

Mountains-To-Bay Grazing Alliance

Newsletter, April 2021



Grazing Mistakes to Avoid

by Amanda Grev, University of Maryland Extension

Fortunately or unfortunately, people are creatures of habit. Over the years, we've developed behaviors and habits that will stick with us for a lifetime. This applies to our daily routines and the choices we make, both good and bad.

Whether it's not getting enough sleep, skimping on the sunscreen, or neglecting to floss on a daily basis, we often find ourselves guilty of making the same mistakes again and again.

Unfortunately, this same phenomenon also holds true when it comes to grazing livestock.

As you make plans for the upcoming growing season, here are a few of the more common grazing mistakes that we often fall prey to. Let's do our best to break that habit and avoid these mistakes moving forward.

1. Not understanding the plant's needs

There is a reason grazing heights and rest periods are so frequently discussed when it comes to forage management.

Plants need to maintain enough stored energy

to regrow following a grazing bout.

Removing too much of the photosynthetic factory (i.e. the leaves) severely limits the plant's ability to recover and regrow, and sets the stage for further energy depletion and overgrazing the next time through the rotation.

That being said, it is important to recognize that not all plants store their energy reserves in the same place.

For example, while legumes like alfalfa store their energy in below ground structures, grasses like orchardgrass store their energy reserves in the base of the stem.

Removing these storage structures by grazing too closely limits the plant's capacity not only to regrow after grazing, but also to generate new tillers and persist long term.

This is the basis behind recommendations on beginning and ending grazing heights and the reason a field of alfalfa will persist at a lower grazing or cutting height compared to orchardgrass or other cool-season grasses,

most of which need at least 3 to 4 inches of post-grazing residual to maintain sufficient energy reserves.

2. Not managing for even forage utilization

Pastures often develop areas with heavy usage and low forage availability, while other areas have less grazing pressure and abundant forage.

As a result, the areas that are heavily grazed become more overgrazed while the areas that are left alone are understocked—and the remaining forage becomes mature and declines nutritionally.

Several management strategies exist to promote more even forage utilization across the field. Making water and shade available in other areas of the field to attract livestock to less desirable areas, mowing or clipping low-use or overgrown areas to keep forages vegetative, and subdividing the field into smaller sections for rotational grazing can all help alleviate this issue and result in greater forage utilization and productivity long-term.

(article continues on page 2)

(story continued from previous page)

3. Not investing below the soil surface

Practices like soil sampling and maintaining appropriate soil fertility are an investment but cannot be overlooked.

Soil tests are a critical component in pasture management because they are the only way to determine limiting nutrients and soil pH. Soils will naturally become more acidic over time, and if the pH is too low, certain nutrients will become less available to plants and toxicities may occur.

Liming as needed and keeping up with soil nutrient status are essential investments to the health and productivity of a forage stand.

Additionally, while it is true that under a pasture setting a large portion of nutrients are recycled through the deposition of manure and urine, consider where those nutrients are being spread.

They may not always be deposited evenly across the pasture and are likely more concentrated around water and shade sources or in laneways and other highly trafficked areas.

Implementing some form of rotational grazing can help achieve a more even distribution of manure across the pastures and can be used together with any necessary lime or fertilizer to maintain soil fertility and keep forages productive.



4. Not maintaining flexibility in your operation

Flexibility is key when environmental and growing conditions vary from year to year and season to season. Good managers have to allow for flexibility and adaptive management in grazing systems to achieve their outcomes.

Examples of flexibility include adjusting stocking rates, changing rotational frequency and/or order of rotation, and supplementing pastures with other forage sources as needed.

For example, hotter and drier weather during the summer means forage growth rates will slow down and the amount of rest required may be much longer than that required during the spring when rapid growth is occurring; adjust your rotational schedule accordingly by rotating faster when the pastures are growing faster and slower when the pastures are growing slower.

Maintaining flexibility in your system will allow you to balance the length of the rest

period with the growth rate of your forages and is fundamental to successful grazing management.

5. Not keeping good records

With variables like forage growth rate and animal consumption constantly changing from day to day it can be a challenge to balance supply and demand for maximum efficiency.

While it does require additional time to complete, putting together a grazing plan and keeping records on things like forage production and the timing of graze/rest periods allows you to more accurately evaluate how things went, assess your goals and limitations, and make plans to adjust for the coming year.

A successful grazing plan can also help you be better prepared for weather-related issues and make sure you have enough forage to get you through the grazing season.

There are an abundance of planning and monitoring tools available to help you accomplish this, including everything from paper charts to web-based tools to smart phone apps or technologies.

If you're interested and looking for something to get you started, check out one of the free grazing charts available at onpasture.com/2021/03/08/get-your-free-2021-grazing-planning-chart-and-instructions-here/

5 Reasons Why Soil Biology Matters on the Farm

by Jeff Goodwin, Conservation Stewardship Leader and Pasture and Range Consultant

Success and long-term viability for most agricultural enterprises ultimately hinges on the health of their soil. This is true for livestock operations as well as row crop farms.

For decades, the agriculture industry has focused, studied, and ultimately understood the physical and chemical characteristics of our soil resource (e.g., soil texture, soil pH, etc.). However, until the past few years, little emphasis has been placed on the biological constituents and their importance in a healthy, functional soil.

Soil is alive and active; soil is not simply a medium to grow plants. It is a living ecosystem, and it puts on a show if you know

where and what to look for.

A living soil is a complex and dynamic environment with as much drama and suspense as a Hollywood movie. A living soil features predator-prey conflicts, high-speed action, and even mutual partnerships.

The trouble is seeing the picture. These activities are happening every day on the soils we stand on, only at the microscopic scale. We often hear of the cast of characters: bacteria, fungi, protozoa, arthropods, even earthworms. So what's the storyline? What do they do, and why does it matter?

Here are 5 reasons why soil biology is essential on the farm.

1. Decomposition of organic matter and material

Soil organic matter stores energy and nutrients that both plants and soil microbes use. Organic matter is a primary food source for soil microbes and is a product of biological decomposition.

One class of bacteria and fungi is decomposers, meaning they can break down organic material, releasing valuable nutrients.

While bacteria generally utilize carbon sources that are easy to break down (like fresh plant material and plant exudates, which are sugars and other metabolites leaked from

(article continues on the next page)

(story continued from previous page)

the roots), decomposing soil fungi generally can break down tougher sources like cellulose and lignin.

Organic matter is a primary driver of soil productivity and is the foundation of functional soil biology. As goes soil organic matter, so goes the soil.

2. Nutrient cycling

Soil biology is a primary driver of nutrient cycling in our soils. Soil bacteria utilize active carbon, the fraction directly available for use by microbes.

Much of this active carbon begins as plant exudates. These exudates excreted from plant roots are a primary food source and are utilized by soil bacteria directly and the plant roots. As the bacteria die, they mineralize and release nitrogen contained in their bodies, thus cycling nutrients.

The microbes themselves constitute a considerable amount of nutrient cycling in their biomass.

The microbial biomass or the amount of microbes a soil sustains can be 2% to 5% of the soil's total organic matter.

However, this fraction is self-motivated and living. This fraction also contains considerable amounts of essential plant nutrients.

Biologically significant quantities of nitrogen, sulfur, and phosphorus are mineralized into plant-available forms and released for uptake when microbes expire.

Protozoa also play a crucial role in nutrient cycling by just doing what they do. Protozoa are predators. They feed on soil bacteria. Soil bacteria have a carbon-to-nitrogen ratio of about 5:1, while protozoa have a ratio closer to 10:1.

As the protozoa feed on the bacteria, they consume more nitrogen than they need. The excess is excreted and utilized by plants, and the cycling process continues.

3. Soil aggregation

Soil aggregation refers to a soil's ability to hold particles together.

Soil biology aids in this process by simply decomposing organic material and developing organic matter.

As organic matter increases in soil, the ability to form soil aggregates increases. Soil fungi aid in this process by helping the soil physically hold particles together.

Arbuscular mycorrhizal fungi coat their hyphae with a compound called glomalin. Glomalin serves as a protective coating to prevent nutrient and water loss as they are transported to the plant. Glomalin also serves as a soil glue and helps stabilize soil aggregates.

These processes, along with many others, improve soil structure and help soil resist disruptions like wind and water.

4. Nutrient availability

Nutrient availability is also positively impacted by microbial activity.

Soil fungi play a significant role. Soil fungi form long strands called hyphae. These hyphae extend through the soil between soil aggregates, particles, and rocks.

Mycorrhizal fungi form mutualistic relationships with plants. Mycorrhizal fungi utilize carbon from plant roots. In exchange, the fungi help solubilize phosphorus and other nutrients, making them available for plant use.

This process essentially extends the reach of plant roots, increasing their ability to tap nutrients.

Some soil bacteria form symbiotic relationships with plants to increase nutrient availability. Rhizobium bacteria infect the root hairs of specific legume species. In exchange for carbon, this bacteria fixes atmospheric

nitrogen. This nitrogen is available for the plant itself to use. However, once the plant dies, the excess nitrogen is released and available for subsequent plant use.

5. Water dynamics

Through the processes outlined above, soil biology ultimately aids in soil water dynamics such as infiltration and water holding capacity.

As organic matter increases, soil aggregation follows as soils aggregate their particles, the pore space and porosity increase.

Earthworms also aid in this process by burrowing through the soil, creating tunnels for water and roots to travel.

As pore space increases, the amount of water that can effectively infiltrate into the soil profile generally increases.

The goal is to get the water in the ground and to minimize runoff. Soil biology aids in that process.

A soil's available water holding capacity is also aided by soil biology. Organic matter is very efficient at holding water.

As biologically active soils increase organic matter, their ability to hold water can increase. This process tends to be more effective on coarser soils. Clay substrate soils may have a lesser impact as the clay is the driver for its capacity to hold water.

Adapted from the original article posted March 13, 2019 on Noble Research Institute at <https://www.noble.org/news/publications/ag-news-and-views/2019/march/5-reasons-why-soil-biology-matters-on-the-farm/>



What to Do with Thinning Alfalfa Stands

by Jeff Semler, University of Maryland Extension

It's the time of year when our alfalfa fields are just waking from winter slumber or at least we hope they are.

We are hopeful that a combination of favorable moisture and thoughtful management will have fields greening up with a strong stand.

Unwelcome are brownfields or something close to it. Fortunately, this doesn't happen often. Yet, when it does, the decision of what's to follow is painful but an easy one to make—time to put this field out of its misery and plant something else.

Of course, there is another possibility between dead and alive: the thin, marginal alfalfa stand.

Perhaps a better outcome than the dead field but certainly more agonizing from a decision-making standpoint. These are the fields that have been uniformly thinned or have areas of dead plants and the other regions of productive plants.

On a typical alfalfa and corn silage-based dairy farm, the marginal alfalfa field generally offers four alternatives:

1. Keep the field for the duration of the season and accept the reduced yield.
2. Take just the first cutting and then plant a short-season corn hybrid for silage.
3. Terminate the field early and plant a full-season silage corn.
4. Interseed the field with non-alfalfa species such as red clover or cool-season grass, which can also be followed with a warm-season annual.

Two corn options

By planting corn for silage early, you give up all alfalfa production on the field for the current year, but you ensure maximum silage yields from early planting and using a full-season hybrid.

Still, this choice may not seem too appealing if you need the alfalfa in the short run or if it's a relatively new stand and you want to capture more return on the establishment investment.



PHOTO: PAGARAU FROM PIXABAY

By waiting to take the first cutting before planting corn, you get some alfalfa production to fill a short-term need; however, this is done at the expense of potential reduced corn silage yield. Receiving adequate moisture and controlling weeds after the corn is planted are the keys to success.

Strengthening the stand

Interseeding other forage species into a marginal alfalfa stand is a strategy that has been done with regularity for many years. As most alfalfa growers know, autotoxicity makes it nearly impossible to seed alfalfa back into alfalfa successfully.

When considering interseeding options, you must decide if you want fast or permanent forage. In the latter case, a cool-season grass such as orchardgrass or novel endophyte tall fescue works well. Of course, additional forage yield won't be realized until later in the growing season.

Perennial forage is the right choice for younger alfalfa stands where you want to extend the life of a currently marginal alfalfa stand. Some producers do this regularly after two or three years, even when alfalfa winter kill isn't an issue.

Another biennial option is to use red clover, but realize it is slow to dry if you plan to bale dry hay.

For fast forage that is high quality, annual or Italian ryegrass is pretty hard to beat. It is easily interseeded and grows rapidly. As a

one-year fix, Italian ryegrass checks all the boxes as long as adequate precipitation is received throughout the summer.

Another option to consider is to interseed oats early and follow it with warm-season annuals such as sudangrass or millet after first cutting or first grazing.

Once established, these annuals can be cut or grazed on an alfalfa schedule. They complement alfalfa well, bringing an energy component to the protein in the alfalfa.

Continually monitor alfalfa growth

As the season progresses, you will need to consider what is next for the stand. If the stand is still worth a little kick in the pants, no-till a winter cereal such as rye or triticale after the early fall harvest. Then chop or graze it next spring and follow with corn to take advantage of the residual nitrogen from the alfalfa stand.

If forage is short, another option is to plant forage oats into the stand in late summer for a late fall harvest. If you want to double down, plant spring oats with triticale, you will have both a late fall and spring forage harvest. You will need to rotate out of the exhausted stand with corn or a sorghum species by this time.

The right thing to do varies with each year and each farm situation. The problem is that the best choice is almost always dependent on future weather conditions that can never be predicted at the time of the decision.

Taking Charge of Baled Silage

by Dr. Jessica Williamson, AGCO

This article first appeared in the April 2021 issue of Progressive Forage

Baled silage, or baleage, is a highly nutritious livestock feed and can help producers better manage their harvest window and harvest their crop at its optimum quality.

Baleage is forage harvested at a higher moisture than dry hay, which is then wrapped in polyurethane plastic to eliminate oxygen so that anaerobic fermentation takes place. This phase converts available sugars to acids, preserving the forage and improving the nutritional value and palatability of the crop.

Silage bales beat dry hay

Silage bales have advantages over dry hay, but best management practices are in order.

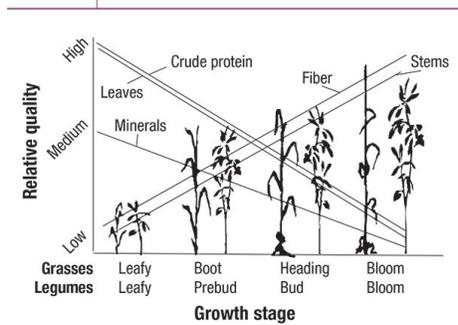
First, bale silage at a higher moisture level than dry hay. This accomplishes two goals:

1. It gets forage off the field quickly at its optimal nutritional quality because it shortens the time needed for field curing after mowing and before baling. This is especially helpful during unpredictable or exceptionally wet weather.
2. It gives you more feed to work with. Forage baled as silage has less leaf and dry matter loss compared to forage that is harvested as dry hay, which undergoes more mechanical harvesting processes to ensure dry down.

Take the steps needed to ensure your baled silage will be of higher quality than dry hay. The optimal moisture for baling forage as silage ranges between 45% and 60%. Baling forage at this higher moisture helps preserve dry matter yield because every day of delay after mowing and before baling can result in a 5% to 6% yield loss, depending on weather conditions. We all know getting hay dried down to an ideal moisture can be tough when the weather is off.

This shorter harvest process can provide a nutritional edge for your livestock. It lets you harvest at a more ideal stage of maturity than if you were simply “making hay while the sun shines.” This is important because as forages mature, the quality generally declines (see Figure 1).

FIGURE 1 Effect of plant maturity on forage intake and digestibility



Source: Adapted from Blaser, R., R.C. Hammes, Jr., J.P. Fontenot, H.T. Bryant, C.E. Polan, D.D. Wolf, F.S. McClaugherty, R.G. Klein, and J.S. Moore. 1986. Forage-animal management systems. Virginia Polytechnic Institute, Bulletin 86-7

Younger, more vegetative forages have greater nutritive content and better meet the needs of a broader range of ruminants, such as growing and lactating animals.

Nutritive value of baled silage

A University of Florida study compared Tifton 85 bermudagrass dry hay and baleage and found the baleage had greater nutritive value overall (see Table 1).

Relative forage quality (RFQ) was more than 42 points greater in baled silage than dry hay. Dry matter intake (DMI) was 0.5% greater, crude protein (CP) was more than 2% greater, and total digestible nutrients (TDN) were nearly 15% more in silage bales compared to dry hay.

Conclusions from this study indicate the baleage analyzed provided:

- Greater overall forage quality.
- The ability to feed baleage to dry beef cows during gestation without supplementation.

- The ability to feed it to mature bulls and meet their nutritional requirements without supplementation.

On the other hand, if you fed dry hay from this study to any class of livestock, you would need additional supplementation to meet their nutritional requirements.

There are forage species, such as cool-season grasses and legumes, that have greater nutritive value than bermudagrass and can be harvested and stored as baled silage.

Their resulting increase in digestibility, CP, DMI, and RFQ makes baled silage suitable for a wide range of ruminant livestock.

The increase in feeding value combined with the ability to harvest the forage at a more ideal stage of growth means the low-quality, stemmy first-cutting hay that previously only met the needs of your low-input mature stock can now be high-quality, highly palatable forage that provides the nutrition needed for your young, growing animals or those in peak lactation.

Plus, your livestock will eat more of the forage you have invested in growing and harvesting and leave less lying on the ground. Baleage has as much as 10% to 30% less refusal than dry hay, depending on forage species and growth stage at which the dry hay was harvested.

As the next hay season draws near, now is the time to review nutrition needs for your livestock and consider effective ways of delivering the most palatable and nutritious forage possible. Baled silage has earned its right to be part of these considerations.

TABLE 1		Tifton 85 bermudagrass dry hay vs. baleage nutritive values	
Measurement	Tifton 85 dry hay	Tifton 85 baleage	
% moisture	18.5%	70.4%	
RFQ	58.3	100.6	
DMI	1.8%	2.3%	
CP	8.4%	10.5%	
TDN	39.9%	54.8%	

RFQ = Relative forage quality DMI = Dry matter intake
 CP = Crude protein TDN = Total digestible nutrients

Source: D. Mayo, University of Florida

Year-Round Paradise (or at Least Moving Towards That)

by Austin Unruh, Crow and Berry Land Management

This article first appeared in On Pasture.

Don't you sometimes wish it was spring year-round? As I write this, snow is coming down towards the tail-end of February, and it feels like forever ago since I saw green grass or a tree in leaf. The long winter almost makes you forget what it's like to just sweat during the summer. Then again, by August you've plum forgotten what it's like to be cold.

There's good reason to love the changing season. The roller coaster ride that is forage production is not one of those reasons. The summer slump and a long winter without forage growth both require a lot of creativity and expense in order to keep livestock fed.

My goal, as someone who is not a grazer but rather a tree-person learning as much about grazing as possible, is to determine how and where trees can best complement a grazing operation.

What emerges is a picture of how the right trees, used strategically, can reduce the extremes of hot and cold, feast and famine, resulting in more moderate conditions throughout the year, and more feed during the summer and winter.

What follows is how trees can fit into a pasture-based operation focusing on ruminants, broken down by season.

Spring: This is the time when grasses and forbs shine. Ideally, we select trees species that get their leaves late, and let lots of light through their dappled canopies so as not to interfere with the spring flush.

Nitrogen-fixing species, like honey locust, black locust, or mesquite will add more fertility to the soil, helping with forage growth throughout the year.

Summer: Here we start to see the first major benefit of trees as they reduce heat stress on livestock, thus keeping their production up. As numerous studies have shown, heat stress leads to reduced weight gain, lower rates of fertility and decreased milk production ([Florida beef production](#); [heat stress and fertility](#); [effect on milk production](#)).

By thoughtfully designing and managing

a silvopasture, we can extend the active growing period of cool-season forages further into the summer, as trees reduce soil temperatures both through intercepting a portion of sunlight and through the cooling effect of evaporation.

In addition, tree and shrub species can be incorporated to provide edible leaves as browse during the summer slump. This is becoming common throughout the tropics ([Jim Elizondo](#); [Intensive Silvopasture](#)), with impressive results capable of doubling carrying capacity or more ([see here](#)). While currently not done systematically in the more temperate regions of the United States, several species offer potential as summer stockpiles.

Fall: Here is where our feed-dropping trees start to play a major role.

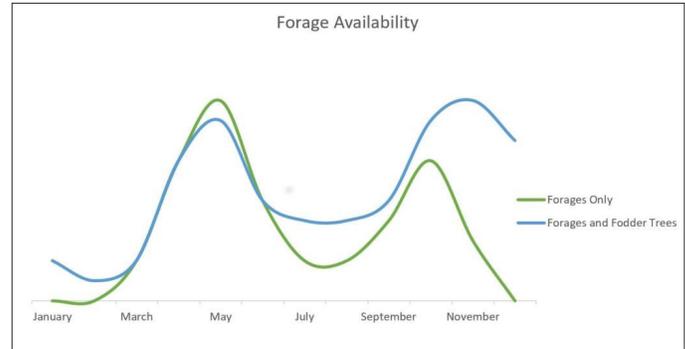
As early as August, persimmons can start dropping fruit that is loved by all manner of livestock. That fruit is high in sugars and vitamins, and will provide a major energy boost. If you're looking to butcher animals before winter, this can help add the final pounds to get a good quality finish.

Honey locust pods drop from November through January and provide a high-energy feed that will stay good on the ground for months after they fall.

Some persimmon varieties can hold on to the tree into January and provide additional boosts of feed into the depths of winter.

Winter: As mentioned above, trees that drop feed (fruits and pods) can contribute greatly to the amount of stockpiled feed going into winter, drastically cutting back on feed cost and keeping that much more income in the farmer's pocket.

We're not talking a small amount either. A good honey locust tree can drop in excess of 100 pounds of pods per year, and 30 such trees can double the amount of feed produced



Can we get to a curve that looks like this? Less severe summer slump due to light shade and availability of some browse shrubs. Fall supplemented by high-energy persimmon drop, and honey locusts pods contributing to a major stockpile going into winter.

on an acre of land annually.

Additionally, having a good stand of trees will slow the howling winter winds, meaning livestock don't need to burn as much energy staying warm, putting more energy towards production instead.

Let me be the first to recognize that there's a real scarcity of documented examples of a full system like this in practice. The ingredients that make up this system are all certainly out there.

Much of the best documentation from a grazer comes from Greg Judy, who shows how grass stays green and palatable longer in the shade of a honey locust ([video](#)), how even autumn olives can restore soil and offer valuable fodder ([article](#) and [video](#)), and how much cattle just plain love the shade ([video](#)). Virginia Tech has been doing research on silvopasture systems for years, and has likely the best example of well-spaced, high-yielding honey locust groves in the country ([video](#)).

Is this outside the box thinking? You bet! To many it's about as far as you can throw something from the box. But if you're reading this, my guess is your grazing practices would've been considered downright lunacy a generation or two back. So I'm in good company.

I don't think grazing has yet reached its peak. I think there's ample room yet for growth, for greater profit, for greater land restoration, and to support more people doing good work. I believe trees can take regenerative grazing to a whole new level.

Maryland Expands Conservation Funding to Include Grazing Systems and Regenerative Agriculture

by Rob Schnabel, Chesapeake Bay Foundation

Thanks to regenerative-agriculture farmers taking time to testify at hearings coordinated by the Chesapeake Bay Foundation and conservation-friendly Maryland legislators, House Bill 687 and Senate Bill 597 passed in the 2020 Maryland legislative session.

The “Natural Filters Bill” became law in October and after delays and much discussion in the monthly state Soil Conservation Committee meetings, the key provisions of the bill are being implemented.

The new conservation practices eligible to receive cost-share funding through the Maryland Agricultural Cost Share (MACS) program include grazing system infrastructure such as permanent fencing and water systems for livestock, windbreaks, silvopasture, hedgerow, and other tree and shrub plantings.

The MACS program typically pays 87.5% of the implementation costs. Unfortunately, the Maryland Department of Agriculture has set a low cost-share rate of 50% for permanent fencing, whether perimeter or dividing fields, but this will still be a huge help to producers.

New practices now eligible for MACS funding and technical assistance include:

- Windbreaks: Rows of trees and shrubs planted to filter runoff, reduce soil erosion caused by wind, enhance wildlife habitat, improve air quality, and sequester carbon in the soil;
- Hedgerows: Small trees, shrubs, and grasses planted along the edges of farm fields or along roads to filter runoff and act as a living fence and wildlife corridor;
- Silvopasture: Integrating trees into active livestock pastures to filter runoff, provide shade and shelter for livestock, and sequester carbon;
- Tree and Shrub Establishment: Establishing trees and shrubs on agricultural land outside the stream corridor to improve water quality and sequester carbon; and
- Pasture Fencing: Development of rotational grazing systems that improve forage, distribute manure more evenly, protect the soil from erosion, and improve water quality.

These conservation practices mimic the federal USDA Natural Resources Conservation Service (NRCS) specifications but will provide more flexibility to conservation professionals working with producers.

The federal cost-share program, the Environmental Quality Incentive Program (EQIP) administered by NRCS, has strict sign-up deadlines and is oversubscribed, providing on average \$8 million dollars a year to Maryland farmers.

Once federal funding runs out, farmers have to wait a year and try again, which impacts the timing of implementation. The state MACS program has a continuous sign up and has never run out of funding.

In 2020 the MACS budget was over \$32 million, with a majority (over 80%) of these funds, going to “annual” practices, things like cover crops, manure transport, and manure injection.

As the state of Maryland looks to meet its Chesapeake Bay Watershed Implementation Plan (WIP) for agriculture, it will be important to have more equity between “annual” and “long-term” practices like rotational grazing.

Rotational grazing and tree plantings are a couple of the most cost-effective water quality practices that also have the benefit of sequestering carbon.

Rotational grazing is the only working lands conservation practice that provides all five soil health principles (armor soil, maximize growing root, minimize disturbance, plant diversity, and add livestock) that greatly accelerate the accumulation of soil organic matter, a key indicator of regenerative agriculture.

Regenerative agriculture is critical to mitigating climate change with soil; second only to our oceans, soil is the most important “sink” for carbon. Sequestering carbon in the form of soil organic matter improves soil health, making farms more resilient during times of drought or excessive rain events.

Eligibility, conservation practice descriptions, and who to contact

Maryland farmers must have a nutrient management plan to apply for MACS funding. A grazing plan is also required to apply for grazing system funds. There is technical assistance available to complete these required plans.

To see the other conservation practices available through MACS visit this web page: https://mda.maryland.gov/resource_conservation/Pages/mac.aspx

For more information, please contact your local Soil Conservation District or Rob Schnabel at the Chesapeake Bay Foundation at rschnabel@cbf.org.



PHOTO: JB DANIEL

A Dairy Grazier's Journey

by Aaron deLong, Pasa Sustainable Agriculture

In December of 2020, Jessica White became the second certified Journey Dairy Grazier in the state of Pennsylvania by graduating from Pasa's Dairy Grazing Apprenticeship program.

Over the course of her apprenticeship at host farm Camphill Village Kimberton Hills in Chester County, Jessica not only fulfilled the required 3,700 hours of on-the-job training and 300 hours of related technical instruction; she also realized long-term visions for both her professional life and personal life—launching a value-added cheese business in 2019 and marrying her farming partner in the same year.

We recently caught up with Jessica and asked her to reflect a bit on her experience with the program and its role in her farming journey.

Tell us your “farming story.”

I began farming in 2013, working in vegetable production systems. Almost right away, I found strength and peace in the work, as well as a developing commitment to farming in a way that feels like healing, rather than “stealing.” I have an inner motto of giving back to the Earth, and giving thanks to the animals, the land, and the weather, within the practice of agriculture.

What inspired you to try dairy farming?

My inspiration to focus on dairy as a career mostly came from a natural calling to the work and lifestyle. Even though vegetable farming was what I found first, grass-based dairy farming ultimately felt to me like the “belt that holds up the big pants” within agriculture.

This is particularly true in the Biodynamic methodology, where the cow is considered the heart of the farming system. She provides the compost that in turn helps grow the best forage.

While farming vegetables was uplifting, rewarding, and fun, ultimately it didn't provide me with what my soul desired, which was caring for another soul.

Dairy farming gave me a sense of personal growth because it pushed my strengths and weaknesses as a human being. Working



Jessica White at Camphill Village Kimberton Hills in Chester County, Pennsylvania.

within dairy has made me feel pride for who I have become.

Although I have been farming since the spring of 2013, it wasn't until a few years ago that I found out my ancestors were also dairy farmers in Baltimore, Maryland.

My grandfather was a first generation American whose parents immigrated from Poland after losing their farm in World War II. They didn't have a lot of land in Baltimore, but they kept a garden, chickens, and ducks.

When he was able to save enough money, my grandfather bought a cow and named her Bessie. He would walk her to her favorite clover patch to graze, and eventually built the house my mother grew up in beside this field.

When I began dairy farming, I could sense a feeling of “getting back to my roots,” which has been an empowering feeling.

Why Dairy Grazing Apprenticeship? What positives came from the apprenticeship for you?

What inspired me to try Dairy Grazing Apprenticeship was the chance to tighten up my grazing and farming knowledge.

I first learned about it at the Pasa conference, and it was great to hear about an educational opportunity focused on dairy grazing and that it had even been registered with the government as a skilled trade.

Before my apprenticeship, I was going off of a few years of experience and struggling to listen to my gut instincts. Through the program, I was able to develop more confidence in my natural instincts, combined with the supplementary education that I was working through in online classes and in-person workshops.

Dairy Grazing Apprenticeship connected me with other dairy farmers and a larger dairy network. It showed me other ways of approaching work, like making quality baleage and managing herd health. The program was also a great resource in discovering opportunities available for dairy farmers to grow their business.

It was through the apprenticeship and Pasa that I heard about a value-added grant opportunity that has since helped my home farm develop a cheese house, purchase new equipment, and start a new business that we hope to launch this year.

What are some challenges along the way that you've had to overcome or accept within dairy farming and apprenticeship?

Some challenges along the way with apprenticeship, in particular, were finding time to add in my studies alongside the work-life as well as speaking up for my needs in finding balance between work, study, and my personal life.

(article continues on next page)

(story continued from previous page)

Probably the biggest challenge, however, has been learning the reality that within dairy farming every day can be extraordinarily different, depending on Mother Nature.

Trying to work with the natural world in a symbiotic manner can be difficult when the weather is messing up your farming system, for instance.

There needs to be flexibility in one's mind and lifestyle. You need to be able to adapt quickly mentally and make a different decision than the one you'd initially planned in order to realize the best possible outcome.

There also needs to be forgiveness and acceptance for others and ourselves—it's not always going to be perfect, and sometimes you're going to have to leave early or miss something. The weather and the animals do not wait for anyone.

What's your advice to others who might be thinking about entering into dairy farming?

The advice that I would give to others who would like to try dairy would be that it doesn't hurt to try it, but if you do not have the patience or sincere passion for the animals or for the land then be honest with yourself and find a different career path.

Also, if you stick with it, problems will arise, and it is okay to make mistakes. The quicker you are in realizing this, the better teacher you will become not only for others, but also for yourself.

Get involved with Dairy Grazing Apprenticeship

Founded by dairy farmers in Wisconsin in 2010, Dairy Grazing Apprenticeship was the first nationally registered farming apprenticeship in the country and is now operating in several states. Pasa administers the program in Pennsylvania and surrounding areas.

Applications for both apprentices and host farms are reviewed on a rolling basis. [Learn more and apply by clicking here.](#)

Technology Talk: Pasture Division with Precision

by Jacob Gilley, American Farmland Trust

We are certainly welcoming the first signs of spring on our operation here in Virginia. The warmer days, the earthy smells, active grassland birds, and the greener grass have my grazing adrenalin pumping.

Recently, I finished an inspirational, educational, and entertaining book called *The Turnaround: A Rancher's Story* by David Pratt. I highly recommend this book to anyone wanting to expand their thinking beyond the farm gate and to become more in tune with their grazing operation.

A key point highlighted was that it takes a minimum of 8-10 paddocks for livestock to rotate through to prevent overgrazing. With less than 8 paddocks, you pretty much have rotational overgrazing due to the limited rest that each forage plant receives.

I cautiously reference this as I'm not trying to deduct from any producer that currently rotates livestock between less than 8 paddocks, because in my opinion, any rotation is better than no rotation, and we all have to start somewhere.

Continuous advancements in portable and semi-permanent electric fence have made it feasible for all producers to easily and cost-effectively multiply the number of grazing paddocks within their rotation. The use of step-in post, polywire, and an electric fence energizer can take your grazing operation to the next level.

From a technology standpoint, I have been extremely satisfied with my recent purchase of a remote-control fault finder which not only displays the current kilovolts of my fence and the direction of a fault, but also provides the opportunity to turn on and off the electric current from anywhere along the fence.

With a compatible energizer, you simply place the remote against the wire and easily press the on/off button. After its first use, I was sure wondering why I hadn't made such a purchase years ago.

There are several manufacturers of this technology, which is a game changer for this producer, who wants to move temporary fences more often but does not like getting shocked in the process.

Once the decision is made to increase the total number of grazing paddocks available for improved forage rest, it's now time to consider "Division with Precision."

On our operation and through American Farmland Trust's Sustainable Grazing Project, we have been trialing an easy-to-use grazing app called Pasture Map. This app was recently acquired by a new company called Soilworks which modified the pricing structure to provide users a free version, with limited functionality, along with a reduction in the price of the fully functioning app.

One of the greatest features of Pasture Map is the easy to navigate mobile app which provides the ability to create "Division with Precision" while standing in the field. As producers are unrolling polywire to create additional paddocks, they can easily record this subdivision through the app, displaying the newly formed acreage which is helpful in estimating forage availability and potential grazing days.

Pasture Map also conveys the length of each stretch of fence, the number of rest days for each paddock, the current season's animal days per acre, and the estimated forage harvested per season. Additionally, producers can maintain an up-to-date inventory of various species of livestock along with the ability to record pictures and notes for each pasture.

As you eagerly anticipate the chomping sounds of your livestock harvesting lush pastures this spring, I hope you will consider some of these technologies to improve the precision of your paddock's division!



UPCOMING EVENTS

Bale Grazing: An Alternative Strategy for Overwintering Beef Cattle

Sponsored by USDA NRCS

April 27, 2:00 p.m.

Attend this webinar to learn about bale grazing, how to properly implement this winter feed strategy even in states with mild/wet winters while minimizing surface pasture disturbance, maximizing hay nutrient distribution, and targeting the buildup of low fertility soils. See the results of a local farm bale grazing demonstration where a producer fed nearly 400 bales to overwinter his herd using this strategy during the long, wet winter of 2020/2021. [Register by clicking here.](#)

2021 Fencing Schools

April 28: Buffalo Junction, VA

May 5: Hot Springs, VA

May 19: Mauzy, VA

Join Virginia Forage and Grassland Council and Virginia Cooperative Extension to learn about fence economics and construction basics. Features hands-on fence building activities. Registration costs \$30 and includes lunch and all materials. Visit vaforages.org to register.

2021 Grazing School

May 11 and 12.

Southwest Agricultural Research and Extension Center, Glade Hill, VA

Designed with beginning and experienced producers in mind, this two-day intensive course will teach you everything you need to know to better manage grazing on your farm. Registration costs \$100 and includes all meals. To sign up, visit vaforages.org.

Summer Pasture Walk

May 13, 5:00–8:30 p.m.

Swallow Hill Farm, Woodford, VA

Learn how farmer Tim Tobin developed a rotational grazing system and is using a diversity of forages to manage for year-round grazing and improved cattle performance. Register by visiting vaforages.org.

Crop Grazing Pasture Walks

May 20, 10:00 a.m., Kehr Acres, Littlestown, PA

July 13, 9:30 a.m., Sylvan Angus, Mercersburg, PA

Capital RC&D is hosting two pasture walks in south central Pennsylvania featuring cover crop grazing and highlighting fencing, watering systems, cover crop selection, and discussion about best practices for utilizing cover crop grazing as part of a regular crop rotation. Information and registration details are available at capitalrcd.org or by calling 717-241-4361.

National Grazing Lands Conference

December 6 to December 9, Myrtle Beach, SC

This is your chance to hear from grazing lands experts who will share their on-the-ground innovations for managing grazing lands in an environmentally sustainable and economical manner. For more information, visit the [National Grazing Coalition Website](#).

CBF and Future Harvest Present Virtual Movie Night, Featuring *Sacred Cow*

Join us at your convenience to watch this 80-minute movie that presents a strong case for thoughtful meat-eating as a way to achieve ecological balance. On May 12 at 7:00 p.m. we will have a panel discussion featuring Diana Rodgers, producer and director of the film and co-author of the book *Sacred Cow*. [Visit this page, enter your email, and you'll be set to receive the film in your inbox on May 4!](#) You will then have the next 10 days to access it.

Sacred Cow proposes a new way to look at sustainable diets. The film takes an in-depth look at the nutritional claims for and against meat and why cattle raised well are actually good for the environment, while also addressing the ethical considerations concerning raising animals for meat.

Mountains-to-Bay Grazing Alliance



Funding for this newsletter is provided by the U.S. Environmental Protection Agency, Natural Resources Conservation Service, and PA Department of Environmental Protection through the National Fish and Wildlife Foundation's Innovative Nutrient and Sediment Reduction program.

This material in this newsletter is based on work supported by the U.S. Environmental Protection Agency (Assistance Agreement No. C896358101) and the National Fish and Wildlife Foundation's Chesapeake Bay Stewardship Fund, which promotes community-based efforts to develop conservation strategies to protect and restore the diverse natural resources of the Chesapeake Bay.

The views and conclusions contained in this document are those of the authors and should not be interpreted as representing the opinions or policies of the U.S. Government or the National Fish and Wildlife Foundation and its funding sources. Mention of trade names or commercial products does not constitute their endorsement by the U.S. Government, or the National Fish and Wildlife Foundation or its Funding sources.

This material is based upon work supported by the Natural Resources Conservation Service, U.S. Department of Agriculture, under number NR183A750022C004. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views of the U.S. Department of Agriculture. USDA is an equal opportunity provider and employer.

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.