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Forage News

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## Forage News [2020-05]

Department of Plant and Soil Sciences, University of Kentucky

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# UK Forage News

## Keeping Forage-Livestock Producers in Kentucky Informed

Dr. Ray Smith and Krista Lea, editors

May 2020

### Detailed Ag Weather Forecast

We all know not to cut hay if it's going to rain tomorrow, but have you ever wondering about the drying conditions: humidity + cloud cover + wind speed + temperature. The University of Kentucky Ag Weather Service provides this kind of detailed forecasts in 3hr time intervals (see below). It can be found on the Forage Website under the Hay & Storage tab and then click Hay Making Weather. Or simply go to [Weather.uky.edu](http://Weather.uky.edu) and enter your zip code.

Current Weather	Forecast		Climate		Ag Models		
<b>TEMP</b>	48°	51°	51°	52°	51°	48°	46°
<b>Sky Cover</b>	93%	90%	92%	93%	91%	91%	93%
<b>Clouds</b>							
<b>DEW PT</b>	47°	46°	45°	44°	43°	42°	42°
<b>RH</b>	96%	83%	79%	74%	74%	80%	86%
<b>POP 12HR</b>	48%	--	--	--	51%	--	--
<b>Rain/Snow</b>	0.01in	--	0.02in	--	0.04in	--	0.02in
<b>Wind Speed</b>	13	15	15	14	13	14	12
<b>Wind Gust</b>	24	25	23	23	21	22	21
<b>Wind Dir.</b>	SW	W	W	W	W	W	W
<b>DEW</b>	--	--	--	--	--	--	--
<b>Feels Like</b>	48	51	51	52	51	48	46
<b>Rain</b>	--	--	--	--	Chance	Chance	Chance
<b>RainShowers</b>	Chance	Chance	Chance	Chance	--	--	--
<b>Spray Cond.</b>	FAIR	POOR	POOR	POOR	FAIR	POOR	FAIR
<b>Dry Cond.</b>	POOR	POOR	FAIR	FAIR	FAIR	FAIR	POOR

Ag Weather Center, U

### Is Spring Grazing Hard or Easy?

Spring — the time of year when pastures are green, growing, and soil moisture is plentiful. So, does that make grazing decisions easier or more difficult compared to mid-summer or fall when pastures are slower to grow and moisture may be lacking? Long-time grazing consultant Jim Gerrish likes to turn out at the two- to three-leaf stage of grass development. Others have suggested when grasses are about 6 inches tall.

"The grazing strategy we have used to minimize the effect of an explosive spring flush is to get across all of our pastures twice in the first 45 to 60 days of the growing season," explains Gerrish in the upcoming issue of *Hay & Forage Grower*. "We move our cattle every day

and have been doing so for over 30 years. We give fairly large areas and expect to make the first cycle in just 20 to 25 days. Utilization rate is low as we are just trying to get a bite off of most plants.

"We slow down on the second cycle by giving smaller areas while taking 25 to 35 days to get around. Our objective on this cycle is to take a little deeper bite to remove elongating stems. When undeveloped seedheads are being elevated from the base of the plant, they are highly nutritious and palatable. As we make paddocks smaller and increase stock density, the likelihood of grazing stock removing undeveloped seedheads is high," he adds.

Ultimately, the goal of spring grazing is to stay ahead of the growth flush and avoid having cattle in paddock after paddock that consist of a sea of seedheads by late spring. ~ excerpt from Mike Rankin, *Hay and Forage Grower*, 4/7/20

For the full article go to [hayandforage.com](http://hayandforage.com) and click on the grazing tab at the top of the page.

### Featured Forage Publication: Hay Fire Prevention and Control (Virginia Cooperative Extension 442-105)

Fires that damage or destroy hay and barns cost farmers thousands of dollars in building and feed replacement costs and in lost revenues. Many of these fires are caused by the spontaneous combustion of hay that usually occurs within six weeks after baling. This publication discusses the cause and prevention of hay fires and provides techniques for measuring bale temperature and what temperatures indicate a high risk of fire. Go to the Forage Website and click on the "Hay and Storage" for the full publication and many others related to hay production.

### Forage Timely Tips: May

- ✓ Graze cover crops using temporary fencing.
- ✓ As pasture growth begins, rotate through pastures quickly to keep up with the fast growth of spring.
- ✓ Creep-graze calves and lambs, allowing them access to highest-quality pasture.
- ✓ As pasture growth exceeds the needs of the livestock, remove some fields from the rotation and allow growth to accumulate for hay or haylage.
- ✓ Determine need for supplemental warm season forages such as pearl millet or sudangrass.
- ✓ Flash graze pastures newly seeded with clovers to manage competition.

## Garbage In Garbage Out: Improving Hay Quality

You have probably heard the expression “garbage in garbage out”. This adage is not only true for hay and silage, but also completely appropriate. Baling or ensiling poor quality forage will NOT improve its nutritional value. How we manage hayfields this spring can have a major impact on both yield and nutritive value. Fertilization and timely cutting are even more critical when we need to refill hay barns after a long winter. The following tips will help you to optimize hay production this spring.

- Fertilize and lime according to soil test
- Apply nitrogen early to promote rapid spring growth
- Harvest at the boot stage
- Mow early in the day and use a mower-conditioner
- Lay down wide swaths
- Rake or ted at 40-50% moisture content
- Bale at 18-20% moisture
- Store under cover and off the ground
- Do not cut hay fields too close (leave 3-4")
- Apply nitrogen following the first cutting
- Allow hayfields to go into summer with some regrowth
- Apply nitrogen in late summer
- Allow stands to replenish carbohydrates in the fall.

Read the full story in the May issue of Cow Country News. Past issues of CCN are available at <https://kycattle.org/cowcountrynews.html#>. Join the KY Cattlemen’s Association to receive the paper issue each month. <https://kycattle.org/joinnow.html>.

## Add Clover or Replace with Novel Tall Fescue

Recent research at our USDA-ARS unit in Lexington has shown that Red clover is probably the best vasodilator there is for cattle on toxic fescue (it contains high levels of the isoflavone Biochanin A which cause the the vessels to enlarge). They’ve proven this from several research studies. The limitation is that it’s hard to keep a consistent level of red clover in a pasture. Most vasodilators added to mineral are not as proven. Biochanin A is present in white clover but at lower levels. Any clover though helps to improve nutrition and dilute toxic fescue.

So if you have a good stand of KY-31 tall fescue, especially if it’s on sloping ground prone to erosion then I would leave it and add clover. Maybe even frost seeding red clover every other year. and using rotation grazing to help keep the red clover in the stand. Use an improved variety of red clover. Add a good ladino white clover makes sense too, but at a low rate since it can sometimes overtake a stand.

On land that you are considering or planning to redo completely (a lot of weeds, poor grass stands, fescue toxicity is noticeable, land that lays well, etc...), then I definitely recommend a novel endophyte variety of tall fescue. Sure it costs more, but novels definitely have a longer term stand. We have seen many farm pastures with novel varieties surviving 10 plus years in Georgia, North Carolina, Virginia, Tennessee and Kentucky, as well as other states. They showed good survival as long as the fertility was maintained and they weren’t overgrazed. Not a complex grazing system, **see blue.**

just not grazing into the ground (leave approx. 3 inches of stubble), and providing rest periods.

In our Lexington variety test we can get 4-6 year survival from endophyte free tall fescue. But our soils are ideal, naturally high in phosphorus, well drained etc... and our test plots are rigorously maintained. In short, the conditions in most “real farm” situations in KY make it be harder for endophyte free varieties to survive than at our variety testing location in central KY.

See the link to the tall fescue variety report. <http://www2.ca.uky.edu/agcomm/pubs/PR/PR766/PR766.pdf>

The novel endophyte varieties are identified in the table. Look at the summary table to see all the novel endophyte varieties. The only one I don’t recommend for most beef producers is Tower Protek. It is soft leaved and very palatable and can tend to be grazed out because they graze so low. ~ Ray Smith

## USDA Hay Markets - April 28, 2020

Below are examples of grass prices being paid FOB barn/stack (except for those noted as delivered, which is indicated by a "d" in the table below) for selected states at the end of the day on Friday, April 24. Large ranges for a particular grade and state are often indicative of location and/or bale size. Also check the USDA Hay Market Prices for additional locations and more detailed information.

Grass hay prices reported to USDA from selected states.			
Location	Forage Quality Grade		
	Premium	Good	Fair
-----\$ per ton-----			
Alabama	100-300	90	50
California	200-340(d)	N/A	N/A
Colorado	270-300	200	N/A
Idaho	N/A	N/A	N/A
Iowa	175-255	130-145	88-115
Kansas	N/A	80-150	75-85
Minnesota	90-145	70-120	75-85
Missouri	N/A	80-120	50-60
Montana	125-240	85-180	75-125
Nebraska	170-180	80-90	N/A
Oregon	N/A	220-250	N/A
Pennsylvania	300-380	190-345	125-255
South Dakota	N/A	N/A	75-120
Texas	140-330	120-260	100-165
Washington	220-230	200	180
Wisconsin	165-180	55-145	N/A
Wyoming	N/A	N/A	N/A

**Additional content on pages 3 - 4: Avoiding Botulism in Spring Round Baled Silage and CAIP Approved Forage Seed List**

**Upcoming Events** (see website for details) **Events in Red are canceled due to COVID-19**

**MAY 19 - Small Ruminant Fencing School, Frankfort, KY**

**MAY 21 - Fencing School, Campton, KY**

**AUG 6—W. KY KFGC Field Day—Calloway Co.**

**SEPT 8-9—KY Grazing School, Versailles, KY**

**OCT—KY Grazing Conferences, Winchester, Elizabethtown and Western KY**

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## **Avoiding Botulism in Spring Round Baled Silage**

Making silage in round bales (baleage) allows timely harvest of spring forage resulting in a high quality stored forage due to timely cutting and less rain damage. Small grains are one of the most popular forages ensiled as baleage. These forages produce high tonnage and palatable stored feed when harvested early. However, the frequency of clostridial fermentation and even botulism with small grains is greater than almost any other forage.

Clostridial fermentation can be avoided with attention to a few key details. First, there are several species of *Clostridium* bacteria but only *C. botulinum* causes botulism. *Clostridium* numbers in forage are normally low, but are introduced into small grain baleage mainly from dirt raked into the windrow or splashed onto the forage by heavy rain events.

Good fermentation in wrapped, high moisture small grain forage depends on the following: 1) Cutting early so there are adequate quantities of fermentable carbohydrates, 2) adequate numbers of lactic acid bacteria present on forage surfaces, 3) keeping dirt contamination to a minimum, 4) baling at moisture contents less than 65 to 70%, 5) wrapping with at least six layers of plastic within 12 to 24 hours, 6) maintaining plastic integrity until feeding and 7) testing forage to know fermentation characteristics.

### *Cutting early*

Small grains should be harvested at the boot to early head stage for the best compromise between yield and quality. Forage at this stage will have adequate water soluble carbohydrates for good fermentation. Be very diligent to cut early with cereal rye as it rapidly declines in quality and palatability after heading.

### *Adequate numbers of lactic acid bacteria*

Good baleage requires an anaerobic environment that fosters the growth of lactic acid bacteria (LAB) so bale pH drops quickly to 5.0 or below and high levels of lactic acid are produced (>3% of dry matter). These characteristics will inhibit the secondary clostridial fermentation and possible botulism formation. Populations of lactic acid bacteria (LAB) can sometimes be low on spring forage due to cool temperatures. Commercial silage inoculants can be applied to ensure that adequate LAB populations are present. Inoculants are best applied in liquid form at baler. Small grain forage will ferment without inoculants, but inoculant treatment will typically result in lower pH and higher lactic acid.

### *Watch out for dirt*

Dirt is the main way that *Clostridium* bacteria are introduced into baleage. Adjust rakes so that they have the minimum down pressure required to move the forage into a windrow. A forage test for ash content can determine if high levels of dirt are present. Ash values greater than 11% indicate dirt contamination and higher risk for clostridial fermentation.

### *Baling at moisture contents less than 65 to 70%*

Getting the moisture right is one of the best ways to inhibit or prevent clostridial fermentation. Estimating moisture content (MC) in the forage before baling is possible, but no method is both fast and accurate. Windrow moisture can be estimated by feel (the dishrag or twist test) or drying by forced air or microwave or by electronic moisture testers. Commercially available testers are an option for estimating forage moisture levels, and will test either in the windrow or the bale. Windrow testers have always been less accurate because of the difficulty of getting loose forage compressed uniformly enough for good probe accuracy. Bale probes have recently become designed so they can estimate moisture above 40% and are more accurate than windrow testers. Obtain at least three moisture readings to create an average value. Either type costs approximately \$300.

It is essential that the forage wilts from its fresh MC (80%) to less than 65 to 70%. In most years, this means cutting one day with the widest possible swath (for maximum solar radiation interception) and raking and baling the next day after the dew is off. In 2019, some experienced producers that cut early had to wait multiple days because of wet soil and poor drying conditions. It is better for baleage to be too dry than too wet. More information on estimating moisture is available in AGR-235, Baleage: Frequently asked questions (<http://www2.ca.uky.edu/agcomm/pubs/AGR/AGR235/AGR235.pdf>).

### *Use enough plastic*

Six layers of plastic provides the necessary oxygen exclusion for fermentation and gives protection from punctures and tears. For an individual bale wrapper, ensure that two layers of wrap are applied during each full rotation of the bale and there is 50 percent overlapping of successive layers. For an in-line bale wrapper, overlapping layers should be spaced no more than 5 in. apart if using a 30 in. roll (30 in./6 layers = 5 in. between edges of layers). When non-uniform bales are wrapped with an in-line wrapper, it may be helpful to apply extra plastic at the joints. The change in bale size makes it difficult for the plastic to seal, allowing oxygen infiltration and mold growth. Do not apply too little plastic or oxygen will penetrate the bale and cause spoilage, mold growth, and feed losses.



### *Maintain plastic integrity*

Keep holes and tears in plastic mended, especially in the first month when most of the pH drop and lactic acid production occurs. In a recent botulism case, a large hole in plastic was the likely cause for botulism toxin formation. This lot of baleage also had very high ash (dirt) content and high moisture.

### *Final thoughts*

Preventing clostridial fermentation and botulism is very possible with small grains. Cut early, wilt to 65% MC or less, wrap quickly after baling, and use six layers of plastic to achieve good fermentation. All steps are important, but going to the extra trouble of assuring yourself that moisture has dropped from 80 to 65% or below is the key to preventing clostridial fermentation and botulism potential. A good forage test that reveals **ash content as well as fermentation** characteristics will tell if your baleage is at risk for feeding problems. Contact your local County Extension Agent for how to collect a sample for your baleage.

### **CAIP Approved Forage Seed List**

The Approved Forage Seed List for CAIP provides the specific varieties that are eligible for cost share reimbursement for the following species: clover (red, white); alfalfa; bermudagrass; big bluestem; eastern gamma grass; Caucasian bluestem; endophyte-free fescue; Kentucky bluegrass; novel endophyte fescue; orchardgrass; timothy; and, festulolium. The list can be found at [https://agpolicy.ky.gov/funds/Documents/caip\\_forage\\_seedlist.pdf](https://agpolicy.ky.gov/funds/Documents/caip_forage_seedlist.pdf)

### *What about seed blends?*

All varieties listed in the blend must be listed on the Approved Forage Seed List for the blend to be eligible for cost-reimbursement. My preferred variety isn't on the list. What now? Requests to add seed varieties are submitted to Dr. Ray Smith, UK Forage Specialist.

1. The company selling the seed needs to send Dr. Smith (raysmith1@uky.edu) the Variety Description and results of two or more yield trials in KY or surrounding states.
2. If the requested variety is adapted to Kentucky and has yield and persistence ratings that are average to above average compared to other varieties UK has tested, then Dr. Smith will recommend to GOAP to add the requested variety to the approved seed list.

Varieties of other crops – brassicas, buckwheat, corn (less than 10 acres), forage sorghum, rye, ryegrass, oats, soybeans (forage beans only), wheat – for forage and grazing purposes are currently at the discretion of the local Agricultural & Natural Resources Extension Agent.