



FORAGE NEWS

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

UK COLLEGE OF AGRICULTURE

RESEARCH FARM CELEBRATES 50 YEARS

In the early 1950s, former University of Kentucky College of Agriculture Dean Frank Welch charged a committee of northern Kentucky farmers to find a location suitable for a farm on which research could be conducted that would benefit the area. Led by O.D. Hawkins, the group found nearly 1,000 acres in the Eden Hills region. They purchased the land with donations from counties, organizations and individuals and then deeded Eden Shale Research Farm to the UK College of Agriculture in 1955.

A celebration honoring 50 years of research and service at Eden Shale is set for June 16 at the farm in Owen County. Festivities will begin at 3 p.m. EDT.

"For 50 years, Eden Shale Farm has been a place for a variety of demonstrations and tests related to the region's unique geography," said Nancy Cox, associate dean for research at the UK College of Agriculture. "The soil type is one-of-a-kind and would be hard to duplicate anywhere else in Kentucky. That presents challenges to farmers and livestock producers, and that's what Eden Shale Farm is all about – finding solutions for those challenges."

In the farm's early years, Eden Shale's first farm manager O.D. Hawkins discovered that the region's best use was for forages and livestock. Because of that, most research efforts have focused on pasture improvement and livestock management on the hills of the farm.

"Our main emphasis has been with forages and grazing and for the last 25 years we have been working on the endophyte problem in the fescue," said Joe Wyles, current farm manager at Eden Shale. "Instead of trying to get rid of it, we have actually managed our pastures to keep it so we can study it."

Celebration visitors will be able to take tours of farm areas focusing on beef, forage, grape and tobacco research at Eden Shale. Dinner will be served at 6 p.m., followed by a short program with speakers from the UK College of Agriculture, including current Dean M. Scott Smith, former Dean C. Oran Little, Committee Chair and College of Agriculture faculty member Don Ely and Director of Management Operations William O. Peterson. The College administration will make a presentation to Wyles recognizing his retirement and more than 35 years of service.

Guests will have a chance to reminisce about the past and look toward the future.

"Over the years, Eden Shale farm has been home to research in many areas of agriculture from grapes and Christmas trees to cattle and forages," said Ely, celebration committee chair and ruminant nutrition specialist for the UK College of Agriculture. "We are celebrating that heritage and looking forward to the next 50 years of working to meet the unique needs of the farmers in the Eden Shale area."

Eden Shale Research Farm is located in Owen County. From Interstate 75, take the Owenton/Corinth exit (No. 144). Travel west on Kentucky 330 approximately 12 miles. Turn right onto Kentucky 845 north and travel approximately 3 miles to Eden Shale Farm. For more information about Eden Shale's 50th anniversary celebration, contact Ely at 859-257-2717 or Joe Wyles at 502-484-5531. (SOURCE: Aimee Nielson, UK Ag. Communications Services)

MAINTAINING HEALTHY HORSE PASTURES (NEW POSTER)

A new poster publication has recently been released from UK and Virginia Tech. Developed by Chris Teutsch (VT) and Ray Smith (UK), the poster is designed to be displayed in agency offices, feedstores, and wherever horse owners frequent. The focus of the poster is the proper management and design of horse pastures to prevent overgrazing. Excellent photographs and figures supplement the text. The poster can be downloaded from the UK forage website www.uky.edu/Ag/Forage/ simply by looking under publications and going to the horse section. We hope to have laminated 3' x 4' posters available for distribution in the near future.

BARREN COUNTY CONTINUED AS CATTLE CAPITAL OF KENTUCKY

Barren County continued to have the largest number of cattle in Kentucky with 86,000 head on January 1, 2005. Warren was second with 65,000 head while Pulaski was third with 63,000 head. Kentucky ranked 13th in the nation with 2.25 million head, 3 percent below the previous year. All cattle and calves in the U.S. totaled 95.8 million head, up 1 percent from a year earlier. Texas had the largest cattle herd with 13.8 million head. Kansas, Nebraska, California and Oklahoma had cattle inventories of 5.00 million head or more on January 1, 2005.

Barren County also had the largest beef cow inventory in Kentucky with 35,000 head on January 1, 2005. Other top counties included Pulaski with 31,300 head, Warren with 30,700 head, Madison with 25,000 head and Bourbon with 23,500 head. Kentucky ranked 8th in the U.S. with 1.09 million head, the largest beef cow herd east of the Mississippi River. There were 33.1 million beef cows in the U.S., up 1 percent from January 1, 2004. Texas had 5.43 million beef cows, the largest inventory in the U.S. Other leading states included Missouri, Oklahoma, Nebraska and South Dakota. (SOURCE: Kentucky Agri-News, Vol. 24, Issue 6, March 2005)

TOWARD HIGHER QUALITY HAY

It's the time of year when hay is being cut and weather and radar watching take center stage. Whether producing hay for a cash market or whether the hay is going to be used in one's own livestock operation, it is critical to try and make the highest quality hay possible.

The first thing to do to ensure high quality hay is to cut when the nutritional stage and the maturity stage of the forage intersect. However, that is not always possible due to weather forecast.

Dairy hay is based on the testing of the forage once it is put into the bale. The higher the RFV the more valuable the hay is in a dairy ration. So, if the hay is cut at an early stage when the nutrients are at a high level then a small shower of rain dampens it, a rain may not leach enough nutrients out of the hay to deteriorate the quality that much thus making it still very suitable for a dairy cow. Color is not so crucial for the dairy cow.

Horse hay on the other hand is a different story. If the forecast is not so favorable this week for cutting hay, the decrease in nutrient value by waiting until next week is probably perfectly acceptable to the horse clientele. They would rather have green hay than bleached rained on hay. Color is extremely important to the horse owner.

So watching the weather is not just a pastime but a management tool that helps in the making of just the right hay for the customer you are trying to reach even if you are feeding it yourself. (Tom Keene, U.K. Hay Marketing Specialist)

HARVEST AND STORAGE METHOD AFFECTS ERGOT ALKALOID CONCENTRATION IN TALL FESCUE

Trials with Four Harvest and Storage Treatments – Tall fescue infected with the endophyte (>80%) was harvested in the autumn at the University of Missouri Southwest Experiment Station near Mt. Vernon, MO. Tall fescue was fertilized with N at 75 lb/acre in August, 2001, then clipped in mid-October. Four treatments were imposed: (1) green chop (control treatment); (2) ensiled forage; (3) hay; and (4) ammoniated hay. Green chop forage was frozen immediately after clipping. Ensiled forage was allowed to wilt to 55% moisture, then wrapped in air-tight plastic bags for 6 weeks. Hay was allowed to sun-cure to 16% moisture, then baled. Ammoniated hay was made by sun-curing hay to 16% moisture, wrapping dried hay in air-tight plastic bags, treating with 3% anhydrous ammonia, and storing for 6 weeks. Approximately 100 lb of dry matter was collected for each experimental unit. A 0.5 lb sub-sample was collected from each treatment, frozen, freeze-dried, ground to 1 mm, and analyzed with a commercial ELISA kit for ergot alkaloids (Agrinostics, Ltd., Watkinsville, GA).

Reducing Ergot Alkaloid Concentrations – The green chop tall fescue contained 1240 ppb ergot alkaloids and the ensiled tall fescue contained 972 ppb. These were statistically similar to one another. The hay and ammoniated hay contained much lower ergot alkaloid concentrations than the green chop and ensiled samples. Ergot alkaloid concentration in non-ammoniated hay averaged 373 ppb, a level lower than typical spring hay, probably due to its lack of endophyte-containing stems and seed heads. Ergot alkaloid concentration in ammoniated hay was 247 ppb and statistically similar to the non-ammoniated hay.

Though this study did not include a feeding trial, other research indicates that E+ tall fescue is toxic when ergot alkaloid concentrations reach these high levels. Tall fescue produces symptoms of toxicosis when ergovaline, the most highly concentrated ergopeptine alkaloid, reaches 200 to 300 ppb.

The high concentration of ergot alkaloids in silage offers an explanation for poor performance when calves are fed ensiled E+ tall fescue. In addition, it indicates that an entire class of alkaloids is preserved in the ensiling process, because concentrations in the silage were similar to those in the green chop. The low ergot alkaloid concentration in the ammoniated hay partly explains why livestock consuming ammoniated E+ tall fescue hay show few symptoms of fescue toxicosis. Producers feeding E+ tall fescue to livestock should expect high concentrations of toxins in pasture, green chop, and silage. However, they can reduce toxin concentrations by making hay or ammoniating hay. Follow-up studies are underway to determine if spring-harvested hay and

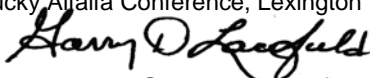
ammoniated hay contain significantly different concentrations of ergot alkaloids. (SOURCE: Adapted from Craig Roberts and Robert Kallenbach, Univ. of MO, Columbia and Nicholas Hill, Univ. of GA, Athens, 2002 Plant Management Network, Sept. 2002)

INTAKE, DIGESTION, AND N METABOLISM IN STEERS FED ENDOPHYTE-FREE, ERGOT ALKALOID-PRODUCING ENDOPHYTE- INFECTED, OR NONERGOT ALKALOID- PRODUCING ENDOPHYTE-INFECTED FESCUE HAY

ABSTRACT: A digestion and N balance trial was conducted to compare effects of traditional endophyte-infected (E+), endophyte-free (E-), and nontoxic endophyte infected (NE; MaxQ; Pennington Seed, Inc., Madison, GA) Jesup tall fescue (*Festuca arundinacea* Schreb.) hay on digestion and N retention in steers. Hay composition (DM basis) was as follows: E+ (10.8% CP, 59.9% NDF, and 29.4% ADF), E- (11.8% CP, 58.5% NDF, and 28.4% ADF), and NE (11.6% CP, 58.6% NDF, and 28.3% ADF). Eight Polled Hereford steers (initial BW 240 ± 9 kg) were used in a replicated 3 x 3 Latin square design, with an extra steer allotted to each square. Steers were fed ad libitum for 14 d, followed by a 9-d adaptation to restricted intake (based on the animal with the lowest ad libitum intake for the square) and a 5-d fecal and urine collection. Water intake (20.2 L/d) and urine output (7.40 L/d) did not differ (P > 0.10) during the collection period. Plasma prolactin concentration was less (P < 0.05) for steers on the E+ hay (8.83 ng/mL) than for those on the E- hay (18.03 ng/mL) and intermediate for steers on the NE hay (12.65 ng/mL). Endophyte-infected hay differed (P < 0.05) from E- and NE in ad libitum DMI (5.02 vs. 5.62 and 5.61 kg/d, respectively) and ad libitum DMI as a percentage of BW (1.86 vs. 2.06 and 2.06%, respectively). Restricted DMI during the fecal and urine collection was lower (P < 0.05) for E+ hay than for E- (5.04 vs 5.24 kg/d), and NE was intermediate (5.19 kg/d). Dry matter digestibility was lower (P < 0.05) for E+ compared with E- and NE (62.3 vs. 67.0 and 65.9%, respectively). Digestibility of ADF was lower (P < 0.05) for E+ than for E-, and was intermediate for NE (61.5, 66.0, and 63.9%, respectively). There were no differences for NDF, cellulose, or hemicellulose digestibilities among hay types. Crude protein digestibility was higher (P < 0.05) for E- and NE than for E+ (54.3 and 52.5 vs. 48.1%, respectively). Nitrogen retention was lower (P < 0.01) for E+ than for E- or NE (15.6 vs. 22.7 or 23.0 g/d, respectively). Hay type did not influence plasma urea N, urine urea N output, or urine urea N, as a percentage of urinary N. Results from this study indicate that E+ tall fescue hay was lower in ad libitum DMI, DM digestibility, and N retention than NE or E- hays with similar chemical composition. Hay from NE and E- fescue had nearly identical composition, and did not differ for any variable measured. (SOURCE: A.K. Matthews, M.H. Poore, G.B. Huntington, and J.T. Green, North Carolina State Univ., J. Anim. Sci. 2005. 83:1179-1185)

UPCOMING EVENTS

JUN 11-15	American Forage & Grassland Conference, Bloomington, IL
JUN 16	Eden Shale Field Day, Owenton
JUN 26-JUL 1	20 th International Grassland Congress, Dublin, Ireland
JUL 28	UK All Commodity Field Day, Princeton
2006	
JAN 25-26	Heart of America Grazing Conference, Cave City Convention Center
FEB 23	26 th Kentucky Alfalfa Conference, Lexington



Garry D. Lacefield
Extension Forage Specialist
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