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Forage News [2001-07]

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FORAGE NEWS

In this month's issue:

July 2001

Garry D. Lacefield and Jimmy C. Henning, Extension Forage Specialists ● Christi Forsythe, Secretary

ROBINSON STATION CELEBRATES 75TH ANNIVERSARY

The University of Kentucky's, College of Agriculture will be celebrating the 75th Anniversary of the Robinson Station, located in Quicksand, KY, with an All Commodity Field Day on July 19, 2001. Registration will begin at 1:00 p.m. with exhibits and field demonstrations to follow until 6:00 p.m. A special dedication ceremony lead by Dean Smith will take place at 3:00 p.m. Tours featuring applied field research and educational programs in Agronomy, Horticulture and Forestry will begin at 3:30 and end with a meal served at 7:00 p.m. Is there really any serious agriculture in eastern Kentucky? Come see for yourself. You won't be disappointed. Call David Ditsch or Mason Morrison @ 606-666-2438 for additional information.

Field Day Stops

Tour A - Livestock Forage Research (60 minutes)
1. Bermudagrass: Establishment and Management - Dr. Monroe Rasnake
2. Forage Variety Testing Program and Trials: Red clover, Tall Fescue, Orchardgrass, and Summer Annuals - Dr. Jimmy Henning and Mr. Robert Spitaleri
3. Corn: A Grazing Crop for Kentucky - Dr. John Johns
4. Weed Control Options for Pastures - Dr. J.D. Green and Mr. Michael Marshall

Tour B - Horticulture Research (60 minutes)
1. Bell and Hot Pepper Cultivar/Bacterial Leafspot Trial - Dr. Brent Rowell
2. Blackberry/Blueberry Cultivar Evaluation - Dr. John Strang
3. Hydranga Cut Flower Cultivar Trial - Ms. Sharon Bale
4. Half Runner Beans on Black Plastic Demonstration - Mr. David Neace

Tour C - Agronomy/Horticulture Research (60 minutes)
1. All American Vegetable Garden - Dr. Richard Durham
2. Cantaloupe Cultivar Evaluation - Dr. Terry Jones
3. Fertigation Systems for High Value Cash Crops - Dr. David Ditsch
4. No-till Burley Tobacco Production - Dr. Bob Pearce
5. Breeding for Blue Mold Resistence in Burley Tobacco - Mr. Jimmie Calvert
6. Actigard/Tomato Fungicide Evaluation - Ms. Amanda Ferguson

Equipment Demonstrations (1:30-3:30 p.m.)
1. Round Bale Silage - Dr. Mike Collins
2. Bermudagrass Sprig Harvesting and Planting Equipment - Mr. Wade Turner
3. ATV Mounted Soil Sampling Equipment - Mr. Wade Turner
4. Fungicide Applications for High Value Cash Crops: Equipment, Techniques and Procedures - Dr. Bill Nesmith
5. Small Farm Hay Equipment - Betty King
6. Greenhouse Tour - William Turner

ECONOMIC BENEFITS OF STOCKPILED FESCUE ON TWO NORTHEAST ARKANSAS FARMS

Many beef producers in Arkansas begin feeding hay in November and continue through March. Since winter hay feeding is one of the most expensive costs associated with beef production, profitability could be increased by increasing grazing days in winter. Tall fescue is the most common perennial cool-season grass in the state and retains good quality into late winter. Stockpiling fall growth of fescue for winter grazing is an under-used practice that can significantly reduce winter hay feeding. Demonstrations were conducted as part of the Arkansas Beef Improvement Program on two Arkansas farms using stockpiled fescue for feeding dry beef cows and stocker calves during winter. Fescue stands had been weakened by summer and fall drought in 1999, but producers still saved over $13 per cow and over $20 per stocker calf by grazing stockpiled fescue instead of feeding hay and supplement. Forage samples collected from October through December indicated that crude protein content of the fescue remained above 20% and TDN content was greater than 65%. Quality in February was 13% crude protein and 61% TDN, both of which were greater than most hay harvested during summer. *(W. Neal, J.A. Jennings, T. Barnett, S. Gadberry, and T. Troxel, Univ. of AR, IN AFGC Proceedings/Reports, Vol. 10, April 2001)*

PERFORMANCE OF CATTLE ON "HIMAG" TALL FESCUE INFECTED WITH NOVEL ENDOPHYTES

The endophyte fungus in tall fescue is widespread and produces toxins that reduce animal performance, causing in excess of half a billion dollars of annual losses in the U.S. However, the endophyte benefits the tall fescue plan by enhancing its drought tolerance and resistance to a wide range of pests. Recently, strains of the endophyte have been discovered that do not produce toxins deleterious to livestock, but rather retain the benefits to the plant. These are referred to as novel endophytes. Field testing of novel endophytes is important for verifying their safety to livestock and to determine whether they promote stand persistence where endophyte-free fescue thins out. We conducted grazing trials with beef steers in southwest Missouri and northwest Arkansas, and a plant persistence trial in southwest Arkansas to test these factors. Average daily weight gains of cattle on

novel-endophyte fescue treatments were the same as that of endophyte-free fescue (1.3 lb/d) and nearly double that of the toxic, endophyte-infected fescue (0.7 lb/d). Cattle on novel endophytes gained the same amount of weight as cattle on endophyte-free fescue and showed no symptoms of fescue toxicosis. The novel endophytes tested are apparently safe for growing beef cattle and support weight gains equal to endophyte-free tall fescue. Early results show that novel endophytes tended to improve stand persistence in southwest Arkansas over endophyte-free tall fescue. *(C.P. West, E.L. Piper, M.E. Nihsen, S.A. Gunter, K.A. Cassida, D.A. Spiers, C.A. Roberts, and R.C. Crawford, Univ. of AR and Univ. of MO, IN AFGC Proceedings/Reports, Vol. 10, April 2001)*

Determination of Pregnancy Outcome of Mares Grazed on a Toxic-Free Endophyte-Infected Tall Fescue (MAXQ)

Three 12.4 acre pastures were established in the Fall of 1999 with three experimental tall fescue cultivars. Each pasture was seeded with either endophyte-free (E-), wild type endophyte-infected (E+) or non-toxic endophyte infected (NTE+) fescue. Fifteen pregnant mares (5/treatment) grazed treatment pastures from March 1 through 21 days postpartum (4-15 to 6-15). Mares were monitored daily for signs of fescue toxicosis, and blood samples were collected thrice-weekly until approximately 30 days prior to expected day of delivery when blood was collected 6 times per week through 15 days postpartum. The blood samples were subsequently analyzed to determine Relaxin and prolactin (PRL) hormone levels. Also, placental and fetal well-being was evaluated weekly by ultrasonography. Urine samples were collected weekly during the last month of pregnancy and both milk and urine samples were collected weekly for 3 weeks pp and stored at –20° C until retrieved for ergot alkaloid analysis. Following parturition, placental membranes were submitted for necropsy.

Herbage samples were collected weekly for ergot alkaloid analysis and tiller samples were taken to determine the percent of endophyte infestation of each pasture. The preliminary results indicated that pasture endophyte infestation rates were 1.5%, 92%, and 91% in May for E-, NTE+ and E+ pastures, respectively. Of the infected tillers sampled in each pasture during May, 6% of the E-, and NTE+ samples were positive for ergot alkaloids while 100% of the tillers in the E+ pasture tested positive. Tall fescue stands were 32% for E-, 96% for NTE+, and 95% for E+ pastures on 3-15-00 and 1% (E-), 41% (NTE+), and 27% (E+) on 9-27-00 after an extremely dry and hot summer (<2" rainfall and 27 days > 100° F) during July, August, and September, 2000. Stand decline or survival in both NTE+ and E+ were related to soil type and landscape features.

Overall, only mares grazing E+ fescue showed symptoms consistent with "fescue toxicosis", which included placental thickening (2 mares), retained placenta (3 mares) and poor mammary gland development (4 mares). In addition, two mares experienced difficulties at delivery, and one mare aborted (~285 days gestation) within three weeks of being placed on the E+ pasture. Pathology results indicated varying degrees of placental thickening and multi- focal chorionic epithelial necrosis in mares grazed on the E+ pasture. There were no significant differences in prolactin hormone concentrations between the three treatment groups overall. However, mares grazing the E+ pasture were treated with domperidone (dopamine receptor antagonist) 7 to 10 days post anticipated date of foaling due to signs of poor mammary gland development. This may have masked the effect of grazing E+ fescue on PRL concentrations in these mares. Peak PRL serum concentrations of mares at time of delivery were 33.9 ng/ml (E+ pasture), 64.6 ng/ml (E-) and 57.0 ng/ml (NTE+) pastures. Analysis of urine showed trace levels of ergot alkaloids in mares grazing E- (1.0 to 8.5 ng/mg creatinine) and NTE+ (1.5 to 13.3 ng/ml creatinine) pastures while greater concentrations were detected in mares grazing E+ fescue (15.6 to 69.3 ng/mg creatinine). **These preliminary findings suggest that there is no health risk to grazing pregnant mares on non-toxic endophyte-infected tall fescue**. *(Peter Ryan, Brian Rude, Beth Warren, Leroy Boyd, David Lang, Robert Elmore, Ryan Given, Dan Scruggs and Richard Hopper, MS State Univ. IN Alabama CES Timely Information Newsletter)*

Cutting Height to Maximize Yield and Quality

Alfalfa was harvested at 2, 4, and 6-inch heights. The summary of the results were:

1. Yield increased as cutting height decreased.
2. For every inch decrease in cutting height, forage relative feed value declined by 4 units.
3. Averaged over the whole season, milk yield increased by 900 lb/acre for each 1-inch reduction in cutting height.

(Dan Wiersman and Ron Weiderholt, Univ. of WI, IN Pennsylvania Forage & Grassland News, Vol. 11, No. 3, Summer 2001)

Sampling Medium Rectangular Bales: How Many Cores Are Enough?

The quality of hay can vary from bale to bale or even within bales. Several samples per lot of hay are needed to make sure that the lot is accurately represented and that the price is fair. Yet, testing many samples is costly. How many samples per lot are enough?

All of our testing was done on 900 lb rectangular alfalfa hay bales. We took at least six samples per bale from bales in three different lots of hay, including one entire truckload or 55 bales. We also chose a few bales for intensive sampling, where we took 54 samples from each bale in a grid pattern covering the entire bale. We sampled with a hay probe that was 14 inches long. With so many samples, we were able to map out the pattern of forage quality variation within a bale and within a hay lot. We used statistical methods to calculate how many bales you need to sample to get accurate results from the forage testing laboratory.

Conclusions

- There was no consistent pattern of leaf and stem packing within the bales. That means you can take samples from any point on a medium rectangular bale.
- It is most efficient to take one sample per bale.
- When you are sampling an entire lot of hay, you will need at least 12 bales (each sampled once) to get CP results within 1.2 of the true CP percentage. You will need at least 7 bales (each sampled once) to get RFV within about 8 points of the true RFV. Sampling more bales than this may not give you more accurate results because of the error inherent in laboratory analysis.

(C. Sheaffer, J. Halgerson, and J.G. Jewett, Univ. of MN IN Pennsylvania Forage & Grassland News, Vol. 11, No. 3, Summer 2001)

Upcoming Events

JUL 19	UK Field Day, Quicksand
OCT 16-18	Grazing School, Princeton
NOV 27	Kentucky Grazing Conference
2002	
JAN 11	Forages at KCA, Bowling Green
FEB 21	XXII Kentucky Alfalfa Conference, Cave City

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