



FORAGE BITS

Summer 2019

Publication of the Maryland-Delaware Forage Council, Inc.

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President's Column

Fall is around the corner, but several changes are already upon us. This summer I had the honor of taking on the role of president of the Maryland Delaware Forage Council. Unfortunately, this change could not take place without Les Vough stepping down. Although Les has been retired for many years, he continued to be a leader in forage education and outreach for the Mid-Atlantic region. We still expect Les to be a source of knowledge for the council and region, hopefully with fewer responsibilities. The MDFC would like to thank Les for all of his service and hard work over the years, his leadership will be sorely missed.

We are also welcoming two new experts in forages and animal science to the University of Maryland Extension team. Dr. Amanda Grev has been hired as the new Pasture Management Specialist and Dr. Sarah Potts is their Dairy and Beef Extension Specialist. This is exciting news for the region, as their expertise will bring new ideas, research, and outreach for the MDFC to rely on.

This summer has had the usual range of weather across the region, with some areas lucky enough to receive steady rains. We all had to experience the dog-days of July, along with all of the hay and pasture ground. This is especially taxing on our cool season grasses. The American Forage and Grassland Council promotes the positive impact of forages in the U.S., and celebrated the 5th annual National Forage Week on June 16-22. This is also why your membership and support of the MDFC is important. Hay and pasture not only supports cattle, horse, and ruminant industries, it also promotes soil health through constant cover and root growth. Forages provide an agricultural backdrop to our landscape that is appreciated by the wider public. The MDFC will continue to work with regional producers and experts to maintain the economic vitality of forages.

In this vein, some of the upcoming workshops and conferences you can attend include the Tri-State Pasture Field Days (Aug 14th in Maryland, Aug 29th in West Virginia, and Sept 4th in Virginia), the Equine Pasture Management Field Day (Sept 18th, Reisterstown) and the Small Ruminant Conference in Keedysville on October 19th. Thank you for your membership and support and do not hesitate to reach out to the MDFC with questions and comments.

Jarrold Miller

Amanda Grev Pasture Management Specialist

Meet Dr. Amanda Grev! Amanda joined the University of Maryland Extension team in January and serves as the new Pasture Management Specialist. A native of Rochester, MN, Amanda completed her undergraduate degree in Animal Science at North Dakota State University, followed by a research internship at Kentucky Equine Research in Versailles, KY. Amanda received her M.S. and Ph.D. in Animal Science from the University of Minnesota, where her research focused on the interaction between animal nutrition, forages, and pasture management. Her office is located at the Western Maryland Research & Education Center in Keedysville.

<https://agmr.umd.edu/about/directory/amanda-grev>



Sarah Potts Dairy and Beef Extension Specialist

Dr. Sarah Potts joined University of Maryland Extension in April, 2019 as the Dairy and Beef Extension Specialist. Sarah grew up in western N.Y. and earned her Bachelor's degrees in Dairy Science and Animal and Poultry Sciences from Virginia Tech in 2011. She went on to receive her M.S. degree in Animal Science from Michigan State University in 2014, where her research centered on feed efficiency in dairy cows. In early 2019, Sarah completed her Ph.D. in the Department of Animal and Avian Sciences at the University of Maryland and her dissertation work was focused on

transition dairy cow nutrition. Sarah is excited to serve Maryland's dairy and beef producers and is looking forward to meeting them. Her office is located at the Western Maryland Research and Education Center (WMREC).



Summer Grazing Management

Amanda Grev, Pasture Management Specialist

As we move into the traditionally driest, hottest days of summer, we can expect stretches of dry weather and hot temperatures. During this time of year, growth rates of cool-season grass pastures slow dramatically and pasture productivity will typically decline. However, there are management practices that producers can implement to maximize plant growth even during these hot, dry spells.

It takes grass to grow grass

The key to having really productive pastures is optimizing plant photosynthesis. Think of your pasture as a solar panel where green, growing leaves are effective energy producers. To maximize production, livestock need to be rotated off of a pasture in a timely fashion to ensure an effective “solar panel” or leaf area is left in the paddock following a grazing bout. Most cool-season forages need at least 3 to 4 inches of post-grazing residual to effectively take advantage of photosynthesis for regrowth. In addition to providing a photosynthetic base for plant regrowth, the leaf material that remains after a grazing bout also shades the soil surface, keeping soil temperatures cooler and helping to reduce soil moisture loss.

Removing leaf matter affects the roots as well, as those roots rely on the leaves to supply energy from photosynthesis. The amount of live growth occurring below ground is roughly

equivalent to the amount of live growth occurring above ground, and research has shown that the amount of above ground forage mass removed impacts root health. Up to 50 percent of the plant can be removed with little to no impact on root growth. With greater than 50 percent removal, root growth slows dramatically, and removing 70 percent or more of the above ground forage mass stops root growth completely. This is where the old rule of thumb “take half, leave half” comes into play. Leaving half of the leaf area on the plant has minimal impacts to the plant root system, enabling the plant to continue to absorb nutrients and moisture and recover quicker following grazing. If the take half, leave half rule is violated and pastures are grazed too low, plant root growth stops and root reserves may be used to regrow leaf tissue, diminishing the vigor of the plant root system and the overall productivity of the plant.

Provide a rest period

One of the most common mistakes people make in grazing management is providing too short of a recovery period for pastures after grazing. Pasture forages require a rest period in order to maintain vigorous production. When a plant is grazed, the loss of leaf material means the plant loses its energy producing center. The plants' response is to rebuild that center using stored energy reserves. If the plant is given rest following grazing, new leaves will develop and will replenish this energy supply. Without that rest, the plant is not able to replenish its energy supply and will continue to use the remainder of its stored energy to produce new leaves. As energy supplies are depleted, the plant will be unable to maintain production and will eventually start to die out, leading to weak stands, overgrazed pastures, and the invasion of weeds or other non-desirable forages.

Maintaining flexibility in your system will allow you to balance the length of the rest period with the plant growth rate and is fundamental to successful grazing management. How long recovery takes will depend on a number of things, including the plant species present, the amount of grazing pressure, and the time of year. As we get to hotter and drier summer weather, grass growth rates will slow down and the days of rest required may be much longer than that required during the spring when rapid growth is occurring. Regardless, the rest period must be long enough to allow the plants to recover and grow back to a practical grazing height before livestock are allowed to graze again; for most grasses, this height falls in the 8 to 10 inch range.

To accommodate for this longer rest period, the rotation

speed between paddocks will have to slow down. The basic rule is: when pastures are growing fast, rotate fast; when pastures are growing slowly, rotate slowly. Remember that the goal of the rest is to allow young green leaves to maximize photosynthesis.

Don't ignore seed heads

A plant that is producing seed heads is undergoing reproductive growth and not putting energy into leafy growth or tiller production. Clipping seed heads from these grasses will allow the plant to go back into leafy or vegetative growth, which will increase forage quality and result in more total forage being produced over the course of the growing season. Clipping will also serve the added benefit of helping to control weed populations.

Seed heads can also be an indication of uneven grazing patterns in your pasture. If selective grazing is occurring, some plants are likely being overgrazed while others are becoming too mature. If this is happening, consider adding more divisions or paddocks into your pasture system. This means you will be grazing your animals on smaller areas, increasing the stocking density. A greater stocking density will reduce the amount of selective grazing that occurs, increasing forage utilization and reducing the need for pasture clipping.

While we can't control how hot or dry summer will get, we can strategically manage the grass we have to help keep summer paddocks productive and growing.



Oats for Fall Pasture or Hay Bruce Anderson, Nebraska Extension Forage Specialist

Fall is just around the corner. Could you use some extra pasture or hay in late September and October? Oats might be your answer.

Oats may be one of our most under-used fall forages. That's right. Plain old dull oats. It grows fast, thrives under cool fall conditions, has excellent feed value, and can produce over 2 tons of hay or pasture yet this year. Plus, it dies out over winter, so it protects soil without causing planting problems next spring.

To plant oats, drill about 3 bushels per acre in early August to early Sept for maximum yield potential. Planting after Labor

Day is not recommended due to a short growing season. A fully prepared seedbed is usually best, but you can plant oats directly into wheat stubble or other crop residues if weeds are killed ahead of planting. Even flying oats onto corn or bean fields severely damaged by weather or to be chopped early for silage can work, although rye tends to work better for flown on seed. Avoid fields with herbicide carryover, and topdress 50 pounds of nitrogen per acre unless the previous crop was heavily fertilized.

With good moisture, oats will be ready to graze about 6 to 8 weeks after emergence. Calves and yearlings can gain over two pounds per day. Be careful to avoid grass tetany on lush oat pasture; ask your veterinarian if you should supplement with magnesium. Also, don't suddenly turn livestock out on oat pasture if they have been grazing short or dry pastures. Sudden respiratory problems can occur.

For hay, cut oats soon after plants begin to dry out following a killing freeze, or cut earlier if plants reach a desirable growth stage. Oats can accumulate nitrates, so test hay before feeding.

If you have good soil moisture, give fall oats a try. Some of your best forage growth may still be ahead of you.



Sulfur Deficiencies in Hay and Forages Jarrod Miller, Extension Specialist - Agronomy, jarrod@udel.edu

Nitrogen and sulfur deficiencies can both cause a pale yellow color across your hay and pasture fields. Nitrogen deficiencies should start on the older growth first (lower leaves), while sulfur may appear across the whole plant. However, to correct the actual issue, a tissue test will be the best method.

Sulfur leaches easily from the root zone, which is why organic matter is an important sulfur source. As a part of organic matter, sulfur is bound in the structure, only to be released by soil microbes as temperatures warm up. Once it is released though, sulfur will be prone to leaching during high rainfall events. Leaching will be greater in sandy soils, as their large pore space is conducive to water movement, and their low charge (nutrient holding) allows sulfur to move easily. This means you should typically see sulfur deficiencies in sandier, low organic matter soils first. It is possible for sulfur deficiencies to correct themselves as temperatures warm up and organic matter releases sulfur. However, experience may also dictate that sandier soils

require an application every year.

The University of Delaware recommends to monitor forages for sulfur deficiencies and to use ammonium sulfate as your N source to correct a deficiency. This fertilizer can lower your soil pH, so be sure to monitor the upper two inches of the soil, particularly if you have legumes in the mix. You may also consider crop removal of sulfur with hay production. For orchardgrass, tissue concentrations of sulfur should be between 0.2 to 0.3%. If you expect a yield of 3 tons/acre per year, that would only be a loss of 12-18 lbs of sulfur per year. That can easily be replaced with ammonium sulfate.



The Clover Dilemma

Jimmy C. Henning,

Extension Professor, University of Kentucky



Legumes make immeasurable contributions to forage agriculture. Producers depend on them to add yield, nutritional quality to pastures and hay, and to improve animal gains. Arguably, the ability of legumes to convert or “fix” nitrogen (N) from the air into organic plant nitrogen is their most significant benefit. We even recommend withholding N-fertilizer to mixed stands when legumes make up at least 25 percent of the stand. Many producers will also forego broadleaf herbicides and tolerate weeds to preserve legumes.

Practicing agronomists quote research-based estimates of annual N fixation of 150 to 250 pounds of N per acre and triple these rates have been reported. But we seldom discuss how much direct benefit this N contributes to the companion grass.

If we withhold additional N and broadleaf herbicides due to the presence of clover, is that the right decision? And further, is the 25 percent threshold for withholding additional N

accurate, and is it based on visual or dry matter? A stand that has 25 percent clover on a visual basis has much less than that level on a dry matter basis.

No simple answers

The definition of a dilemma is a situation where a difficult decision must be made between two or more alternatives. Managing a grass-legume stand makes the producer come face-to-face with the clover dilemma — Do I have enough legumes to produce economic yields or should I add fertilizer N? Do I have too much clover to apply broadleaf weed killer when it means I lose most of the legume? This management confusion is the clover dilemma.

Not surprisingly, these questions do not have simple answers. Here is a summarized list of what the research shows about the contribution of legume-fixed N to the nitrogen economy of mixed stands:

1. Legumes fix large amounts of N, but the highest numbers are from grass-white clover stands in temperate regions with long growing seasons and near ideal growing conditions.
2. The amount of N fixed per season that is shared directly with companion grasses is between 20 to 50 pounds of N per acre per year, a fraction of total N fixed.
3. White clover turns over more N during the growing season because it sloughs root nodules every time it is defoliated. Nodule sloughing is how fixed legume-N is released to the organic soil N pool. This pool is mineralized and later used by the companion grass. In contrast, alfalfa does not slough nodules after harvest. In fact, alfalfa only sloughs its nodules at the end of the growing season.
4. The N benefit to the companion grass is more closely related to legume growth and yield in the previous rather than current year.
5. In newly seeded binary mixtures, white clover transfers more N to the companion grass during the growing season than red clover or birdsfoot trefoil in the first and second year of the stand. Direct transfer to the companion grass is greater in the second year than the first.
6. Adding N to mixed stands boosts yield by elevating the yield of the grass (in other words, the grass is N-limited in mixed stands). Adding N to pure legume stands generally does not result in more total yield.

Target 30 to 50 percent

The N benefit to the grass in mixed stands is enhanced as legume yield per acre improves and as stands get older. This grass benefit is presumably because of a buildup of the soil N

pool from the sloughing of N-fixing nodules and decaying plants over multiple years; however, grasses are less competitive early in the life of mixtures because they are N limited. It's during the establishment year when applying some N fertilizer may be beneficial for early grass growth.

The downside of clover loss when broadleaf herbicides are used on mixed stands will be mitigated by the release of N from the killed legume. The companion grass gets the double benefit of weed removal and a burst of N, although new legume species will need to be seeded into the stand.

The addition of grasses to thinning stands of alfalfa improves the recovery of the N fixed by alfalfa and boosts forage yield per acre. An Iowa study on a mature, mixed alfalfa-grass stand with 30 to 45 percent alfalfa found that the greater the alfalfa in the mix, the better the yield of the grass.

Drilling small grains into alfalfa stands in the fall can take advantage of the end-of-season N released from the sloughed alfalfa nodules, adding yield per acre. The small grain cover can suppress weeds and contribute significantly to first cutting yields the following year.

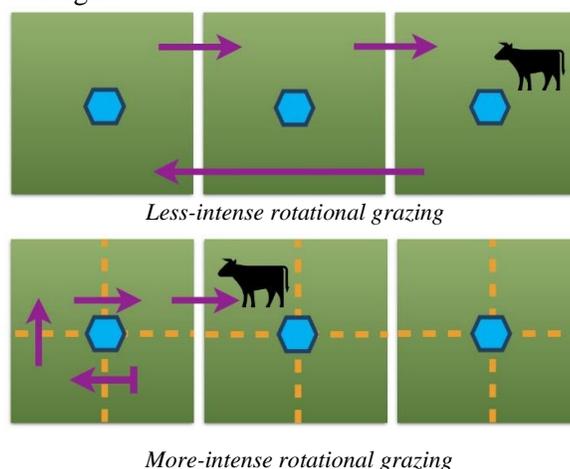
In the end, the modest in-season contribution of fixed N from legumes to companion grasses is possibly disappointing, especially compared to the high amounts of N fixed by the legume. Producing economic yields in mixed stands means keeping legumes present in high quantities (even 30 to 50 percent) by weight, year after year. Fortunately, that is a dilemma I do understand.

The What & Why of Rotational Grazing

Brian Campbell, Grazing Specialist

There are many variations but **rotational grazing** is essentially a grazing system in which livestock are moved from one portion of the pasture to another as needed to avoid overgrazing and to allow forages a chance to recover. The alternative is **continuous grazing**, in which livestock are kept on one undivided pasture during the entire grazing season (usually April through November or year-round). There is a spectrum of options for how intensely rotational grazing is implemented. On the low-intensity end of the spectrum, a farmer could have one undivided pasture and move their livestock into a barnyard whenever that pasture needs a rest. On the other end, a farmer could split their pastureland into hundreds of paddocks (i.e. pasture subdivisions) using permanent and/or temporary fence and

move their animals from one paddock to the next every hour. As grazing gets intensified, you will have more paddocks of smaller size, grazing periods will get shorter (allowing rest periods to get longer), and stocking density (the number of livestock per acre on a single paddock at a specific point in time) will increase. Distribution of manure, urine, and grazing will also become more uniform across the pasture. Is it worth your time to start grazing rotationally? While any move away from continuous grazing will increase the amount of forage available (because forages will have a chance to regrow), the most impressive benefits come from high-intensity rotational grazing. There is not a standard definition for this but the idea is to provide just enough forage in each paddock for a maximum of three days of grazing and then rotating animals out once the paddock has been grazed to the desired height.



Compared to a continuous grazing situation, high-intensity rotational grazing can increase the amount of forage consumed by up to 4,000 pounds of dry-matter per acre each year (Undersander, Albert, Cosgrove, Johnson & Peterson, 2002).

A University of Georgia study (Hoveland, McCann & Hill, 1997) comparing rotational grazing to continuous grazing on a cow-calf operation found the following results:

- Rotational grazing resulted in increased forage persistence and productivity, more than doubling production during some periods when compared to continuous grazing.
- Forage quality was similar for both continuous and rotational grazing.
- Rotational grazing resulted in up to 39% less hay fed when compared to continuous grazing.
- Rotational grazing increased calf weaning-weight per acre by 37% and allowed stocking rate to be increased by 38% when compared to continuous grazing.

- Cow weight-change, pregnancy rate, and individual calf weaning-weights were the same for both continuous and rotational grazing.

The results above illustrate the significant potential of intensive rotational grazing for increasing productivity, profitability, and sustainability. Likewise, a Pennsylvania State University study (Cunningham & Hanson, 1996) confirmed that intensively grazed pasture is the most economical use of dairy-farm acres. After accounting for production costs and storage losses, intensively grazed pasture was roughly twice as profitable per acre as corn-silage or continuously grazed pasture and it was more than six times more profitable than hay.

If you are considering rotational grazing for your operation or intensifying your current grazing practices, please contact your local NRCS Field Office.

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The Dirt on RoundUp

Matt Morris, Agriculture Educator, Frederick County

Recently, someone I know had a bag of wood chips for their grill and right on the bag it said, “This product is known to the State of California to cause cancer.” It’s a good thing we live in Maryland and not California or else we’d have been in trouble! In all seriousness, that bag of wood chips reminded me of a similar situation that is all over the radio and TV and that is the glyphosate/cancer relationship. I am by no means a health professional, but I do know a little bit about the reason this has come to be national news so I will try to outline that below.

First let me give some background on glyphosate. Glyphosate, which is the main ingredient in the herbicide RoundUp® (and countless generic versions) was first commercialized in the 1970’s as a broad-spectrum herbicide, meaning it works on both grasses and broadleaf plants. The appeal was that it worked on many weeds, but had no residual activity in the soil as it was immediately decomposed in the soil into carbon dioxide, ammonia, and phosphoric acid by soil bacteria. It was one of the products that paved the way for no-

till crop production. Yet, it did not gain widespread popularity until the advent of crops that were tolerant of its spray. I personally think this is when the disdain for glyphosate began as it was associated with “GMO” crops.

Fast forward to 2015 and The International Agency for Research on Cancer (IARC), a division of the World Health Organization, determined in 2015 that glyphosate is a **probable human carcinogen**. This led to the August 2018 ruling by a California court that Monsanto was responsible for a worker’s cancer. My concern is that a jury came to this conclusion, not a group of scientists. The reason the IARC came to that conclusion is in the question they asked: Can glyphosate cause cancer under any circumstance? This probable carcinogen determination is what led to the wave of lawsuits against Monsanto, the developer of RoundUp®. What they did not determine is the actual cancer risk a user of glyphosate may be exposed to. In essence, what is the risk of cancer from glyphosate to the user when used according to the label and under normal circumstances? That determination would normally be made through risk assessment studies, of which there are many. The EPA and the European Food Safety Authority have both conducted risk assessments on glyphosate and found it unlikely to cause cancer in humans when used according to the label.

But let’s go back to the probable human carcinogen finding from The IARC. There are many things that fall also into that probable category: fried food, red meat (which must be a mistake), and late night work shifts. Even worse are the “known human carcinogens”: alcoholic beverages, sunlight, Chinese style salted fish, and air pollution among many others. I think what that is telling us is we should be drinking (moderately) in the shade! In all seriousness this means that there are lots of things that can cause cancer in high enough doses. We all know that sunlight can give us cancer so we take steps to minimize our risk like wearing clothes or putting on sunscreen. The same should be done with glyphosate. Use it in accordance with the label and science says your risk of cancer is extremely low. My other question is this: why have many of the known human carcinogens we use in everyday life (gasoline anyone?) not received the same treatment as glyphosate? Is it because there is no unifying villain like Monsanto in the alcohol or salted fish industries for people to rally against?

Decades of science and studies have tried to find the definitive link between cancer and glyphosate, but have yet to yield any. If they do, I will be the first one to say something must be done. However, so far science has said the opposite. That is why I believe the proper use of this important chemical is not something we should spend a tremendous amount of time worrying about.

TRI-STATE PASTURE FIELD DAYS

August 14
MARYLAND

August 29
WEST VIRGINIA

September 4
VIRGINIA



August 14th

**Western Maryland
Research and Education
Center (WMREC)**

Fall Pasture Planning and
Maintenance

18330 Keedysville Road
Keedysville, MD 21756

Contact: Amanda Grev
agrev@umd.edu
301-432-2767 ext.339

August 29th

Harmony Hill Farm

On-Farm Pasture Walk
to See Strip Grazing and
Pasture Rotation Practices

6920 Flowing Springs Road
Shenandoah Junction, WV
25442

Contact: Emily Morrow
emily.wells@mail.wvu.edu
304-728-7413

September 4th

**The Virginia Tech
Middleburg AG
Research and
Extension Center**

Native Warm Season
Grasses Demo/Field Day

5527 Sullivans Mill Rd
Middleburg, VA 20117

Contact: Sue Naille
snaille@vt.edu
703-777-0373

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If you are a person with a disability and desire any assistive devices, services or other accommodations to participate in this activity, please contact the Loudoun Extension Office at 703-777-0373/TDD*) during business hours of 8:30 a.m. and 5:00 p.m. to discuss accommodations 5 days prior to the event. *TDD number is (800) 828-1120

2019 Kentland Farm Beef & Forage Day to offer latest techniques and best management practices for producers

On Tuesday, September 17, 2019 Virginia Cooperative Extension and the Virginia Tech College of Agriculture and Life Sciences will host the 2019 Kentland Beef & Forage Day. This event will highlight current research projects at Kentland Farm as well as focus on grazing practices and pasture management. Speakers from VCE, Virginia Tech, and industry will deliver workshops and demonstrations on the following topics:

- Fence building
- Extending the grazing season
- Grazing summer annuals
- Forest to pasture conversion
- Industrial Hemp
- Using Drones to assess pasture health
- Hard Cider Research
- Farm Tour



Kentland exists to support the research, teaching, and Extension programs of the College of Agriculture and Life Sciences, which include many of Virginia's major agricultural crop and livestock species. Programs are conducted at the farm by many different colleges and departments of the university, including Engineering, Science, Veterinary Science, and Liberal Arts and Human Sciences. The farm is rich in local history, and Virginia Tech has maintained that history through the manor house, slave cemetery, Native American sites, and other early farm buildings.

Registration: \$10 - includes lunch

To register, please send contact info and payment to:

Pulaski County Extension Office

Attn: Kentland Field Day

143 Third Street NW Suite 3

Pulaski, VA 24301

Checks payable to: "Treasurer - Virginia Tech"

Equine Pasture Management Field Day



September 18, 2019

5:30 to 8:30 PM

Refreshments Provided

Sagamore Farm

3366 Belmont Ave., Reisterstown, MD 21136

Topics:

- Pasture Assessment and Evaluation
- Fall Fertilization and Weed Control
- Forage Selection and Establishment
- Learn how Sagamore Farm maintains their pastures

RSVP to:

Erika Crowl
ecrowl@umd.edu
410-887-8090



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Small Ruminant Pasture, Grazing, and Browsing Conference

SATURDAY, OCTOBER 19, 2019

Western Maryland Research & Education Center
18330 Keedysville Road, Keedysville, MD 21756

PROGRAM AGENDA

- 9:00-9:45 am **Where Does It Start? Healthy Soil as the Foundation for Good Pasture Management**
Maegan Perdue, Extension Associate, Worcester County
- 9:45-10:30 am **What Do I Need? Setting Up a Pasture and Grazing System**
Matt Morris, Extension Educator, Frederick County
- 10:30-10:45 am BREAK
- 10:45-11:30 am **What Should I Plant? An Overview of Common Pasture Forages**
Amanda Grev, Pasture Management Specialist, Maryland Extension
- 11:30-12:15 pm **Will It Work? Matching Forage Quality with Animal Requirements**
Erika Crowl, Extension Associate, Baltimore County
- 12:15-1:00 pm LUNCH
- 1:00-1:15 pm **Is Financial Assistance Available? An Overview of NRCS Cost-Share Programs**
Hans Kefauver, NRCS Washington County
- 1:15-2:00 pm **Are They the Same? Separating the Sheep from the Goats**
Jeff Semler, Extension Educator, Washington County
- 2:00-2:15 pm BREAK
- 2:15-3:00 pm **How Do I Keep Them Healthy? Worms and Other Potential Problems on Pasture**
Susan Schoenian, Sheep and Goat Specialist, Maryland Extension
- 3:00-4:00 pm **How Do We Make It Work? A Producer Panel on What Works for Us**
Steffanie Simpson, White Post Farm
Mary Bowen, Browsing Green Goats
Michael Heller, Chesapeake Bay Foundation
Andrew Keller, Vista View Farm

Please RSVP at <https://2019grazingconference.eventbrite.com> by October 10, 2019
Questions? Please contact Amanda Grev at agrev@umd.edu or 301-432-2767 x339

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