



# FORAGE BITS

Winter 2019/2020

Publication of the Maryland-Delaware Forage Council, Inc.

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## INSIDE THIS ISSUE:

- ❖ President's Column
- ❖ Reducing Hay Storage and Feeding Losses
- ❖ Why is my hay not the quality I need?
- ❖ Winter Hay Feeding Strategies
- ❖ MDFC Renewal

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## Upcoming Conferences

- ❖ Cattle Health Management – CALVING
- ❖ Maryland-Delaware Hay and Pasture Conference Series
- ❖ Maryland Beef Producer's Short Course Series III



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## President's Column

In agriculture, December has a dual role, an overview of the last season, as well as planning for the next. Across the country, 2019 was a particularly wet year, delaying planting and harvest. In hay production, we don't need three weeks of rain to ruin a season, just a few ill-timed rainfalls after cutting. Weather is one variable we have difficulty planning for, but there are decisions that are within your control.

To help you with these decisions, the Forage Council helps sponsor the 2020 Maryland-Delaware Hay and Pasture Conference Series. These include the Delmarva (Jan 14, Harrington, DE), Southern Maryland (Jan 15, Brandywine, MD), Western Maryland (Jan 16, Accident, MD), and Central Maryland (Jan 17, Burkittsville, MD). The purpose of the hay and pasture conference series is to bring up to date information on forage, nutrient, and pest management for your own decision making process. This year's featured speaker is Dr. Matt Poore (NC State), who will be discussing adaptive grazing and resilient forage systems.

We at the MDFC hope to see you at one of these series next month. Please let us know about the value of these meetings for your operation, and pass the word along to anyone else who may be interested in joining the MDFC and receiving our newsletter.

Jarrod Miller



## Reducing Hay Storage and Feeding Losses

Jessica A. Williamson, PH.D.,  
Penn State Extension Forage Specialist

On most livestock operations, the greatest operational cost is stored and harvested feed, so it only makes sense that striving to reduce storage and feeding losses of harvested feeds as much as possible can help improve forage quality, quantity, and overall profitability of an operation. Reducing waste, even by a few percent, can have a direct reflection on farm financial status almost immediately. Dry hay has the potential to meet most ruminant livestock nutrient requirements if harvested correctly and at the optimal stage of maturity to meet the class of livestock's nutrient requirements, and if quality is maintained throughout the storage period. However, supplemental nutrition is often a necessity as a result of

hay quality and quantity losses through storage and feeding.

Storage losses of uncovered hay can be upwards of 30%, including weather and respiration, resulting in one of the largest outlets for lost dollars on a livestock operation. Some factors affecting the amount of forage loss due to weather include bale density, weather and climate conditions throughout the duration of storage, and species of hay. Uncovered hay losses quality as rain washes through the bale and removes the desirable water-soluble carbohydrates of the plant cells through leaching, causing a reduction in total digestible nutrients (TDN).

Dry matter loss after harvest occurs as a result of plant respiration, even in hay with less than 20% dry matter. When harvest moisture levels are greater than 20%, the incidence of mold is much more likely, causing an even greater dry matter loss as a result of microbial activity.

The best option for reducing storage losses is to store hay under cover. A hay barn is always the best choice for reducing storage losses, but other options such as plastic tarps or net wrap can also help improve storage. If no cover option is available, it would be beneficial to keep bales off the ground, either by placing them on pallets or on a gravel lot. This will help bales from sitting in water after high precipitation. A study by the University of Tennessee shows a 5% loss in round bales under a hay barn, stacked or tarped hay on pallets had a 14% loss, while round bales that were net wrapped had a 23% loss. Even with those losses, uncovered hay had an astounding 30% loss.

There are several different methods for feeding hay, all of which have their benefits and disadvantages. Hay refusal is the biggest factor in feeding losses, which is directly related to quality. Other losses during feeding include trampling, leaf shatter, and fecal contamination, all of which are related to how the hay is fed. Feeding hay on pasture ground can have benefits and downfalls. Spreading the hay out and moving the location of where it is fed can provide benefits to the soil health and reseeding of forages within that pasture. This practice is best if the hay that is being fed is very clean and weed-free. If feeding hay in a pasture, it is recommended that only a single day's worth of feed is offered. If animals are fed mass quantities of hay that is intended to last them several days or even weeks, a large amount of waste is often the result of sorting, trampling, bedding, and fecal contamination.

Feeding out of rings can provide a barrier between the hay and animal, reducing waste from trampling or fecal contamination. This practice could lead to loss of pasture if being fed on sod as a result of compaction and trampling, so it is recommended to feed hay out of rings in a livestock concentration area, on concrete, or on gravel. No matter the method of feeding, a well-drained site is always recommended.

Reducing even a small portion of loss when storing or feeding hay will have direct and immediate impacts economically on a livestock operation, so plan carefully for methods on improved storage and feeding.



## Why is my hay not the quality I need?

Dan Undersander,

Forage Professor Emeritus, University of Wisconsin

Haymaking was difficult this year in many regions of the country. Now is the time to analyze what happened and think about what could be done differently for next year.

There are two major causes of reduced forage quality, especially noticed in poor drying conditions: respiratory loss of NFC (sugars and starch) and leaf loss.

### Respiratory loss

Respiratory loss occurs because the plant continues to respire (break down sugar and starch to give off carbon dioxide) after being cut until the plant dries below 60% moisture. Alfalfa is generally about 75% moisture when cut, so rapidly losing the first 15% water quickly will reduce respiratory losses. These losses can range from 2% to 8% of the dry matter (DM) and have larger impacts on forage quality. NFC is 98% digestible to animals. Further, loss of NFC increases plant neutral detergent fiber (NDF) and lowers relative forage quality (RFQ).

Most of the respiration takes place in the leaves. Conditioning is important for drying the stems but has little impact on drying the leaves. A wide swath has the biggest effect on rate of leaf drying. Leaves dry faster in a wide swath because:

- Sunlight (even on a cloudy day) has the largest effect on drying. More sunlight falling on the field is intercepted for drying hay in a wide swath. (A windrow intercepts only 25% to 30% of sunlight falling on the field while a wide swath intercepts 70% to 100% of sunlight.)

- Light keeps the leaf stomates open longer, so moisture can leave through leaf openings. Most of the forage in a windrow is in the dark, so leaf stomates close to seal the leaf between surface wax layers, reducing drying rate.

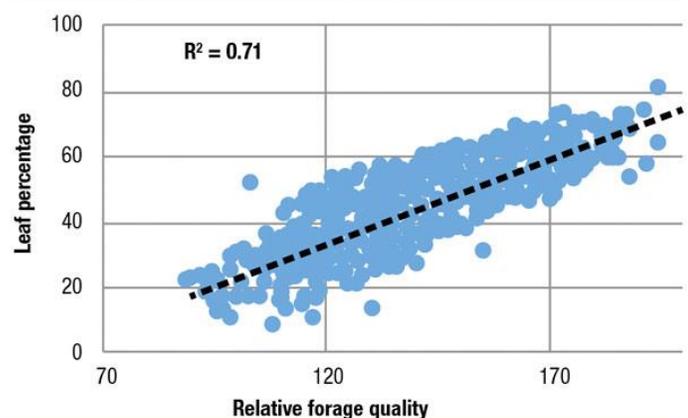
Pull-type or triple mowers are recommended rather than self-propelled mowers because the latter can only make windrows narrow enough to fit between the wheels. The windrow utilizes less than half the sunlight falling on the field. Some are worried about bleaching losses in a wide swath, but bleaching only occurs when the leaves are dry, so make a wide swath and then merge into a windrow after 16 or 24 hours (when leaves are nearly dry). A wide swath can reduce hay drying time by one day or more.

Additionally, the slower drying and delayed hay removal from the field can reduce next-cutting yield (due to driving over alfalfa regrowth and, possibly, delayed irrigation).

### Leaf loss

Leaf loss during harvesting is a major unrecognized loss of yield and forage quality. Leaves are 15% to 20% NDF, while stems are 60% to 70% NDF. Thus, RFQ is closely related to stem content of alfalfa, as shown in **Figure 1**.

**FIGURE 1** Effect of leaf percentage on RFQ



\*R-squared ( $R^2$ ) is the percent of variation explained by the line. A perfect fit would be an  $R^2$  of 1.0. The 0.72 means that 72% of the variation in forage quality is explained by leaf percentage and 28% is explained by other factors.

Some of our studies indicated that some farmers were losing up to 30% of leaves during harvesting. Alfalfa harvested at the bud stage is generally 45% to 55% leaves. I encourage you to look at your hay to determine how close to 50% leaf content your harvested hay is. If your hay is much below 50% leaves, consider the following: Every time you move the forage prior to harvest results in a leaf loss.

- Try to rake/merge only, as each operation results in additional leaf loss, e.g., tedding, windrow inverting. No additional

operations should be necessary if starting with a wide swath but are often required in poor drying conditions when starting from a windrow.

- Wetter forage results in less leaf loss when moved. So rake/merge when forage is above 40% moisture if possible.
- Rolling forage across the ground results in leaf loss. Reduce distance moved by raking to the middle with a large rake rather than to one side.
- Mergers generally result in less leaf loss than rakes since they pick up the forage and move it on a conveyor belt. (Though data has shown that rotary rakes may have similar leaf loss for making haylage.) Further, consider the ground speed of the merger relative to pickup speed – is the merger pickup throwing leaves ahead of the swath as it is being picked up?

### Recommendations

Thus, a recommended procedure would be to mow, place alfalfa into a swath covering 80% or more of the cut area, rake/merge when at 40% to 60% moisture and harvest. In the Midwest and Northeast, haylage made with wide swaths can often be harvested the same day it is cut. In the West, hay can be harvested in two to three days rather than five to seven days.

Lastly, minimize leaf loss during baling or chopping. Harvesting windrows that are near capacity of the baler or chopper is more efficient in terms of fuel and labor. The larger windrow also results in less leaf loss at the harvester pickup during harvest.

Newer medium and large square balers tend to have less leaf loss than older small square balers because the newer balers feed straight through to the bale chamber while small square balers tend to auger or rake the dry hay across the machine width to a bale chamber.

Also look behind the baler: Is there a layer of leaves falling on the ground? Also consider what is falling through the belts of a round baler. Note that making baleage rather than dry hay with round balers will result in less leaf loss (higher yield and forage quality).

When chopping alfalfa, is there a green cloud around the chopper wagon or truck? Is green “dust” being blown out of the wagon or truck? Each of these would indicate leaf loss during the chopping process. We have measured up to 28% of the leaves being lost during harvesting for haylage – more than I ever thought possible.

A little toughness on the hay/haylage at baling or chopping may reduce losses; harvesting dried hay overnight or in the

early morning with dew (as is often done in the West) can reduce yield and quality losses. This approach may also be beneficial for those harvesting haylage.

Standing alfalfa will normally have about 45% to 55% leaves at the bud stage. Leaf loss cannot be eliminated; it can, however, be minimized. By paying attention to “harvesting leaves” rather than “harvesting hay,” one can observe where leaf loss is occurring in your operation and take steps to reduce losses. In some cases, different machinery may be called for but, in many cases, equipment adjustment and timing of use may significantly reduce leaf loss. 🌱



## Winter Hay Feeding Strategies

Amanda Grev,

Agriculture & Food Systems, Western Maryland Research and Education Center

When it comes to feeding hay during the winter, a variety of feeding strategies can be implemented. Hay can be fed in a confinement or field-based setting, with or without bale feeders, or by utilizing a strategy such as rolling out the hay or bale grazing. Each of these methods carries its own advantages and disadvantages regarding wasted hay, impacts on standing forage, nutrient and manure dispersal, soil health implications, and labor requirements.

Feeding hay out of bale feeders is most often done in a confinement setting or designated feeding area, but can also be done on pasture or hay fields. Advantages to utilizing a bale feeder include minimizing hay waste and feeding losses, with feeder design having a significant impact on the amount of waste. Disadvantages include the machinery and labor requirements needed to move or distribute bales, manure removal if livestock are confined to a given area, and damage from livestock trampling that occurs around feeder sites. If feeding in a single location, providing a footing such as crushed gravel or concrete will help minimize ground damage and mud issues. Alternatively, hay feeding areas can be moved around periodically to minimize the damage to any one given area, provide some manure and nutrient dispersal, and reduce accumulation of waste residue.

Feeding unrolled bales involves unrolling bales out on the ground across a pasture or hay field, thus spreading the hay across a greater feeding area. Advantages of this strategy are that it can minimize the concentrated ground damage that often occurs around feeder sites where livestock have congregated for extended periods of time. It also allows

valuable nutrients from hay waste and animal manure to be deposited back onto the soil and spread across a greater area of the field. Decomposing hay residue, along with manure and urine, is distributed across the field and can help improve soil organic matter and increase forage growth in subsequent years. Nutrient retention under this type of setting has been shown to be superior to that of traditional systems that involve handling and spreading manure, even if the manure is composted. Disadvantages to rolling bales out include the labor required to unroll bales and the potential for increased hay waste. The amount of hay wasted will depend on a number of factors, including the quality of the hay and the amount of hay offered at one time.

Bale grazing is the practice of allowing livestock to ‘graze’ hay bales on a hayfield or pasture. Typically, hay bales are spaced across a field in strategic lines in advance to winter feeding and livestock are given access to a portion of bales at one time using electric fencing. After a number of days or once the hay is cleaned up, the fencing is re-set or livestock are rotated to provide access to another portion of the bales. The number of bales offered and the timing can vary, but an optimal bale grazing period will balance labor requirements, animal nutrition, and hay waste. Moving livestock every few weeks requires less labor but will likely result in greater waste and potentially less than optimal gains, while moving livestock every few days requires more labor but will likely limit excessive waste and maximize gains.

Advantages to bale grazing include a reduction in machinery use, fuel costs, and labor during the feeding period. Similar to rolling bales out, bale grazing can also offer benefits in terms of added soil fertility and improved manure distribution. Bales can be strategically placed on poorer areas of the field, such as those with thinning forage, bare spots, or less productive yields. Disadvantages to bale grazing include the potential for hay waste and damage to existing forage stands. Depending on the amount of bales offered at a given time, this method has potential for greater amounts of hay wastage; however, bale rings can still be utilized in this system to help limit hay waste. There is also concern over whether this feeding strategy will damage pasture stands, especially in regions with more rainfall and warmer winters. While this is a legitimate concern, utilizing good management practices can help to minimize these issues.

When it comes to feeding hay in a field-based setting, there are some management strategies that can be implemented to help minimize issues. Here are some tips for success:

- Feed on well-drained soils and avoid feeding near surface water.

- Avoid damage to standing forage by feeding hay bales at low densities. A general recommendation is to feed 4 tons of hay or less per acre, and spacing bales 50’ or more apart can help limit the amount of ground that gets torn up. Declines in pasture quality can mean animals or bales are stocked too heavy.
- Limit the amount of time livestock are fed in a given area. Moving livestock every day or every few days will help minimize ground damage.
- Feeding frequency will impact hay waste. Although it is tempting to provide enough hay for several days, livestock will waste less hay when the amount fed is limited to what is needed each day, as daily feeding will force them to eat hay they might otherwise refuse, trample, or waste. On average, 25% more hay is needed when a 4-day supply is fed with free access.
- When picking feeding areas, select areas that are in need of some improvements or renovation. Prioritize poorer areas of the field, such as those with thinning forage, bare spots, or less productive yields.
- Feed high quality hay to minimize refusals and hay waste.
- Be flexible and be cognizant of animal and weather conditions. If an area is too wet or ground conditions are deteriorating, move livestock to another area or to a dry lot.

It should be recognized that no single feeding strategy will work best for all farms. Instead, producers must weigh the benefits and drawbacks from these feeding methods, select a method based on their goals, and manage accordingly.



## Maryland-Delaware Hay and Pasture Conference Series

University of Maryland Extension, University of Delaware Extension, and the Maryland-Delaware Forage Council invites forage producers, grazers, livestock owners, and associated industry personnel to attend the upcoming Maryland-Delaware Hay and Pasture Conference Series in January 2020.

This series of conferences will be held January 14-17, 2020 at four locations throughout Maryland and Delaware.

Conference dates and locations are as follows:

- Delmarva: January 14 in Harrington, DE

- Southern Maryland: January 15 in Brandywine, MD
- Western Maryland: January 16 in Accident, MD
- Central Maryland: January 17 in Burkittsville, MD

The featured speaker for this upcoming series is Dr. Matt Poore, Animal Science Department Extension Leader and Ruminant Nutrition Specialist at North Carolina State University. Dr. Poore will speak on *'Making the Most of Adaptive Grazing in Building a Productive Pasture-Based Livestock System'* and also on *'Building a Balanced and Resilient Forage System Using Perennials and Annuals'*. Other topics vary slightly by location, but each event will cover a variety of relevant forage topics including weed control, soil health, pasture renovation and establishment, the use of annual forages, and making quality hay and haylage.

Registration is not necessary for the Delmarva conference but is requested for each of the Maryland conferences. For more details and registration information, please visit <https://www.foragecouncil.com/event> or contact Amanda We hope to see you there!



DEPARTMENT OF  
ANIMAL & AVIAN  
SCIENCES

UNIVERSITY OF  
MARYLAND  
EXTENSION

## Cattle Health Management - CALVING

**Cost: \$20 per farm** (Includes all educational materials and a free gift)

To Register Online: <https://umd-calving.eventbrite.com>

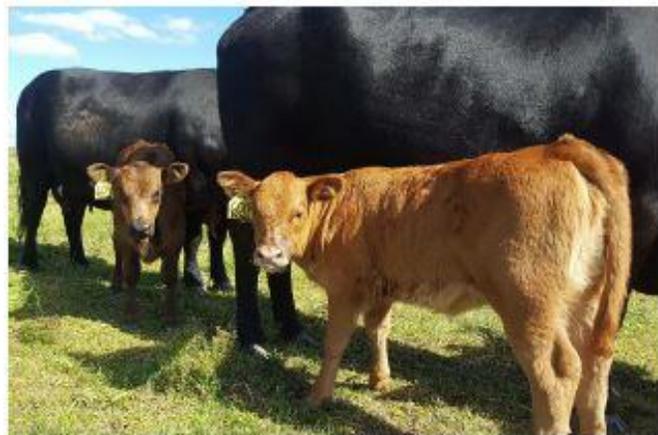
Choose One 1-Day Workshop

	Date	Time	Location
Southern Maryland	Jan. 9, 2020	9:00-11:00am	Charles County SCD 4200 Gardiner Rd Waldorf, MD 20601
Eastern Shore	TBA -Feb. 2020	TBA	Wye Angus 2016 Carmichael Rd Queenstown, MD 21658

Please Contact Racheal Slattery [rslatt@umd.edu](mailto:rslatt@umd.edu) or phone: **(301)405-1392** with any questions or concerns or to register via check/cash

### Topics Covered:

- Tips for Getting Your Farm Ready for Calving
- Common Management Techniques for A Successful Calving Season
- Strategies for When Things Go Wrong
- Hands-on Practice with Calving Aids





# SAVE THE DATE

## Maryland-Delaware Hay and Pasture Conference Series

**JANUARY 14, 2020**

Harrington, DE

**JANUARY 15, 2020**

Brandywine, MD

**JANUARY 16, 2020**

Accident, MD

**JANUARY 17, 2020**

Burkittsville, MD

Topics include: adaptive grazing, weed control, soil health, pasture renovation, annual forages, making quality hay and haylage

Visit <https://www.foragecouncil.com/event>  
for agendas and registration information



UNIVERSITY OF  
**MARYLAND**  
EXTENSION

UNIVERSITY OF  
**DELAWARE**

# 2020 Maryland-Delaware Hay and Pasture Conference Series



## JAN 14 - DELMARVA

Delaware State Fairgrounds  
644 Road 316, Harrington, DE

### AGENDA

- 9:00 AM WELCOME
- 9:15 - 10:00 AM  
Weed Control: What Are We Missing?
- 10:00 - 10:45 AM  
Soil Health in Grazing Systems
- 10:45 AM BREAK
- 11:00 - 11:45 AM  
Making the Most of Adaptive Grazing in Building a Productive Pasture-Based Livestock System
- 11:45 - 12:00 PM MDFC UPDATE
- 12:00 PM LUNCH
- 1:00 - 2:00 PM  
Building a Balanced and Resilient Forage System Using Perennials and Annuals
- 2:00 - 3:00 PM  
Putting the Punch Back in Your Pastures with Pasture Renovation

**Speakers include:**  
 Dr. Matt Poore, NCSU  
 Dr. Mark VanGessel, UDEL  
 Quintin Johnson, UDEL  
 Brian Campbell, NRCS  
 Beth Goering, NRCS  
 Dr. Amanda Grev, Dave Myers,  
 Ben Beale, Kelly Nichols, UME

## JAN 15 - SOUTHERN MARYLAND

Baden Volunteer Fire Department  
16608 Brandywine Rd, Brandywine, MD

### AGENDA

- 9:00 AM WELCOME
- 9:15 - 9:45 AM  
Tips and Tricks for Successful Forage Renovation and Establishment
- 9:45 - 10:15 AM  
Weed Control in Hay and Pasture Systems
- 10:15 AM BREAK
- 10:30 - 11:15 AM  
Making the Most of Adaptive Grazing in Building a Productive Pasture-Based Livestock System
- 11:15 - 11:45 PM  
Putting it All Together: Making Quality Hay and Haylage
- 11:45 - 12:00 PM MDFC UPDATE
- 12:00 PM LUNCH
- 1:00 - 2:00 PM  
Building a Balanced and Resilient Forage System Using Perennials and Annuals
- 2:00 - 3:00 PM  
The Wonderful World of Annuals: Where Do They Fit in Maryland?
- 3:00 - 4:00 PM  
Pesticide Recertification and Nutrient Voucher Required Topics

**Speakers include:**  
 Dr. Matt Poore, NCSU  
 Dr. Mark VanGessel, UDEL  
 Quintin Johnson, UDEL  
 Brian Campbell, NRCS  
 Beth Goering, NRCS  
 Dr. Amanda Grev, Dave Myers,  
 Ben Beale, Kelly Nichols, UME

## JAN 16 - WESTERN MARYLAND

Garrett College CTC  
116 Industrial Drive, Accident, MD

### AGENDA

- 9:00 AM WELCOME
- 9:15 - 9:45 AM  
Tips and Tricks for Successful Forage Renovation and Establishment
- 9:45 - 10:15 AM  
Utilizing a Sacrifice Lot during Rotational Grazing
- 10:15 AM BREAK
- 10:30 - 11:15 AM  
Making the Most of Adaptive Grazing in Building a Productive Pasture-Based Livestock System
- 11:15 - 11:45 PM  
Putting it All Together: Making Quality Hay and Haylage
- 11:45 - 12:00 PM MDFC UPDATE
- 12:00 PM LUNCH
- 1:00 - 2:00 PM  
Building a Balanced and Resilient Forage System Using Perennials and Annuals
- 2:00 - 3:00 PM  
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 Beth Goering, NRCS  
 Dr. Amanda Grev, Dave Myers,  
 Ben Beale, Kelly Nichols, UME

## JAN 17 - CENTRAL MARYLAND

Burkittsville Ruritan  
500 East Main St, Burkittsville, MD

### AGENDA

- 9:00 AM WELCOME
- 9:15 - 9:45 AM  
Tips and Tricks for Successful Forage Renovation and Establishment
- 9:45 - 10:15 AM  
Weed Control in Hay and Pasture Systems
- 10:15 AM BREAK
- 10:30 - 11:15 AM  
Making the Most of Adaptive Grazing in Building a Productive Pasture-Based Livestock System
- 11:15 - 11:45 PM  
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 Ben Beale, Kelly Nichols, UME

Visit <https://www.foragecouncil.com/event> for registration information

Questions? Call your local county extension office or contact  
 Amanda Grev at [agrev@umd.edu](mailto:agrev@umd.edu) or 301-432-2767

University programs, activities, and facilities are available to all without regard to race, color, sex, gender, identity or expression, sexual orientation, marital status, age, national origin, political affiliation, physical or mental disability, religion, protected veteran status, genetic information, personal appearance, or any other legally protected class.

# Maryland Beef Producers Short-course Series III-Pasture Management



The University of Maryland Department of Animal Science in partnership with University of Maryland Extension has designed this short-course series to provide producers educational information and hands-on training in several areas of beef production.

Whether you're just thinking of starting your own beef production operation or have been in the industry for years, these series will have something for all. The Series III workshop will focus specifically on pasture development and management.

Good pastures are important part to a successful beef operation. This one day workshop will cover various aspects of good pasture development and management in both a classroom style and hands-on outdoor environment. Participants are encouraged to bring fresh plants (weeds, forages, etc) that they need help identifying, as well as forage and soil analysis reports that they need help interpreting.

*This program is supported by the Department of Animal and Avian Sciences, University of Maryland, through an endowment from the Jorgensen Family Foundation.*

**Cost: \$35 which includes all refreshments, lunch and educational resources.**

## Series III Dates

	Date	Time	Location
Western Maryland	Friday, April 3, 2020	8:45am-3:30pm	Washington County Ext Office 7303 Sharpsburg Pike Boonsboro, MD 21713
Southern Maryland	Friday, April 17, 2020	8:45am-3:30pm	St. Mary's County Ext Office 26737 Radio Station Way Leonardtown, MD 20650
Eastern Shore	Friday, May 1, 2020	8:45am-3:30pm	Wye Angus 2016 Carmichael Rd Queenstown, MD 21658
Northern Maryland	Friday, May 15, 2020	8:45am-3:30pm	Harford County Ext Office 3525 Conowingo Rd Street, MD 21154

**Topics covered:** Soil fertility, setting up a pasture system, common forages, weeds and weed management, extending the grazing season - using annuals and cover crops, matching forages with animal nutrition, cost-sharing programs.

**Educational resources will include:** All presentations and handouts as well as producer resources.

**For more information, please visit our website:** <https://ansc.umd.edu/extension/beef-extension/series-iii>

Please contact [Racheal Slattery](mailto:rslatt@umd.edu), Beef and Dairy Coordinator at **301-405-1392** or via email [rslatt@umd.edu](mailto:rslatt@umd.edu) with any questions or concerns.



*An American Forage and Grassland  
Council Affiliate*

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December 20, 2019

Dear Maryland-Delaware Forage Council Member:

It is time once again to renew your membership in the Maryland-Delaware Forage Council (MDFC) and its parent organization, the American Forage and Grassland Council (AFGC). Now more than ever, the role of forages and grasslands must be promoted. MDFC was organized in 1983 to serve as a forum for forages and grasslands in Maryland and Delaware and to serve as the integrator of the numerous businesses, industries and service agencies associated with forage production, evaluation, marketing and use. The council seeks to coordinate the efforts of various groups and organizations with forage interests to increase the effectiveness of progress on behalf of an improved forage industry.

With your support, MDFC can accomplish much toward a better forage industry. It is a big job and we need your help; first by renewing your membership and second, by becoming involved in the council's programs. With your input, MDFC can serve an even more active role in support of the forage industry.

Your MDFC membership renewal notice is enclosed. The \$25 membership includes membership in both MDFC (\$15) and AFGC (\$10), a real bargain since an individual membership in AFGC alone is \$30.

Membership in MDFC qualifies you to receive a subscription to Progressive Forage magazine, the official publication for the American Forage and Grassland Council published 11 times per year. Progressive Forage magazine alone is worth the \$25 annual membership dues for MDFC.

A major effort of the MDFC is sponsoring the series of Hay and Pasture Conferences held in Delaware. Southern MD and Western MD. The 2020 conferences will be held January 14, 15, 16 and 17.

You should with your membership be receiving the Progressive Forage Grower magazine once a month. If you are not, please make note of that on your invoice so that we can make sure you receive it in the future.



An American Forage and Grassland Council Affiliate

**INVOICE**

**Address Correction:**

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Telephone:** \_\_\_\_\_  
**E-mail:** \_\_\_\_\_

**FAX:** \_\_\_\_\_

Description	<i>Amount</i>
2020 Membership Dues: January 1-December 31, 2020	\$25.00
Total Amount Due	\$25.00

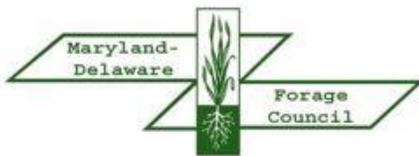
**Please remit by January 31, 2020**

Make checks payable to: Maryland-Delaware Forage Council

Remit to: Kenneth ~~Stonesifer~~, 141 Hilltop Dr., Chestertown, MD 21620

Please include an email address if you wish to receive updates and the newsletter electronically.

**Please Return This Section**



An American Forage and Grassland Council Affiliate

**INVOICE**

Description	<i>Amount</i>
2020 Membership Dues: January 1-December 31, 2020	\$25.00
Total Amount Due	\$25.00

**Please remit by January 31, 2020**

Make checks payable to: Maryland-Delaware Forage Council

Remit to: Kenneth ~~Stonesifer~~, 141 Hilltop Dr., Chestertown, MD 21620