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Forage News [2010-05]

University of Kentucky Department of Plant and Soil Sciences

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FORAGE NEWS

Research & Education Center
Princeton, KY 42445

For more forage information, visit our UK Forage Extension Website at: <http://www.uky.edu/Ag/Forage>

May 2010

Garry D. Lacefield and S. Ray Smith, Extension Forage Specialists • Christi Forsythe, Secretary

KENTUCKY GRAZING SCHOOL

Kentucky has 40 more graduates of the Kentucky Grazing School held April 14-15 in Princeton, KY. Participants came from as far away as Florida to learn more about rotational grazing, portable fence and water systems, the growth of grasses and legumes, and how to extend the grazing season. In the afternoons participants were able to measure the amount of available forage in a pasture and build temporary paddocks using many different tools. Ultimately, each participant was able to begin developing their own grazing system with the help of specialists in forages, beef, and dairy systems.

Appreciation also goes to Mr. Jim Landis and Mr. Brady Jarvis for presenting in a producer panel where they were able to share their experiences with various grazing systems. Another Kentucky Grazing School is scheduled for August 9-10, 2010, in Versailles, KY. Space is limited so visit www.uky.edu/ag/forage, or call Adam Probst at 859-257-0597, for more information. (SOURCE: Adam Probst)

BARREN COUNTY TO HOST KFGC FIELD DAY

Our thanks to Barren County Extension Agent, Mr. Gary Tilghman, and host farmer Jim Landis for agreeing to host the KFGC Annual Forage Field Day on September 14. More details later as program and tours are finalized.

NATIONAL AND INTERNATIONAL MEETING COMING TO KENTUCKY

There is a lot of excitement throughout Kentucky as we approach the World Equestrian Games to be held in Lexington September 25-October 10. This is a rare opportunity for Kentucky. In addition to this historic event, two additional forage-related conferences will be held in Kentucky during 2010, both of which will be in Lexington. The International Mycological Society of America and the International Symposium on Fungal Endophytes of Grasses is scheduled for June 28-July 1. This conference will bring together leading scientists from around the world. Of particular interest to all of us will be the opportunity to learn all the latest findings concerning the endophyte of tall fescue which is costing our beef producers over one hundred million dollars each year. For the second time in the past five years, the National Hay Association will come to Kentucky. It will be in Lexington September 1-4. Mr. David Brumfield, Brumfield Hay & Grain is the current NHA President. This conference will bring together leading hay producers, industry personnel and university workers from throughout the USA. For more information on these conferences, see our website www.uky.edu/Ag/Forage.

FORAGE QUALITY, ETHANOL PRODUCTION STUDIED

University of Kentucky research shows little relationship between forage quality of native warm-season grasses, including switchgrass, and potential cellulosic ethanol production.

But, with improved ethanol extraction procedures, forage quality may be found to affect biofuel yield, say Ray Smith, forage extension specialist, and Tom Keene, hay marketing specialist, who led the study.

Switchgrass, big bluestem, Indiangrass and eastern gamagrass were harvested at early heading stage in late June and July 2008. Dormant switchgrass was cut in November 2007 and March 2008.

Subsamples from each harvest were analyzed for forage quality and potential ethanol production.

Crude protein ranged from 3 to 3.6%; ADF, 46.5 to 59.7%; and NDF, 71.9 and 78.1% for November- and March-harvested grasses, crude protein ranged from 3.7 to 10.4%; ADG, 31.9 to 39.4%; and NDF, 63 to 71.9%.

Generally, forage quality didn't correlate with potential ethanol production using an extraction method involving a sodium hydroxide pretreatment, enzyme hydrolysis and fermentation to convert cellulose to ethanol. (SOURCE: *Hay & Forage Grower Magazine, November 2009*)

TEFF GRASS

Teff's origin is thought to be Ethiopia, where it emerged as a grain crop for human consumption sometime between 4000 B.C. and 1000 B.C. Distribution of the crop around the world was initially based on its use as a food grain. Following its North American introduction, Teff production centered around its use by ethnic groups familiar with the grain and the niche market for gluten free flour. Teff grain is gluten free, and is a good flour source for segments of the population suffering from gluten intolerance or Celiac's Disease.

Following its initial introduction in the U.S., researchers began evaluating the world collection of Teff lines for their forage potential. As a result of the initial work in South Dakota and later at Oregon State, Teff's potential as forage was identified. Over the last 10 years Teff has gained momentum as a forage crop and several new, improved types have been developed and commercialized.

The word "tef" is derived from the Ethio-Semitic root "tff", which means "lost", possibly a reference to its extremely small seed size.

Common Names: Tef, Teff, Lovegrass, Annual Bunch Grass Teff, Annual Bunch Grass (Australia), Warm Season Annual Bunch Grass, Williams Lovegrass, Abyssinian Lovegrass, Teff grass. (SOURCE: *Teff Grass Producers Choice Seeds*)

PENNSYLVANIA FORAGE AND GRASSLAND COUNCIL CELEBRATING 50TH BIRTHDAY

During 2010, the Pennsylvania Forage and Grassland Council (PFGC) is celebrating its 50th birthday with events leading up to the grand celebration on Nov. 23 in New Holland, Pennsylvania. The Nov. 23 celebration will include a program with Steve Larson, Editor of *Hoard's Dairyman*, providing the opening remarks.

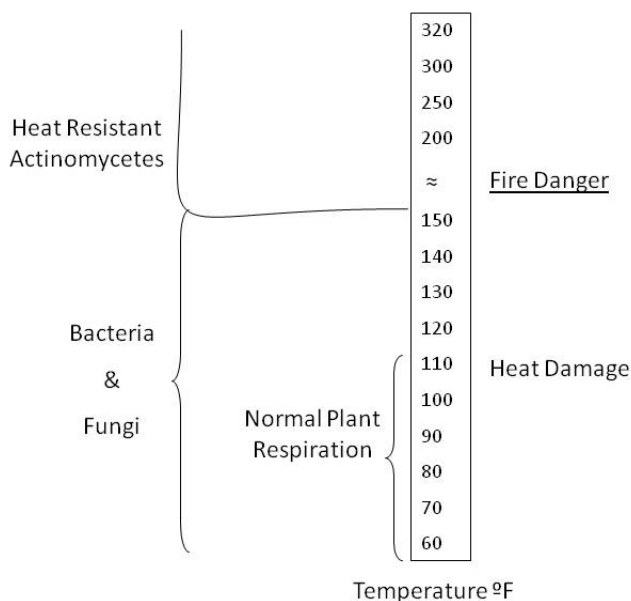
The PFGC was the first State council in the USA and later became affiliated with the American Forage and Grassland Council. There are currently 36 Forage and Grassland Councils across North America and many of these were formed using the PFGC as a model.

During those 50 years, the PFGC has been a leader in promoting forages and grasslands. A few of the activities of the PFGC are the First National Grassland Field Day and Conference which has evolved into the AFGC's National Conference. The PFGC started an event known as Forage Progress Days which involved field demonstrations and education activities all related to forage and grassland. This event is now the Pennsylvania Ag. Progress Days which annually draws about 120,000 people to the 3 day event. The PFGC also sponsored and coordinated the Alfalfa Growers Program which involved accurately monitoring inputs and production from grower's alfalfa fields. This information not only helped the individual grower whose farm the data come from but also was used in educational programs which helped many alfalfa growers across Pennsylvania. (SOURCE: *Dr. John Baylor, Professor Emeritus, Pennsylvania State University*)

SPONTANEOUS COMBUSTION IN HAY

Last year was a challenging year for even our experienced hay producers relative to baling and storage moisture. We experienced several hay fires along with lower quality as a result of excessive heating caused by baling at higher than safe moisture. When the internal temperature of hay rises above 130 degrees Fahrenheit, problems arise that will initially lead to lower quality and possibly spontaneous combustion. All hay baled above 15% moisture and above will show some increase in temperature for the first couple weeks after baling. This is referred to as "sweat". It will usually peak at 125 to 130 degrees F in the first two weeks after baling with minimum risk of combustion or quality loss. When moisture is too high and temperatures continue to rise, problems can occur.

Hay Heating and Spontaneous Combustion



CHANGE IN YIELD AND QUALITY OF ALFALFA

Many growers are asking about the tradeoffs in alfalfa yield and quality as they enter quality pricing contracts for hay or haylage. This is difficult to assess since both alfalfa growth and forage quality vary considerably depending on environmental conditions. The USDA-Dairy Forage Research Center conducted a detailed study (jointly with the Universities of Pennsylvania and Idaho) to attempt to get some answers. This data along with some of mine can give a few benchmarks.

First, from the studies, it seems reasonable to plan on the yield increase of alfalfa near harvest being about 100 lbs per acre per day if growing conditions are 'average.' This was the average yield change across cuttings, exclusive of late fall and in all three states. However, yield change per day around harvest time varies considerably and has ranged from 0 to 200 lbs per acre per day. The daily yield increase will be less in cool, cloudy weather, and if insects, disease or drought occur. It may be greater in periods of good moisture, sunshine and 75 to 85 degree weather. We should also keep in mind that 3 cuttings taken at 10% bloom will yield about 15 to 20% more than 4 cuttings taken at the bud stage.

Second, we have analyzed forage quality changes with advancing maturity over time across each harvest of alfalfa for several years. It appears that quality of first cutting changes at the fastest rate while later cuttings change in fiber and digestibility at a slower rate. We have found that first cutting decreases about 5 pts RFV per day, second cutting decreases 2 to 3 points per day and third and fourth cutting during the growing season decline 1 to 2 points per day. The late fall growth may change little in forage quality during mid to late September and early October. Relative Forage Quality (RFQ) will change about the same as RFV on first cutting and then decline about 4 points per

day on 2nd, 3rd and 4th cuttings during the growing season. Factors such as drought and potato leaf hopper will dramatically reduce yield but increase forage quality.

Growers should target the forage quality for the animal being fed or the market. The following table will allow the grower to calculate changes versus the payment basis for quality of forage. Remember that the change in quality is on the total forage harvested for the cutting (usually 1.5 to 2 t/a per cutting). These numbers can also be used with the hay cut date spreadsheet available at my website (www.uwex.edu/ces/forage) to estimate optimum return based on yield and value of quality. The numbers suggest that the maximum return to grower with an RFQ (RFV) premium of \$.60 per point of RFQ/ton is to harvest 130 RFV (RFQ), for \$.80/RFQ/ton is 140 and for \$1.00 is 155. Dairy quality hay is generally considered to be 150 RFV (RFQ) or higher. (SOURCE: Dr. Dan Undersander, Forage Agronomist, Univ. of Wisconsin)

Daily alfalfa forage change in yield and quality during the growing season			
Cutting	Yield (lb/day)	RFV per day	RFQ per day
----- Daily Change -----			
1	100	-5	-5
2	100	-2 to -3	-5
3	100	-2	-4
4	100	-1	-4

HAY INOCULANTS AND PRESERVATIVES

Hay making season will start surprisingly soon. If it's wet, you might need help from inoculants or preservatives to get hay made without spoiling. Stay tuned.

When baling hay a little too wet to store well, two types of additives can help – hay inoculants and hay preservatives.

Legitimate hay inoculants contain bacteria and sometimes ingredients like yeast and enzymes that reduce growth of microorganisms that cause hay to mold and spoil. Make sure to use hay inoculants, not silage inoculants that rarely work on hay.

Inoculants work best when baling hay at the highest possible moisture for safe storage without additives. But since windrows have uneven moisture and our estimates of moisture aren't always perfect, inoculants often protect against small errors and allow you to bale hay that is 3 to 5 points higher in moisture than would normally store safely. But no higher! All inoculants tested in University controlled studies failed frequently when moisture of hay was over 25 percent.

Tests show that the only products that permit consistent, reliable, safe baling of hay that is definitely too wet to bale are organic acids like propionic and acetic acid. Although these acids are more expensive than inoculants, when applied uniformly at correct rates to work properly, they do work.

Acid-treated hay still will heat some and become discolored, but most feed value will remain protected. Also, be sure to use the buffered forms of these acids to reduce the corrosion and odors that come from straight acids.

If rain often affects your hay making plans, hay inoculants and preservatives might be worth looking into. (SOURCE: Bruce Anderson, Extension Forage Specialist, University of Nebraska)

UPCOMING EVENTS

AUG 9-10 Kentucky Grazing School, UK Animal Research Center, Versailles
 SEP 1-4 National Hay Association Annual Conference, Lexington
 SEP 14 KFGC Field Day, Barren Co., KY
 SEP 23 UK Beef Bash, UK Research & Education Center, Princeton

2011

JAN 25-26 Heart of America Grazing Conference, Louisville
 FEB 24 31st Kentucky Alfalfa Conference, Lexington

Garry D. Lacefield

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 May 2010