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Forage News [2004-07]

University of Kentucky Department of Plant and Soil Sciences

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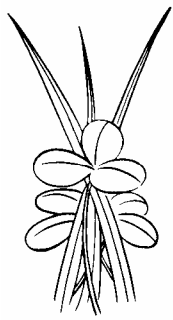


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FORAGE NEWS

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JULY 2004

Garry D. Lacefield, Extension Forage Specialist • Christi Forsythe, Secretary

**HAPPY 4TH OF JULY
LET FREEDOM RING**



WARREN THOMPSON RETIRES FROM ABI

Mr. Warren Thompson, National Forage Specialist, retired July 1 from ABI after 30 years of distinguished National Leadership in Forages. This makes Warren's second retirement. He retired from the University of Kentucky in 1973 as Extension Forage Specialist after over 30 years of service to Forages in Kentucky. Friends and colleagues from throughout the USA and abroad honored Warren with a surprise "Tribute to a Forage Legend," at the American Forage and Grassland Council Annual Meeting in Roanoke, Virginia. Warren is retiring "again" but "not quitting", (forages are in Warren's blood). We wish Warren and Betty the very best.

SEEDED BERMUDAGRASS: FILLING IN THE SUMMER SLUMP

Tall fescue is the principal pasture grass in the transition area between cool temperate and subtropical zones of the United States. In Virginia, tall fescue provides the pasture base for more than 1.65 million cows and calves. A major limitation of tall fescue, along with other commonly used cool-season grass species, is decreased forage production during the summer months. This slump in forage production could be filled in by bermudagrass. However, bermudagrass use has been limited by problems associated with establishment. Traditionally, improved bermudagrasses have been vegetatively propagated. In Virginia, there is neither a source of sprigs nor the specialized equipment needed for successful establishment. Newly available seeded varieties may facilitate the adoption of bermudagrass since they can be established like any other small seeded forage crop. However, no information is available on the performance of these varieties in the northern transition zone of the United States. This study was designed to evaluate the yield, nutritive value, and persistence of newly released seeded bermudagrasses. Initial results show that seeded bermudagrass was able to rapidly establish and produce a significant amount of forage the seeding year. The first production year showed that seeded bermudagrasses yielded well in spite of a significant drought stress. More data over the next several years will be collected to verify the long-term persistence and productivity of these varieties. (SOURCE: *AFGC Forage Progress*, May 2004)

BILL TALLEY RECEIVES AFGC MERIT AWARD

Mr. Bill Talley, Past President of our Kentucky Forage & Grassland Council and Vice President of the American Forage & Grassland Council received the AFGC Merit Award at the Awards Banquet in Roanoke, Virginia on June 15. Bill is currently Co-Owner and Marketing Director of Summit Seeds. Congratulations Bill!!!

KENTUCKY STUDENTS WIN FIRST AFGC FORAGE BOWL

CONGRATULATIONS to Adam Massey and Jeremy Kessens, both Agriculture students at Western Kentucky University, for winning the first American Forage and Grassland Council Forage Bowl. The contest was held in Roanoke, Virginia in June. Coach for the WKU Team is Dr. Byron Sleugh. CONGRATULATIONS Adam, Jeremy and Dr. Sleugh.

KFGC FIELD DAY

Our thanks to field day host Mr. Russell Hackley, County Agent Jack Ewing, Chief Cook J.H. Manion, field day committee, speakers and sponsors along with all the fine folks in Grayson County for a wonderful field day on June 24, 2004.

YIELD AND PERSISTENCE OF BOLTING- RESISTANT CULTIVARS OF CHICORY IN FORAGE PLOTS

A challenge in managing chicory (*Cichorium intybus* L.) as a forage is dealing with "bolting" or rapid elongation of flower stalks in spring. Cultivars with reduced bolting potential are available. We conducted a field-plot experiment at Rock Springs, PA during 1999 to 2001 to evaluate commercial forage cultivars and European root-type cultivars of chicory for yield, bolting, and persistence under clipping. 'Grasslands Puna', 'LaCerta', and 'Forage Feast' forage-type chicory, and 'Dagerrad', 'Halle', and 'Katrein' root-crop chicory cultivars were sown in field plots in May 1999. Plots were cut every 4 wks during 2000 and 2001. Dry matter yield was determined along with a visual estimate of flower stalk formation. Cultivars were similar in dry matter yield in 2000 (average of 6700 lb dry matter/ac). Grasslands Puna and LaCerta yielded more dry matter than other cultivars in 2001. More than 80% of LaCerta chicory plots bolted during both years and LaCerta suffered an 89% loss of plants during 1999 to 2002. Less than 50% of Forage Feast and the root-type chicory plants bolted, but these cultivars did not produce as much dry matter and were less persistent than Grasslands Puna. Grasslands Puna maintained the highest plant density (12 plants ft²), but up to 90% of plants bolted in 2000. The results indicate that genetic selection for

reduced bolting in chicory would be useful in developing new cultivars for grazing purposes provided that persistence is not compromised. (SOURCE: AFGC Forage Progress, May 2004)

MANAGEMENT OF BEEF CATTLE TO ALLEVIATE FESCUE TOXICOSIS

Transporting cattle exhibiting symptoms of fescue toxicosis can result in a combination of stresses that often leads to high mortality. A series of experiments conducted at the USDA-ARS Dale Bumpers Small Farms Research Center evaluated methodologies to reduce the severity of toxicosis and improve health status of cattle prior to being transported. One experiment grazed yearling steers on tall fescue during the spring months to induce toxicosis and then compared between groups that in early summer were placed on eastern gamagrass with those that remained on tall fescue and were fed a 2.27 kg steer⁻¹ d⁻¹ of a concentrate ration. Calves moved to eastern gamagrass, had serum prolactin levels increase from <20 to >100 ng ml⁻¹ between d 0 and d 28 and over 80% had lost their rough coats by the end of summer grazing. Another experiment conditioned yearling steers on K31 tall fescue to induce toxicosis and subsequently assigned cattle to pens to evaluate effects of implanting and plane of nutrition on rate of recovery from toxicosis. Rectal temperatures declined to normal temperatures and serum prolactin increased and stabilized within 3 to 4 days following removal from tall fescue. Implanting and plane of nutrition did not influence rates of change in rectal temperature or serum prolactin. Although complete alleviation of fescue toxicosis was unlikely, results indicated removing cattle from tall fescue and excluding tall fescue from their diets for 3 or 4 d can reduce the severity of toxicosis and improve health status. (SOURCE: G.E. Aiken, et al. IN Proceedings 5th International Symposium on Neotyphodium/Grass Interaction, Fayetteville, Arkansas, May 2004)

COMPARISON OF THREE TALL FESCUES CONTAINING NOVEL ENDOPHYTES FOR STOCKER CATTLE WEIGHT GAIN

Discoveries of endophytes that produce little or no ergot alkaloids and their use in novel associations with tall fescue varieties can augment the forage value of tall fescue for ruminants. Plants containing non-ergot-alkaloid-producing or novel endophytes should combine the persistence advantage of endemic endophyte-infected tall fescue with the animal performance advantage of an endophyte-free tall fescue. The University of Arkansas and University of Missouri have jointly produced the population HiMag-11, which contains a novel endophyte in a tall fescue closely related to 'Kentucky 31'. 'Jesup' MaxQ[®] is a joint development of the University of Georgia and AgResearch, New Zealand, which contains novel endophyte AR542. These two tall fescues have not been tested together for animal performance. The following study tests stocker cattle performance on both varieties in comparison with the commonly grown Kentucky 31 containing its toxic, endemic endophyte.

Beginning body weight in September did not differ (P=0.97) among forage types. On d 28, body weight of cattle grazing HM11 was greater (P<0.05) than cattle grazing K31, but cattle grazing Jesup AR542 did not differ (P>0.09) from either. Body weight on d 56, 84, and 98 of cattle grazing HM11 and Jesup AR542 was greater (P<0.05) than cattle grazing K31, but the body weight of cattle grazing HM11 did not differ (P>0.58) from ones grazing Jesup AR542. By d 98, the average body weight of cattle that had grazed HM11 and Jesup AR542 was 8.3% heavier than cattle that had grazed K31. Average daily gain between d 0 and 28 differed (P=0.05) between K31 and HM11, but averaged daily gain for Jesup AR542 did not differ (P>0.09) from either.

Between d 29 and 56, the average daily gain of cattle grazing HM11 and Jesup AR542 was greater (P<0.01) than for cattle grazing K31, but the average daily gain of cattle grazing HM11 did not differ (P>0.93) from the cattle grazing Jesup AR542. The average daily gain between d 57 and 84 did not differ (P>0.19) among forage types. Average daily gain between d 85 and 98 differed (P=0.02) between K31 and Jesup AR542, but average daily gain for HM11 did not differ (P=0.13) from K31 or Jesup AR542. The overall average daily gain (d 0 and 98) of cattle

grazing HM11 and Jesup AR542 was greater (P=0.02) than for cattle grazing K31, but HM11 did not differ (P>0.59) from Jesup AR542.

As a result of the superior performance of the cattle grazing tall fescues infected with these novel endophytes, they gained 72 kg/ha more (P>0.05) than cattle grazing K31, constituting a 45% increase in gain per hectare. Differences in per-animal and per-hectare gain were similar to those noted for cattle grazing tall fescues infected with endemic and novel endophytes in Georgia, Alabama, Arkansas, Missouri, and Tennessee. A review of the literature showed similar average differences in average daily gain and gain per hectare between tall fescues infected with endemic and novel endophytes. They also reported that the cost of establishment required 3 to 7 yr (depending on assumptions made) to return on the investment of establishment.

Tall fescue varieties infected with novel endophytes produced forage that when grazed by stocker cattle produced average daily gains that were 45% faster and cattle that were 8.3% heavier than cattle grazing tall fescue infected with the endemic endophyte in Kentucky 31. (SOURCE: S.A. Gunter, et al. IN Proceedings 5th International Symposium on Neotyphodium/Grass Interaction, Fayetteville, Arkansas, May 2004)

PERSISTENCE OF HIMAG TALL FESCUE INOCULATED WITH NONTOXIC ENDOPHYTES

The objective was to determine whether any of four strains of endophyte (*Neotyphodium coenophialum*), which lacked ergot alkaloids, could improve persistence of tall fescue in a stressful environment. Tall fescue population HiMag was inoculated with four strains of nontoxic endophyte and seed was increased. Pastures (0.4 ha each) were planted (fall 1998) in extreme southwest Arkansas in three replications for each of the four strains. Additionally, a negative control consisted of endophyte-free HiMag, and a positive control was Kentucky 31 with its wild-type (toxic) endophyte, for a total of 18 pastures. The fields were hayed and grazed whenever forage was available from 1999 to 2004, with emphasis on completely grazing out the available forage during summer. When grazed, a herd of beef cattle rotated among the six treatments within a replication. Percentage ground cover was determined by a combination of transect and grid quadrant counts. Initial stands in the spring of 1999 after planting averaged 90% ground cover. From then on, cover tended to drop faster and level out at a very low level sooner in endophyte-free HiMag than in all the other endophyte-infected treatments. When analyzed as a combined group within sampling dates, HiMag tall fescue with non-toxic strains were not different from the wild-type KY31 on any date. Ground cover was significantly greater (P<0.05) with the nontoxic endophytes and KY 31 than with endophyte-free HiMag in summer of 2003 and early 2004. Bermudagrass [*Cynodon dactylon* (Pers.)] soon reinvaded all of the stands after tall fescue establishment. By 2002, one replication had become completely overrun with bermudagrass and all the tall fescue had died out. Results indicated that the tested endophyte strains had the ability to promote host persistence in a very stress-prone environment. (SOURCE: C.P. West and S.A. Gunter IN Proceedings 5th International Symposium on Neotyphodium/Grass Interaction, Fayetteville, Arkansas, May 2004)

UPCOMING EVENTS

- OCT 3-5 Fourth Eastern Native Grass Symposium, Lexington
- OCT 26 5th Kentucky Grazing Conference, Bowling Green
- 2005
- FEB 24 25th Kentucky Alfalfa Conference, Cave City Convention Center

