across 21 acres of both perennial and annual pastures subdivided into approximately 0.6-acre paddocks; heifers were rotated to a new paddock every 1-3 days, depending on forage availability.

Perennial pastures within the rotational grazing system were similar to the control pasture and consisted of mostly endophyte-infected tall fescue. Annual pastures within the rotational grazing system were established on a seasonal, rotating basis using cool-season annuals (triticale/oat/annual ryegrass/crimson clover mixture) followed by warm-season annuals (sudangrass/cowpea mixture).

Heifers in the ROT group also received a daily ground corn/mineral mix at a rate of one pound per head per day to ensure appropriate mineral intake. An overview of the pasture layout and sizing for both groups is depicted in Figure 1.

The study ran annually from around the beginning of April through the end of December.

Throughout the growing season, heifers in the ROT group alternated between annual and perennial pastures based on forage availability and growth; actual dates spent grazing the different forage types varied from year to year, but as an example, the grazing dates for 2021 are shown in Figure 2.

Throughout the study, both groups of heifers were measured every two weeks to determine bodyweight, body condition score, and hip height. Forage samples were collected every two weeks to determine forage nutritive value; for each treatment group, samples were collected from the paddock immediately prior to grazing.

Results

Analysis of the results for this study are in progress, but some preliminary results from the first grazing season (2021) are presented here. On average, heifers were enrolled in the study for 140 days. The average nutrient composition of the TMR fed to the CON heifers and the pastures grazed by both CON and ROT heifers are shown in Table 1 on the next page.

Initial bodyweight, body condition score, and hip height were similar between treatment groups (Figure 3; see next page). Final bodyweight and hip height were also similar between the two groups, but final body condition score was greater for CON heifers (3.7) compared to ROT heifers (3.5; Figure 3B).

Figure 1. Pasture map depicting grazing areas for the control (blue) and grazing (red) treatment groups, as well as the paddock subdivisions for the grazing group (yellow). Annual pastures were located in fields 5 and 6.

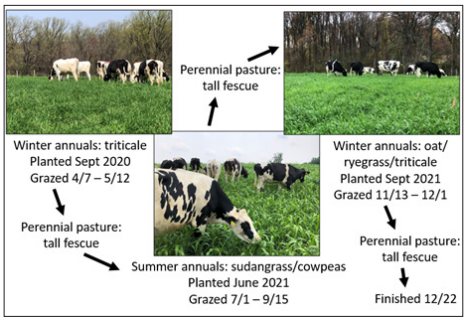

Figure 2. Timeline of seasonal grazing rotation across forages for heifers in the grazing treatment group in 2021.

Although final bodyweight was not statistically different between treatment groups, average daily gain was greater for CON heifers (1.9 lb/d) compared to ROT heifers (1.5 lb/d) over the 2021 grazing season.

Implications of the slightly lower body condition of ROT heifers is unknown, but we hypothesize that there may be a positive effect on first lactation performance since heifer body condition was still good and it is well-established that cows that calve with higher body condition are predisposed to metabolic problems (e.g., ketosis, fatty liver, etc.).

Performance of heifers from both treatment groups are being tracked as heifers go through their first lactation; additional data analysis will explore possible carry-over effects of these management systems on first lactation milk production, health, and reproductive performance once all heifers have calved.

(article continues on page 6)

Interestingly, heifers in both groups lost weight following their enrollment in the study, suggesting that both groups required an adaptation period to adjust to their new environment.

Prior to study enrollment, all heifers were group-housed in a barn and fed a TMR once daily. Following study enrollment, CON heifers required an average of 23 days to regain their starting bodyweight while ROT heifers required an average of 35 days.

The longer adaptation period for the ROT heifers is not surprising given that they experienced a more dramatic change in housing and diet compared to the CON heifers.

Heifer average daily gains varied considerably across weigh periods; this variability in daily bodyweight gains for both groups of heifers is demonstrated in Figure 4.

Variability in daily gains was likely due to a number of factors, including heifer adaptation, heifers entering/leaving the study, changes in forage type and forage quality over time (especially for the ROT group), and varying weather conditions throughout the grazing season.

The ROT heifers appeared to perform substantially better while grazing the warm-season annual mixture (sudangrass/cowpea) during the heat of the summer, which might be expected given the nutrient profile of this pasture (shown in Table 1).

Take Home & Conclusions

A detailed economic analysis comparing expenses between these systems is forthcoming.

Although these preliminary results indicate a slower growth rate for ROT heifers, final body weights and body condition scores of these heifers were still acceptable and they achieved or exceeded 85% of mature bodyweight at first calving.

Because the replacement heifer program is typically the second or third greatest expense on the dairy and feed often exceeds 50% of those costs, increasing utilization of pasture may be an economical choice for some producers to reduce costs on their farm without compromising performance.

Nutrient (% DM)	Control Treatment		Grazing Treatment		
	Fescue	TMR	Fescue	Sudangrass	Triticale
DM	23.4	40.2	21.4	19.1	17.0
NDF	52.9	46.0	53.1	46.9	44.7
CP	18.8	15.2	18.4	19.6	19.3
TDN	64.0	65.2	64.8	68.3	69.8
Starch	1.7	11.0	1.9	4.1	3.0
Sugar	8.3	5.1	7.4	7.0	13.8

Table 1. Nutrient profile of forages and TMR for control and grazing treatment groups. DM = Dry Matter, NDF = Neutral Detergent Fiber, CP = Crude Protein, TDN = Total Digestible Nutrients.

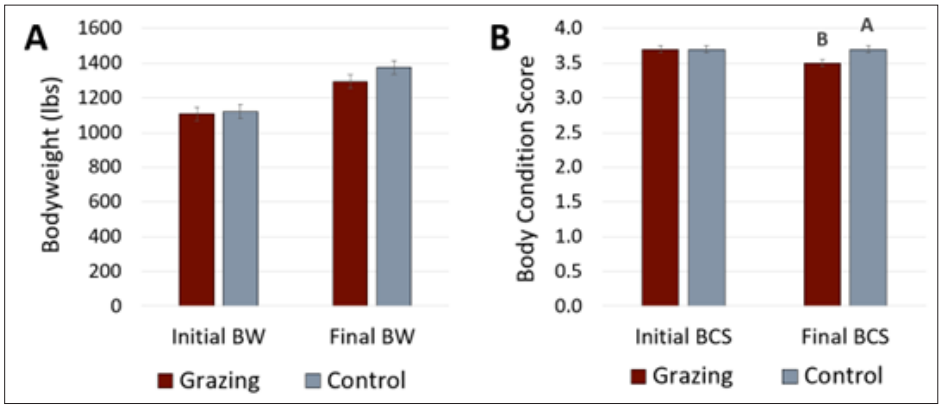

Figure 3. Initial and final bodyweight (A) and body condition score (B) for heifers in the control and grazing treatment groups.

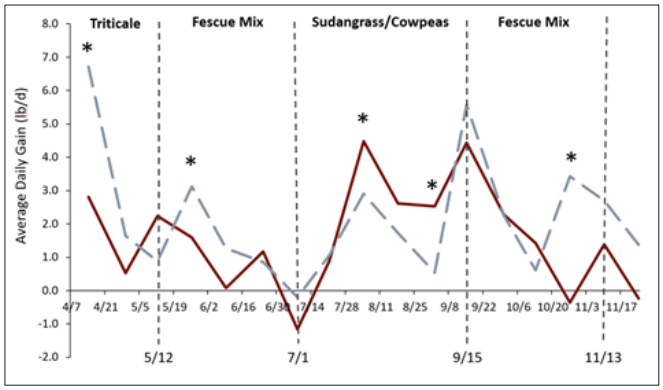

Figure 4. Heifer average daily gain across weigh periods during the 2021 grazing season for heifers in the control and grazing treatment groups. Vertical dashed lines indicate when changes in pasture type occurred for the grazing treatment group. Asterisks indicate statistically significant differences.

Producers looking to improve grazing systems on their farm should begin by exploring simple management changes including the implementation (or increased intensity) of rotational grazing practices.

Incorporation of annual forages into the grazing system may also help improve animal performance by offsetting the reduced summer growth (i.e., summer slump) in perennial pastures and mitigating the palatability and forage intake issues associated with endophyte-infected tall fescue pastures during the summer.

Future Plans

Moving forward, a full analysis of all three years of this study will be completed, along with a comprehensive analysis comparing the economics behind heifer performance within each of these systems. Future studies will continue to explore how improvements in pasture management affect heifer performance and the economic viability of the heifer program.

Acknowledgments

We are grateful for the assistance provided by the staff at the Clarksville Dairy Farm in support of this study. This study was partially funded by the Maryland Agricultural Experiment Station Competitive Grants Program and by a Northeast SARE Research and Education Grant.

Pasture Management by the Seasons: Spring & Summer

by Laura Kenny, PennState Extension • originally published on extension.psu.edu

Whether you want to improve your pastures or simply maintain them so that they stay lush and green for years to come, there are many steps to take. For a great primer on these concepts, read *Pasture Management Basics for the Equine Owner*.

For example, your first step should always be soil testing! Some steps can be done at any time, and others should be done on a schedule. Read on for a seasonal pasture management timeline for a Pennsylvania climate and items to consider this spring and summer.

Spring

Keep horses off the pastures until they have recovered and grown back from winter. A good guideline is to wait until there is 5-6" of growth before grazing.

Introduce horses to spring grass gradually. Large amounts of any new feed can upset your horse's gut, and these spring grasses have a lot of non-structural carbohydrates (or NSC; sugars, starch, fructans) that can trigger laminitis and founder in susceptible horses.

Start them off with 15 minutes of grazing per day, and gradually increase until they are grazing for your target turnout time.

If you have laminitis-prone horses with metabolic issues such as insulin resistance and Equine Metabolic Syndrome, remember that early spring grasses are highest in NSC all year.

Soil Testing

If you have not tested your soils within the last three years, you can take soil samples any time the ground is not frozen.

Testing kits are available from your county Penn State Extension office and contain instructions for taking the perfect representative sample from each of your pastures. You can also find directions for pulling samples and the submission form at the Agricultural Analytical Services Lab website. Make sure to use the Agronomic Crops submission form.

Nitrogen

Timing of nitrogen (N) fertilizer application is important because it does not stick around in the soil very long. Spring green-up is an important time to apply N, which causes a flush of green, leafy growth (that is, if you have grass). If your pastures are sparse or mostly weeds, then you should work on establishing more grass before applying N.

PHOTO COURTESY PENNSTATE EXTENSION.

Once pastures start turning green in April or so, the N will jumpstart grass growth and you will have a lush, productive pasture.

If you find you already have plenty of grass in the early spring, you can delay the N application until later in May or June when the first flush of growth slows.

Either divide the recommended amount of N from your soil test result in half or thirds, or apply 40-50 pounds of N.

Important note: pounds of N is not the same as pounds of fertilizer, as different fertilizers contain different proportions of N. The product label will specify the percentage of N, so just take that percentage of the bag's weight to calculate how many pounds of N are in the bag.

After applying fertilizer (especially N), you should keep horses off the pasture until about a half inch of rain has washed the fertilizer off the grass.

Phosphorus and Potassium

Your soil test results will also have recommendations for phosphorus (P) and potassium (K) fertilizers. These can be applied any time after the first grazing, so think May or June. The soil test recommendations for N, P, and K are meant to be applied annually for three years, then another test should be taken.

Lime

Lime can also be applied any time during the year. Your soil test report will tell you how much to apply.

Note that this recommendation is intended to be applied once during the three-year period between soil tests. Do not apply it yearly. Lime takes 6-12 months to react in the soil, so if you are reseeding, plan ahead and apply it 6-12 months before seeding. If the quantity of lime needed is a problem, you may split the total amount into multiple applications.

Weed Control and Forage Management

Keep an eye out for weeds and try to identify them. The first weeds you will see (in Pennsylvania) will be winter annuals like henbit and purple deadnettle, which germinate in the fall and flower in the early spring.

Summer annuals germinate in the spring and die in the fall; therefore, the best time to spray them is in the spring when they are small and tender.

Other types of weeds (perennials, biennials, winter annuals) should be sprayed at different times for maximum effectiveness.

It is best to identify the weed and select an herbicide that has demonstrated effectiveness on that plant. You can look up herbicides in the Penn State Agronomy Guide, or contact your local Extension office for help identifying weeds and choosing a control method.

If using herbicides, make sure to read labels carefully and follow all requirements including grazing restrictions and reseeding intervals.

(article continues on page 8)

You can plant cool-season grass seed like orchardgrass, Kentucky bluegrass, perennial ryegrass, etc. in the springtime, but it may be less successful than a fall seeding due to weed pressure and approaching hot summer temperatures.

New seedings should not be grazed for one grazing season to ensure the plants become well-established with deep, healthy root systems. See the Pasture Seeding Timeline.

Regular mowing is great for pastures. Immature, leafy grass plants are high in nutritive value (energy, protein) while mature, stemmy grass plants with seed heads have lower nutrition but higher fiber.

Regular mowing encourages the plant to replace leaves instead of going to seed. It also helps control some weeds!

If using a rotational grazing system, a great time to mow is right after you switch horses to a new paddock. Never mow below 3-4 inches; this damages tall grasses and increases forage recovery time.

Grazing Management

Once horses are acclimated to spring grass, it's time to start your grazing rotation.

Start grazing a pasture when grasses have reached 8-10 inches, and move horses when grasses are 4-5 inches tall. If this takes longer than a week, you could add horses to the group or use temporary fencing to make the paddock smaller.

Grass regrowth will be rapid in the spring (2 to 3 weeks), so as long as you have enough paddocks in the rotation, you shouldn't need to confine horses to stress lots unless it is raining and soggy.

Summer

Any time that grasses are green and growing is a good time to evaluate your pastures.

Take a walk through each one and note the proportions of bare ground, weed cover, and desirable cover. A quick and easy method for this is the Equine Pasture Evaluation Disc. This can help you make decisions about renovation and reseeding.

Cool-season grass (orchardgrass, Kentucky bluegrass, timothy, tall fescue, brome, etc.) growth slows significantly when it gets hot and dry.

If grazing rotationally, you may need to confine horses to a stress lot/dry lot while you wait for a paddock to recover to 8-10 inches of forage. Make sure to feed hay since they're not consuming pasture forage.

If it's a mild summer and there's plenty of moisture, you can make another nitrogen application for increased summer growth.

Around June, you can apply another 20-30 lbs. of N if there is adequate rainfall and forage. Lime, P, and K can also be applied in the summer if they were not applied in the spring.

Identify weeds of concern and make a pasture weed inventory. By the time weeds are large and mature in late summer, you can't do much other than mow them and prevent them from spreading seeds.

However, once you identify them and their life cycles, you can look up the most effective herbicide and the most effective time to control them next year.

Remember that weed control is an ongoing process and often requires pasture improvement, so a single treatment is unlikely to solve all your problems.

If you plan on hiring someone to do pasture work in the fall, get in touch with them early. Fall is a very busy season for custom applicators. Find out if your laneways and pasture gates are wide enough for the equipment to get through and turn around.

Conclusion

Maintaining your pastures in lush, green grass takes significant work and investment. However, you will find many rewards in the beauty of your fields, the reduced weeds, and the amount of extra feed it provides for your horses.

Note that lush, high-quality pasture does provide a significant source of calories for horses; horses at maintenance can have their energy and protein needs met with pasture alone.

Keep an eye on weight by body condition scoring or using a weight tape regularly. Obese horses or those with metabolic problems may need to wear grazing muzzles or even be kept on dry lots. Consult with your veterinarian!

UPCOMING EVENTS

Skyline SWCD Field Day/Pasture Walk
April 23, 4:00 PM–7:00 PM
Terry Forks, VA
Topics covered at this field day include pasture management, stream crossings, water facilities, and fence placement. Dinner is included! Contact Chanz Hopkins at 540-381-0071 to register.

Allen Williams Field Day
April 25, 9:00 AM–3:00 PM
Central MD Research & Education Center
4240 Folly Quarter Road, Ellicott City, MD
Join Dr. Allen Williams to learn about soil health, biodiversity, grazing management, fencing and watering systems, and behavior of grazing livestock at this interactive field day that will include time spent both in the classroom and out in the field. Allen has consulted with more than 4500 farmers and ranchers around the world, on operations ranging from a few acres to over 1 million acres. Register at go.umd.edu/allenwilliams.

Cover Crop Field Day
May 7, 8:00 AM–3:00 PM
Ernst Grain and Livestock
13646 Broadfording Road, Clear Spring, MD
Learn about soils, new technologies, slugs, roller crimper, and planter set up for cover crop types. To register, visit eventbrite.com/e/cover-crop-field-day-the-sequel-tickets-868265333987?aff=oddtdtcreator.

Grazing Field Day
May 8, 1:00 PM–3:00 PM
18330 Keedysville Road, Keedysville, MD
At this field day, we will discuss grazing cover crop strategies that are being used to advance soil health and herd health. Learn how to use cover crops in your grazing management to improve soil and your bottom line! Register at eventbrite.com/e/grazing-field-day-with-cover-crops-tickets-871324594317?aff=oddtdtcreator.

Pasture Walk
May 9, 3:30 PM–7:00 PM
Fallen Aspen Farm
2202 Georgetown Road, Volant, PA
We'll explore pasture management through rotational grazing, silvopasture, and conservation methods. Owners Jake and Desiree will share their passion and experience around ethically raising pastured pork, poultry, and lamb. We'll end the evening with a pulled pork meal and a discussion around the fire from our generous farmers. Visit pasafarming.org/event/love-for-the-land-animals to register.

Basic Grazing School
May 14 and 15
Rapidan River Ranch
3357 Graves Mill Road, Madison, VA
Designed with beginning and experienced producers in mind, this 2-day, intensive course will teach you everything you need to know to better manage grazing on your farm. Visit vaforages.org/events for more information.

Pasture Walk
May 16, 6:00 PM–8:00 PM
New Roots Farm
24956 Muddy Creek Road, West River, MD
New Roots Farm raises grass-finished beef, grass-fed lamb, pastured pork, and pastured poultry using rotational grazing practices. Topics of discussion will include finishing cattle on grass, genetic selection for grass-finished livestock, and pastured pigs. Register by visiting agnr.umd.edu/events.

Precision Agriculture in Virginia
May 16, 9:00 AM–12:00 PM
VSU Randolph Farm Pavilion
4415 River Road, Petersburg, VA
Learn how to make informed decisions using precise soil testing to determine intra-field variables, disease or pest test results, or pre-sidedress nitrate testing, which will reduce variability in yields and increase farm profits. For more information, contact Tim Sexton at 804-524-1028 or tsexton@vsu.edu.

Maximizing Daily Animal Performance for High Profits
May 17, 9:00 AM–4:30 PM
Catawba Community Center
4965 Catawba Creek Road, Catawba, VA
Join us for a one-day grazing school with Greg Judy, the Regenerative Rancher. Learn from Greg about what to look for in your animals and your grass to dramatically improve daily gains and profit potential on your farm. Register to attend at tinyurl.com/May18GrazingSchool.

Agroforestry Field Days
May 17-18
Harrisonburg, VA
Join Virginia Cooperative Extension for an introduction to agroforestry and silvopasture systems. Hear from a panel of consultants and contractors. There will be farm visits and an evening social. For more information, contact Leonie Jacobs at jacobsL@vt.edu.

Southwest Virginia Summer Forage Tour
June 18-20
This is a three-day tour of six cattle operations featuring a variety of forage systems. The farms on the tour have been chosen for their work in managed grazing, animal husbandry, and natural resource conservation. Once you register, we will be able to keep you updated on more details, such as pick-up locations and accommodations. Visit vaforages.org/events for more information.

Summer Stockpiling to Extend the Grazing Season and Improve Grassland Bird Habitat
July 31, 5:00 PM–8:30 PM
The Wheatlands
304 Cattleman Road, Swoope, VA
Program topics include summer stockpiling to extend the grazing season and reduce hay costs; summer stockpile forage quality compared to hay; and benefits of delayed hay cutting and summer stockpiling to grassland birds. Registration coming soon. Email John Benner at benner89@vt.edu for more information.

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