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Forage News [1998-04]

University of Kentucky Department of Plant and Soil Sciences

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FORAGE NEWS

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

HENNING ELECTED AFGC PRESIDENT

Dr. Jimmy Henning, Extension Forage Specialist and co-editor of Forage News was elected President of the American Forage and Grassland Council at their annual conference in Indianapolis this month. We congratulate Dr. Henning and wish him the very best as he leads this important National Organization.

CRP - NATIVE PLANT ESTABLISHMENT

Several UK Extension Specialists - Tom Barnes-wildlife; Jimmy Henning-forages; Lloyd Murdock-soils; and I cooperated with NRCS, Kentucky Fish and Wildlife and Kentucky Division of Forestry to conduct training sessions on establishing wildlife friendly cover on Conservation Reserve Program land. Day-long sessions were conducted at Princeton and Bardstown primarily for county-level agency personnel who will be advising farmers about CRP plantings. About 80 people attended at each location. There was lots of good information and diverse philosophies shared by the participants.

Extension agents especially need to be aware that farmers will be sending in soil samples for CRP land and many will need fertilizer recommendations for these types of plantings. If the plantings include native warm season perennial grasses such as indiangrass, big bluestem, switchgrass, etc., fertilizer recommendations should be taken from page 21 of AGR. (*Monroe Rasnake*)

INFLUENCE OF SOIL TEXTURE ON ALFALFA AUTOTOXICITY

ABSTRACT—A rotation interval is recommended between alfalfa (*Medicago sativa* L.) stands to avoid negative effects of autotoxicity. Differences in soil properties such as texture can strongly influence allelopathic expression in plants and may explain the large variation in research results and recommended rotation intervals among states. A laboratory experiment was conducted to determine the influence of soil texture on alfalfa autotoxicity. Alfalfa extracts were passed through leaching columns filled with topsoil of either Sarpy fine sandy loam (mixed, mesic Typic Udipsamments) or Carlow silty clay loam (fine, smectitic, mesic Vertic Endoaquolls) and fractions were collected. Control columns for each soil were leached with distilled water only. Sequential fractions were added to 50 alfalfa seed in petri dishes. Radicle length and percentage germination were measured after 3 d. Active fractions

reduced radicle growth more than percentage germination in both soils. The autotoxic chemical or chemicals moved through the Sarpy soil faster than through the Carlow soil. Fifty percent more water was required to move the active fraction of the extract through 10-cm columns of the Carlow soil than the Sarpy soil. Maximum autotoxicity within a fraction was greater for the Sarpy soil, but the effects appeared in more fractions for the Carlow soil. The results indicate that similar amounts of the autotoxic factor in sandy soil will have a greater influence on alfalfa seedling growth than in the clay soil. Conversely, the same amount of rainfall will leach the autotoxic factor from a sandy soil while only diluting it in a clay soil. Soil texture and rain water throughput may interact to affect length of rotation intervals needed for successful reseeding of alfalfa. Field research is needed to determine if rotation intervals can be modified based on soil texture and irrigation or expected rainfall. (*John A. Jennings and C. Jerry Nelson IN Agron. J. 90:54-58 [1998]*)

GRAZING MANAGEMENT EFFECTS ON YIELD AND PERSISTENCE OF ALFALFA

The introduction of alfalfa cultivars with improved grazing tolerance that were developed under continuous grazing has increased interest in using alfalfa as a component of grazing systems either in pure stands or mixtures. This raises the question whether the newer, grazing-tolerant cultivars exhibit any advantage over other, well adapted cultivars when a rotational stocking system is employed. Yield and persistence of 13 alfalfa cultivars were evaluated using four harvest management systems. Harvest managements included 1) Haying all four harvests at 1/10 bloom; 2) Grazing all four harvests at 1/10 bloom; 3) Haying the first and last harvests and grazing the two mid-summer harvests; or, 4) Grazing the first and last harvests and haying the two mid-summer harvests. Grazing all harvests reduced crown and stem populations at the end of two years of study. Forage yield did not differ among the harvest treatments. The major differences in both yield and persistence were found among cultivars. The adapted cultivars Aggressor and Apollo Supreme exhibited the best yield throughout the study and the best stem population at the end of the study while Vernal and Cody exhibited poor yield and stand persistence. The use of a combination grazing/haying scheme can provide additional control over forage quality by allowing the producer to harvest alfalfa by

grazing at peak quality, even if weather conditions are not suitable for hay curing. Mid-summer grazing eliminates the potential of blister beetles in hay and also provides an efficient means of making mid-summer harvests without fuel and machinery costs. (Richard E. Joost, et al., IN AFGC Interpretive Summaries, March 1998)

LENGTH OF THE GRAZING PERIOD: DOES IT REALLY MATTER?

Providing grazing managers with a better understanding of the interface of grazing animals with grasslands has been the goal of our research and education program over the past decade. Maintaining efficient pasture and animal production in rotational grazing programs requires management decisions to be timely and on target. We have conducted several studies where we have evaluated forage intake by grazing beef cattle on different types of pastures. One of the areas we have focused on is how the length of the grazing period affects forage supply and consumption of forage by the grazing animal. Our results indicate that forage intake is maintained at desirable levels in grazing periods less than four days duration more readily than in longer grazing periods of up to ten days. On the average forage supply should be maintained above 1800 lb/acre, but a lower target can be used for grazing periods less than two days while a higher target must be maintained for grazing periods longer than four days. Knowing these types of relationships can allow cattle producers to do a better job of maintaining animal performance through changing pasture conditions. (J.R. Gerrish, et al IN AFGC Interpretive Summaries, March 1998)

COATED ALFALFA SEED ESTABLISHMENT AND YIELD TRIALS IN COMMERCIAL FIELDS IN CENTRAL MINNESOTA

When planting coated alfalfa seed, many farmers question whether they will have to increase their planting rate to achieve the same plant density because coated seed has one third less pure live seed (PLS) per pound than raw seed. In 1996, strip trials were planted at 13 locations in central Minnesota to compare coated seed (Rhizo-Kote XL®) and Apron® (metalaxyl) fungicide to preinoculated raw seed with Apron® (PI+A) for stand establishment and stand survivability. In 1997, strip trials were planted at two central Minnesota locations to compare RKXL to PI+A for stand establishment and yield. One of the 1997 strip trial locations incorporated the use of GPS technology in what is believed to be the pioneering use of this equipment for site-specific farming of alfalfa. A Rockwell VISION system was used to precisely map variety plantings, identify the position for initial and subsequent stand counts, and accurately measure alfalfa yields on the go in real time GPS. Stand counts in 1996 indicated RKXL plots has 7.5% more plants/ft² at establishment and 11.1% more plants at the end of the season compared to the PI+A plots. In 1997, early stand counts indicated that RKXL had 7.8% more plants/ft² than the PI+A plots. Yield data from 1997

showed that RKXL produced 19.8% more dry matter and had a 4.3% higher relative feed value than the PI+A treatment. (J.G. Canestrino, et al IN AFGC Interpretive Summaries, March 1998)

ALFALFA HAY STORAGE LOSSES AS INFLUENCED BY BALE TYPE AND STORAGE METHOD

The Minnesota Valley Alfalfa producers (MnVAP) cooperative has proposed separating alfalfa leaves from stems and using the stems for production of electrical energy and leaves as a protein supplement. Alfalfa actively grows in Minnesota for about 5 months; however, alfalfa will be needed on a year-around basis for the MnVAP plant. Thus, the effect of storage method and bale type on alfalfa dry matter and quality losses is important for both the alfalfa grower and the MnVAP cooperative.

A study was conducted to evaluate the effects of 2 bale types: 1) 3x4x8 foot rectangular bales, and 2) 5x6 foot round bales and 4 storage methods: 1) under a pole barn, 2) outside on the ground, 3) outside on gravel, and 4) outside on gravel and covered on alfalfa hay dry matter losses, leaf and stem components and forage quality. Few differences were found between bale types. However, storage method impacted hay dry matter losses and hay quality. Differences among storage methods for crude protein were generally small except for hay that was in contact with the ground when stored on pasture. Changes in alfalfa protein content, particularly leaf protein would impact the value of a leaf meal protein supplement.

The effect of storage method on estimated energy content was greater than the effect of storage method on crude protein. Declines in energy content would effect the value of a protein supplement but would have a greater impact on the value of alfalfa as a biomass energy source. When the hay used in this study was sold, price discounts of \$30.00/ton for hay stored uncovered in this study indicate a strong economic benefit to storing hay under cover. (M.D. Werk, et al., IN AFGC Interpretive Summaries, March 1998)

UPCOMING EVENTS

MAR 8-10 AFGC, Indianapolis, IN
APR 21-23 Kentucky Grazing School, Owenton
JUN 18 KCA/KFGC Field Day, Barren County
JUL 16 U.K. College of Agriculture All Commodity Field Day, UKREC, Princeton, KY

Garry D. Lacefield
APR 98 Extension Forage Specialist